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1200 Pennsylvania Avenue, N.W.
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Office of Land and Emergency Management

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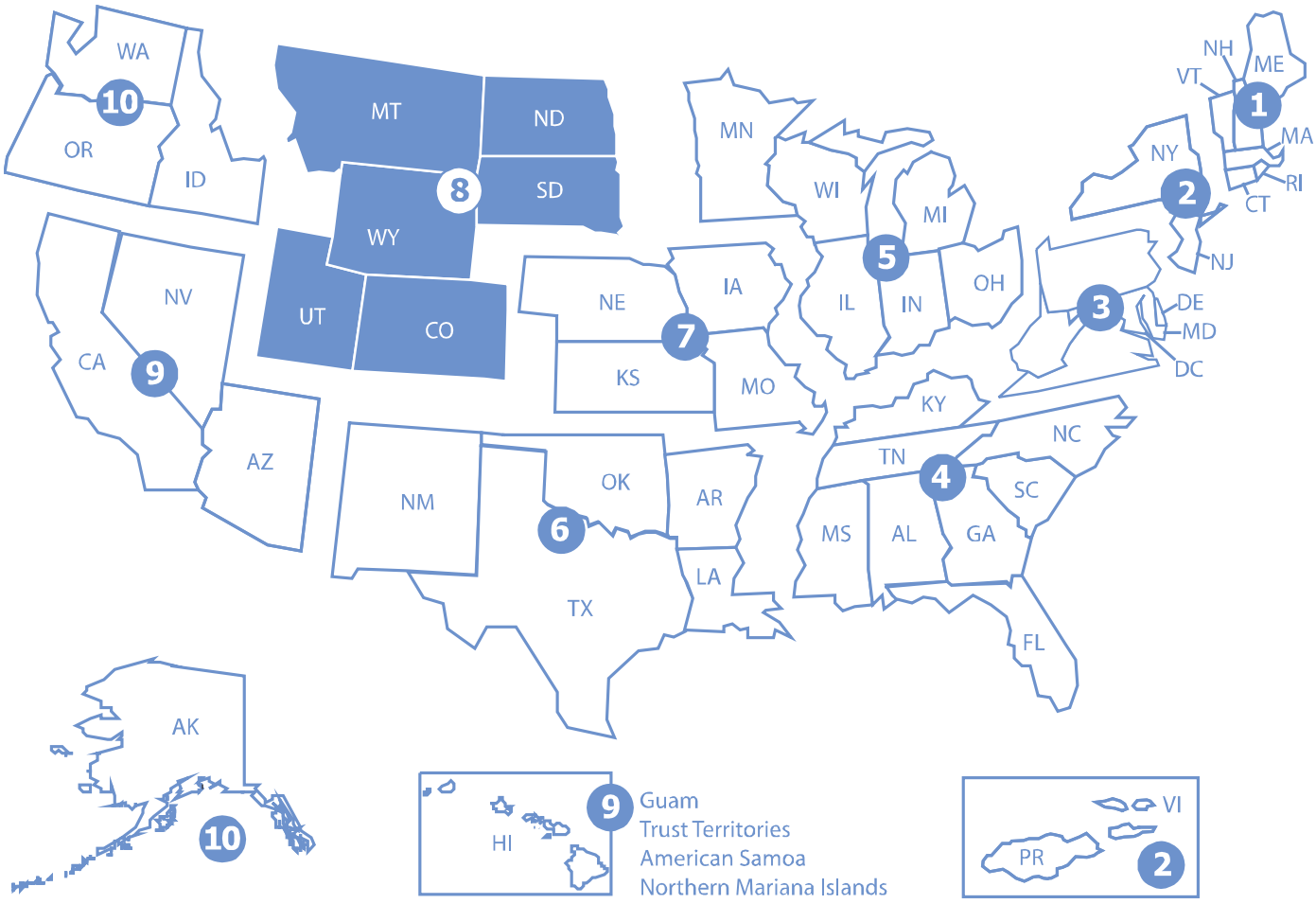
Support Document for the Revised National Priorities List Final Rule – Anaconda Aluminum Co Columbia Falls Reduction Plant



Support Document for the Revised National Priorities List Final Rule

Anaconda Aluminum Co Columbia Falls Reduction Plant

September 2016

Site Assessment and Remedy Decisions Branch
Office of Superfund Remediation and Technology Innovation
Office of Land and Emergency Management
U.S. Environmental Protection Agency
Washington, DC 20460

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Attachment 1: Montana Department of Environmental Quality (DEQ) Permitting and Compliance Division Montana Pollutant Discharge Elimination System (MPDES) Fact Sheet
Attachment 2: Discharge Monitoring Data Report for Permit No. MT0030066
Attachment 3: USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-media, Multi-Concentration) ISM01.2, January 2010

Executive Summary

Section 105(a)(8)(B) of CERCLA, as amended by SARA, requires that the EPA prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. An original National Priorities List (NPL) was promulgated on September 8, 1983 (48 FR 40658). CERCLA requires that EPA update the list at least annually.

This document provides responses to public comments received on the Anaconda Aluminum Co Columbia Falls Reduction Plant site, proposed on March 26, 2015 (80 FR 15972). This site is being added to the NPL based on an evaluation under EPA's Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in September 2016.

Introduction

This document explains the rationale for adding the Anaconda Aluminum Co Columbia Falls Reduction Plant site in Columbia Falls, Montana to the National Priorities List (NPL) of uncontrolled hazardous waste sites and provides responses to public comments received on this site listing proposal. The EPA proposed this site to the NPL on March 26, 2015 (80 FR 15972). This site is being added to the NPL based on an evaluation under the Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in September 2015.

Background of the NPL

In 1980, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Sections 9601 *et seq*. in response to the dangers of uncontrolled hazardous waste sites. CERCLA was amended on October 17, 1986, by the Superfund Amendments and Reauthorization Act (SARA), Public Law No. 99-499, stat., 1613 *et seq.* To implement CERCLA, EPA promulgated the revised National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300, on July 16, 1982 (47 FR 31180), pursuant to CERCLA Section 105 and Executive Order 12316 (46 FR 42237, August 20, 1981). The NCP, further revised by EPA on September 16, 1985 (50 FR 37624) and November 20, 1985 (50 FR 47912), sets forth guidelines and procedures needed to respond under CERCLA to releases and threatened releases of hazardous substances, pollutants, or contaminants. On March 8, 1990 (55 FR 8666), EPA further revised the NCP in response to SARA.

Section 105(a)(8)(A) of CERCLA, as amended by SARA, requires that the NCP include

> criteria for determining priorities among releases or threatened releases throughout the United States for the purpose of taking remedial action and, to the extent practicable, take into account the potential urgency of such action, for the purpose of taking removal action.

Removal action involves cleanup or other actions that are taken in response to emergency conditions or on a short-term or temporary basis (CERCLA Section 101). Remedial action is generally long-term in nature and involves response actions that are consistent with a permanent remedy for a release (CERCLA Section 101). Criteria for placing sites on the NPL, which makes them eligible for remedial actions financed by the Trust Fund established under CERCLA, were included in the HRS. EPA promulgated the HRS as Appendix A of the NCP (47 FR 31219, July 16, 1982). On December 14, 1990 (56 FR 51532), EPA promulgated revisions to the HRS in response to SARA, and established the effective date for the HRS revisions as March 15, 1991.

Section 105(a)(8)(B) of CERCLA, as amended, requires that the statutory criteria provided by the HRS be used to prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. The list, which is Appendix B of the NCP, is the NPL.

An original NPL of 406 sites was promulgated on September 8, 1983 (48 FR 40658). At that time, an HRS score of 28.5 was established as the cutoff for listing because it yielded an initial NPL of at least 400 sites, as suggested by CERCLA. The NPL has been expanded several times since then, most recently on April 7, 2016 (81 FR 20252). The Agency also has published a number of proposed rulemakings to add sites to the NPL. The most recent proposal was on April 7, 2016 (81 FR 20277).

Development of the NPL

The primary purpose of the NPL is stated in the legislative history of CERCLA (Report of the Committee on Environment and Public Works, Senate Report No. 96-848, 96th Cong., 2d Sess. 60 [1980]).

> The priority list serves primarily informational purposes, identifying for the States and the public those facilities and sites or other releases which appear to warrant remedial actions. Inclusion of a facility or site on the list does not in itself reflect a judgment of the activities of its owner or operator, it does not require those persons to undertake any action, nor does it assign liability to any person. Subsequent government actions will be necessary in order to do so, and these actions will be attended by all appropriate procedural safeguards.

The NPL, therefore, is primarily an informational and management tool. The identification of a site for the NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of the human health and environmental risks associated with the site and to determine what CERCLA-financed remedial action(s), if any, may be appropriate. The NPL also serves to notify the public of sites EPA believes warrant further investigation. Finally, listing a site may, to the extent potentially responsible parties are identifiable at the time of listing, serve as notice to such parties that the Agency may initiate CERCLA-financed remedial action.

CERCLA Section 105(a)(8)(B) directs EPA to list priority sites among the known releases or threatened release of hazardous substances, pollutants, or contaminants, and Section 105(a)(8)(A) directs EPA to consider certain enumerated and other appropriate factors in doing so. Thus, as a matter of policy, EPA has the discretion not to use CERCLA to respond to certain types of releases. Where other authorities exist, placing sites on the NPL for possible remedial action under CERCLA may not be appropriate. Therefore, EPA has chosen not to place certain types of sites on the NPL even though CERCLA does not exclude such action. If, however, the Agency later determines that sites not listed as a matter of policy are not being properly responded to, the Agency may consider placing them on the NPL.

Hazard Ranking System

The HRS is the principle mechanism EPA uses to place uncontrolled waste sites on the NPL. It is a numerically based screening system that uses information from initial, limited investigations -- the preliminary assessment and site inspection -- to assess the relative potential of sites to pose a threat to human health or the environment. HRS scores, however, do not determine the sequence in which EPA funds remedial response actions, because the information collected to develop HRS scores is not sufficient in itself to determine either the extent of contamination or the appropriate response for a particular site. Moreover, the sites with the highest scores do not necessarily come to the Agency's attention first, so that addressing sites strictly on the basis of ranking would in some cases require stopping work at sites where it was already underway. Thus, EPA relies on further, more detailed studies in the remedial investigation/feasibility study that typically follows listing.

The HRS uses a structured value analysis approach to scoring sites. This approach assigns numerical values to factors that relate to or indicate risk, based on conditions at the site. The factors are grouped into three categories. Each category has a maximum value. The categories are:

- likelihood that a site has released or has the potential to release hazardous substances into the environment;
- characteristics of the waste (toxicity and waste quantity); and
- people or sensitive environments (targets) affected by the release.

Under the HRS, four pathways can be scored for one or more threats as identified below:

- Ground Water Migration (S_{gw})
  - drinking water

- Surface Water Migration (S_{sw})
  The following threats are evaluated for two separate migration components, overland/flood migration and ground water to surface water.
  - drinking water
  - human food chain
  - sensitive environments

- Soil Exposure (S_s)
  - resident population
  - nearby population
  - sensitive environments

- Air Migration (S_a)
  - population
  - sensitive environments

After scores are calculated for one or more pathways according to prescribed guidelines, they are combined using the following root-mean-square equation to determine the overall site score (S), which ranges from 0 to 100**:**

$$S = \sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2}{4}}$$

If all pathway scores are low, the HRS score is low. However, the HRS score can be relatively high even if only one pathway score is high. This is an important requirement for HRS scoring because some extremely dangerous sites pose threats through only one pathway. For example, buried leaking drums of hazardous substances can contaminate drinking water wells, but -- if the drums are buried deep enough and the substances not very volatile -- not surface water or air.

Other Mechanisms for Listing

There are two mechanisms other than the HRS by which sites can be placed on the NPL. The first of these mechanisms, authorized by the NCP at 40 CFR 300.425(c)(2), allows each State and Territory to designate one site as its highest priority regardless of score. The last mechanism, authorized by the NCP at 40 CFR 300.425(c)(3), allows listing a site if it meets the following three requirements:

- Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service has issued a health advisory that recommends dissociation of individuals from the release;
- EPA determines the site poses a significant threat to public health; and
- EPA anticipates it will be more cost-effective to use its remedial authority than to use its emergency removal authority to respond to the site.

Organization of this Document

The following section contains EPA responses to site-specific public comments received on the proposal of the Anaconda Aluminum Co Columbia Falls Reduction Plant site on March 26, 2015 (80 FR 15972). The site discussion begins with a list of commenters, followed by a site description, a summary of comments, and Agency responses to each comment. A concluding statement indicates the effect of the comments on the HRS score for

the site.

Glossary

The following acronyms and abbreviations are used throughout the text:

AALAC	Aquatic Life Advisory Concentrations
Agency	U.S. Environmental Protection Agency
ATSDR	Agency for Toxic Substances and Disease Registry
AWQC	Ambient Water Quality Criteria
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. Sections 9601 *et seq*., also known as Superfund
CAMU	Corrective Action Management Units
CFR	Code of Federal Regulations
CLP	EPA Contract Laboratory Program
CRP	Communities Relations Plan
CRQL	Contract-required quantitation limit
DL	Detection limit
ECOTOX	The U.S. EPA ECOTOXicology database
EPA	U.S. Environmental Protection Agency
FR	Federal Register
FS	Feasibility study
GIS	Geographic Information Systems
HRS	Hazard Ranking System, Appendix A of the NCP
HRS score	Overall site score calculated using the Hazard Ranking System; ranges from 0 to 100
HWQ	Hazardous Waste Quantity
LC50	Lethal Concentration 50
LD50	Lethal Dose 50
MCL	Maximum contaminant level
mg/kg	Milligram per kilogram
NCP	National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300
NPDES	National Permit Discharge Elimination System
NPL	National Priorities List, Appendix B of the NCP
PPE	Probable point of entry
PRP	Potentially responsible party
RfD	Reference Dose
RI	Remedial investigation

RPD	Relative Percent Difference
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SCDM	Superfund Chemical Data Matrix
SVOC	Semi-volatile organic compounds
SQL	Sample quantitation limit
WOE	Weight of Evidence

1.0 List of Commenters and Correspondence

EPA-HQ-SFUND-2015-0139-0004	Correspondence, dated February 17, 2015, from Steve Bullok, Governor, State of Montana.
EPA-HQ-SFUND-2015-0139-0005	Comment, dated March 31, 2015, submitted by E. Lovering.
EPA-HQ-SFUND-2015-0139-0006	Comment, dated March 31, 2015, submitted by T. Kurdy.
EPA-HQ-SFUND-2015-0139-0009	Comment, dated April 1, 2015, submitted by Gateway to Glacier Trail.
EPA-HQ-SFUND-2015-0139-0010	Comment, dated April 1, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0011	Correspondence, dated April 2, 2015, from Terry Jeng. Notification of extension of comment period.
EPA-HQ-SFUND-2015-0139-0012	Comment, dated April 13, 2015, submitted by C. Olson.
EPA-HQ-SFUND-2015-0139-0013	Comment, dated April 11, 2015, submitted by Mary J. Barrett.
EPA-HQ-SFUND-2015-0139-0014	Comment, dated April 21, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0015	Comment, dated April 22, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0016	Comment, dated April 29, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0017	Comment, dated April 29, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0018	Comment, dated April 9, 2015, submitted by Lynda Fried.
EPA-HQ-SFUND-2015-0139-0019	Comment, dated April 6, 2015, submitted by Donald W. Barnhart, Mayor, Darin Fisher, Councilman, Doug Karper, Councilman, Jenny Lovering, Councilman, Julie Plevel, Councilman, David Petersen, Councilman, and Michael Shepard, Councilman
EPA-HQ-SFUND-2015-0139-0020	Comment, dated May 7, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0021	Comment, dated April 23, 2015, submitted by Jeff Mow, Superintendent, Glacier National Park, U.S. Department of the Interior.
EPA-HQ-SFUND-2015-0139-0022	Comment, dated April 22, 2015, submitted by Linda Christensen.
EPA-HQ-SFUND-2015-0139-0023	Comment, dated April 28, 2015, submitted by Mary R. Kuennen.

EPA-HQ-SFUND-2015-0139-0024	Comment, dated May 12, 2015, submitted by F. Robbins.
EPA-HQ-SFUND-2015-0139-0025	Comment, dated April 28, 2015, submitted by Pat and Ron Wood.
EPA-HQ-SFUND-2015-0139-0026	Comment, dated May 27, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0027	Comment, dated May 27, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0028	Comment, dated May 26, 2015, submitted by M. Jeff Hagener, Director, Montana Fish, Wildlife & Parks.
EPA-HQ-SFUND-2015-0139-0029	Comment, dated May 29, 2015, submitted by C. Pike.
EPA-HQ-SFUND-2015-0139-0030	Comment, dated May 26, 2015, submitted by Pat Munday, PhD.
EPA-HQ-SFUND-2015-0139-0031	Comment, dated May 19, 2015, submitted by Emil Ramirez, Director, United Steel Workers District 11.
EPA-HQ-SFUND-2015-0139-0032	Comment, dated May 29, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0033	Comment, dated May 29, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0034	Comment, dated May 29, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0035	Comment, dated May 29, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0036	Comment, dated May 29, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0037	Comment, dated May 29, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0038	Comment, dated May 29, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0039	Comment, dated May 29, 2015, submitted by Alexandra Scranton, Director of Science and Research, Women's Voices for the Earth, on behalf of Women's Voices for the Earth.
EPA-HQ-SFUND-2015-0139-0040	Comment, dated May 29, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0041	Comment, dated May 29, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0042	Comment, dated June 4, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0043	Comment, dated June 4, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0044	Comment, dated June 4, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0045	Comment, dated June 4, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0046	Comment, dated June 4, 2015, submitted by Anonymous.

EPA-HQ-SFUND-2015-0139-0047	Comment, dated June 4, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0048	Comment, dated June 4, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0049	Comment, dated June 4, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0050	Comment, dated June 4, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0051	Comment, dated June 4, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0052	Comment, dated June 4, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0053	Comment, dated June 4, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0054	Comment, dated June 4, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0055	Comment, dated June 8, 2015, submitted by E. and J. Meehan.
EPA-HQ-SFUND-2015-0139-0056	Comment with attachments, dated June 2, 2015, submitted by Andrew D. Otis, Curtis, Mallet-Prevost, Colt & Mosle LLP on behalf of Columbia Falls Aluminum Company LLC (CFAC).
EPA-HQ-SFUND-2015-0139-0057	Comment, dated June 8, 2015, submitted by S. Fitzgerald.
EPA-HQ-SFUND-2015-0139-0058	Comment, dated June 8, 2015, submitted by K. Meehan.
EPA-HQ-SFUND-2015-0139-0059	Comment, dated June 8, 2015, submitted by D. Marx.
EPA-HQ-SFUND-2015-0139-0060	Comment, dated June 8, 2015, submitted by C. Holloway.
EPA-HQ-SFUND-2015-0139-0061	Comment, dated June 8, 2015, submitted by G. Rennie.
EPA-HQ-SFUND-2015-0139-0062	Comment, dated June 8, 2015, submitted by N. W. Tedder.
EPA-HQ-SFUND-2015-0139-0063	Comment, dated June 8, 2015, submitted by J. Buls.
EPA-HQ-SFUND-2015-0139-0064	Comment, dated June 8, 2015, submitted by J. Meehan.
EPA-HQ-SFUND-2015-0139-0065	Comment, dated June 8, 2015, submitted by H. Hutcheson.
EPA-HQ-SFUND-2015-0139-0066	Comment, dated June 8, 2015, submitted by S. Hutcheson.
EPA-HQ-SFUND-2015-0139-0067	Comment, dated June 8, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0068	Comment, dated June 8, 2015, submitted by B. Lange.
EPA-HQ-SFUND-2015-0139-0069	Comment, dated June 8, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0139-0070	Comment, dated June 8, 2015, submitted by S. Lenzner.
EPA-HQ-SFUND-2015-0139-0071	Comment, dated June 8, 2015, submitted by G. Rennie.

EPA-HQ-SFUND-2015-0139-0072	Comment, dated June 2, 2015, submitted by Bill Dakin.
EPA-HQ-SFUND-2015-0139-0073	Comment, dated May 29, 2015, submitted by Patricia Gallery, Vice President, Atlantic Richfield Company.
EPA-HQ-SFUND-2015-0139-0074	Comment, dated May 26, 2015, submitted by M. Jeff Hagener, Director, Montana Fish, Wildlife & Parks.
EPA-HQ-SFUND-2015-0139-0075	Comment, dated June 10, 2015, submitted by Leslie Knutson and Terry Vanderpan, Innovative Solutions, Western Division, LLC.
EPA-HQ-SFUND-2015-0139-0076	Comment with attachments, dated June 3, 2015, submitted by Andrea Stacy, National Park Service, Air Resources Division.
EPA-HQ-SFUND-2015-0139-0077	Comment, dated June 8, 2015, submitted by Leslie Knutson and Terry Vanderpan, Innovative Solutions, Western Division, LLC.
EPA-HQ-SFUND-2015-0139-0078	Comment, dated May 29, 2015, submitted by Patricia Gallery, Vice President, Atlantic Richfield Company.
EPA-HQ-SFUND-2015-0139-0079	Comment, dated May 28, 2015, submitted by Dee Brown, Senator, Montana State Senate.
EPA-HQ-SFUND-2015-0139-0080	Comment, dated June 2, 2015, submitted by Andrew D. Otis, Curtis, Mallet-Prevost, Colt & Mosle LLP on behalf of Columbia Falls Aluminum Company LLC (CFAC).
EPA-HQ-SFUND-2015-0139-0081	Comment, posted July 1, 2015, submitted by Thompson Smith, Chair, Flathead Basin Commission.
EPA-HQ-SFUND-2015-0139-0082	Comment, dated April 28, 2015, submitted by Pat Wood and Ron Wood.
EPA-HQ-SFUND-2015-0139-0083	Comment, posted July 13, 2015, submitted by Thompson Smith, Chair, Flathead Basin Commission.
EPA-HQ-SFUND-2015-0139-0084	Comment, dated July 29, 2015, submitted by Kathryn Beckstrom.
EPA-HQ-SFUND-2015-0137-0006	Commented posted April 16, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0137-0007	Commented posted April 29, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0140-0006	Commented posted May 19, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0140-0007	Commented posted May 20, 2015, submitted by Anonymous.
EPA-HQ-SFUND-2015-0141-0006	Commented posted March 27, 2015, submitted by Anonymous.

2.0 Site Description

The Anaconda Aluminum Co Columbia Falls Reduction Plant site (the Site) includes the release from an aluminum production facility located in Flathead County, Montana. The Site for HRS purposes includes five sources and releases to ground water of cyanide, dissolved arsenic, dissolved chromium and dissolved manganese and surface water. A release to surface water of dissolved manganese is evaluated through the ground water to surface water component of the surface water pathway.

For HRS scoring purposes, the Site includes five sources that have been documented to contain hazardous substances and releases to ground water and surface water. Source No. 1 comprises the Eastern North Percolation Pond; Source No. 2 is the Western North Percolation Pond: Source No. 3 is the Western South Percolation Pond: Source No. 4 is the Eastern South Percolation Pond: and Source No. 5 is the West Landfill. Source No. 1 is considered a source type of "surface impoundment"; Sources No. 2 through 4 are considered as a source type of "pile", while Source No. 5 is considered to be source type "landfill." (See Figure 1 of this support document.)

Targets evaluated include ground water users, fisheries, wetlands and sensitive environments. As part of the scoring of the ground water pathway, one domestic drinking water well (also known as the target well) is evaluated as subject to Level I contaminant concentrations and serves approximately nine people. The Flathead River watershed was evaluated. (See Figure 1 of this Support Document.) The target distance limit encompasses a portion of the Flathead River, extending from sample SW-07 to 15 miles downstream. The Flathead River is a fishery that supports a variety of finfish that are harvested for human consumption, and a fishery is evaluated a subject to Level II contaminant concentrations. Sensitive environments, evaluated as subject to Level II contaminant concentrations are also present along and within the Flathead River, including a critical habitat for the federally designated threatened bull trout and significant areas of wetlands are present along the Flathead River, in areas adjacent to and downstream of the facility.

The facility is a Vertical Stud Soderberg aluminum reduction facility that uses the Hall Heroult process of producing aluminum in carbon–lined "pots" heated to 960 degrees Celsius (°C). Aluminum oxide is dissolved in a molten cryolite bath and aluminum oxide is reduced to aluminum metal by electrons from direct current through the pot. The molten aluminum is then tapped from the pot and cast into ingots. There are currently 451 pots in place; however, the facility has not operated since 2009.

Based on available information, the Anaconda Copper Mining Company built the Anaconda Aluminum Reduction Facility and began production in 1955. In 1981, the Atlantic Richfield Company (ARCO) merged with Anaconda Copper Mining Company, which operated the facility through a division known as, Anaconda Aluminum until 1985, when Columbia Falls Aluminum Company (CFAC) was organized as a Montana Corporation. In 1985, ARCO transferred the facility to CFAC and transferred all stock of CFAC to Montana Aluminum Investor's Corporation. Montana Aluminum Investor's Corporation began operations under Anaconda Aluminum Co Columbia Falls Reduction Plant. In 1999, Glencore acquired the company and operated the plant until 2009. Aluminum smelting operations are not currently active at the facility.

3.0 Summary of Comments

Seventy comment submissions submitted to the docket, three additional comment submissions submitted to other dockets and Steve Bullock, the governor of the State of Montana, expressed support for placing the Site on the NPL.

One anonymous commenter requested an extension of the comment period. This commenter asserted that an extension should be granted to all for additional review time due to a delay in online posting of relevant supporting docket materials.

Atlantic Richfield Company (ARCO), Columbia Falls Aluminum Company (CFAC), Carol Pike, Christy Olson, Lynda Fried and three anonymous commenters submitted comments in opposition to placing the Site on the NPL. Ms. Fried commented that some community leaders were opposed to the proposed NPL placement of the Site and the EPA did not need to get involved. ARCO and CFAC asserted that proposed listing of the Site on the NPL was arbitrary and capricious. CFAC also commented that the HRS was improperly interpreted.

One anonymous commenter expressed concern that the intention of listing the Site on the NPL was being used contrary to purpose of listing. This commenter asserted that the Site was proposed to the NPL to achieve alternatives goals instead of just remediation of the Site.

ARCO and two anonymous commenters commented that delays in listing or cleanup may occur as the result placing the Site on the NPL. ARCO asserted that timely cleanup of the Site can occur without NPL placement.

ARCO, Ms. Pike and two anonymous commenters expressed concern that economic impacts may occur from the NPL designation of the Site, including the resulting stigma of being designated a Superfund site.

ARCO, Ms. Olson and one anonymous commenter questioned whether the Site posed a risk to human health or the environment. ARCO specifically commented that it has not been indicated whether the Site poses "a priority risk."

ARCO, CFAC, Ms. Fried, Ms. Pike and one anonymous commenter asserted that the EPA should defer listing to allow the owner of the facility continue remediation of the Site. ARCO and CFAC commented that placing the Site on the NPL was unnecessary, because CFAC was willing to pursue alternative site assessment approaches.

CFAC commented that the evaluation of the Site is inconsistent with guidance. CFAC took issue with the application of guidance in selecting sample locations and establishing sample similarity in the evaluation of the surface water pathway.

CFAC and ARCO took issue with the HRS scoring of the Site. ARCO asserted that technical errors were present in the HRS package. ARCO asserted that problems were presented with the HRS package.

ARCO also asserted that the source hazardous waste quantity was inappropriately evaluated, commenting that:

- Inappropriate information was used to evaluate the hazardous wastestream quantity
- National Permit Discharge Elimination System (NPDES) data for the permitted percolation ponds, included as sources in the HRS documentation record at proposal, should have been used to evaluate the hazardous wastestream quantity
- The methodology for evaluating Tier D, area, overestimated the amount of waste present

ARCO concluded that errors resulting from inappropriate source hazardous waste quantity calculations resulted in an incorrect pathway hazardous waste quantity.

ARCO and CFAC submitted comments, alleging errors in the evaluation of the ground water pathway. ARCO and CFAC comments on the ground water pathway questioned:

- The documentation of an observed release to ground water
- The presence of an observed release to ground water of cyanide specifically to the domestic drinking water well

- The possibility of nitrate/nitrite interference in the cyanide analysis of the ground water sample from the domestic drinking water well
- The appropriateness of the ground water flow direction presented in the HRS documentation record at proposal
- The attribution of cyanide to Site

ARCO questioned the evaluation of the ground water to surface water component. ARCO commented that available information did not indicate that ground water discharges were negatively impacting surface water quality.

CFAC and ARCO questioned the scoring of the surface water pathway. CFAC and ARCO questioned the observed release to surface water, commenting that:

- The observed release concentration of manganese was less than background ground water concentrations and concentrations from samples from Cedar Creek.
- Naturally high levels of manganese in soil were not taken into consideration.
- Background surface water concentrations were also inappropriate, as background ground water samples and Cedar Creek samples were not taken into consideration.

ARCO commented that the approach for determining manganese toxicity was inappropriate. ARCO asserted that manganese toxicity should take into consideration exposure routes, instead of assigning the highest value regardless of exposure route.

CFAC and ARCO took issue with the scoring of the Site. CFAC and ARCO asserted that the appropriate HRS site scores would be 20.75 and 25.61, respectively, based on their comments.

3.1 Support for Listing and Other Non-opposition Comments

Seventy comments were submitted to EPA expressing support for this proposed listing. Three additional comments were mistakenly submitted to different EPA dockets expressing support for this proposed listing. Those commenters in support of listing include: the Honorable Steve Bullock, Governor of Montana; Gateway to Glacier Trail; the Columbia Falls City Council; National Park Service (NPS), Glacier National Park; Montana Fish Wildlife & Parks; United Steelworkers, District 11; Women's Voices for the Earth; Innovative Solutions, Western Division, LLC, Waste Site Cleanup Division; NPS, Air Resources Division; the Honorable Dee L. Brown Montana State Senate, District 2; Flathead Basin Commission; several local business owners and river guides and a number of other private citizens including current and former residents of the area and frequent vacationers to the area.

3.1.1 General Support

Comment: Commenters in support of NPL listing cited various specific reasons for their support including those summarized below:

- One resident indicated that EPA investigation has shown that the Site qualifies for listing, therefore, to not do so "would be negligent."

- Two residents reflected that for a complex cleanup such as this one Federal oversight is critical to its success, and an additional resident emphasized that Superfund was created to deal with issues of this magnitude.

- Flathead Basin Commission cited some benefits of placement on the NPL including greater availability of funding for site assessment and remediation, and greater assurance that remediation would still move forward in the event that the primary responsible parties refuse to contribute to clean-up efforts.

- Five residents cited the overwhelming public support and support of most public officials as one reason to support the listing themselves. These commenters also specifically register disagreement with their Congressman for opposing the listing stating that there is no alternative.

- Six residents refuted arguments that community stigma comes with a Superfund designation. The commenters state that the consequences of leaving this contamination in place is more damaging.

- One resident looked to EPA oversight as a source of fairness and equity in regards to this cleanup. Two other residents commented on the trustworthiness of EPA with one concluding that EPA "will do an honest job" and the other resident opining that only the government can be trusted to "test, discover and verify without bias." An additional resident stated that EPA oversight is essential to maintain not only the quality of remediation but to maintain public confidence.

- One resident cited the success of the Milltown Reservoir Superfund site cleanup as a reason to list the Site.

Numerous commenters expressed their belief that listing the Site is necessary to ensure proper and expedient cleanup due, at least in part, to distrust that the polluting parties will take responsibility for the cleanup.

- Senator Dee Brown and three residents expressed a desire for the polluters to be held responsible for cleaning up the Site. The three residents indicated their belief that without EPA to enforce proper cleanup, it might not happen. Senator Brown stated that finding and holding the other owners accountable for their responsibilities will help speed this process.

- Twenty-one residents expressed distrust that the past owners and the current owner (Glencore) of the Anaconda Aluminum Co Columbia Falls Reduction Plant would cooperate to thoroughly and expediently clean up the Site, which these residents commented is necessary, without listing it on the NPL. Some of these commenters allege that Glencore has deliberately tried to deceive the community in the past and stall the investigation/cleanup of this Site. Four commenters indicated that Glencore has no incentive to clean up the Site explaining that spending money on cleanup would be contrary to corporate profit goals. One commenter is concerned that Glencore's plan to scrap and "harvest" any saleable material at the Site will reduce the incentive for Glencore to cooperate with the remediation and will provide funding for years of litigation.

- The Columbia Falls City Council, NPS Glacier National Park, Senator Dee Brown and three residents stated that now that Glencore has walked away from negotiations, it is time to move forward with listing. One commenter expressed belief that Glencore has shown a "total disregard for fair and open dialogue" in regards to its negotiations with the state.

Numerous commenters discussed their concerns that not placing the Site on the NPL will have a negative effect on the local economy and the hope that cleanup of the Site will bring with it positive economic revitalization:

- The Columbia Falls City Council, United Steelworkers, District 11, Flathead Basin Commission and 11 residents expressed hope that cleanup and redevelopment of the Site would provide the catalyst for long-term economic revitalization in Columbia Falls, with one resident pointing to the "Upper Clark Fork River Superfund Complex" as evidence of the benefits of Superfund.

- Two residents lamented the negative economic impact that knowledge of contamination associated with the Site has already had to date on property values. One other resident, a realtor by profession, stated that a Superfund listing in fact bolsters property values.

- Four residents commented that the existence of contamination at the Site is preventing business opportunities; three residents commented that the risk of incurring the current environmental liability is too high for new businesses, and another resident commented that they are less inclined to follow through on their plan to open a business in Columbia Falls because unknown quantities of waste remain at the Site.

- Montana Fish, Wildlife & Parks and nine residents commented that the Site's possible future effects on the environment is a threat to the recreational/tourist industry in Columbia Falls, which relies on the pristine nature of nearby Glacier National Park and the Flathead River system as major attractions for hiking, fishing and hunting. Five of those residents additionally stated that the environmental tourism and recreation is the dominant economic engine in western Montana and Flathead County in particular. One resident remarked that the resources of the Flathead River have proven to be the sustainable economic vitality of the community. Three other residents commented that the Flathead Valley's water is a "priceless commodity" and deserves to be treated as such.

Numerous commenters expressed concern with the possible health effects the contamination at the Site may have on residents.

- Flathead Basin Commission, NPS Glacier, NPS Air Resources Division, Montana Fish, Wildlife & Parks and four residents commented generally that it supports this listing to protect the health and well-being of residents and visitors to the area.

- Two residents expressed concern that a pattern of increased cancers in children and autism diagnoses and other long-term health impacts around the Columbia Falls, MT area are linked to the Site.
- Montana Fish, Wildlife & Parks is concerned with human health implications from consuming fish and game from affected public and private lands near the Site.

- The Columbia Falls City Council and 17 residents were specifically concerned with possibility of the ground water supply used for drinking being contaminated and the affect it could have on health.

Numerous commenters were concerned with the effect of the Site on the local environment and the nearby national park land and natural areas.

- Flathead Basin Commission, NPS Glacier National Park and 24 residents generally commented that they were concerned about the threat to the natural resources in the area including Flathead River, Flathead Lake and Glacier National Park.

- NPS Glacier National Park, Montana Fish, Wildlife & Parks and four residents wrote with specific concern for the water quality of the Flathead River due to its a National Wild and Scenic River designation, and the federally-threatened bull trout and westslope cutthroat trout (a state species of concern) that move in and out of Glacier National Park within the Flathead River. Montana Fish, Wildlife & Park commented that the effect of the contaminants associated with the Site on aquatic life is unknown but could cause issues with survival according to peer-reviewed literature.

- Montana Fish, Wildlife & Parks, United Steelworkers – District 11 and three commenters generally cited the effect on the numerous other wildlife that utilize the park, river system and other wild lands as a reason for listing the Site on the NPL.

- United Steelworkers – District 11, NPS Air Resources Division and one resident specifically discussed the dispersion and deposition of airborne contaminants from the Site such as polycyclic aromatic hydrocarbons (PAHs) and hydrogen fluoride and the effect of air deposited PAHs and fluoride on vegetation and wildlife in the vicinity of the Site.

- NPS Air Resources Division presented the results of the Western Airborne Contaminants Assessment Project (WACAP) as additional evidence of the affect that the Site has had on Glacier National Park. It explained that WACAP was conducted in conjunction with EPA, the U.S. Geological Survey, the U.S. Forest Service, Oregon State University, and the University of Washington, and the objective was to inventory and analyze the concentration and biological effects of airborne contaminants in the air, snow, water, lake sediment, lichens, conifer needles, and fish of national park ecosystems, including Glacier National Park. NPS Air Resources Division described several lines of evidence pointing to smelting operations at the Columbia Falls Aluminum Company as a major source of both PAHs and fluoride in Glacier National Park.

- One resident commented on the death of trees on Teakettle Mountain and noted that this scarring occurs just up the hillside from the Site.

Response: The Site has been added to the NPL. Listing makes a site eligible for remedial action funding under CERCLA, and EPA will examine the Site to determine what response, if any, is appropriate. Actual funding may not necessarily be undertaken in the precise order of HRS scores, however, and upon more detailed investigation may not be necessary at all in some cases. EPA will determine the need for using Superfund monies for remedial activities on a site-by-site basis, taking into account the NPL ranking, State priorities, further site investigation, other response alternatives, and other factors as appropriate.

3.1.2 Support with Requests for Further Actions

Comment: As summarized below, some commenters in support of NPL listing expressed various requests as to how future actions regarding the Site should proceed:

- NPS Air Resources Division, Gateway to Glacier Trail and Montana Fish Wildlife & Parks requested to be at the table for discussions regarding community outreach, remediation planning and/or redevelopment plans. Governor Bullock requested that EPA closely coordinate with Montana Department of Environmental Quality, the city of Columbia Falls, and Flathead County. Governor Bullock and one resident requested that the public be allowed to be involved in determining the future use of the property.

- Governor Bullock, United Steelworkers – District 11 and one resident requested that local workers be used for the remediation work.

- Three residents shared their vision for the Site after remediation. These visions included: placing the Site under public ownership to provide public river access; creating a park with a trailhead to access Teakettle Mountain; creating a wildlife habitat; using Land and Water Conservation Funds and "BPA" mitigation funds to purchase the property or to purchase a conservation easement on the property; and/or pursuing a Brownfields grant to be used to enhance recreational access. One commenter stated that it is critical that the remedial investigation (RI)/feasibility study (FS) and eventual remedy supports the local economy and property values, as well as the long-term health of the public and ecosystem. United Steelworkers – District 11 and one other commenter stated that remedial investigation should be focused on "full restoration."

Numerous commenters submitted recommendations for further investigations, information regarding other possibly unaccounted for sources of contamination at the Site, and/or specific recommendation on cleanup methods.

- United Steelworkers – District 11 and one resident recommended considering unique remedial opportunities such as bioremediation. Innovative Solutions, Western Division, LLC., offered its company's patented remediation technology to render toxic materials inert.

- Several commenters shared information regarding other sources of contamination that were not accounted for in the HRS documentation record. One commenter indicated that information from the 1900's shows that loggers dumped a lot of oil onto the ground in Columbia Falls. One commenter, who was a purchasing manager on the Site, stated knowledge that materials were buried at the facility dump area, including the following: asbestos; coal tar pitch; cryolite; fluoride; and polycarbonated biphenyls (PCBs). The commenter encouraged EPA to remove the dump material rather than covering it with a corrective action management units (CAMU). Another commenter relayed the stories of her father, a former employee at the Site. This commenter is concerned that because of multiple ownership changes at the Site documentation of hazardous materials used at the Site might be incomplete. The commenter stated that PCBs may be buried on-site. Additionally, the commenter stated that some other substances that have not been mentioned, but were likely used at the Site according to her father include aluminum fluoride, hydrogen fluoride, perfluorocarbon gas, tetrafluoromethane, hexafluoroethane, sulfur oxide, sodium aluminum fluoride, caustic soda, petroleum coke, carbon, pitch and vermiculite. This same commenter expressed concern about material that was lost to the air or spilled on the ground during the unloading of railcars, and she recommended digging test holes throughout the property to determine the extent of contamination.

- United Steelworkers and one resident expressed that given the area's unique, irreplaceable natural resources and numerous sensitive ecosystems, the remedial goal should "not even consider cleaning up the Site to 'industrial levels.'" These commenters stated that more stringent cleanup levels should be established in an effort to attract clean industries, protect workers who may be employed at a future facility on the Site, and to protect the area's wildlife.

- Four residents are specifically concerned that the demolition that Glencore has begun at the Site will add to the contamination already released and asked that EPA supervise this process to prevent additional releases of contamination.

- Montana Fish, Wildlife & Parks recommended that EPA's assessments identify the impacts of consumption or use of fish and wildlife from the Site on human health. It also recommended that vegetation and soils at the Site be assessed and urged that the sampling extend beyond the facility property boundaries as well as downstream along Flathead River and Cedar Creek to assess the aquatic communities.

- NPS Air Resources Division recommended that the air quality data presented in the Western Airborne Contaminants Assessment Project inform subsequent investigation and cleanup efforts once the RI/FS phase starts.

- United Steelworkers and one commenter presented numerous recommendations for further studies at the Site and in the area surrounding the Site. Their comments included a comparison of chemical waste at other similar smelter facilities to show that there are other substances of concern that likely should be investigated. The commenters recommended using air dispersion models to identify areas where heavy atmospheric deposition of hydrogen fluoride gas on the vegetation and soil has occurred, noting the adverse effect that fluoride can have on fish and wildlife. The commenters recommended that vegetation and soil be analyzed to

determine if measures are necessary to protect wildlife. The commenters discussed the asbestos landfill at the Site and presented several recommendations for the safety of all personnel visiting or working at the Site in regard to the asbestos. The commenters provided several recommendations regarding the protection of wildlife and public health including: expanding ground water investigations (for which Governor Bullock also expressed in the need); collecting fish tissue samples to determine contaminant loads; analyzing jawbones and teeth of dead wildlife found at the Site for fluorosis; and necropsies and tissue sampling of dead wildlife on or near the Site for toxic body burdens. The commenters discussed their recommendations related to hunting, which is permitted on the smelter facility property. These recommendations included: ensuring that consuming wildlife is safe for children and the unborn; creating a system to track the discovery of dead animals; the issuance of appropriate health advisories; and a program to encourage hunters to submit jawbone or teeth samples of game caught to determine the potential impact of fluoride on area animals.

Response: Comments in support of NPL listing that suggested further aspects of this Site for EPA to study (especially additional sources, the soil exposure pathway with respect to the effect of airborne deposits on terrestrial sensitive environments, and further aquatic studies such as fish tissue sampling) are now in the public record for the Site. However these comments do not impact the listing decision. The HRS does not require a site be evaluated for all possible migration and exposure pathways before the HRS evaluation is completed. These comments are related to pathways and components that were not scored (in the case of the soil exposure pathway) or pathways and components that were scored based on other information (in the case of the surface water migration pathway) in the HRS evaluation at proposal. Although EPA did not score air migration or soil exposure migration pathways, this does not mean that EPA will not investigate/address contamination/releases in these pathways in the future. Because a component, threat, or pathway is not scored, does not necessarily mean there is no associated concern, and such concerns may be considered during later investigations post-listing.

Additionally, the HRS does not require scoring all four pathways if scoring those pathways does not change the listing decision. For some sites, data for scoring a pathway are unavailable and obtaining these data would be time-consuming or costly. In other cases, data for scoring some pathways are available, but would only have a minimal effect on the site score. Yet in other cases data on other pathways could substantially add to a site score, but would not affect the listing decision. The HRS is a screening model that uses limited resources to determine whether a site should be placed on the NPL for possible Superfund response. A subsequent stage of the Superfund process, the RI, characterizes conditions and hazards at the site more comprehensively.

To the extent practicable, EPA attempts to score all pathways that pose significant threats. If the contribution of a pathway is minimal to the overall score, in general, that pathway will not be scored. In these cases, the HRS documentation record may include a brief qualitative discussion to present a more complete picture of the conditions and hazards at the Site. As a matter of policy, EPA does not delay listing a site to incorporate new data or score new pathways, if the listing decision is not affected.

The EPA must balance the need to fully characterize a site with the limited resources available to collect and analyze site data. For this reason, EPA generally will not score additional pathways upon receiving new data as long as the Site still meets the HRS cutoff score. However, any additional data that characterizes Site conditions could provide useful information during the RI.

The HRS is intended to be a “rough list” of prioritized hazardous sites; a “first step in a process--nothing more, nothing less.” Eagle Picher Indus. v. EPA, 759 F.2d 922, 932 (D.C. Cir. 1985) (Eagle Picher II). EPA would like to investigate each possible site completely and thoroughly prior to evaluating them for proposal for the NPL, but it must reconcile the need for certainty before action with the need for inexpensive, expeditious procedures to identify potentially hazardous sites. The D.C. Circuit Court of Appeals has found the EPA's approach to solving this conundrum to be “reasonable and fully in accord with Congressional intent.” Eagle Picher Industries, Inc. v. EPA, (759 F.2d 905 (D.C. Cir. 1985) Eagle Picher I).

Regarding the comments requesting certain types of remedial methods be used to address the Site, certain redevelopment plans be chosen, and the use of a local work force for implementation of remedial/redevelopment plans, the Agency acknowledges the commenters' recommendations regarding remedy selection, redevelopment of the Site, and the use of local workers. However, considerations regarding remedy selection and implementation are not factors in the decision to list a site on the NPL, and these decisions are not made at the listing stage. *Consistent with CERCLA, an orderly procedure is in place for identifying sites where releases of substances addressed under CERCLA have occurred or may occur, placing such sites on the NPL, evaluating the nature and extent of the threats at such sites, responding to those threats, and deleting sites from the NPL. The purpose of the initial two steps is to develop the NPL, which identifies for the States and the public those sites that appear to warrant remedial action (56 FR 35842, July 29, 1991).* It does not predetermine the response actions.

The evaluation or RI/FS phase involves on-site testing to assess the nature and extent of the public health and environmental risks associated with a site and to determine what CERCLA-funded remedial actions, if any, may be appropriate. After a period of public comment, EPA responds to those threats by issuing a Record of Decision, which selects the most appropriate alternative. The selected remedy is implemented during the remedial design/remedial action phase (and selection of contractors to perform remediation would take place during this phase). Finally, a site may be deleted from the NPL when EPA determines that no further response is appropriate. Therefore, the commenter's concerns on this topic will be addressed during remedy selection stage of the Superfund process.

Regarding comments requesting certain public stakeholders and the community at large to be at the table for discussions regarding community outreach, remediation planning and/or redevelopment, the Superfund program encourages and relies on the participation of the public, any public stakeholders and potentially responsible parties, at several steps in the Superfund process, and it offers numerous opportunities for public participation at NPL sites. For example, the public can comment during the comment period after the EPA has recommended a preferred cleanup alternative.

Additionally, pursuant to 40 CFR 300.430, the EPA Regional Office develops a Community Relations Plan (CRP) before RI/FS field work begins. The CRP is the "work plan" for community relations activities that the EPA will conduct during the entire cleanup process. In developing a CRP, Regional staff interview State and local officials and interested citizens to learn about citizen concerns, site conditions, and local history. This information is used to formulate a schedule of activities designed to keep citizens apprised and to keep the EPA aware of community concerns. Typical community relations activities include:

- Public meetings at which the EPA presents a summary of technical information regarding the Site and citizens can ask questions or comment.
- Small, informal public sessions at which EPA representatives are available to citizens.
- Development and distribution of fact sheets to keep citizens up-to-date on site activities.

For each site, an "information repository" is established, usually in a library or town hall, containing reports, studies, fact sheets, and other documents containing information about the site. The EPA Regional Office continually updates the repository and must ensure that the facility housing the repository has copying capabilities.

After the RI/FS is completed and the EPA has recommended a preferred cleanup alternative, the EPA Regional Office sends to all interested parties a Proposed Plan outlining the cleanup alternatives studied and explaining the process for selection of the preferred alternative. At this time, the EPA also begins a public comment period during which citizens are encouraged to submit comments regarding all alternatives. Once the public comment period ends, the EPA develops a Responsiveness Summary, which contains EPA responses to public comments. The Responsiveness Summary becomes part of the Record of Decision (ROD), which provides official documentation of the remedy chosen for the site.

In addition to meeting these specific Federal requirements, EPA makes every attempt to ensure that community relations is a continuing activity designed to meet the specific needs of the community. Anyone wanting information on a specific site should contact the Community Relations staff in the appropriate EPA Regional Office.

Regarding the four commenters specific request that EPA oversee the demolition of the Anaconda Aluminum Co Columbia Falls Reduction Plant by the current owner to ensure that additional contamination is not released in the process, Montana DEQ, Columbia Falls Aluminum Company, and Calbag Resources have entered into an Administrative Order on Consent, with MDEQ providing oversight of spent potliner waste removal. Furthermore, MDEQ's Asbestos Control Program is providing compliance assistance and permitting for CFAC. Multiple buildings on site, including the Laboratory, East and West Rectifier Buildings, and Paste Plant, have MDEQ approved Asbestos Project Permits in place. EPA is coordinating with the state to ensure appropriate oversight activities are in place at the Site.

3.2 Extension of Comment Period

Comment: One anonymous commenter requested an extension to the comment period. This commenter asserted that supporting information was not available online and requested that the comment period be extended to compensate for the lapse in time between posting the information online and the publication of the proposal notice in the Federal Register.

Response: A seven day extension of the comment period was granted to allow for additional review time due to the time lapse between complete online posting of Site materials, and notice of the proposed rule in the Federal Register. The comment period extension was documented in a memorandum to the docket from Terry Jeng, Site Assessment & Remedy Decisions Branch, dated April 2, 2015 (EPA-HQ-SFUND-2015-0139-0011). Complete Site materials were posted to the docket and available online on April 1, 2015.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.3 Purpose of Listing

Comment: One anonymous commenter expressed concern that "the specter of 'Superfund' designation" was being used inconsistent with the purpose of listing. This commenter stated that placing the Site on the NPL was being used as "a negotiation and intimidation tool" to compel the facility owners to remediate the Site. The commenter also stated that the Site was proposed to the NPL to achieve goals outside of remediation of the Site.

Response: The commenter is incorrect in asserting that the inclusion of the Site on the NPL is intended to achieve goals outside of the purpose of listing. Adding the Anaconda Aluminum Co Columbia Falls Reduction Plant site to the NPL is consistent with the purpose of placing sites on the NPL because based on the qualifying site HRS score, at or above 28.50, it is of sufficient priority to warrant possible further investigation. Placing a site on the NPL also informs the public of the possible priority threat posed by the site.

The HRS is intended to be a "rough list" of prioritized hazardous sites; a "first step in a process—nothing more, nothing less." Eagle Picher Indus. v. EPA, 759 F.2d 922, 932 (D.C. Cir. 1985) (Eagle Picher II). The HRS is the mechanism used to evaluate the relative risk of a site. If a site scores a 28.50 or greater using the HRS, then it may be added to the NPL.

The purpose of NPL listing is explained in the Federal Register Notice of February 21, 1990 (Volume 55, Number 35) excerpted below.

> The purpose of the NPL, therefore, is primarily to serve as an informational and management tool. The initial identification of a site for the NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of the public health and environmental risks associated with the site and to determine what CERCLA-financed remedial action(s), if any, may be appropriate. The NPL also serves to notify the public of sites EPA believes warrant further investigation.

This Site may be added to the NPL because it has achieved an HRS score of 28.50 or greater, as is noted in the HRS documentation record at proposal, and is described in the responses in this support document. Achieving a site score of greater than 28.50 indicates that the site is eligible for inclusion on the NPL and therefore may warrant further investigation. Placing a site on the NPL allows EPA to more effectively prioritize sites, manage possible future site investigations, and notifies the public that the release at a site is of concern to the Agency. The addition of the Site to the NPL is an appropriate next step and this determination was made consistent with the purpose of the NPL and is supported by the HRS evaluation. All remediation decisions are determined at a later stage in the Superfund process and are not considered during the NPL evaluation.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.4 Need for Listing

Comment: ARCO asserted that listing the Site to the NPL is not necessary because CFAC is willing to assess the Site and investigate the risk associated with the release of hazardous substances. ARCO stated that listing would neither expedite response action nor increase the effectiveness of a response.

Response: Placing the Anaconda Aluminum Co Columbia Falls Reduction Plant site on the NPL is appropriate. An HRS site score at or above 28.50 indicates that the Site poses sufficient relative risk to qualify for the addition to the NPL. No other criteria need be met for a site to be listed to the NPL, and any PRP's willingness to conduct site assessment work does not impact this criteria. Furthermore, as indicated in the correspondence from Honorable, Steve Bullock, Governor of Montana, the State supports listing the Site on the NPL due to the presence of contamination and the associated risk posed by the Site.

The 2014 Administrative Order on Consent between the EPA and CFAC covers only the remedial investigation and feasibility study. At this time, no potentially responsible party has committed, in a legally binding agreement, to finance a selected remedy.

Regarding ARCO's assertion that CFAC is willing to further investigate the Site, such an action need not be delayed or interrupted by adding the Site to the NPL. PRPs may undertake further investigation at a site, including such actions as an RI/FS and/or remedial design/remedial action under EPA supervision and pursuant to appropriate agreements with governmental authorities (under enforcement authorities of CERCLA or those of other statutes). The listing process does not encumber or preclude PRPs from entering into these agreements and such an alternative is available to CFAC. Therefore, consideration of an agreement with a PRP, or the intent of a PRP to enter into an agreement, for further investigation and assessment does not preclude listing and such an agreement can occur concurrently with the listing process.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.5 Delay Cleanup

Comment: ARCO and two anonymous commenters questioned the impact listing the Site on the NPL may have on the timeline for site cleanup. One anonymous commenter stated that timely completion of remedial activities

should occur. Another anonymous commenter stated that "listings historically and consistently never expire and linger on for decades after the sites are cleaned up according to established requirements." ARCO commented that listing would not result in a more prompt remediation of the Site. ARCO asserted that placement of the Site on the NPL is unnecessary to ensure timely cleanup. ARCO further commented that cleanup should be delayed so that the PRP may lead RI/FS to collect sufficient information to assess the risk posed by the Site.

Response: The commenters' concerns that listing would delay cleanup are unfounded. Consistent with CERCLA, EPA has in place an orderly procedure for identifying sites where releases of substances addressed under CERCLA have occurred or may occur, placing such sites on the NPL, evaluating the nature and extent of the threats at such sites, responding to those threats, and deleting sites from the NPL. Placement of the Anaconda Aluminum Co Columbia Falls Reduction Plant site on the NPL does not necessarily lead to a delay of planned response actions and it does not prevent any further investigation or remedial actions from occurring. Any and all actions completed will be taken into consideration at a later stage in the Superfund process, such as during a site-specific risk assessment. In later stages, following a Superfund risk assessment for the site, the findings of the risk assessment will be used to determine what further remedial actions, if any, are made.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.6 Economic Impact/Stigma

Comment: ARCO, Ms. Pike, and two anonymous commenters expressed concern regarding the economic impact associated with adding the Site to the NPL. One anonymous commenter commented in opposition to placing the Site on the NPL, because of perceived economic impacts, including "the oppressive and economically debilitating control of the EPA with no realistic prospect of being put to beneficial use." One anonymous commenter stated that placing the Site under EPA's authority impacts the community and "hinders their ability to rightfully utilize the resources at their disposal." One anonymous commenter opposed to listing the Site on the NPL, asserted that "[t]he other 16 communities in Montana adjacent to previously listed sites occupy a laundry list of economically depressed and government dependent populations." Ms. Pike and one anonymous commenter commented that the Superfund designation would result in a negative stigma for the area.

One anonymous commenter commented that cleanup should extend to a level that would prevent damage to surrounding communities of properties and enable redevelopment of the Site. This anonymous commenter asserted that the Superfund process may not be the correct way to achieve ideal goals for the community, noting that the end result should be a re-purposed site benefiting the local economy. Further, ARCO asserted that an NPL designation was not necessary to fund future response actions.

Response: Economic factors such as impacts on delay of possible re-use plans and the local economy, and possible general stigma associated with placing a site on the NPL are generally not considered in the assessment of whether a site belongs on the NPL. Inclusion of a site or facility on the NPL reflects EPA's judgment that a significant release or threat of release of hazardous substances has occurred and that the site is a priority for further investigation under CERCLA. EPA notes that there are both costs and benefits that can be associated with listing a site. Any negative impacts noted by the above commenters would be engendered by the contamination in the area, not the result of placing the site on the NPL. Among the benefits of placing a site on the NPL are increased health and environmental protection as a result of increased public awareness of potential hazards. In addition to the potential for federally financed remedial actions, the addition of a site to the NPL could accelerate privately financed, voluntary cleanup efforts. Listing sites as national priority targets also may give States increased support for funding responses at particular sites. As a result of the additional CERCLA remedies, there will be lower human exposure to high-risk chemicals, and higher quality surface water, ground water, soil, and air. Therefore, it is possible that any perceived or actual negative fluctuations in property values, development opportunities, or lost opportunity costs that may result from contamination may also be countered by positive fluctuations when a CERCLA investigation and any necessary cleanup are completed.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.7 Risk to Human Health and the Environment

Comment: Three commenters questioned whether the Site may pose a risk to human health or the environment.

Ms. Olson commented that there is no evidence that cyanide in ground water may cause secondary poisoning[1]. Ms. Olson also commented that the dangers of arsenic exposure between 50 and 200 micrograms per liter over a long period of time were inconclusive[2].

Ms. Olson and an anonymous commenter asserted that additional review for the assessment of the risk may be needed. Ms. Olson asserted that ground water at the Site should be tested to determine whether the Site poses a threat to human health or the environment. An anonymous commenter commented that a plan for cleanup can occur, after a detailed review of the potential hazards is complete.

ARCO commented that it has not been determined that the Site poses "a priority risk." ARCO further stated that the HRS score "is not reflective of actual site conditions or potential environmental or human health risk." ARCO asserted that incorporating available data demonstrates that the Site does not pose a risk sufficient to merit inclusion on the NPL. ARCO further asserted that the ground water to surface migration component evaluation fails to establish that the Site poses a risk.

ARCO also asserted that the concentrations of manganese at the Site do not demonstrate a risk was present.

Response: Consistent with CERCLA and the NCP, the Site is being placed on the NPL based on an HRS evaluation of the risk posed by the release from the facility relative to other sites being considered for placement on the NPL.

The HRS evaluation is based on a release of cyanide, arsenic, and manganese to the ground water and to the Flathead River, and the associated threat that the site release poses to the nearby private drinking water wells, and to the downstream human food chain fisheries in the Flathead River. Actual determination of site-specific risk will be determined once sufficient information is available. Following listing, and after further investigation, a site-specific risk assessment will be performed to determine the actual risk posed by the release from the Anaconda Aluminum facility to determine what remedial action, if any, is needed to protect human health and the environment. As identified in the HRS evaluation of the Site, the Site consists of releases of contaminants to the ground water and surface water as a result of operations at the Anaconda Aluminum facility; this contamination remains in the site sources, the ground water and the surface water at the Site; therefore, the Site continues to pose a threat to human health and the environment. The extent of, and the relative threat posed, by these releases, as scored pursuant to the HRS, are sufficient to place the Site on the NPL.

Regarding Ms. Olson's assertion that cyanide does not cause secondary poisoning, Ms. Olson refers to a summary factsheet that identifies that cyanide is neither persistent nor bioaccumulates (i.e., factors influencing whether a substance may produce secondary poisoning from consumption of benthic organisms). However, the study Ms. Olson cites does not indicate that **primary** poisoning from cyanide does not occur or that cyanide poses no risk to human health. Therefore, Ms. Olson is incorrect in asserting this fact sheet indicates that cyanide does not pose a risk at the Site.

Regarding Ms. Olson's comment on the risk associated with arsenic exposure in a range of 50 and 200 µg/L; as documented on page 57 of the HRS documentation record at proposal, arsenic was documented at a concentration

[1] Ms. Olson cites: http://www.infomine.com/publications/docs/SummaryFactSheetCyanide.pdf
[2] Ms. Olson cites: http://www.dartmouth.edu/~toxmetal/arsenic/facts-on-arsenic.html

of 344 µg/L at the Site, which by itself is above the arsenic concentration exposure range that Ms. Olsen asserts may have inconclusive results.

Regarding the risk posed by arsenic, cyanide or manganese, an HRS evaluation reflects the risk posed by an individual substance by assigning a toxicity factor value for each hazardous substance associated with the release from the Site. The HRS regulation has a specific procedure for assigning the toxicity factor value for hazardous substances and this value is not based on a range of concentrations for that substance. This is because the actual site concentration range of a certain substance cannot be determined with certainty based on a limited site screening assessment used to collect the data for HRS purposes. (See H.R Rep. No. 962, 99th Cong., 2nd Sess. at 199-200 [1986])

Regarding the need for a risk assessment before the determination of whether remediation is necessary, EPA agrees that a risk assessment is needed. As explained in section 3.5, Delay in Cleanup, of this support document, a remedial investigation is performed during a different stage of the Superfund process. A remedial investigation includes gathering site specific information and performing a site specific risk assessment. After these actions are completed, a remedy decision is made. An HRS investigation is designed to collect site specific information to evaluate whether a risk is posed by the actual concentration of a hazardous substance at a site. While a remedial investigation can be undertaken directly by EPA or by another entity, such as by the PRPs for the Site, EPA sees no reason to delay the listing until after this investigation is performed.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.8 Defer or Delay Listing

Comment: CFAC, ARCO, Ms. Fried, Ms. Pike, and an anonymous commenter questioned whether alternatives to listing the Site on the NPL should be pursued. Ms. Fried commented that the cleanup should be completed by the parent company and MDEQ instead of EPA. Ms. Pike commented that CFAC was in the process of cleaning up the Site under state supervision. ARCO and CFAC commented that placing the Site on the NPL was unnecessary, because CFAC was willing to pursue alternative site assessment approaches. ARCO also commented that EPA should pursue further investigation and remediation without placing the Site on the NPL. ARCO asserted that the Superfund Alternative Approach may be an appropriate alternative for this Site, because CFAC is a capable PRP.

CFAC and ARCO both commented that alternatives to listing should be pursued. CFAC asserted that it is willing to address the Site, rendering listing unnecessary. CFAC commented, as the owner, that it agrees further investigation is warranted and is willing to undertake further assessment of the Site. CFAC and ARCO asserted that CFAC is in the process of developing a remedial investigation/feasibility study (RI/FS) workplan to assess the Site.

ARCO commented that listing should not be pursued, as CFAC is willing to perform an RI/FS. ARCO commented that Glencore, the parent company of CFAC, has been involved in discussions with EPA and the MDEQ regarding the future of the Site.

ARCO also commented that the Site owner, Glencore, has already taken measures to address the Site, including hiring a consultant and contracting to prepare for redevelopment, asserting that these measures indicate that CFAC is a viable PRP, who should address the contamination instead of going through the NPL process. ARCO asserted that, because Glencore owns CFAC[3], assurances are present to allay concerns "about CFAC's longevity or the potential need to access the Superfund." ARCO further asserted that, as CFAC has the resources to address the Site and define the property's reuse goals, placement on the NPL is unnecessary and unwarranted based on available information.

[3] CFAC is a wholly owned subsidiary of Glencore.

ARCO asserted that, because CFAC has incentives, a prompt site assessment and investigation would occur if CFAC were to carry out remedial actions in lieu of NPL placement.

ARCO also asserted that placing the Site on the NPL could be pursued at a later date in the event CFAC was unable to adequately address the Site.

ARCO further commented that placement of the Site on the NPL should be delayed, as the information available to support listing is insufficient.

Response: Listing the Site on the NPL based on a site HRS score above 28.50 represents EPA's determination that further investigation under CERCLA authority is warranted and that alternatives to listing are not sufficient at this stage in the process. The State of Montana, through governor Bullock's concurrence letter, has indicated its support and agreement with placing the Site on the NPL.

Regarding the Superfund Deferral Program, on May 3, 1995, EPA issued its "Guidance on Deferral of NPL Listing Determinations While States Oversee Response Actions." EPA developed the guidance in an effort to enhance the State role in addressing sites. The Superfund deferral program, including site deferral to a State is an administrative tool used to enable States and Tribes, under their own laws, to respond at sites that EPA would otherwise not soon address. In the case of Anaconda Aluminum Co Columbia Falls Reduction Plant site, EPA has decided that deferral to the State of Montana is not appropriate and the State agrees that the Site should be placed on the NPL and addressed under the Superfund program.

Furthermore, suspending the placement of a site on the NPL is not needed to continue negotiations with PRPs. As discussed above in section 3.4, Need for Listing, of this support document, PRPs can affect remedy selection and may undertake the RI/FS under EPA supervision pursuant to appropriate agreements. If CFAC or any designated PRP wishes to expedite cleanup efforts beyond CFAC's commitment to perform the RI/FS under the 2014 AOC, it may continue negotiations with EPA and undertake removal actions under supervision of EPA and pursuant to appropriate agreements with governmental authorities (under enforcement authorities of CERCLA or those of other statutes).The listing process does not encumber or preclude PRPs from entering into these agreements and such an alternative is available in this case.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.9 HRS Documentation Record Clarifications

Comment: ARCO commented that misstatements of fact are present in the HRS documentation record at proposal. ARCO comments that page 21 of the HRS documentation record at proposal incorrectly states that "ARCO purchased the plant…" ARCO asserted that "Atlantic Richfield did not purchase the Columbia Falls Plant" but instead merged with the Anaconda Copper Mining Company.

Response: ARCO's clarifications to the HRS documentation record at proposal are part of the docket for the Site, and EPA acknowledges these minor inconsistencies.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.10 Data Usability

Comment: CFAC questioned the usability of data presented in the HRS evaluation of the Site. CFAC commented that EPA did not correctly interpret the available data and used inappropriate data in scoring the Site.

Response: CFAC is incorrect in their assertion that the data used in the HRS evaluation were improperly interpreted and inappropriately used in the HRS evaluation. The data presented were sufficient to support the scoring in the HRS documentation record at proposal and to make a listing decision. All information collected by EPA for the HRS evaluation was collected following sampling plans and quality assurance plans that underwent EPA review based on rigorous data quality objectives and guidelines. The sampling and analysis plan (SAP) used in the HRS evaluation was included as Reference 32 to the HRS documentation record at proposal. Furthermore, EPA has procedures in place to ensure quality information used. These procedures are outlined in EPA Order CIO 2105.0 (formerly EPA Order 5360.1). EPA Oder CIO 2105.0 (formerly EPA Order 5360.1)[4] contains "the minimum requirements for the mandatory Agency-wide Quality System." The EPA Region 8 Quality Management Plan (QMP)[5] provides a link between the requirements in CIO 2105.0 and the quality system used by EPA Region 8 to meet these requirements. CFAC has not identified any specific deficiency with meeting these requirements or data quality objectives.

As discussed above in section 3.3, Purpose of Listing, of this support document, the HRS is a screening tool used to determine the relative risk a site may pose to human health and/or the environment. The data presented in the HRS documentation record at proposal for this Site are appropriate for use to support this screening evaluation, and the appropriateness of these data is outlined throughout the responses in this support document.

Comments regarding specific issues related to data usability and appropriateness of data quality for assignment of specific HRS factors are addressed below in the related sections of this support document.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.11 Consistency with Guidance, the NCP and CERCLA

Comment: CFAC asserted that the HRS score was determined inconsistently with EPA guidance, the NCP, and CERCLA. For instance, CFAC asserted that EPA failed to follow guidance in selecting sample locations and that the EPA did not follow guidance on the comparison of dissimilar surface water samples in evaluating the surface water pathway.

Response: EPA followed the HRS regulation in evaluating the Anaconda Aluminum Co Columbia Falls Reduction Plant site and determined an HRS score consistent with relevant guidance, pursuant to the NCP and CERCLA. The HRS documentation record at proposal and this support document clearly document that EPA has complied with the HRS regulation; furthermore, CERCLA's requirements, including the NCP's requirements, for placing the Anaconda Aluminum Co Columbia Falls Reduction Plant site on the NPL are embodied in the HRS. This support document addresses all comments on the proposed listing of this Site, including those comments that challenge compliance with the HRS, and shows that HRS requirements have been met in every aspect of the site evaluation.

The HRS Guidance Manual was also applied appropriately in the HRS evaluation based on the facts and circumstances presented for this Site. Unlike the HRS regulation itself, the HRS Guidance Manual is not a regulation and imposes no mandatory requirements on the agency. The HRS Guidance Manual states that:

> [t]he procedures set forth in this document are intended as guidance to employees of the U.S. Environmental Protection Agency (EPA), States, and other government agencies. EPA officials

[4] Additional information about EPA Oder CIO 2105.0 is available on-line at: http://www.epa.gov/irmpoli8/policies/21050.pdf

[5] The EPA Region 8 QMP is available online at: http://www.epa.gov/sites/production/files/2014-02/documents/region_8_qmp_approved_20130129.pdf

> may decide to follow the guidance provided in this directive, or to act at variance with it, based on analysis of specific site circumstances.

In evaluating whether a site merits NPL listing, EPA complies with the HRS and uses EPA guidance as just that—guidance to determine how best to perform the HRS evaluation based on the facts or circumstances presented at each site. Additionally, guidance, unlike the HRS, is not a regulation and therefore does not impose the same requirements on the Agency. The HRS Guidance Manual is consistent with the HRS (this was not challenged by CFAC). As shown in this support document, EPA has followed the HRS in scoring the Site and applied the HRS Guidance Manual as appropriate to the site situation.

Comments regarding specific issues related to consistency with guidance in assigning specific HRS factor values are addressed below in section 3.22.2, Background and Release Sample Similarity, of this support document.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.12 Naturally Occurring Substances

Comment: CFAC questioned the evaluation of the naturally occurring substance, manganese. CFAC commented that not providing a link to an industrial activity and not taking into consideration that manganese is naturally present in high concentrations in soil is "inconsistent with the policy of not using CERCLA authority to address naturally occurring substances."

Response: The release of manganese from the Anaconda facility is properly identified and its consideration in HRS scoring is consistent with EPA policy and CERCLA.

The presence of manganese in waste samples from sources is clearly documented by waste samples and the identified increases in concentration of manganese in both ground water and surface water is attributable to the Site, at least in part, consistent with HRS Sections 2.2.2, *Identify hazardous substances associated with a source*, 2.3, *Likelihood of release*, and 3.1.1, *Observed release*. (Also see section 3.19, Observed Release to Ground Water, section 3.19.1, Analytical Cyanide Data Quality of the Sample from the Domestic Drinking Water Well, and 3.22.3, Surface Water Observed Release: Significant Increase in Manganese, of this support document)

Manganese was appropriately included in the HRS scoring of the Site consistent with the HRS and CERCLA. The manganese being evaluated at the Site is only that manganese that has been altered through non-naturally occurring processes (i.e., refining processes at the Anaconda Aluminum facility) and has resulted in manganese concentrations that exceed naturally occurring levels. Therefore, the manganese being scored at the Site is only the manganese that is present at levels significantly above background levels, or manganese that is located in known waste areas at the Site that are documented to receive facility waste (i.e., waste that has been altered by non-naturally occurring processes).

The HRS documentation record at proposal appropriately considered and scored manganese that was a part of a release from the Anaconda Aluminum facility and does not score naturally occurring manganese at the Site. As indicated on pages 27, 31, 35, and 39 of the HRS documentation record at proposal, manganese is present in samples from all four percolation ponds, and is also present in an aqueous source sample from the southern percolation pond considered Source 4. The presence of manganese in an aqueous sample from a percolation pond at a concentration of 92 µg/L, where background ground water and surface water aqueous samples contain 10.9 µg/L and 2.2 µg/L respectively, indicates that the manganese in the percolation pond is not a result of naturally high levels of manganese in the environment but rather that it is due to process waste from the Anaconda Aluminum facility. Accordingly, only manganese that is present in areas known to have received facility waste or manganese that is documented to be at concentrations significantly above the background level is considered in this HRS evaluation.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.13 HRS Evaluation of the Ground Water to Surface Water Component

Comment: ARCO stated that "EPA recognizes that using the groundwater-to-surface-water pathway for NPL listing requires a 'special case' which does not exist here." ARCO commented historically this component had been used for coal gas facilities with deeply buried waste next to surface water with releases of polyaromatics. ARCO asserted that these conditions are not present at this Site.

Response: EPA appropriately evaluated the ground water to surface water component of the surface water pathway in the HRS evaluation of the Anaconda Aluminum site. ARCO's assertion that evaluating the ground water to surface water component requires a "special case" is incorrect. ARCO refers to EPA's online training information[6] for the ground water to surface water component. However, the training cited indicates in reference to this component that "[i]t has been applied particularly to old coal gas facilities" but it does **not** state that it is **only** applied in the case of old coal gas facilities or that the evaluation should be restricted to only these facilities. Furthermore, this training course material it is not a regulation, and does not impose any requirements upon the Agency.

The HRS provides no restriction on the type of facility which may be evaluated using the ground water to surface water component. HRS Section 4.2.1.1, *Eligible Surface Waters*, states:

> Calculate ground water to surface water migration component scores only for surface waters (see section 4.0.2) for which all the following conditions are met:
>
> • A portion of the surface water is within 1 mile of one or more sources at the site having a containment factor value greater than 0 (see section 4.2.2.1.2).
>
> • No aquifer discontinuity is established between the source and the portion of the surface water within 1 mile of the source (see section 3.0.1.2.2).
>
> However, if hazardous substances have migrated across an apparent discontinuity within this 1 mile distance, do not consider a discontinuity present in scoring the site.
>
> • The top of the uppermost aquifer is at or above the bottom of the surface water.
>
> Do not evaluate this component for sites consisting solely of contaminated sediments with no identified source.

The HRS does not specify any restrictions on facility type, source type, or release type other than site releases consisting solely of contaminated sediments with no identified source. Thus, the HRS evaluation of the Site was appropriate and was eligible for evaluation using the ground water to surface water component, consistent with the HRS.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.14 Source Samples

Comment: CFAC submitted comments regarding source samples. CFAC asserted that the "waste source" or "solid-matrix waste source" samples were really "sediment samples from what EPA characterizes as 'unlined' percolation ponds and thus of native soil."

[6] ARCO cites to www.epa.gov/superfund/training/hrstrain/htmain/15over.htm. Following the end of the comment period for the Site, EPA has undertaken a web transition. The current URL for the corresponding information cited by ARCO is: http://www2.epa.gov/superfund/section-15-surface-water-pathway-ground-water-surface-water-component

Response: Solid source samples from percolation ponds were accurately identified as source samples and not soil samples. The description of the Source samples from the percolation ponds explains that these were sludge and/or waste source samples from the waste holding percolation ponds and are not native soil samples. Thus, the samples are composed of the waste materials that were placed in the ponds. The samples referred to by CFAC are samples that were collected from the percolation pond source areas that are considered sources for HRS purposes (i.e., Source 1, the Eastern North Percolation Pond; Source 2, the Western North Percolation Pond; Source 3, the Western South Percolation Pond; and Source 4, the Eastern South Percolation Pond).

HRS Section 2.2.1, *Identify sources*, directs that all areas containing hazardous substances be identified. It states:

> For the three migration pathways, identify the sources at the site that contain hazardous substances. Identify the migration pathway(s) to which each source applies. For the soil exposure pathway, identify areas of observed contamination at the site (see section 5.0.1).

The HRS then directs that the hazardous substances be identified. HRS Section 2.2.2, *Identify hazardous substances associated with a source*, instructs a scorer to:

> For each of the three migration pathways, consider those hazardous substances documented in a source (for example, by sampling, labels, manifests, oral or written statements) to be associated with that source when evaluating each pathway.

The HRS documentation record at proposal used samples to associate hazardous substances with sources. The Site source samples collected from these percolation ponds are described in the HRS documentation record at proposal as follows:

Page 25 of the HRS documentation record at proposal describes the waste received by Source 1, a surface impoundment. It states:

> The Eastern North Percolation Pond (also known as the boiler blowdown pond [Figure 2]) received direct discharge of the Paste Plant Briquette Quench system, Paste Plant Ball Mill Bearing Cooling system, Wet Scrubber Blowdown…, Air Compressor Cooling, Air Compressor Condensate Blowdown, Masonry shop, and Battery shop. … In addition to the aforementioned, the pond was receiving garage waste water, steam cleaning and pin crane sumps waters, lab boiler blowdown water, equipment non-contact cooling water, and process area storm water.

Page 25 of the HRS documentation record at proposal also describes Source 1 samples as, "the sludge waste (solid-matrix) source samples (CF-SD-19, CF-SD-20 and CF-SD-25 (duplicate for CF-SD-19) [Figure 6])) from the Eastern North Percolation Pond."

Page 30 of the HRS documentation record at proposal describes waste received by Source 2, a pile, as:

> The Western North Percolation Pond (the larger western pond [Figure 2]) received overflow and high flow events from the smaller Eastern North Percolation Pond (i.e., Source 1), which had become partially sealed due to settling out of finer particles. In other words, process waters that went to the eastern pond flowed to the western pond via a connecting ditch during production operations (Ref. 3, App. B, pp. 175-177).

Page 30 of the HRS documentation record at proposal also presents a description of Source 2 samples, describing samples as "the dried, settled solids waste source samples (CF-SD-17 and CF-SD-18 [Figure 6]) from the Western North Percolation Pond."

Page 34 of the HRS documentation record at proposal, describes Source 3, pile, and states:

> The Western South Percolation Pond… received piped wastewaters from the Rectifier Oil Separator Sump, Facility Production Area storm water, non-contact equipment cooling water, Sewage Treatment Plant, Restrooms and Change House sinks, Laboratory Sinks, laboratory non-contact cooling water, laboratory non-solvent waste water, plant wide lavatories and sinks, Rectifier non-contact cooling water, casting mold cleaning water, casting mold steam cleaning, contact cooling water from direct chill casting of aluminum ingots, and Fabrication Shop Steam Cleaning Bay (Refs. 7, pp. 4, 5, 26). Process water that overflows from the Western South Percolation Pond flows into the west central, central, and eastern ponds, providing additional surface area for percolation as needed. The south percolation ponds are all interconnected, with the initial plant outfalls (004 and 005) piped into the westernmost pond (Ref. 3, photo 38, p. 177). Because the western pond was still functioning fully as a percolation pond (allowing for the transmission of liquids to migrate to the shallow ground water onsite), this source has been evaluated as a pile (Ref. 7, pp. 4, 5).
>
> Co-located source liquid **and solid samples** (CF-SW/SD-21) were collected from within the area delineated as the Western South Percolation Pond (Figure 6) (Ref. 3, pp. 48, 49, photo 38, p. 177). Concentrations of SVOCs and metals were detected above the reporting limit in liquid source samples collected from the Central South Percolation Pond. SVOCs, pesticides and metals were detected in waste source samples at concentrations above the reporting limits in waste source samples collected from the Central South Percolation Pond. [emphasis added]

Page 34 provides information regarding a source sample from Source 3 and notes that it is a, "soil waste mix source sample (CF-SD-21 [Figure 6]) from the Western South Percolation Pond."

Page 38 of the HRS documentation record at proposal describes Source 4, pile, as:

> The Eastern South Percolation Pond …received wastewaters from the Rectifier Oil Separator Sump, Facility Production Area storm water, non-contact equipment cooling water, Sewage Treatment Plant, Restrooms and Change House sinks, Laboratory Sinks, laboratory non-contact cooling water, laboratory non-solvent waste water, plant wide lavatories and sinks, Rectifier yard storm water and non-contact cooling water, casting mold cleaning water, casting mold steam cleaning, contact cooling water from direct chill casting of aluminum ingots, and Fabrication Shop Steam Cleaning Bay (Ref. 7, pp. 4, 5)….

Page 38 of the HRS documentation record at proposal, in its description of Source 4 samples, also describes a sample from this pile as, "the soil waste mix source sample (CF-SD-22 [Figure 6]) from the eastern South Percolation Pond."

Pages 34–35 of the HRS documentation record at proposal explain that Source 3, the Western South Percolation Pond, functions as a waste receptacle, receiving waste from several facility processes. Pages 34–35 also indicate, based on composition (e.g., liquid, solid), that samples from this source pond, were labeled as solid matrix source samples or waste source samples. The description of these samples specifies that the samples were sludge from the waste pond as opposed to native soil. Furthermore, as the liquid that was originally placed in these ponds percolates through the soil to the ground water as they are designed, the remaining solid constituents in the bottom of these ponds would remain as waste from the wastestreams discharged to the pond. These samples from Source 3 demonstrate that the samples from percolation ponds are appropriately classified as waste samples. The descriptions from the other three percolation ponds (Sources 1, 2, and 4) describe the samples as "sludge waste – (solid-matrix) source," "solids waste source samples," or "soil waste-mix source" samples from ponds that

utilized as waste holding receptacles and further support this classification of waste samples. Therefore, the samples collected from these ponds are appropriately classified as waste and are not samples of the native soil.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.15 Source Hazardous Waste Quantity

Comment: ARCO asserted that EPA used an inappropriate source hazardous waste quantity for the percolation ponds, which were evaluated as sources. ARCO commented that EPA did not use appropriate data in evaluating the hazardous wastestream quantity (Tier B) for the percolation ponds. ARCO took issue with the use of the area measure (Tier D) for evaluating the percolation ponds, asserting that it overestimated the amount of waste in sources. ARCO asserted that the source hazardous waste quantities should be recalculated based on available data. ARCO specifically commented that, in recalculating the source hazardous waste quantities to correct for the inappropriate source hazardous waste quantity, the vertical extent of the percolation ponds should be considered in evaluating the source hazardous waste quantity in the event insufficient information is available to evaluated hazardous wastestream quantity.

Response: The source hazardous waste quantity was appropriately determined for the percolation ponds (i.e., Sources 1, 2, 3, and 4). The source hazardous waste quantity for Sources 1-4 was determined using the available information to calculate the hazardous waste quantity for each source consistent with the procedures indicated in the HRS.

HRS Section 2.4.2, *Hazardous waste quantity*, outlines the methodology for estimating the source hazardous waste quantity. Section 2.4.2.1, *Source hazardous waste quantity*, of the HRS requires that a hazardous waste quantity be assigned to each source. It states:

> For each of the three migration pathways, assign a source hazardous waste quantity value to each source (including the unallocated source) having a containment factor value greater than 0 for the pathway being evaluated. Consider the unallocated source to have a containment factor value greater than 0 for each migration pathway.
>
> For the soil exposure pathway, assign a source hazardous waste quantity value to each area of observed contamination, as applicable to the threat being evaluated.
> For all pathways, evaluate source hazardous waste quantity using the following four measures in the following hierarchy:
> - Hazardous constituent quantity.
> - Hazardous wastestream quantity.
> - Volume.
> - Area.
> - …

HRS Section 2.4.2.1.1, *Hazardous constituent quantity*, discusses how to evaluate for the hazardous constituent quantity. It states:

> Evaluate hazardous constituent quantity for the source (or area of observed contamination) based solely on the mass of CERCLA hazardous substances (as defined in CERCLA section 101(14), as amended) allocated to the source (or area of observed contamination) …
> …
> If the hazardous constituent quantity for the source (or area of observed contamination) is adequately determined (that is, the total mass of all CERCLA hazardous substances in the source and releases from the source [or in the area of observed contamination] is known or is estimated

with reasonable confidence), do not evaluate the other three measures discussed below. Instead assign these other three measures a value of 0 for the source (or area of observed contamination) and proceed to section 2.4.2.1.5.

If the hazardous constituent quantity is not adequately determined, assign the source (or area of observed contamination) a value for hazardous constituent quantity based on the available data and proceed to section 2.4.2.1.2.

HRS Section 2.4.2.1.2, *Hazardous wastestream quantity*, discusses how to evaluate for the hazardous wastestream quantity. It states:

Evaluate hazardous wastestream quantity for the source (or area of observed contamination) based on the mass of hazardous wastestreams plus the mass of any additional CERCLA pollutants and contaminants …

Based on this mass, designated as W, assign a value for hazardous wastestream quantity as follows:

• For the migration pathways, assign the source a value for hazardous wastestream quantity using the Tier B equation of table 2–5.

…

• The hazardous wastestream quantity for the source (or area of observed contamination) is adequately determined—that is, total mass of all hazardous wastestreams and CERCLA pollutants and contaminants for the source and releases from the source (or for the area of observed contamination) is known or is estimated with reasonable confidence.

If the source is the unallocated source or if this condition applies, assign the volume and area measures a value of 0 for the source (or area of observed contamination) and proceed to section 2.4.2.1.5. Otherwise, assign the source (or area of observed contamination) a value for hazardous wastestream quantity based on the available data and proceed to section 2.4.2.1.3.

HRS Section 2.4.2.1.3, *Volume*, discusses how to evaluate the volume of a source. It states:

Evaluate the volume measure using the volume of the source (or the volume of the area of observed contamination)....

Based on the volume, designated as V, assign a value to the volume measure as follows:

• For the migration pathways, assign the source a value for volume using the appropriate Tier C equation of table 2–5.

…

If the volume of the source (or volume of the area of observed contamination, if applicable) can be determined, do not evaluate the area measure.

Instead, assign the area measure a value of 0 and proceed to section 2.4.2.1.5. If the volume cannot be determined (or is not applicable for the soil exposure pathway), assign the source (or area of observed contamination) a value of 0 for the volume measure and proceed to section 2.4.2.1.4.

HRS Section 2.4.2.1.4, *Area*, discusses how to evaluate the area of a source. It states:

> Evaluate the area measure using the area of the source (or the area of the area of observed contamination). Based on this area, designated as A, assign a value to the area measure as follows:
>
> > • For the migration pathways, assign the source a value for area using the appropriate Tier D equation of table 2–5.

HRS Section 2.4.2.1.5, *Calculation of source hazardous waste quantity value*, states:

> Select the highest of the values assigned to the source (or area of observed contamination) for the hazardous constituent quantity, hazardous wastestream quantity, volume, and area measures. Assign this value as the source hazardous waste quantity value. Do not round to the nearest integer.

The HRS documentation record at proposal documented how the hazardous waste quantity was evaluated for each of the Site sources. Pages 29–30 of the HRS documentation record at proposal outline the approach to estimating the source hazardous waste quantity for Source 1 used, stating:

> 2.4.2 HAZARDOUS WASTE QUANTITY (Ref. 1, p. 51590)
>
> 2.4.2.1.1 Hazardous Constituent Quantity (Tier A) (Ref. 1, pp. 51590, 51591)
>
> Description
>
> The hazardous constituent quantity for Source 1 could not be adequately determined according to the HRS requirements; that is, the total mass of all CERCLA hazardous substances in the source is not known and cannot be estimated with reasonable confidence (Ref. 1, Section 2.4.2.1.1). There are insufficient historical and current data (Manifests, PRP records, State records, Permits, Waste concentration data, etc.) available to adequately calculate the total or partial mass of all CERCLA hazardous substances in the source and the associated releases from the source. Therefore, there is insufficient information to evaluate the associated releases from the source to calculate the hazardous constituent quantity for Source 1 with reasonable confidence. Scoring therefore proceeds to the evaluation of Tier B, hazardous wastestream quantity.
>
> Hazardous Constituent Quantity Assigned Value: Not Scored
>
> 2.4.2.1.2 Hazardous Wastestream Quantity (Tier B) (Ref. 1, p. 51591)
>
> Description
>
> The hazardous wastestream quantity for Source 1 could not be adequately determined according to the HRS requirements; that is, the total mass of all hazardous wastestreams and CERCLA pollutants and contaminants in the source is not known and cannot be estimated with reasonable confidence [Ref. 1, pp. 51591 (Section 2.4.2.1.2)].There are insufficient historical and current data (Manifests, PRP records, State records, permits, etc.) available to adequately calculate the total or partial mass of all CERCLA hazardous wastestream and CERCLA pollutants and contaminants in the source and the associated releases from the source. Therefore, there is insufficient information to evaluate the associated releases from the source to calculate the hazardous wastestream quantity for Source 1 with reasonable confidence.
>
> Sum (pounds): NA Sum of Wastestream Quantity/5,000 (Table 2-5): NA

Hazardous Wastestream Quantity Assigned Value (W): Not Scored

2.4.2.1.3 Volume (Tier C) (Ref. 1, p. 51591)

Description

Because the horizontal and vertical extent of the source has not been fully characterized, it is not possible to adequately determine the volume of this source. As a volume cannot be determined, a value of zero is assigned. (Ref. 1, Table 2-5, p. 51591).

Volume Assigned Value (V): 0

2.4.2.1.4 Area (Tier D) (Ref. 1, p. 51591)

Description

Source 1 is evaluated as a surface impoundment covering roughly 1.1 acres as calculated using GIS to determine the area of a provided polygon by the START project manager (Ref. 1, Table 2-5 - p. 51591; Figure 2; 31, p.1; 33). There are 43,560 square feet in each acre, so the total number of square feet for this source area is 47,916.

Since the equation for assigning value (Ref. 1, Table 2-5) is the area divided by 13, the HWQ value is equal to 47,916 ft^2 / 13 = 3,685.8

Area Assigned Value (A): 3,685.8

Pages 32–33 of the HRS documentation record at proposal outline the approach used to estimate the source hazardous waste quantity for Source 2, stating:

2.4.2.1.1 Hazardous Constituent Quantity (Tier A) (Ref. 1, pp. 51590, 51591)

Description

The hazardous constituent quantity for Source 2 could not be adequately determined according to the HRS requirements; that is, the total mass of all CERCLA hazardous substances in the source is not known and cannot be estimated with reasonable confidence (Ref. 1, Section 2.4.2.1.1). There are insufficient historical and current data (Manifests, PRP records, State records, Permits, Waste concentration data, etc.) available to adequately calculate the total or partial mass of all CERCLA hazardous substances in the source and the associated releases from the source. Therefore, there is insufficient information to evaluate the associated releases from the source to calculate the hazardous constituent quantity for Source 2 with reasonable confidence. Scoring therefore proceeds to the evaluation of Tier B, hazardous wastestream quantity.

Hazardous Constituent Quantity Assigned Value: Not Scored

2.4.2.1.2 Hazardous Wastestream Quantity (Tier B) (Ref. 1, p. 51591)

Description

The hazardous wastestream quantity for Source 2 could not be adequately determined according to the HRS requirements; that is, the total mass of all hazardous wastestreams and CERCLA pollutants and contaminants in the source is not known and cannot be estimated with reasonable confidence [Ref. 1, pp. 51591 (Section 2.4.2.1.2)]. There are insufficient historical and current data (Manifests, PRP records, State records, permits, etc.) available to adequately calculate the total or partial mass of all CERCLA hazardous wastestream and CERCLA pollutants and contaminants in the source and the associated releases from the source. Therefore, there is insufficient information to evaluate the associated releases from the source to calculate the hazardous wastestream quantity for Source 2 with reasonable confidence.
Sum (pounds): NA

Sum of Wastestream Quantity/5,000 (Table 2-5): NA
Hazardous Wastestream Quantity Assigned Value (W): Not Scored

2.4.2.1.3 Volume (Tier C) (Ref. 1, p. 51591)

Description

Because the horizontal and vertical extent of the source has not been fully characterized, it is not possible to adequately determine the volume of this source. As an area has been calculated, volume is assigned a value of 0. (Ref. 1, Table 2-5).

Volume Assigned Value (V): 0

2.4.2.1.4 Area (Tier D) (Ref. 1, p. 51591)

Description

Source 2 is evaluated as a pile covering roughly 7.6 acres as calculated using GIS to determine the area of a provided polygon by the START project manager (Ref. 1, Table 2-5, p. 51591; Figure 2; 31, p. 1; 33). There are 43,560 square feet in each acre, so the total number of square feet for this source area is 331,056.

Since the equation for assigning value (Ref. 1, Table 2-5) is the area divided by 13, the HWQ value is equal to 331,056 ft^2 / 13 = 25,465.8

Area Assigned Value (A): 25,465.8

Pages 36–37 of the HRS documentation record at proposal outline the approach used to estimate the source hazardous waste quantity for Source 3, stating:

2.4.2.1.1 Hazardous Constituent Quantity (Tier A) (Ref. 1, pp. 51590, 51591)

Description
The hazardous constituent quantity for Source 3 could not be adequately determined according to the HRS requirements; that is, the total mass of all CERCLA hazardous substances in the source is not known and cannot be estimated with reasonable confidence (Ref. 1, Section 2.4.2.1.1). There are insufficient historical and current data (Manifests, PRP records, State records, Permits, Waste concentration data, etc.) available to adequately calculate the total or partial mass of all CERCLA hazardous substances in the source and the associated releases from the source. Therefore, there is insufficient information to evaluate the associated releases from the source to

calculate the hazardous constituent quantity for Source 3 with reasonable confidence. Scoring therefore proceeds to the evaluation of Tier B, hazardous wastestream quantity.

Hazardous Constituent Quantity Assigned Value: Not Scored

2.4.2.1.2 Hazardous Wastestream Quantity (Tier B) (Ref. 1, p. 51591)

Description

The hazardous wastestream quantity for Source 3 could not be adequately determined according to the HRS requirements; that is, the total mass of all hazardous wastestreams and CERCLA pollutants and contaminants in the source is not known and cannot be estimated with reasonable confidence [Ref. 1, pp. 51591 (Section 2.4.2.1.2)]. There are insufficient historical and current data (Manifests, PRP records, State records, permits, etc.) available to adequately calculate the total or partial mass of all CERCLA hazardous wastestream and CERCLA pollutants and contaminants in the source and the associated releases from the source. Therefore, there is insufficient information to evaluate the associated releases from the source to calculate the hazardous wastestream quantity for Source 3 with reasonable confidence.

Sum (pounds): NA

Sum of Wastestream Quantity/5,000 (Table 2-5): NA

Hazardous Wastestream Quantity Assigned Value (W): Not Scored

2.4.2.1.3 Volume (Tier C) (Ref. 1, p. 51591)

Description

Because the horizontal and vertical extent of the source has not been fully characterized, it is not possible to adequately determine the volume of this source. As a volume cannot be determined, a value of zero is assigned. (Ref. 1, Table 2-5, p. 51591).

Volume Assigned Value (V): 0

2.4.2.1.4 Area (Tier D) (Ref. 1, p. 51591)

Description

Source 3 is evaluated as an pile and covers roughly 1.74 acre as estimated by the sampling team and shown in photo 38 (Ref. 3, p. 177) (Ref. 1, Table 2-5, p. 51591; Figure 2; 3, p. 177; 33; 37). There are 43,560 square feet in one acre, yielding 75794.4 sq. ft. in 1.74 acres.

Since the equation for assigning value (Ref. 1, Table 2-5) is the area divided by 13, the HWQ value is equal to 75794.4 ft^2 / 13 = 5830.3

Area Assigned Value (A): 5830.3

2.4.2.1.1 Hazardous Constituent Quantity (Tier A) (Ref. 1, pp. 51590, 51591)

Description

The hazardous constituent quantity for Source 4 could not be adequately determined according to the HRS requirements; that is, the total mass of all CERCLA hazardous substances in the source is not known and cannot be estimated with reasonable confidence (Ref. 1, Section 2.4.2.1.1). There are insufficient historical and current data (Manifests, PRP records, State records, Permits, Waste concentration data, etc.) available to adequately calculate the total or partial mass of all

CERCLA hazardous substances in the source and the associated releases from the source. Therefore, there is insufficient information to evaluate the associated releases from the source to calculate the hazardous constituent quantity for Source 4 with reasonable confidence.

Scoring therefore proceeds to the evaluation of Tier B, hazardous wastestream quantity.
Hazardous Constituent Quantity Assigned Value: Not Scored

Pages 40–41 of the HRS documentation record at proposal detail the approach used to estimate the source hazardous waste quantity for Source 4, stating:

2.4.2.1.1 Hazardous Constituent Quantity (Tier A) (Ref. 1, pp. 51590, 51591)

Description

The hazardous constituent quantity for Source 4 could not be adequately determined according to the HRS requirements; that is, the total mass of all CERCLA hazardous substances in the source is not known and cannot be estimated with reasonable confidence (Ref. 1, Section 2.4.2.1.1). There are insufficient historical and current data (Manifests, PRP records, State records, Permits, Waste concentration data, etc.) available to adequately calculate the total or partial mass of all CERCLA hazardous substances in the source and the associated releases from the source. Therefore, there is insufficient information to evaluate the associated releases from the source to calculate the hazardous constituent quantity for Source 4 with reasonable confidence.

Scoring therefore proceeds to the evaluation of Tier B, hazardous wastestream quantity. Hazardous Constituent Quantity Assigned Value: Not Scored

2.4.2.1.2 Hazardous Wastestream Quantity (Tier B) (Ref. 1, p. 51591)

Description

The hazardous wastestream quantity for Source 4 could not be adequately determined according to the HRS requirements; that is, the total mass of all hazardous wastestreams and CERCLA pollutants and contaminants in the source is not known and cannot be estimated with reasonable confidence [Ref. 1, pp. 51591 (Section 2.4.2.1.2)].There are insufficient historical and current data (Manifests, PRP records, State records, permits, etc.) available to adequately calculate the total or partial mass of all CERCLA hazardous wastestream and CERCLA pollutants and contaminants in the source and the associated releases from the source. Therefore, there is insufficient information to evaluate the associated releases from the source to calculate the hazardous wastestream quantity for Source 4 with reasonable confidence.
Sum (pounds): NA
Sum of Wastestream Quantity/5,000 (Table 2-5): NA
Hazardous Wastestream Quantity Assigned Value (W): Not Scored

2.4.2.1.3 Volume (Tier C) (Ref. 1, p. 51591)

Description

Because the horizontal and vertical extent of the source has not been fully characterized, it is not possible to adequately determine the volume of this source. As a volume cannot be determined, a value of zero is assigned. (Ref. 1, Table 2-5, p. 51591).

Volume Assigned Value (V): 0

2.4.2.1.4 Area (Tier D) (Ref. 1, p. 51591)

Description

Source 4 is evaluated as a pile and covers roughly 3.98 acres as calculated using GIS to determine the area of a provided polygon by the START project manager (Ref. 1, Table 2-5 - p. 51591; 3, pp. 47-48, Figure 2; 36, p. 1; 33). There are 43,560 square feet in one acre, yielding 173, 368.8 sq. ft. in 3.98 acres.

Since the equation for assigning value (Ref. 1, Table 2-5) is the area divided by 13, the HWQ value is equal to 173, 368.8 ft^2 / 13 = 13, 336.06

Area Assigned Value (A): 13,336.06

Pages 29–30, 32–33, 36–37, and 40–41 of the HRS documentation record at proposal indicate the methodology employed to evaluate the source hazardous waste quantity for the each of the percolation ponds. Due to limited information available to adequately determine the hazardous constituent quantity, the hazardous wastestream quantity and the volume of the source, the hazardous waste quantity evaluation proceeded from Tier A to Tier B, then from Tier B to Tier C, and finally from Tier C to Tier D, concluding with an estimate of the area of the source. As described above, this approach is consistent with the HRS. Additionally, in accordance with the HRS, the highest value was selected (the area value) and appropriately assigned as the source hazardous waste quantity.

Comments on specific aspects of the source hazardous waste quantity will be addressed below in the following subsections:

- 3.15.1 Use of NPDES Data
- 3.15.2 Source Hazardous Waste Quantity — Tier C, Volume
- 3.15.3 Source Hazardous Waste Quantity — Tier D, Area

3.15.1 Use of NPDES Data

Comment: ARCO commented that EPA did not use the data that would support the "'most accurate estimate of hazardous wastestream quantity.'" ARCO commented that, as discharges from the percolation ponds were permitted by the State of Montana, calculation of the hazardous waste quantity should be based on data from these permits. ARCO concluded that the hazardous waste quantity would be more appropriately and accurately evaluated using the NPDES permit data.

Response: The hazardous waste quantity, Tier B, hazardous wastestream quantity evaluation was properly completed consistent with the HRS for Sources 1, 2, 3 and 4 in the HRS documentation record at proposal. The HRS evaluation took into consideration the best available information at the time of proposal in evaluating the hazardous wastestream quantity for each of these ponds.

In determining the hazardous wastestream quantity for a source, the HRS Section 2.4.2.1.2 states:

> Evaluate hazardous wastestream quantity for the source (or area of observed contamination) based on the mass of hazardous wastestreams plus the mass of any additional CERCLA pollutants and contaminants (as defined in CERCLA section 101, as amended) that are allocated to the source (or area of observed contamination).
> …

> Otherwise, assign the source (or area of observed contamination) a value for hazardous wastestream quantity based on the available data and proceed to section 2.4.2.1.3.

As quoted above in Section 3.15, Source Hazardous Waste Quantity, pages 29-30, 32-33, 36-37, and 40-41 of the HRS documentation record at proposal indicate that, the hazardous wastestream quantity for Sources 1, 2, 3 and 4, the percolation ponds, could not be adequately evaluated, as insufficient information was available to perform a total wastestream evaluation. Page 23 of the HRS documentation record at proposal also describes the discharge history of the ponds noting that "[p]rior to 1978 the waste effluent from the soaking of the carbon cathodes was piped to the North Percolation Pond." Sufficient information, including NPDES permit compliance data for the complete time these percolation ponds were in use, was therefore unavailable to complete this evaluation. The HRS evaluation then proceeded to Tier C, Volume (HRS Section 2.4.2.1.3), per the HRS. Thus, the evaluation of the hazardous waste quantity, Tier B, hazardous wastestream quantity, was properly evaluated using the best available information, and the hazardous wastestream quantity was not scored.

Regarding ARCO's assertion that the use of the NPDES permit data would result in the most accurate estimate of the hazardous wastestream quantity, NPDES permit data for the Anaconda Aluminum Co Columbia Falls permit are incomplete concerning the percolation ponds, Sources 1-4 over the span of the use of the ponds. The percolation ponds, Sources 1-4, were only monitored under the discharge permit following the permit renewal in 2013[7], and data from discharges from outfalls to these ponds are only available beginning in September 2014. (See attachment 2 to this support document.) Without complete NPDES permit data for the percolation ponds and therefore complete wastestream data, the HRS (Section 2.4.2.1.2, quoted above) instructs a scorer to proceed to Tier C, Volume, in the hazardous waste quantity evaluation. Therefore, without NPDES data for the entire span of time in which the percolation ponds, Sources 1-4, discharged, the hazardous waste quantity evaluation appropriately proceeded to the Tier C, Volume, evaluation.

In addition, even if the limited NPDES permit data for these ponds were used, only a partial hazardous waste quantity could be calculated, and the partial hazardous wastestream quantity would not reduce the hazardous waste quantity assigned for each of the percolation ponds in the HRS documentation record at proposal. As presented in Attachment 2, the Discharge Monitoring Data Report for Permit No. MT0030066[8], using the monthly flow rate for outfall 007 and the biannual flow rate for outfall 008 for 2015, 12.63572 million gallons were discharged into the North Percolation Ponds. Using HRS Table 2-5, 12.63572 million gallons corresponds to a hazardous wastestream quantity of 25271.44. This value is greater than the area value of 3,685.8 assigned for the eastern north percolation pond in the HRS documentation record at proposal. (See page 29 of the HRS documentation record at proposal.) Without a complete hazardous wastestream quantity, per HRS Section 2.4.2.1.1, quoted above, the hazardous waste quantity evaluation proceeds to Tier C. Therefore, the use of NPDES permit data would not result in a decreased hazardous waste quantity value for the North Percolation Ponds.

Similarly, for the Southern Percolation ponds, even if the NPDES permit data for these ponds were used, the partial hazardous wastestream quantity would not reduce the hazardous waste quantity assigned for each of the percolation ponds. As presented in Attachment 2, the Discharge Monitoring Data Report for Permit No. MT0030066[9], using the monthly flow rate for outfall 009, which discharges for 2015, 22.48 million gallons were

[7] Page 6 of the Department of Environmental Quality, Permitting and Compliance Division, Montana Pollutant Discharge Elimination System Fact Sheet for Columbia Falls Aluminum Company, LLC notes that Outfalls 007-009, which discharged wastewater to the North and/or South Percolation ponds, were only monitored following the application for the renewal of the NPDES permit in 2013. It states that "[t]he previous permit required that CFAC monitor only Outfalls 002, 004, and 005." See attachment 1 of this support document for details regarding the renewal of the NPDES permit and Outfalls 007-009.

[8] Outfalls 007 and 008 discharges into North Percolation Ponds, and Outfall 009 discharges into the South Percolation Ponds. (See page 4 of Attachment 1 of this support document.)

[9] Outfalls 007 and 008 discharges into North Percolation Ponds, and Outfall 009 discharges into the South Percolation Ponds. (See page 4 of Attachment 1 of this support document.)

discharged into the South Percolation Ponds. Using HRS Table 2-5, 22.48 million gallons corresponds to a hazardous wastestream quantity of 44,960. This value is greater than the area based source hazardous waste quantity value of 13,336.06 assigned for the eastern south percolation pond or the 5830.3 assigned for the western south percolation pond in the HRS documentation record at proposal. (See pages 37 and 41 of the HRS documentation record at proposal.) Without a complete hazardous wastestream quantity, per HRS Section 2.4.2.1.1, quoted above, the hazardous waste quantity evaluation would still proceed to Tier C. Therefore, the use of NPDES permit data would not result in a decreased hazardous waste quantity value for the South Percolation Ponds.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.15.2 Source Hazardous Waste Quantity — Tier C, Volume

Comment: ARCO commented that, in the event that discharge monitoring reports were unavailable, the hazardous waste quantity for the percolation ponds should be revised to consider the vertical extent of the waste.

Response: EPA attempted to adequately determine the capacity of the pond or vertical extent of the waste in the percolation ponds, to the extent the information was available, when it evaluated the Tier C, volume measure, of the percolation pond sources. However, the information available was insufficient to determine an adequate estimate of the volume of the percolation ponds (Sources 1-4). Therefore, the volume measure, Tier C, of the source hazardous waste quantity calculation was appropriately considered in the HRS documentation record at proposal, and ARCO is incorrect in commenting that the hazardous waste quantity calculation should be revised.

As quoted above, HRS Section 2.4.2.1.3, *Volume*, states that "if the volume cannot be determined, assign the source a value of 0…"

Pages 29, 33, 37, and 41 of the HRS documentation record at proposal document that the volume of the percolation ponds was considered, but that insufficient information existed to adequately determine the volume measure. It states for each source:

> Because the horizontal and vertical extent of the source has not been fully characterized, it is not possible to adequately determine the volume of this source. As a volume cannot be determined, a value of zero is assigned. (Ref. 1, Table 2-5, p. 51591).

The volume measure evaluation in the HRS scoring assigned a value of zero because sufficient information was not available to accurately determine the volume of these sources. This approach is consistent with the HRS methodology for the volume measure quoted above, which directs to assign a zero when the volume cannot be adequately determined. Therefore, the hazardous waste quantity evaluations for the percolation ponds should not be revised to further consider the vertical extent of the waste.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.15.3 Source Hazardous Waste Quantity — Tier D, Area

Comment: ARCO commented that the hazardous waste quantities of Sources 1, 2, 3 and 4, the percolation ponds, are incorrect. ARCO commented that evaluating these ponds using the Tier D, area measure, overestimated the quantity of waste disposed. ARCO asserted that for the hazardous waste quantity presented, the volume of the ponds would need to be 20 to 60 feet deep, based on the arsenic and cyanide concentrations. ARCO further

commented that the best available data were not used to calculate the hazardous waste quantity and the least rigorous method was used.

Response: The HRS documentation record at proposal appropriately evaluated the hazardous waste quantity for each source (for Sources 1-4) consistent with the HRS; Tier D was appropriately evaluated for each source. The Tier D, Area, measure was evaluated in the HRS documentation record at proposal to obtain an estimate of the area of the hazardous waste quantity of the percolation ponds because each source contained insufficient information to evaluate Tier A, Tier B, and Tier C.

As quoted above in Section 3.15, Source Hazardous Waste Quantity, when insufficient information exists to evaluate a particular Tier (i.e., Tier A - the hazardous constituent quantity, Tier B - the hazardous wastestream quantity, or Tier C - Volume), the HRS requires that the scoring should proceed to the next Tier (e.g., from Tier A to Tier B) until an adequate hazardous waste quantity can be determined or until Tier D, Area is evaluated. When evaluating Tier D, Section 2.4.2.1.4, *Area*, of the HRS requires that a source value be assigned. This section states, "[f] or the migration pathways, assign the source a value for area using the appropriate Tier D equation of table 2–5." HRS Table 2-5 provides the equations to obtain an appropriate Tier D measurement. These equations take into consideration source type when evaluating the hazardous waste quantity.

Page 29 of the HRS documentation record at proposal followed this methodology and evaluated the area of the surface impoundment (Source 1):

> Source 1 is evaluated as a surface impoundment[10] covering roughly 1.1 acres as calculated using GIS to determine the area of a provided polygon by the START project manager (Ref. 1, Table 2-5 - p. 51591; Figure 2; 31, p.1; 33). …
>
> Since the equation for assigning value (Ref. 1, Table 2-5) is the area divided by 13, the HWQ value is equal to 47,916 ft^2 / 13 = 3,685.8

Page 33 of the HRS documentation record at proposal followed this methodology and evaluated the area of the pile (Source 2):

> Source 2 is evaluated as a pile covering roughly 7.6 acres as calculated using GIS to determine the area of a provided polygon by the START project manager (Ref. 1, Table 2-5, p. 51591; Figure 2; 31, p. 1; 33). There are 43,560 square feet in each acre, so the total number of square feet for this source area is 331,056.
>
> Since the equation for assigning value (Ref. 1, Table 2-5) is the area divided by 13, the HWQ value is equal to 331,056 ft^2 / 13 = 25,465.8
>
> Area Assigned Value (A): 25,465.8

Page 37 of the HRS documentation record at proposal followed this methodology and evaluated the area of the pile (Source 3):

> Source 3 is evaluated as an pile and covers roughly 1.74 acre as estimated by the sampling team and shown in photo 38 (Ref. 3, p. 177) (Ref. 1, Table 2-5, p. 51591; Figure 2; 3, p. 177; 33; 37). There are 43,560 square feet in one acre, yielding 75794.4 sq. ft. in 1.74 acres.

[10] Page 25 of the HRS documentation record at proposal explains that Source 1 is evaluated as an impoundment. Pages 30, 34 and 38 of the HRS documentation record at proposal explain that Sources 2, 3 and 4 are evaluated as piles.

> Since the equation for assigning value (Ref. 1, Table 2-5) is the area divided by 13, the HWQ value is equal to 75794.4 ft^2 / 13 = 5830.3
>
> Area Assigned Value (A): 5830.3

Page 42 of the HRS documentation record at proposal followed this methodology and evaluated the area of the pile (Source 4):

> Source 4 is evaluated as a pile and covers roughly 3.98 acres as calculated using GIS to determine the area of a provided polygon by the START project manager (Ref. 1, Table 2-5 - p. 51591; 3, pp. 47-48, Figure 2; 36, p. 1; 33). There are 43,560 square feet in one acre, yielding 173, 368.8 sq. ft. in 3.98 acres.
>
> Since the equation for assigning value (Ref. 1, Table 2-5) is the area divided by 13, the HWQ value is equal to 173, 368.8 ft^2 / 13 = 13, 336.06
>
> Area Assigned Value (A): 13,336.06

The HRS evaluation considered the area of the percolation pond and assigned a value based on the equation for evaluating area for a source type impoundment or pile, as applicable, consistent with the HRS, as is quoted above. Thus, the hazardous waste quantity value of 3,685.8 is appropriate because the HRS evaluation of Tier D was consistent with the HRS.

Furthermore, the use of equations to evaluate hazardous waste quantity take into consideration the source type to obtain a relative estimate of the hazardous waste quantity. The hazardous waste quantity and the HRS evaluation, as discussed above, are used to obtain a relative assessment of risk posed by the Site.

Comments on the HRS procedures are not a part of this rule making. The scope of this rulemaking concerns the HRS scoring of the Anaconda Aluminum Co Columbia Falls Reduction Plant site HRS score and its placement on the NPL.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.16 Pathway Hazardous Waste Quantity

Comment: ARCO questioned the assignment of the pathway hazardous waste quantity factor values for both the surface water and ground water pathways. ARCO asserted that the information provided was insufficient to verify the hazardous waste quantity calculation, and that available data would likely lower the pathway hazardous waste quantity scores. ARCO concluded that if the suggested changes to the hazardous waste quantity value were made, then the ground water pathway score would be lower. ARCO also concluded that due to an incorrect hazardous waste quantity, a high bias was present in the evaluation of the environmental threat.

Response: The hazardous waste quantity factor value was assigned consistently with the HRS for both the ground water and surface water pathways. The pathway hazardous waste quantity evaluation took into consideration the available information to determine the pathway hazardous waste quantity value for both the ground water and surface water pathway.

HRS Section 2.4.2.2, *Calculation of hazardous waste quantity factor value*, provides the instructions for assigning a pathway hazardous waste quantity, stating:

Sum the source hazardous waste quantity values assigned to all sources (including the unallocated source) or areas of observed contamination for the pathway being evaluated and round this sum to the nearest integer, except: if the sum is greater than 0, but less than 1, round it to 1. Based on this value, select a hazardous waste quantity factor value for the pathway from Table 2-6.

Table 2–6—Hazardous Waste Quantity Factor Values

Hazardous waste quantity value	Assigned value
0	0
1[a] to 100	1[b]
Greater than 100 to 10,000	100
Greater than 10,000 to 1,000,000	10,000
Greater than 1,000,000	1,000,000

[a]If the hazardous waste quantity value is greater than 0, but less than 1, round it to 1 as specified in text.
[b]For the pathway, if hazardous constituent quantity is not adequately determined, assign a value as specified in the text; do not assign the value of 1.

Ground Water Pathway Hazardous Waste Quantity

Page 59 of the HRS documentation record at proposal explains the hazardous waste quantity factor value calculation for the ground water pathway. (The appropriateness of the source hazardous waste quantity values is discussed above in section 3.15, Source Hazardous Waste Quantity, of this support document.) Page 59 of the HRS documentation record at proposal states:

Source Number	Source Hazardous Waste Quantity Value (Section 2.4.2.1.5)	Is source hazardous constituent quantity data complete? (yes/no)
1	3,685.8	No
2	25,465.8	No
3	5,830.3	No
4	13,336.06	No
5	99.93	No
Total	48,417.89	

According to Section 2.4.2.2 of the HRS (Ref. 1, pp. 51591, 51592), if any target for the migration pathway under consideration is subject to Level I (or Level II) concentrations, assign either the value from Table 2-6 (Ref. 1, p. 51591) or a value of 100, whichever is greater, as the hazardous waste quantity factor value for that pathway.

Hazardous Waste Quantity Factor Value: 10,000
(Ref. 1, Table 2-6, p. 51591)

For the ground water pathway, the HRS documentation record at proposal added the source hazardous waste quantity values for the sources available to the pathway, and assigned a value based on Table 2-6, in accordance with the procedures in HRS Section 2.4.2.2, *Calculation of hazardous waste quantity factor value*, outlined above. As discussed above in section 3.15, Source Hazardous Waste Quantity, of this support document, the source hazardous waste quantity values, which were used to calculate the pathway hazardous waste quantity factor values, were appropriately determined for the HRS evaluation.

Surface Water Pathway Hazardous Waste Quantity

Similarly, the surface water pathway evaluated hazardous waste quantity based on the hazardous waste quantity of the sources available to the pathway. (The appropriateness of the source hazardous waste quantity values is discussed above in section 3.15, Source Hazardous Waste Quantity, of this support document.) Page 71 of the HRS documentation record at proposal explains how the hazardous waste quantity factor value was calculated for the human food chain threat of the surface water pathway. Page 71 of the HRS documentation record at proposal states:

4.2.3.2.2 Hazardous Waste Quantity Source No.	**Source Type**	**Source Hazardous Waste Quantity**
1	Surface impoundment	3,685.8
2	Pile	25,465.8
3	Pile	5,830.3
4	Pile	13,336.06
Total	48,317.96	

Hazardous Waste Quantity Factor Value: 10,000
(Ref. 1, Sec 2.4.2.2)

For the surface water pathway, human food chain threat, the HRS documentation record at proposal added the source hazardous waste quantity values for the sources available to the pathway, and assigned a value based on Table 2-6, in accordance with the procedures outlined in HRS Section 2.4.2.2, *Calculation of hazardous waste quantity factor value.* As discussed above in section 3.15, Source Hazardous Waste Quantity, the source hazardous waste quantity values, which were used to calculate the pathway hazardous waste quantity factor values, were appropriately determined for the Site HRS evaluation.

Additionally, the hazardous waste quantity for the surface water pathway, environmental threat, was evaluated based on the hazardous waste quantity of the sources available to the pathway. (The appropriateness of the source hazardous waste quantity values is discussed above in section 3.15, Source Hazardous Waste Quantity, of this support document.) Page 76 of the HRS documentation record at proposal explains the hazardous waste quantity factor value calculation for the human food chain threat of the surface water pathway. Page 76 of the HRS documentation record states:

Source No.	**Source Type**	**Source Hazardous Waste Quantity**
1	Surface impoundment	3,685.8

2	Pile	25,465.8
3	Pile	5,830.3
4	Pile	13,336.06
Total	48,317.96	

The sum of the hazardous waste quantity values for Sources 1, 2, 3 and 4 corresponds to a hazardous waste quantity factor value of 10,000 in Table 2-6 of the HRS (Ref. 1, p. 51591). Therefore, a hazardous waste quantity factor value of 10,000 is assigned for the ground water to surface water migration component of the surface water migration pathway (Ref. 1, Sections 2.4.2.2 and 4.2.4.2.2, pp. 51591, 51592, 51644).

Hazardous Waste Quantity Factor Value: 10,000
(Ref. 1, Sec 2.4.2.2)

For the surface water pathway, environmental threat, the HRS documentation record at proposal added the source hazardous waste quantity values for the sources available to the pathway, and assigned a value based on Table 2-6, in accordance with the procedures in HRS Section 2.4.2.2, *Calculation of hazardous waste quantity factor value*, outlined above. As discussed above in section 3.15, Source Hazardous Waste Quantity, the source hazardous waste quantity values, which were used to calculate the pathway hazardous waste quantity factor values, were appropriately determined for the HRS evaluation. The hazardous waste quantity was determined consistently with the HRS for the surface water pathway, environmental threat. Therefore, a high bias in the scoring the environmental threat due to an inflated hazardous waste quantity factor value is not present.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.17 Manganese Toxicity

Comment: ARCO submitted comments questioning the manganese toxicity factor value assigned in the HRS scoring of the Site. ARCO questioned the toxicity of manganese, asserting that EPA considers manganese a non-priority pollutant. ARCO commented that the methodology characterizing the toxicity of manganese in the HRS was inappropriate. ARCO further commented that the method of assigning a Reference Dose (RfD) for manganese was inappropriate for evaluating toxicity.
Response: The toxicity (and ecotoxicity[11]) of manganese was appropriately determined consistently with the methodology required by the HRS. HRS Section 2.4.1.1, *Toxicity factor*, establishes the criteria for determining toxicity of substances. It states:

> 2.4.1.1 *Toxicity factor*. Evaluate toxicity for those hazardous substances at the site that are available to the pathway being scored. For all pathways and threats, except the surface water environmental threat, evaluate human toxicity as specified below. For the surface water environmental threat, evaluate ecosystem toxicity as specified in section 4.1.4.2.1.1.
>
> Establish human toxicity factor values based on quantitative dose-response parameters for the following three types of toxicity:

[11] HRS Section 2.4.1.1, *Toxicity factor*, instructs "[f]or the surface water environmental threat, evaluate ecosystem toxicity as specific in section 4.1.4.2.1.1." Pages 76–28 of the HRS documentation record at proposal present the evaluation of the environmental threat for the Site. Accordingly, the HRS documentation record at proposal evaluated ecosystem toxicity for the surface water environmental threat.

• Cancer– –Use slope factors (also referred to as cancer potency factors) combined with weight-of evidence ratings for carcinogenicity. If a slope factor is not available for a substance, use its ED10value to estimate a slope factor as follows:

$$\text{Slope factor} = \frac{1}{6\ (ED10)}$$

• Noncancer toxicological responses of chronic exposure– –use reference dose (RfD) values.

• Noncancer toxicological responses of acute exposure– –use acute toxicity parameters, such as the LD50.

Assign human toxicity factor values to a hazardous substance using table 2–4, as follows:

• If RfD and slope factor values are both available for the hazardous substance, assign the substance a value from table 2–4 for each. Select the higher of the two values assigned and use it as the overall toxicity factor value for the hazardous substance.

• If either an RfD or slope factor value is available, but not both, assign the hazardous substance an overall toxicity factor value from table 2–4 based solely on the available value (RfD or slope factor).

• If neither an RfD nor slope factor value is available, assign the hazardous substance an overall toxicity factor value from table 2–4 based solely on acute toxicity. That is, consider acute toxicity in table 2–4 only when both RfD and slope factor values are not available.

• If neither an RfD, nor slope factor, nor acute toxicity value is available, assign the hazardous substance an overall toxicity factor value of 0 and use other hazardous substances for which information is available in evaluating the pathway.

Table 2–4—Toxicity Factor Evaluation
Chronic Toxicity (Human)

Reference dose (RfD) (mg/kg-day)	Assigned value
RfD < 0.0005	10,000
0.0005 ≤ RfD < 0.005	1,000
0.005 ≤ RfD < 0.05	100
0.05 ≤ RfD < 0.5	10
0.5 ≤ RfD	1
RfD not available	0

Carcinogenicity (Human)

Weight-of-evidence[a]/slope factor (mg/kg-day)$^{-1}$			Assigned value
A	B	C	
0.5 < SF[b]	5 ≤ SF	50 ≤ SF	10,000
0.05 ≤ SF < 0.5	0.5 ≤ SF < 5	5 ≤ SF < 50	1,000
SF < 0.05	0.05 ≤ SF < 0.5	0.5 ≤ SF < 5	100
———	SF < 0.05	SF < 0.5	10

Slope factor not available	Slope factor not available	Slope factor not available	0

[a]A, B, and C refer to weight-of-evidence categories. Assign substances with a weight-of-evidence category of D (inadequate evidence of carcinogenicity) or E (evidence of lack of carcinogenicity) a value of 0 for carcinogenicity.
[b]SF = Slope factor.

Table 2–4—Toxicity Factor Evaluation—Concluded
Acute Toxicity (Human)

Oral LD_{50}(mg/kg)	**Dermal LD_{50}(mg/kg)**	**Dust or mist LC_{50}(mg/l)**	**Gas or vapor LC_{50}(ppm)**	**Assigned value**
———	———	———	———	——
$LD_{50} < 5$	$LD_{50} < 2$	$LC_{50} < 0.2$	$LC_{50} < 20$	1,000
$5 \leq LD_{50} < 50$	$2 \leq LD_{50} < 20$	$0.2 \leq LC_{50} < 2$	$20 \leq LC_{50} < 200$	100
$50 \leq LD_{50} < 500$	$20 \leq LD_{50} < 200$	$2 \leq LC_{50} < 20$	$200 \leq LC_{50} < 2{,}000$	10
$500 \leq LD_{50}$	$200 \leq LD_{50}$	$20 \leq LC_{50}$	$2{,}000 \leq LC_{50}$	1
LD_{50}not	LD_{50}not available	LC_{50}not available	LC_{50}not available	0

For hazardous substances having usable toxicity data for multiple exposure routes (for example, inhalation and ingestion), consider all exposure routes and use the highest assigned value, regardless of exposure route, as the toxicity factor value.

As referenced in HRS Section 2.4.1.1, *Toxicity factor*, HRS Section 4.1.4.2.1.1, *Ecosystem toxicity*, describes the requirements for assigning a surface water ecotoxicity value, instructing:

4.1.4.2.1.1 Ecosystem toxicity. Assign an ecosystem toxicity factor value from Table 4–19 to each hazardous substance on the basis of the following data hierarchy:

• EPA chronic Ambient Water Quality Criterion (AWQC) for the substance.
• EPA chronic Ambient Aquatic Life Advisory Concentrations (AALAC) for the substance.
• EPA acute AWQC for the substance.
• EPA acute AALAC for the substance.
• Lowest LC50value for the substance.

In assigning the ecosystem toxicity factor value to the hazardous substance:

• If either an EPA chronic AWQC or AALAC is available for the hazardous substance, use it to assign the ecosystem toxicity factor value. Use the chronic AWQC in preference to the chronic AALAC when both are available.

• If neither is available, use the EPA acute AWQC or AALAC to assign the ecosystem toxicity factor value. Use the acute AWQC in preference to the acute AALAC.

• If none of the chronic and acute AWQCs and AALACs is available, use the lowest LC50value to assign the ecosystem toxicity factor value.

• If an LC50value is also not available, assign an ecosystem toxicity factor value of 0 to the hazardous substance and use other hazardous substances for which data are available in evaluating the pathway.

If an ecosystem toxicity factor value of 0 is assigned to all hazardous substances eligible to be evaluated for the watershed (that is, insufficient data are available for evaluating all the substances), use a default value of 100 as the ecosystem toxicity factor value for all these hazardous substances.

With regard to the AWQC, AALAC, or LC50 selected for assigning the ecosystem toxicity factor value to the hazardous substance:

• If values for the selected AWQC, AALAC, or LC50 are available for both fresh water and marine water for the hazardous substance, use the value that corresponds to the type of water body (that is, fresh water or salt water) in which the sensitive environments are located to assign the ecosystem toxicity factor value to the hazardous substance.

• If, however, some of the sensitive environments being evaluated are in fresh water and some are in salt water, or if any are in brackish water, use the value (fresh water or marine) that yields the higher factor value to assign the ecosystem toxicity factor value to the hazardous substance.

• If a value for the selected AWQC, AALAC, or LC50is available for either fresh water or marine water, but not for both, use the available one to assign an ecosystem toxicity factor value to the hazardous substance.

EPA chronic AWQC or AALAC	**Assigned value**
Less than 1 µg/l	10,000
1 to 10 µg/l	1,000
Greater than 10 to 100 µg/l	100
Greater than 100 to 1,000 µg/l	10
Greater than 1,000 µg/l	1
If neither an EPA chronic AWQC nor EPA chronic AALAC is available, assign a value based on the EPAacute AWQC or AALAC as follows:[c]	
EPA acute AWQC or AALAC	**Assigned value**
Less than 100 µg/l	10,000
100 to 1,000 µg/l	1,000
Greater than 1,000 to 10,000 µg/l	100
Greater than 10,000 to 100,000 µg/l	10
Greater than 100,000 µg/l	1
If neither an EPA chronic or acute AWQC nor EPA chronic or acute AALAC is available, assign a valuefrom the LC_{50}as follows:	
LC_{50}	**Assigned value**
Less than 100 µg/l	10,000
100 to 1,000 µg/l	1,000
Greater than 1,000 to 10,000 µg/l	100
Greater than 10,000 to 100,000 µg/l	10
Greater than 100,000 µg/l	1
If none of the AWQCs and AALACs nor the $LC_{50}$is available, assign a value of 0.	

[a]AWQC—Ambient Water Quality Criteria.
[b]AALAC—Ambient Aquatic Life Advisory Concentrations.
[c]Use the AWQC value in preference to the AALAC when both are available. See text for use of fresh water and marine values.

Page A-243 of Reference 2 to the HRS documentation record at proposal, the Superfund Chemical Data Matrix, provides a compilation of the quantitative dose-response parameters for human toxicity as well as ecological toxicity parameters for manganese as follows:

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	1.4E-01	mg/kg/day	IRIS
Inhal RfD:	1.4E-05	mg/kg/day	IRIS
RfC	5.0E-05	mg/m^3	
Oral Slope:		IRIS (mg/kg/day)^-1	
Oral Wt-of-Evid:	D		IRIS
IUR:		(µg/m3)^-1	
IUR Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:		mg/kg	ACGIH
Dermal LD50:	5.6E+01	mg/kg	
Gas Inhal LC50:	5.0E+01	ACGIH ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	3.8E+03	µg/L	ECOTOX
Salt Ecol LC50:	3.8E+03	µg/L	ECOTOX

Page 71 of the HRS documentation record at proposal, assigned a 10,000 toxicity value to manganese for the ground water pathway. HRS documentation record at proposal page 71 assigned a toxicity factor value of 10,000 for the human food chain threat of the surface water pathway, and page 75 assigned a 100 ecotoxicity value for manganese for the environmental threat of the surface water pathway. As a slope factor is not available for manganese, the toxicity of 10,000 for the ground water pathway and the human food chain threat of the surface

water pathway was assigned based on an inhalation RfD of 1.4E-05 mg/kg/day, the higher of the two RfDs available for manganese, which corresponds to a toxicity of 10,000 based on HRS Table 4-2. The ecotoxicity of 100 for the environmental threat was based on an LC50 of 3.8+E03 ug/L. (See Reference 2 to the HRS documentation record at proposal, quoted above.) Thus, the HRS evaluation of the Site assigned toxicity for manganese consistent with the HRS.

Furthermore, regarding ARCO's assertion that, in general, the methodologies in the HRS used to determine toxicity are inappropriate, HRS methodologies are not part of this rulemaking; this rulemaking only relates to the appropriate application of the HRS to the Anaconda Aluminum Co Columbia Falls Reduction Plant site.

Comments addressing specific aspects of the manganese toxicity for HRS purposes are addressed below in the following subsections:

- 3.17.1 Pollutants
- 3.17.2 RfD Based Toxicity

3.17.1 Pollutants

Comment: ARCO submitted comments questioning the toxicity of manganese assigned by EPA based on the substance classification assigned by EPA. ARCO asserted that manganese was considered a non-priority pollutant. ARCO further commented, in questioning the toxicity of manganese, that the human health water quality criterion value of 50 ug/L for manganese in water was not based on toxic effects. ARCO commented that the manganese concentrations in the Flathead River are lower than EPA's recommended human health water quality value of 50 ug/L. ARCO commented that manganese is treated similarly to priority pollutants but the pathway factors used to calculate toxicity are lower for manganese.

Response: Manganese was evaluated as a hazardous substance in an observed release to surface water consistently with the HRS and the substance was assigned toxicity and ecotoxicity values consistent with HRS Sections 2.4.1.1, *Toxicity factor*, and 4.1.4.2.1.1, *Ecosystem toxicity*. (The appropriate assignment of toxicity [and ecotoxicity] for manganese in the HRS documentation record at proposal is discussed in detail above in section 3.17, Manganese Toxicity, of this support document.) The HRS does not consider whether a hazardous substance is a priority or non-priority pollutant in establishing which hazardous substances are eligible for HRS purposes. Whether a hazardous substance is an HRS-eligible substance is discussed in Section 1.1, *Definitions*, of the HRS. This section of the HRS defines a hazardous substance as:

> CERCLA hazardous substances, pollutants, and contaminants as defined in CERCLA sections 101(14) and 101(33), except where otherwise specifically noted in the HRS.

Regarding hazardous substances, CERCLA section 101(14) defines hazardous substances as follows:

> The term ''hazardous substance'' means (A) any substance designated pursuant to section 311(b)(2)(A) of the Federal Water Pollution Control Act, (B) any element, compound, mixture, solution, or substance designated pursuant to section 102 of this Act, (C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Act of Congress), (D) any toxic pollutant listed under section 307(a) of the Federal Water Pollution Control Act, (E) any hazardous air pollutant listed under section 112 of the Clean Air Act, and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act. . . .

CERCLA Section 102 (a) states:

> SEC.102. (a) The Administrator shall promulgate and revise as may be appropriate, regulations designating as hazardous substances, in addition to those referred to in section 101(14) of this title, such elements, compounds, mixtures, solutions, and substances which, when released into the environment may present substantial danger to the public health or welfare or the environment, and shall promulgate regulations establishing that quantity of any hazardous substance the release of which shall be reported pursuant to section 103 of this title.

Title 40 of the Code of Federal Regulations section 302.4[12] lists hazardous substances that qualify as hazardous substances under section 102(a) of CERCLA as substances that are identified in the statutes referred to in CERCLA section 101(14). Title 40 of the Code of Federal Regulations section 302.4 lists manganese as a hazardous substance. (40 CFR 302.4) This list references section 112 of the Clean Air Act, as the designating statutory source that identifies manganese as a hazardous substance. Manganese is an HRS-eligible hazardous substance and can be scored accordingly in an HRS evaluation because it qualifies as a CERCLA hazardous substance pursuant to 40 CFR 302.4.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.17.2 RfD Based Toxicity

Comment: ARCO commented that EPA's method of using the lowest RfD for manganese to determine its toxicity factor value for the ground water to surface water component was inappropriate. ARCO commented that, as exposure pathways have vastly different RfDs, the methodology of using the lower RfD is inaccurate. ARCO commented that this methodology characterizing manganese toxicity results in an inappropriate HRS score for a non-priority pollutant. ARCO asserted that a pathway-specific toxicity value should be used to evaluate the ground water to surface water component of the surface water pathway.

ARCO also took issue with use of an inhalation RfD for assigning a toxicity factor value. ARCO asserted that a toxicity value that is consistent with oral exposure to surface water instead of inhalation should be used to evaluate the ground water to surface water component of the surface water pathway. ARCO asserted that the inhalation RfD (0.000014 mg/kg/day) was significantly lower than the oral RfD (0.14 mg/kg/day). ARCO commented that the use of this "RfC" further increases the error by assuming all of the manganese inhaled is absorbable.

ARCO commented that EPA should be consistent with classifying manganese. ARCO asserted that it was inappropriate to assess non-priority pollutants using the methodology outlined. ARCO also commented that the methodology used for determining toxicity mischaracterizes manganese and does not take into consideration the pathway under consideration.

Response: ARCO is incorrect in asserting that an inappropriate toxicity value was assigned for manganese. As discussed in Section 3.17, Manganese Toxicity, of this support document, a toxicity value for HRS purposes is assigned based on quantitative dose-response parameters. The toxicity value for manganese used in the HRS evaluation of the Site was correctly assigned in accordance with the HRS.

HRS Section 2.4.1.1, *Toxicity factor,* indicates that for assigning a toxicity value, that "hazardous substances having useable **toxicity data for multiple exposure routes …consider all exposure routes and use the highest assigned value regardless of exposure route**." [emphasis added] As discussed above, HRS Section 2.4.1.1, *Toxicity factor,* indicates that if estimating a slope factor value when a slope factor value is not available to

[12] 40 CFR 302.4 is available online at: http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr302_main_02.tpl

determine toxicity, a scorer can for "[n]oncancer toxicological responses of chronic exposure– – use reference dose (RfD) values."

Page 71 of the HRS documentation record at proposal indicates that for the human food chain threat of the surface water pathway, a toxicity of "10,000" was assigned. As discussed above in section 3.17, Manganese Toxicity, of this support document, page A-243 of Reference 2 to the HRS documentation record at proposal provides the compiled toxicity parameters for manganese. Based on this information, a slope factor is unavailable for manganese. However, both an oral RfD of 1.4E-01 mg/kg/day and inhalation RfD of 1.4E-05 mg/kg/day are available. Per the HRS, as quoted above, the highest assigned value is used regardless of exposure route. The highest assigned value corresponds to the RfD of 1.4E-05 mg/kg/day and according to HRS Table 2-4, this corresponds to a toxicity value of 10,000. Based on the inhalation RfD for manganese of 1.4E-05 mg/kg/day, a toxicity value of 10,000 was correctly assigned for the ground water pathway and the human food chain threat of the surface water pathway was assigned consistent with the HRS methodology discussed above. Hence, the use of the inhalation RfD to assign a toxicity value for manganese in the ground water migration and surface water migration pathways was appropriate and consistent with the HRS.

The U.S. Court of Appeals for the D.C. Circuit has specifically ruled on the consideration of exposure routes when assigning toxicity for HRS purposes. In the case of Carus Chemical Company v. U.S. Environmental Protection Agency, the court found that EPA is to consider any toxicity data from any exposure route [e.g., inhalation] when determining the toxicity factor value for a hazardous substance for any pathway in an HRS evaluation. (395 F.3d 434 (D.C. Cir. 2005)) The Court stated that the HRS "unequivocally requires that, when the substance being scored has 'usable toxicity data for multiple exposure routes' … the EPA [must] 'consider all exposure routes and use the highest assigned value, regardless of exposure route [for which a site is being evaluated].'"

Regarding ARCO's assertion that the procedures outlined in the HRS used to determine toxicity should be modified, the procedures in the HRS are not part of this rulemaking. This rulemaking only relates to whether the Anaconda Aluminum Co Columbia Falls Reduction Plant site should be placed in the NPL based on its HRS evaluation.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.18 Aquifer Hydrogeology

Comment: ARCO submitted comments questioning the hydrology and ground water flow direction at the Site used in establishing attribution of observed releases to ground water and to surface water to the site. ARCO specifically challenged the ground water flow direction descriptions and the potentiometric ground water contours presented in the HRS documentation record at proposal. ARCO commented that the ground water flow paths presented in the HRS documentation record at proposal were inconsistent and not supported by ground water elevation data.

ARCO also asserted that the ground water contours that model the ground water flow required the presence of a ground water "ridge" between the Flathead River and the sources on the facility property to allow ground water flow towards the drinking water well in Columbia Falls, Montana. ARCO commented that insufficient information was provided to support a ground water ridge in this location. ARCO further commented that a ground water ridge in this location would be inconsistent with the conclusion that ground water flows to the south from the facility to the Flathead River.

ARCO also commented that the ground water potentiometric contours were created from wells with varying depths. ARCO asserted that ground water elevations for ground water monitoring wells were estimated instead of surveyed, commenting that the conclusions from these estimates are questionable.

Response: The Site hydrology and local ground water flow direction were sufficiently determined and documented in the HRS documentation record at proposal for use in performing the HRS evaluation of the Site. The local ground water flow **beneath** the facility was determined to be predominantly toward the south to southwest, toward the Flathead River. EPA did not assume that a "groundwater 'ridge'" is present at the Site to "force" water to flow southwest toward the drinking water well in Columbia Falls, Montana. Rather, EPA used local ground water elevation data, presented in Figure 3 of the HRS documentation record at proposal, to project that the ground water flow direction beneath the facility is toward the south to southwest. The local ground water elevation data also indicate that there may be many local variations in the ground water flow direction in the areas surrounding the Anaconda Aluminum facility, particularly to the west of the facility, but due to the mountainous nature of the area a single general ground water flow direction for the area cannot be identified because flow direction likely varies over time and distance.

The HRS does not directly require that ground water flow direction be determined at a site, the HRS requires that the aquifers be evaluated at a site to establish that drinking water wells are located in the same hydrologic unit as the site source contamination. HRS Section 3.0.1.2, *Aquifer boundaries*, states:

> Combine multiple aquifers into a single hydrologic unit for scoring purposes if aquifer interconnections can be established for these aquifers. In contrast, restrict aquifer boundaries if aquifer discontinuities can be established.

Section 3.0.1.2.1, *Aquifer interconnections*, of the HRS then directs to evaluate the aquifer interconnections within 2-miles of the sources at the site:

> Evaluate whether aquifer interconnections occur within 2 miles of the sources at the site. If they occur within this 2- mile distance, combine the aquifers having interconnections in scoring the site. In addition, if observed ground water contamination attributable to the sources at the site extends beyond 2 miles from the sources, use any locations within the limits of this observed ground water contamination in evaluating aquifer interconnections. If data are not adequate to establish aquifer interconnections, evaluate the aquifers as separate aquifers.

Section 3.0.1.2.2, *Aquifer discontinuities*, of the HRS then directs to evaluate the aquifers for any discontinuities. It states:

> Evaluate whether aquifer discontinuities occur within the 4-mile target distance limit. An aquifer discontinuity occurs for scoring purposes only when a geologic, topographic, or other structure or feature entirely transects an aquifer within the 4-mile target distance limit, thereby creating a continuous boundary to ground water flow within this limit. If two or more aquifers can be combined into a single hydrologic unit for scoring purposes, an aquifer discontinuity occurs only when the structure or feature entirely transects the boundaries of this single hydrologic unit.

In addition to evaluating the aquifer at the Site, the HRS also requires, in Section 2.3, *Likelihood of release*, that to establish an observed release by chemical analysis (which is evaluated at this site) that "some portion of the release must be attributable to the site" because the ground water flow direction is used at this Site in establishing attribution.

At this Site, the aquifer being evaluated is the glacial and alluvial outwash sediments that extend from the surface down to approximately 300 feet below ground surface (bgs). Pages 49 –52 of the HRS documentation record at proposal describe the local and regional geology of the aquifers being evaluated. Page 49 specifically describes the aquifer being evaluated at this Site and states:

> The aquifer being evaluated consists of the unconsolidated alluvial deposits that are found in the Flathead River valley bottoms, and the smaller, localized glacial outwash lenses that have intermingled and mixed along the margins of the mountain/valleys with the river alluvium (Ref. 20, p. 20, Figure 18). In some places, the glacial outwash extends to depths of up to 94 below ground surface [bgs], and the alluvium ranges from 70 to 300 feet in thickness of glacial, glacio-lustrine, and glacial-alluvial sediments. These are underlain by several hundred feet of relatively impermeable till (Refs. 18, p.41; 20, pp. 20, 38, 40). This interbedded aquifer is hereinafter referred to as the Alluvial/Glacial aquifer, is the most permeable aquifer in the Kalispell Valley consisting of various water bearing gravel strata that were laid down by glaciation or the Flathead River and are interconnected above the till layer confining the Pleistocene artesian aquifer. These deposits consist of heterogeneous mixtures of gravels, sands, silts and clays (Ref 18, p. 12; Figure 7 and Figure 8 of this HRS documentation record). The thickness of the sediments at the site is known to be at least 300 feet as measured at Well TW-11 (Figure 7 and Figure 8 of this HRS documentation record).

Page 51 of the HRS documentation record at proposal discusses the aquifer interconnections. It states:

> Ground water is present in the glacial (where present) and alluvial deposits beneath the plant property. The occurrence, distribution and abundance of ground water is closely related to subsurface geological conditions. As described above, this area was influenced by several glacial events and hydrogeology of the area is complex (Ref. 18, pp. 38, 39, 42, 43). The glacial and alluvial aquifers are considered to be interconnected at the site and within two miles of the sources along the river valley due to the absence of any confining layers or aquatards separating the glacial outwash hydrologic unit from the alluvial unit as shown in the cross-sections (Figures 7 and 8). Further, the presence of site contaminants in ground water on site as well as in a Level I actual contamination well demonstrate an interconnection and absence of discontinuities between the sources and the drinking water well (Section 3.3.2 of this HRS documentation record). In addition, all the layers appear to have hydraulic conductivities within two orders of magnitude (Ref. 1, Table 3-6). The alluvial/glacial aquifer extends downstream at least to the location of the community well CF-GW-OP-02 and constitutes a single hydrogeologic unit, i.e., the Alluvial/Glacial aquifer (Refs. 8, p. 38; 18, pp. 37, 38; 20, pp. 20, 38, 40).
>
> Geology of Anaconda Aluminum Co Columbia Falls Reduction Plant area, including the community well (CF-GW-OP-02), are shown in Figures 7 and 8 of this HRS documentation record. The cross section locations are shown in Figure 2. The cross sections show the absence of any confining layer between the prevalent alluvial/gravel water bearing strata and the glacial outwash that overlaps the alluvial along the valley sides.

Page 52 of the HRS documentation record at proposal then discusses aquifer discontinuities at the Site. It states:

> hydraulically connected with layers/lenses of the glacial aquifer that contain significant supplies of ground water and are in direct contact with the alluvial aquifer. The alluvial/glacial aquifer is present in valley-fill alluvium that is continuous between the areas of the sources and the Flathead River (Refs. 18, pp. 37, 38; 20, pp. 8, 10). There is no evidence that any geologic (e.g., major faults, intrusive formations such as dikes or sills), topographic, or other structure or feature (e.g., erosional channels and large bodies of water), that entirely transects the alluvial aquifer and that creates a continuous boundary to ground water flow, exists anywhere between the sources and the Flathead River (Refs. 18, pp. 37, 38; 20, pp. 8, 10, 16; Figures 7 and 8 of this HRS documentation record). The interconnected aquifers are found in the river valley that extends southward to the Swan Range, south of the Flathead River. The mountain ranges of the study area are shown in Reference 20, p. 16, Figure 14; 5, p. 31. The Teakettle Mountain acts as an aquifer boundary

> (discontinuity) for HRS purposes (Ref. 20, p. 16, Figure 18). Furthermore the Flathead River does not entirely transect the combined aquifer as described in section 4.2.1.1 of this HRS documentation record.
>
> Evidence that there are no discontinuities between the source areas and drinking water wells includes that all seepage water from the percolation ponds that had entered the alluvial aquifer eventually reached the river (Ref. 7, pp. 4, 5). Further, the presence of site contaminants in ground water on site as well as in a Level I actual contamination well demonstrate an absence of discontinuities between the sources and drinking water well (Section 3.3.2 of this HRS documentation record).

Regarding the attribution of the contaminants in the release samples to the sources at the Site, page 58 of the HRS documentation record at proposal discusses the association of contamination in the release samples to the Anaconda Aluminum site. It states:

> It has been documented that arsenic, total chromium, total cyanide and manganese have all been found in sources onsite. Chromium is used in making aluminum alloys and total cyanide is found in spent potliner material that has been disposed of onsite (Refs. 9, p. 7; 19, p. 12). Total cyanide has been previously documented in a release to both ground water and surface water (Ref. 3, p. 25). Cadmium, total chromium and iron are common in aluminum ores. Further, these substances have been documented in onsite sources evaluated for this site. There are no other potential sources for these contaminants located either up-gradient or in the immediate area (Ref. 39).

The information describing the aquifer quoted above also supports that the ground water flow direction is such that the background ground water samples are upgradient of the site sources, and the release wells are downgradient of the site sources.

As identified in the HRS documentation record at proposal, EPA appropriately evaluated the glacial/alluvial aquifer at this Site as one interconnected hydrologic unit (which was not challenged by the commenters) and determined that no aquifer discontinuities were identified at the Site. EPA evaluated the hydrology at the Site and determined that, beneath the facility, the ground water flow direction is toward the south to southwest. Additionally, it was documented that there are no aquifer discontinuities between the site sources and the drinking water wells that would restrict ground water flow. Finally, the contamination found in the ground water drinking water well (e.g., arsenic, chromium, and cyanide contamination) was determined to be attributable, at least in part, to the sources at the Site because it is consistent with the contamination in the site sources, the hydrology at the Site is supportive of flow between the site sources and the drinking water well, and no other possible sources of the contamination were identified in the vicinity of the Site. (See section 3.19.6, Attribution of Cyanide in Domestic Drinking Water Well, of this support document for additional information on attribution)

EPA did not identify a ground water “ridge” to be present at the Site and the hydrological evaluation of the Site does not require that a ground water ridge forces ground water toward the drinking water well in Columbia Falls, Montana. EPA only identified that local directional variations in ground water flow may be present at the Site. These variations may lead to the flow direction being toward the drinking water well at various times and not at other times. These variations could be due to the depositional characteristics of the interconnected glacial/alluvial strata, to seasonal variations in precipitation and soil saturation, or to influences from municipal well drawdowns. These local ground water flow variations depicted in the potentiometric contour map (Figure 3 of the HRS documentation record at proposal) do support the attribution of contamination in the release well to the sources at the Site. It was also determined that no other local sources of the contaminants could be determined in the vicinity of the Site; therefore it was determined that the significant increase of the contamination in the release well was due, at least in part, to releases from the sources at the Site.

Regarding ARCO's comment that the potentiometric contour map was created using wells with varying depths; because there is only one aquifer (one hydraulic unit) present at the Site (a fact not disputed by the commenters) and all of the wells are located in the same aquifer, the depth of the wells in this aquifer will not impact the depth to water (height of water) in the well. The glacial/alluvial aquifer is considered one hydraulic unit in the HRS documentation record at proposal, which was unchallenged by commenters, and does not contain any horizontal confining layers that might cause depth to water anomalies (e.g., artesian wells). Therefore, the depth of the wells in the glacial/alluvial aquifer is not relevant to creating the potentiometric contour map.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.19 Observed Release to Ground Water

Comment: ARCO submitted several comments regarding the identification of observed releases to ground water, and particularly on the identification of an observed release of cyanide to a drinking water well. These comments deal specifically with the:

- Analytical Cyanide Data Quality of the Sample from the Domestic Drinking Water Well
- Presence of Cyanide in the Domestic Drinking Water Well
- Cyanide Ground Water Background Level
- Releases Below Regulatory Benchmarks
- Attribution of Cyanide in the Domestic Drinking Water Well

ARCO also identified that ground water samples from the alluvial aquifer located approximately 2,000 feet downgradient of percolation pond sources on the site did not contain contaminant concentrations exceeding three times background concentrations. ARCO argued that "[i]f cyanide was migrating from the West Landfill through the alluvial aquifer, it is reasonable to expect intermediate cyanide concentrations along the ground water flow path and in adjacent monitoring wells to the residential well where cyanide was detected." ARCO identified that monitoring wells (MW-08 and MW-09) along the potential ground water flow paths from the West Landfill did not reveal detections of cyanide greater than MW-15.

Response: The HRS ground water migration pathway evaluation of observed releases of hazardous substances to ground water were performed consistently with the HRS; this evaluation included the identification of observed releases to ground water of several hazardous substances, including an observed release of cyanide to a drinking water supply well. Each of ARCO's comments are addressed in this section or the successive subsections of this support document.

HRS Sections 2.3, *Likelihood of release*, and 3.1.1, *Observed release*, identify the requirements for identifying observed releases to ground water. HRS Section 2.3, *Likelihood of release,* instructs a scorer to:

> Establish an observed release either by direct observation of the release of a hazardous substance into the media being evaluated (for example, surface water) or by chemical analysis of samples appropriate to the pathway being evaluated (see sections 3, 4, and 6). The minimum standard to establish an observed release by chemical analysis is analytical evidence of a hazardous substance in the media significantly above the background level. Further, some portion of the release must be attributable to the site. Use the criteria in table 2–3 as the standard for determining analytical significance.
>
> HRS Table 2-3 provides specific criteria for establishing an observed release by chemical analysis:

> • If the background concentration is not detected (or is less than the detection limit), an observed release is established when the sample measurement equals or exceeds the sample quantitation limit.
> • If the background concentration equals or exceeds the detection limit, an observed release is established when the sample measurement is 3 times or more above the background concentration.

HRS Section 3.1.1, *Observed release*, discusses how to establish an observed release for the ground water migration pathway as follows:

> 3.1.1 Observed release. Establish an observed release to an aquifer by demonstrating that the site has released a hazardous substance to the aquifer. Base this demonstration on either:
>
> • Direct observation—a material that contains one or more hazardous substances has been deposited into or has been observed entering the aquifer.
>
> • Chemical analysis—an analysis of ground water samples from the aquifer indicates that the concentration of hazardous substance(s) has increased significantly above the background concentration for the site (see section 2.3). Some portion of the significant increase must be attributable to the site to establish the observed release, except: when the source itself consists of a ground water plume with no identified source, no separate attribution is required.
>
> If an observed release can be established for the aquifer, assign the aquifer an observed release factor value of 550, enter this value in table 3–1, and proceed to section 3.1.3. If an observed release cannot be established for the aquifer, assign an observed release factor value of 0, enter this value in table 3–1, and proceed to section 3.1.2.

Pages 54, 57, and 58 of the HRS documentation record at proposal listed several background and release samples used to document an observed release to ground water by chemical analysis. Page 54 provides information on the background samples[13] used to establish an observed release, in relevant part, as follows:

The background samples listed below were collected during the 2013 sampling effort conducted by START for EPA:

Hazardous Substance	Location	Concentration (µg/L)	RL (µg/L)	References
Arsenic Total (dissolved)	CF-GW-MW-01 (MH5099)	1.0U	1.0	Refs. 3, Table E30, p. 289, App. D, pp. 218; 3a, App. F Section 5, pp. 1135, Section 7. pp. 1,458, 1,482; 44
	CF-GW-MW-02 (MH5002)	1.0U	1.0	Refs. 3, Table E30, p. 243, App. D, pp. 216; 3a, App. F Section 5, pp. 1135, 1429, Section 7. pp. 1,458, 1,469, 1,470;

[13] The background concentration for cyanide presented in the HRS documentation record at proposal is qualified with a "J-" qualifier, which is defined on page 54 of the HRS documentation record at proposal in a footnote below the table as an estimated quantity, biased low. Accordingly, as noted in the same table and a footnote to this table, this biased low concentration was adjusted according to the EPA factsheet *Using Qualified Data to Document and Observed Release and Observed Contamination* (Reference 17 of the HRS package at proposal). The value was to obtain a projected estimated maximum value to account for any possible low bias associated with the sample result. Exhibit 3 of this document (page 8 of Reference 17 of the HRS package at proposal) indicates that background samples have a low bias, to "[m]ultiply concentration by factor." The adjusted value in brackets reflects this adjustment.

				44
Chromium Total (dissolved)	CF-GW-MW-01 (MH5099)	2.0U	2.0	Refs. 3, Table E30, p. 289, App. D, pp. 218; 3a, App. F Section 5, pp. 1135, Section 7. pp. 1,458, 1,482; 44
	CF-GW-MW-02 (MH5002)	2.0U	2.0	Refs. 3, Table E30, p. 243, App. D, pp. 216; 3a, App. F Section 5, pp. 1135, 1429, Section 7. pp. 1,458, 1,469, 1,470; 44
Cyanide (Total)	CF-GW-MW-01 (MH0099)	5.7J- [7.752]	10	Refs. 3, Table E29, p. 287, App. D, p. 218; 3a, App. F Section 5, pp. 1134, 1157, Section 7, pp. 463, 1,374, 1385; 44
Manganese (Dissolved)	CF-GW-MW-01 (MH5099)	10.9	1.0	Refs. 3, Table E30, p. 289, App. D, pp. 218; 3a, App. F Section 5, pp. 1135, Section 7. pp. 1,458, 1,482; 44
	CF-GW-MW-02 (MH5002)	6.4	1.0	Refs. 3, Table E30, p. 289, App. D, pp. 216; 3a, App. F Section 5, pp. 1135, 1429, Section 7. pp. 1,458, 1,469, 1,470; 44

Notes: µg/L micrograms per liter.
U The material was analyzed for, but was not detected above the level of the associated value.
UJ The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J- The associated value is an estimated quantity, biased low.
( ) CLP Laboratory number.
[ ] The associated value is adjusted according to the EPA guidance *Using Qualified Data to Document an Observed Release and Observed Contamination* (Ref. 17).
RL The value shown is the sample specific Contract Required Quantitation Limit (Ref. 30).

Pages 57–58 explain and present the samples used to establish observed release concentrations:

> Samples collected from both down gradient on facility monitoring wells and a down gradient off facility drinking water well show the presence of total arsenic, total chromium, total cyanide and dissolved manganese in the alluvial aquifer that meet the observed release criteria as stated in HRS Section 2.3 (Refs. 3, pp. 241, 243, 287, Tables E6, E7, E29; 3a, App. F Section 7, pp. 1332, 1,341, 1,350, 1,360, 1,350, 1359, 1360, 1,362, 1,363, 1374, 1,389, 1,390).

Hazardous Substance	**Location**	**Highest Background Concentration (µg/L)**	**Concentration (µg/L)**	**RL (µg/L)**	**References**
Total Arsenic (dissolved)	CF-GW-MW-03 (MH5003)	1.0U	344	1.0	Refs. 3, Table E7, p. 243, App. D, p. 221; 3a, App. F Section 5, pp. 1,425, 1,430, Section 7, pp.1,458, 1,470; 44
Total Chromium (dissolved)		2.0U	10.3	2.0	Refs. 3, Table E7, p. 243, App. D, p. 221; 3a, App. F Section 5, pp.

					1,425, 1,430, Section 7, pp.1,458, 1,470; 44
Total cyanide	CF-GW-OP-02 (MH00C7)	5.7J- [7.752]	111	0.5	Refs. 3, Table E29, p. 287, App. D, p. 208; 3a, App. F Section 5, p. 661, 675, Section 7, pp. 1,350, 1,360; 44
	CF-GW-MW-03 (MH003)		769	10	Refs. 3, Table E6, p. 241, App. D, p. 221; 3a, App. F Section 5, p. 659, 663, Section 7, p. 1,350, 1,359; 44
	CF-GW-MW-04 (MH004)		1040J-	0.5	Refs. 3, Table E6, p. 241, App. D, p. 217; 3a, App. F Section 7, pp. 462, 466, 1,332, 1,341; 17, pp. 1-18; 44

Hazardous Substance	**Location**	**Highest Background Concentration (µg/L)**	**Concentration (µg/L)**	**RL (µg/L)**	**References**
Manganese (dissolved)	CF-GW-MW-08 (MH5008)	10.9	109	1	Refs. 3, Table E30, p. 289, App. D, p. 215; 3a, App. F Section 6, pp. 225, 235, Section 7. pp. 1,485, 1,499, 1,500; 44
	CF-GW-MW-09 (MH5009)		181	1	Refs. 3, Table E30, p. 289, App. D, p. 215; 3a, App. F Section 6, p. 225, 236, Section 7.

Pages 57–58 of the HRS documentation record at proposal provide evidence for an observed release to ground water of dissolved arsenic, dissolved chromium, dissolved manganese, and total cyanide. Page 58 of the HRS documentation record at proposal establishes that these substances are attributable to the Site, stating:

> Attribution
>
> It has been documented that arsenic, total chromium, total cyanide and manganese have all been found in sources onsite. Chromium is used in making aluminum alloys and total cyanide is found in spent potliner material that has been disposed of onsite (Refs. 9, p. 7; 19, p. 12). Total cyanide has been previously documented in a release to both ground water and surface water (Ref. 3, p. 25). Cadmium, total chromium and iron are common in aluminum ores. Further, these substances have been documented in onsite sources evaluated for this site. There are no other potential sources for these contaminants located either up-gradient or in the immediate area (Ref. 39).

Based on the above information and the comment responses in later sections of this support document, observed releases by chemical analysis to ground water of several hazardous substances, including

cyanide, were documented in the HRS documentation record at proposal. An observed release to ground water by chemical analysis is established when a significant increase in contaminant concentrations has been documented, and some portion of the significant increase is attributable to the Site. Pages 54, 57, and 58 of the HRS documentation record at proposal establish that arsenic, chromium, cyanide, and manganese were detected in release samples at concentrations exceeding three times the background level, establishing a significant increase. Pages 57–58 of the HRS documentation record at proposal notes that these analytes were found in sources, no other users are present in the vicinity of the Site, and that the increase in concentration of these substances are attributable to the Site.

Regarding the variations in cyanide concentrations in wells MW-08 and MW-09 along flow paths between sources and a contaminated well, differences in concentration can occur due to seasonal flow and variations in site specific geology, including the varying composition of materials in the subsurface beneath the facility and between the downgradient wells, may impact the contaminant concentrations detected in intermediate monitoring wells (see section 3.18, Aquifer Hydrogeology, of this support document for discussion on the subsurface geology at the Site), but this does not negate the identification of an observed release of cyanide in a downgradient well. Furthermore, the HRS does not require that contamination be present in all ground water samples at the site to establish that an observed release has occurred, or to attribute the release to a site.

Comments regarding specific aspects of the observed releases to ground water, including the scoring of cyanide in the domestic drinking water well are addressed in the following subsections:

- 3.19.1 Analytical Cyanide Data Quality of the Sample from the Domestic Drinking Water Well
- 3.19.2 Presence of Cyanide in the Domestic Drinking Water Well
- 3.19.3 Cyanide Ground Water Background Level
- 3.19.4 Releases Below Regulatory Benchmarks
- 3.19.5 Attribution of Cyanide in the Domestic Drinking Water Well

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.19.1 Analytical Cyanide Data Quality of the Sample from the Domestic Drinking Water Well

Comment: CFAC and ARCO questioned the quality of the cyanide data used to identify observe releases of cyanide to ground water. CFAC commented that EPA used inappropriate data in determining the ground water pathway score. ARCO asserted that the cyanide data quality for the October 2013 sampling event was "questionable".

CFAC asserted that the data were inconsistent between April 2014 sampling results and the October 2013 sampling results. CFAC commented that anomalous cyanide results from April 2014 indicated that the October 2013 cyanide sample result from well CF-GW-OP-02, a domestic drinking water well, was incorrect.

ARCO asserted that the data quality issues for the cyanide results indicate that the cyanide data is not representative of actual concentrations. ARCO alleged that the analytical result associated with the sample from well GF-GW-OP-02 was erroneous. ARCO commented that the October 2013 cyanide sample result from well CF-GW-OP-02 was likely the result of analytical error. ARCO also asserted:

- That cyanide analytical results are frequently anomalous due to interference from sample preservatives and background chemical constituents.

- That nitrate/nitrite was not analyzed for the sample taken from CF-GW-OP-02, noting that nitrate/nitrate is a known interference for cyanide analysis.

- That the result from well CF-GW-OP-02 may be an analytical error, as many of the cyanide analyses were performed beyond the 14-day holding time.

- That the "relative percent difference (RPD) for cyanide in at least one field duplicate set exceeded the reasonable control limit."

CFAC commented that the background surface water samples collected contained detectable concentrations of cyanide, which is atypical for a river, suggesting that errors or interferences caused the positive cyanide detections in analyses. CFAC further commented that the cyanide concentrations for samples from the Flathead River were similar to concentrations from well CF-GW-OP-02 during 2013. CFAC asserted that laboratory interferences resulted in the concentrations of cyanide in both the background Flathead River samples and in well CF-GW-OP-02.

Response: The analytical data presented in the HRS documentation record at proposal are of sufficient quality to establish an observed release of cyanide to the domestic drinking water well CF-GW-OP-02. Sufficient information was presented in the HRS package at proposal to establish that the data associated with cyanide concentration detected in this domestic drinking water well is of known and documented quality to support this identification.

In establishing an observed release by chemical analysis to ground water, HRS Section 3.1.1, *Observed release*, states in relevant part:

> Establish an observed release to an aquifer by demonstrating that the site has released a hazardous substance to the aquifer. Base this demonstration on either:
>
> - Direct observation . . .
>
> - Chemical analysis—an analysis of ground water samples from the aquifer indicates that the concentration of hazardous substance(s) has increased significantly above the background concentration for the site (see section 2.3). Some portion of the significant increase must be attributable to the site to establish the observed release, except: when the source itself consists of a ground water plume with no identified source, no separate attribution is required.

HRS Table 2-3 outlines the criteria to determine analytical significance in a contaminant concentration when establishing a significant increase between background and release concentrations. It states:

Table 2–3—Observed Release Criteria for Chemical Analysis

Sample Measurement< Sample Quantitation Limit[a]
No observed release is established.
Sample Measurement≥ Sample Quantitation Limit[a]
An observed release is established as follows:
• If the background concentration is not detected (or is less than the detection limit), an observed release is established when the sample measurement equals or exceeds the sample quantitation limit.[a]
• If the background concentration equals or exceeds the detection limit, an observed release is established when the sample measurement is 3 times or more above the background concentration.

[a] If the sample quantitation limit (SQL) cannot be established, determine if there is an observed release as follows:

—If the sample analysis was performed under the EPA Contract Laboratory Program, use the EPA contract-required quantitation limit (CRQL) in place of the SQL.

—If the sample analysis is not performed under the EPA Contract Laboratory Program, use the detection limit (DL) in place of the SQL.

As noted in the footnote to Table 2-3, data analysis may be performed under the Contract Lab Program (CLP). The definition of CLP and requirements of this program are expressed in the definition of the CLP in the HRS. HRS Section 1.1, *Definitions,* defines the CLP as an "[a]nalytical program developed for CERCLA waste site samples to fill the need for legally defensible analytical results supported by a high level of quality assurance and documentation."

In discussing the samples and data collected used in the HRS evaluation, page 54 of the HRS documentation record at proposal states:

> The background samples listed below were collected during the 2013 sampling effort conducted by START for the EPA.

The HRS documentation record at proposal identifies background samples that were collected in 2013 and used to establish a background level for HRS purposes. These samples are associated concentrations are presented in detail on page 54 of the HRS documentation record at proposal.

In establishing a significant increase that is analytically significant, page 57 of the HRS documentation record at proposal states, in part:

> Analytical results from the 2013 sampling event were performed according to the *United States Environmental Protection Agency Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, ISM01.3* (5/2005) (Ref. 3a, App. F section 7, p. 1355). The source samples listed below were collected during the 2013 sampling effort conducted by START for the EPA. Samples were analyzed using the Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, ISM01.3—Metals, Mercury and Cyanide (Refs. 3, pp. 34; 3a,

App. F, Section 7, pp. 1350, 1355). Laboratory samples were analyzed by the CLP laboratory ALS Laboratory Group in Salt Lake City, Utah (Ref. 3, p. 46).

Pages 57-58 of the HRS documentation record at proposal present in detail the samples used to identify a significant increase in contamination. In establishing a significant increase in cyanide, the table on page 57 states in relevant part:

Hazardous Substance	Location	Highest Background Concentration (µg/L)	Concentration (µg/L)	RL (µg/L)	References
Total cyanide	CF-GW-OP-02 (MH00C7)	5.7J- [7.752]	111	0.5	Refs. 3, Table E29, p. 287, App. D, p. 208; 3a, App. F Section 5, p. 661, 675, Section 7, pp. 1,350, 1,360; 44
	CF-GW-MW-03 (MH003)		769	10	Refs. 3, Table E6, p. 241, App. D, p. 221; 3a, App. F Section 5, p. 659, 663, Section 7, p. 1,350, 1,359; 44
	CF-GW-MW-04 (MH004)		1040J-	0.5	Refs. 3, Table E6, p. 241, App. D, p. 217; 3a, App. F Section 7,

Regarding the possibility of anomalous results due to interferences, EPA used a CLP procedure for performing the analysis and the analytical results went through quality control and verification. The data quality associated with the cyanide analysis of the sample from the domestic drinking water well (CF-GW-OP-02) are documented as appropriate for use in an HRS evaluation. Consistent with the HRS definition of the CLP, data analyzed under this program are "supported by a high level of quality assurance and documentation." As the ground water data used in the HRS evaluation were CLP data, these data used in the HRS evaluation were supported by high level of documentation and quality assurance. In addition, ARCO and CFAC have not provided any specific reasons indicating that analyses have deviated from CLP required procedures that would result in errors or deficiencies with the cyanide data from the domestic drinking water well. Therefore, the analytical data for the sample collected from the domestic drinking water well are sufficient for use in an HRS evaluation.

The quality of the data is further supported by the validator acceptance of the cyanide result. The cyanide analytical data were generated in accordance with the analytical method, and validated according to relevant guidance. The validator did not reject the data as unusable. Pages 1349-1360 of Reference 3a Appendix F Section 7 of the HRS package at proposal, present the concentration for the sample from well CF-GW-OP-02 and the associated validation. No qualification or rejection by the validator is presented. Therefore, there is no gross failure implying that the data for this sample are unusable, as the data would have been rejected by the validator, if otherwise

Regarding ARCO's assertion that nitrate/nitrite analyses were not provided, nitrate/nitrite were not analyzed for the sample from the domestic drinking water well, and the quality of these samples has been identified as appropriate for use. Nitrate/nitrite analyses of cyanide samples are not required by the HRS or by the EPA CLP

method used for analysis. As quoted above, the HRS documentation record at proposal explains that analysis performed by EPA were performed following to method ISM01.3. (See attachment 3 to this support document.) EPA conformed to the procedures within this method, as evidenced by the acceptance of the data associated with cyanide results used in the HRS evaluation.by the validator. (Validation of the data is discussed above.)

In addition, for the sample collected from the domestic drinking water well, page 41 of Reference 3 of the HRS package at proposal, states:

> One groundwater sample (CF-GW-OP-02) was planned to be analyzed for speciated nitrate/nitrite as N but was not received by the laboratory within the 48-hour hold time due to the federal government shutdown. The lab that the samples were shipped to was a federal laboratory and was impacted by the federal government shutdown. The sample was subsequently analyzed at a sub-contract laboratory for fluoride, but the analysis for nitrate/nitrite as N was outside of holding time and therefore the analysis cancelled.

Reference 3 notes that nitrate/nitrite analyses were not completed due to exceeding the holding times, and as such, nitrite/nitrate data are unavailable for the ground water sample from the domestic drinking water well. Without analytical data, any impact associated with nitrate/nitrite interference, as suggested by ARCO, is unknown. Other defects have not been identified in these analytical results. As presented above, the cyanide data used in the HRS package met all applicable data quality standards for use in an HRS evaluation, and the sample was not qualified due to known issues by the laboratory. Therefore, there is no specific reason to suspect that the cyanide result is anomalous due to the presence of nitrate/nitrite interference, and the commenter has not presented information establishing that the specific result for this sample is suspect or inadequate.

Regarding ARCO's concern that cyanide results from the domestic well may be erroneous because other cyanide analyses were run on samples post the 14-day holding period, ARCO has not pointed to a specific detect or inadequacy with the holding time associated with the sample in question. Errors associated with other samples do not necessarily point to errors in the sample in question. As noted above, the analyses for cyanide for this sample conformed to applicable requirements. Without a specific defect or identified deviation from procedures, there is no reason to suspect that the errors associated with other samples, such as an exceedance of holding time, would demonstrate a defect with the concentration detected for the sample, CF-GW-OP-02, from the domestic drinking water well.

Regarding ARCO's comment that the relative percent difference (RPD) for cyanide exceeded the reasonable control limit for cyanide in at least one field duplicate, the RPD associated with the ground water samples presented in the HRS documentation record at proposal were within the applicable control limit. As presented on pages 1350-1360 and pages 1332-1341 of Reference 3 Appendix F Section 7, the two sample sets containing samples CF-GW-OP-02 (MH00C7), CF-GW-MW-03 (MH003) and CF-GW-MW-04 (MH004) were documented to be within the control limit for the RPD. Therefore, ARCO's concern that an exceedance of the RPD for cyanide may be indicative of poor data quality for ground water cyanide results used in the HRS evaluation is unfounded.

The above discussion explains that the HRS evaluation properly identified the concentration of cyanide in the domestic drinking water well, CF-GW-OP-02. However, even if this sample concentration for cyanide were not analytically significant and of appropriate analytical quality, the Site would still achieve an NPL qualifying HRS site score. If cyanide were not evaluated, a significant increase of dissolved manganese, dissolved chromium and dissolved arsenic in ground water would still be established. The absence of an observed release to ground water of cyanide would result in the scoring of the domestic drinking water well, presently identified as a Level I drinking water well as subject to potential contamination. Because a significant increase in dissolved manganese and other substances would still be established (see section 3.19 of this support document), the observed release to surface water through the ground water to surface water component of the surface water pathway would also still be established, and be assigned the same value of 550.

Scoring the site without an observed release of cyanide to the residential drinking water well (CF-GW-OP-2) would not lower the site score sufficiently to impact the listing decision. This potential change, if implemented, would only impact the ground water migration pathway target score and the corresponding pathway score. The population using this well as a drinking water supply would be considered potential targets instead of Level I targets. Based on a distance of approximately 0.91 miles from well CF-GW-OP-02 to the closest source (the eastern north percolation pond) the following scoring changes would occur: The nearest well factor value would change from 50 to 9; the level I factor value would change from 9 to 0; the population potential contamination factor value would changes from 90 to 1; the targets factor value would change from 140 to 10; and, the Ground Water Migration Pathway score would change from 93.33 to 6.66. However, with the consideration of the score for the groundwater to surface water component of the surface water migration pathway (which would not change), the HRS Site Score would only change from 68.39 to 50.11, above the necessary 28.50 score required for the NPL.

Regarding CFAC's assertion that high natural levels of cyanide are present in background surface water samples from the Flathead River, suggesting that the significant increase in cyanide results for ground water samples are anomalous, the information in the HRS package at proposal is sufficient to establish the data were of known quality and to establish the presence of a background level of cyanide. As quoted above, the HRS documentation record at proposal identified that the background level for ground water was 7.5 ug/L J- adjusted to 7.752 ug/L. This positive detection of cyanide in ground water upgradient of the release, establishes that a background level of cyanide unrelated to the Site is present Ground water and surface water are hydraulically connected. (See section 3.18. Aquifer Hydrogeology, of this support document for discussion regarding the aquifer hydrogeology.) Therefore, the cyanide in upgradient surface water background samples as identified by CFAC is likely the result of cyanide migrating from ground water to surface water as opposed to analytical error associated with ground water analyses.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.19.2 Presence of Cyanide in a Domestic Drinking Water Well

Comment: CFAC and ARCO submitted comments questioning the presence of cyanide in ground water in the domestic drinking water well (CF-GW-OP-02), and specifically, the presence of cyanide in the sample collected from the domestic drinking water well in October 2013. CFAC asserted that available data indicated that cyanide was not reaching well CF-GW-OP-02. ARCO commented that subsequent sampling results for the domestic drinking water well should be taken into consideration in determining actual contamination of the well, and the target factor value for the ground water pathway should be revised to take into consideration subsequent sampling results.

CFAC and ARCO commented that cyanide had not been detected in subsequent sampling taken from well CF-GW-OP-02, thereby questioning the quality of the data used to document the presence of cyanide in samples from the domestic drinking water well. ARCO also asserted that the follow-up sampling conducted in 2014 was indicative of uncertainty associated with the initial analytical results.

ARCO further questioned the reliability of the data for CF-GW-OP-02 based on the data for nearby wells. ARCO commented that cyanide has not been detected in other residential wells in the area of well CF-GW-OP-02.

Response: Cyanide was correctly documented as present in a sample from the domestic drinking water well, CF-GW-OP-02 and therefore was correctly identified as reaching the well. That cyanide was not found in samples from that well on other dates, or in surrounding wells does not negate this finding. The difference in sampling results also does not negate the identification of an observed release, and, as a result, actual contamination of targets associated with the well. The HRS directs that an observed release to ground water be documented by

demonstrating that a hazardous substance **has** been released by the Site to the aquifer. The HRS does **not** require that the Site must be continuously releasing to document an observed release by chemical analysis for the ground water pathway. [emphasis added]

As discussed above in section, 3.19, Observed Release to Ground Water, and 3.19.1, Analytical Cyanide Data Quality of the Sample from the Domestic Drinking Water Well, of this support document, to establish an observed release for the ground water pathway, HRS Section 3.1.1, *Observed release*, states, in part, that:

> Establish an observed release to an aquifer by demonstrating that the **site has released a hazardous substance to the aquifer.** Base this demonstration on either:
> …
>
> Chemical analysis—an analysis of ground water samples from the aquifer indicates that the concentration of hazardous substance(s) **has increased significantly above the background concentration for the site** (see section 2.3). Some portion of the significant increase must be attributable to the site to establish the observed release, except: when the source itself consists of a ground water plume with no identified source, no separate attribution is required. [emphasis added]

As discussed above in section 3.19.1, Analytical Cyanide Data Quality of the Sample from the Domestic Drinking Water Well, of this support document, HRS Section 2.3, *Likelihood of release*, also only requires that a significant increase in the concentration of a hazardous substance over the background level has occurred.

Page 57 (in the analytical results table) of the HRS documentation record at proposal, quoted above in section 3.19, Observed Release to Ground Water, of this support document, establishes that the concentration of cyanide in the domestic drinking water well (CF-GW-OP-02) during a sampling event meets the HRS criteria of a significant increase in concentrations above the background level. This page of the HRS documentation record at proposal also identifies that that cyanide was documented in the domestic drinking water well (CF-GW-OP-02) at a concentration of 111 µg/L, which exceeded three times the background level set forth in HRS Table 2-3. Figure 4 of this support document provides a cross section between the sources at the facility and the drinking water well. It establishes that the drinking water well is in the same aquifer as the background well and that no barriers to ground water flow are present between the background well (MW-01) and the domestic drinking water well (CF-GW-OP-02) to prevent the migration of a release from site sources upgradient of the domestic drinking water well to the domestic drinking water well. (A detailed discussion regarding aquifer hydrology is presented above in section 3.18, Aquifer Hydrogeology, of this support document.)

Regarding different analytical results collected in subsequent sampling of the domestic drinking water well (CF-GW-OP-02); as noted above, the HRS does not require the Site to continuously release a hazardous substance in order to document an observed release by chemical analysis. HRS Section 3.1.1, *Observed release*, requires that a site "has released a hazardous substance to the aquifer." The HRS documentation record at proposal established that the Site has released to the aquifer consistent with the requirements of the HRS, by documenting an observed release to ground water of cyanide, which is outlined above. Thus, the subsequent analytical results for later sampling of the domestic drinking water well (CF-GW-OP-02) identified by CFAC and ARCO do not negate the scoring of an observed release by chemical analysis to the domestic drinking water well (CF-GW-OP-02) based on the sampling in 2013 for HRS purposes.

Regarding CFAC's assertion that cyanide was not detected in nearby wells, the non-detections of cyanide in wells in the vicinity of the domestic drinking water well (CF-GW-OP-02) also do not negate the presence of an observed release of cyanide to the domestic drinking water well (CF-GW-OP-02). The lack of cyanide detections in other wells does not establish an error in the established detection of cyanide in the samples from the domestic drinking water well (CF-GW-OP-02).

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.19.3 Cyanide Ground Water Background Level

Comment: ARCO asserted that the cyanide present in ground water is likely a background concentration unrelated to releases from the Site. ARCO also questioned other issues with the background cyanide ground water level, commenting that:

- Cyanide was detected in background surface water samples collected from the Flathead River at concentrations greater than those collected downstream of the facility.

- The concentrations of cyanide in samples from monitoring wells along flow paths, specifically MW-08 and MW-09, were lower concentrations than those of the "background well (MW-15)."

- Cyanide was detected in background ground water samples collected from above Cedar Creek reservoir.

Response: The background ground water level for cyanide was correctly established and documented in the HRS documentation record at proposal; the cyanide levels in the release wells are unlikely to be background concentrations. The HRS documentation record at proposal took into consideration the source and release well locations, ground water flow direction, sample similarity, and background cyanide concentrations upgradient of the Site to establish a background level for HRS purposes. The background level identified in the HRS documentation record at proposal is significantly less than the concentrations of cyanide, in the domestic drinking water well (CF-GW-OP-02) and in samples from the two monitoring wells downgradient of site sources (MW-03 and MW-04), that met observed release criteria. (See sections 3.18, Aquifer Hydrogeology, 3.18.1, Observed Release to Ground Water, and 3.18.4, Presence of Cyanide in the Domestic Drinking Water Well, of this support document, for discussion regarding an observed release to ground water.)

The HRS does not provide specific instructions on establishing a background level, other than requiring the use of a background concentration to establish an observed release by chemical analysis. HRS Section 2.3, *Likelihood of Release*, in Table 2-3, instructs:

> The minimum standard to establish an observed release by chemical analysis is analytical evidence of a hazardous substance in the media significantly above the background level…
>
> • If the background concentration is not detected (or is less than the detection limit), an observed release is established when the sample measurement equals or exceeds the sample quantitation limit.
>
> • If the background concentration equals or exceeds the detection limit, an observed release is established when the sample measurement is 3 times or more above the background concentration.

Consistent with HRS Section 2.3, *Likelihood of Release*, EPA established a background cyanide ground water level that is reflective of the cyanide concentration in the absence of a release from the Site. As presented above, in section 3.19, Observed Release to Ground Water, of this support document, the HRS documentation record at proposal (page 54) identified a concentration of cyanide in the background well (MW-01) as 5.7 J- µg/L with an

adjusted concentration of 7.752 µg/L[14], compared to a reporting limit of 10 µg/L.[15] Page 53 of the HRS documentation record at proposal describes the rationale for the selection of background samples:

> A site background sample (CF-GM-MW-01) **was collected from a ground water monitoring well located north and up gradient of the Site features**, but within the Facility boundary (Figure 5) (Refs. 3, pp. 51; App. D, pp. 218; 3a, App. F Section 5, pp. 1130, 1135, Section 7, pp. 460, 463, 1,402, 1,458, 1,470, 1,482). An additional monitoring well (CF-GW-MW-02) was selected immediately upgradient of the West Landfill to provide another background in a more similar regime to the monitoring wells used to document the observed release (Figure 5) (Refs. 3, pp. 241, 243, App. D, p. 216; 3a, App. F Section 5, p. 1130, Section 7, pp. 463, 1,332, 1,343, 1,458, 1,470); however, the higher sample result from either background was used to document an observed release to err on the side of caution. [emphasis added]

Page 58 of the HRS documentation record at proposal also indicated that no other non-natural origins of contamination were present in the vicinity of the Site. Page 58 of the HRS documentation record at proposal states, "[t]here are no other potential sources for these contaminants located either up-gradient or in the immediate area (Ref. 39)."

Page 53 of the HRS documentation record at proposal discusses the rationale for why samples from wells MW-01 and MW-02 were selected to represent background concentrations, and page 54 of the HRS documentation record at proposal presents additional information regarding the background location. These rationales establish that the background samples were samples likely to be upgradient of the release, and therefore would represent conditions in the absence of a release from the site sources located downgradient of this well. Pages 54 and 58 of the HRS documentation record at proposal establish that, because cyanide was positively detected in samples from the background well and there are no other non-natural contributors or source of cyanide were present in the vicinity of the Site, the sample from the background well also appropriately took into consideration natural cyanide. Furthermore, because the background level identified in the HRS documentation record at proposal appropriately considered natural levels of cyanide present in the vicinity of the Site, the significant increase in cyanide above the background level presented in the HRS documentation record at proposal was properly established as a result of a release from site sources, in accordance with the HRS documentation. (The rationale for finding a significant increase is discussed in detail in section 3.19.1, Observed Release to Ground Water, and section 3.19.2, Presence of Cyanide in a Domestic Drinking Water Well, of this support document.)

EPA notes that cyanide is present in ground water samples near the Cedar Creek Reservoir, but a significant increase in cyanide above the site-specific background level has been documented. This is documented by the positive detection of cyanide in background samples from monitoring wells and the absence of other anthropogenic sources of cyanide in the vicinity of the Site. (See discussion above regarding determination of a background level.) Natural concentrations of cyanide and the lack of concentrations in wells near the facility property do not negate the presence of a release to the CF-GW-OP-02 well or the monitoring wells MW-03 and MW-04. For instance, page 54 of the HRS

[14] The background concentration was flagged as J-, indicating that the result was estimate with a low bias. The HRS documentation record at proposal notes that this value was adjusted according to Reference 17 of the HRS package, *Using Qualified Data to Document an Observed Release and Observed Contamination* to account for the possible low bias associated with this cyanide sample result. Even if this projected concentration is used to determine a background level, samples presented in the HRS documentation record at proposal, still establish a significant increase in cyanide concentrations in ground water above the background level.

[15] Reference 30 of the HRS package at proposal indicates that the reporting limit presented corresponds to the sample specific CRQL, as required by HRS Table 2-3.

documentation record at proposal indicates that the adjusted background level[16], for cyanide in ground water was documented at 7.752 µg/L, as detected in the sample from MW-01, while page 57 of the HRS documentation record at proposal indicates that cyanide was documented at 111 µg/L in the sample from well CF-GW-OP-02, at 769 µg/L for the sample from well MW-03, and at 1040 J- µg/L for the sample from well MW-04.

Regarding ARCO's comment that the cyanide concentration from the well MW-15 sample, which ARCO referred to as a background well, is higher than the concentrations in wells MW-08 and MW-09[17]; samples from well MW-15 were not used to establish background concentrations for the HRS evaluation, and well MW-15 was determined not to be representative of background conditions. In addition, samples from wells MW-08 and MW-09 were not identified as establishing observed releases of cyanide. Thus, that the concentration of cyanide detected in well MW-15 exceeds the concentrations in samples from wells MW-08 and MW-09 does not negate the identification of the observed release to ground water of cyanide documented in the HRS documentation record at proposal based on sampling results from other wells.

Due to well MW-15's location northwest (side gradient, and thus possibly influenced by a site release) of the site sources, and its different usage (i.e., residential use instead monitoring), EPA did not consider it appropriate to use the cyanide concentrations in the sample from the residential well MW-15[18] as representative of site-specific background conditions. As discussed above, monitoring wells MW-01 and MW-02, which are located upgradient of the sources were determined to be representative in the absence of a release from the facility. The concentration from the MW-01 sample was used to determine the background level because it had the higher contaminant concentrations of these two samples.

Additionally, even if the cyanide concentration from the sample from well MW-15 were used to establish the background level, the samples identified as documenting a significant increase of cyanide above the background level (i.e., exhibiting concentrations three times above the background level) would still show a significant increase in cyanide at the site. As indicated on page 287 of Reference 3 of the HRS package at proposal, the concentration of cyanide in the sample from well MW-15 is 18.5 J- µg/L; the concentration of cyanide in samples from wells CF-MW-02, CF-MW-003 and CF-MW-04 (the observed release wells identified in the HRS documentation record at proposal) were 111 µg/L, 769 µg/L, and 1040 µg/L respectively (see page 57 of the HRS documentation record at proposal).

EPA notes that the concentration of cyanide detected in the sample from well MW-08 is above the background level detected in the sample from well MW-01, but the sample from well MW-09 is not above the background level. That the background level concentration in the sample from well MW-01 is above the concentration in the sample from well MW-09 suggests that the background cyanide level from MW-01 used in the HRS evaluation is not at the low end of the range of natural background levels. Regarding ARCO's comparison of ground water concentrations to surface water concentrations in the Flathead River; such a comparison would be inappropriate due to the dissimilarity of samples. A background sample is used, for HRS purposes, to determine the level of a hazardous substance in the absence of a release for a particular medium. The differences between various sample medium may not accurately reflect variations in concentrations in hazardous substances due to the presence, or absence, of a release and may instead reflect varying concentrations due to sample differences and varying locations.

[16] The background value was adjusted to obtain an estimated maximum value to account for any possible low bias that may impact the documentation of a significant increase over background. See above in this section for additional information regarding the background level and the estimated quantity.

[17] See the analytical results summary table on page 287 of Reference 3 of the HRS package at proposal for presentation of result from wells MW-08 and MW-09.

[18] Page 35 of Reference of the HRS package at proposal identifies well MW-15 as a residential well.

Hence, the comparison of ground water samples to surface water samples from the Flathead River would not be appropriate for HRS purposes. Whereas, the comparison of ground water release samples to ground water background samples only, is appropriate for HRS purposes.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.19.4 Releases below Regulatory Benchmarks

Comment: CFAC and ARCO questioned the use of cyanide concentrations below regulatory benchmarks in the identification of an observed release to ground water. CFAC commented that the proposed listing of the Site on the NPL was based on detections of cyanide below drinking water standards in one well. ARCO asserted that subsequent sampling in 2014 did not show cyanide concentrations in the domestic drinking water well above regulatory benchmarks or screening levels.

Response: EPA correctly identified an observed release to ground water based on cyanide concentrations in the domestic drinking water well (CF-GW-OP-02) meeting observed release criteria. It is not an HRS requirement that this concentration be above a regulatory limit to establish an observed release, nor that the concentration be above a regulatory limit in subsequent sampling.

On July 16, 1982, when responding to public comments on the proposed (original) HRS (47 FR 31188), and again on September 8, 1983 (48 FR 40665), EPA rejected the idea that releases within regulatory limits should not be considered "observed releases" under the HRS. As EPA noted in 1982:

> [E]mission or effluent limits do not necessarily represent levels which cause no harm to public health or the environment. These limitations are frequently established on the basis of economic impacts or achievability.

By contrast, an observed release represents a 100 percent likelihood that substances can migrate from the site (47 FR 31188, July 16, 1982).

Section 2.3, Likelihood of Release, of the HRS indicates that an observed release can be established either by direct observation or by chemical analysis. An observed release by chemical analysis has occurred when a contaminant is measured significantly above background level if some portion of the release is attributable to the site. Although contaminant levels may be lower than regulatory limits, an observed release has nevertheless occurred if the measured levels are significantly higher than background levels. The HRS does, however, consider whether releases are above regulatory limits in evaluating target populations, increasing by a factor of 10 the weight assigned populations exposed to contaminants above regulatory limits.

Of course, the observed release factor alone is not intended to reflect the hazard presented by the particular release. Instead, the hazard of the Site is approximated by the total HRS score, which incorporates the observed release factors with other factors such as waste characteristics (including waste quantity, toxicity, and mobility) and targets. This total HRS score reflects the hazard of the Site relative only to the other sites that have been scored. The actual degree of contamination and its effects are more fully determined during the remedial investigation that typically follows listing.

Thus, an observed release of cyanide based on a concentration below drinking water regulatory limits (e.g., RDSC, MCL) is appropriate and consistent with the HRS.

Moreover, as presented below in section 3.20, Ground Water Targets: Actual Contamination and Level I Targets, of this support document, and on page 61 of the HRS documentation record at proposal, concentrations of cyanide

were detected in a sample at a concentration exceeding the Reference Dose Screening Concentration (RDSC[19]), a regulatory limit. That is, cyanide was detected at 111 µg/L in the sample from the domestic drinking water well (CF-GW-OP-02), which exceeds the RDSC for cyanide of 9 µg/L.

This comment results in no change to the HRS score or the decision to list the Site on the NPL.

3.19.5 Attribution of Cyanide in the Domestic Drinking Water Well

Comment: CFAC commented that the attribution of site-related contamination in the domestic drinking water well (CF-GW-OP-02) was suspect. CFAC stated that "if there was any actual contamination in such well, it was not related to the Site." CFAC asserted that lack of detections of cyanide in subsequent sampling of the domestic drinking water well CF-GW-OP-02 indicates that cyanide is either not present in the well or from a source other than the Site.

Response: Some portion of the significant increase in cyanide concentrations in ground water in the domestic drinking water well CF-OP-02 is attributable to the Site. This attribution of the significant increase has been established properly and consistently with the HRS in the HRS documentation record at proposal. The ground water flow direction, the absence of ground water flow barrier, and the absence of any other sources of contamination in the vicinity of the Site support that at least a portion of the significant increase in the difference between cyanide concentrations in the background level and the cyanide concentrations in the downgradient monitoring and domestic wells at the Site.

In discussing how to establish an observed release by chemical analysis, HRS Section 3.1.1, *Observed release*, states:

> Chemical analysis—an analysis of ground water samples from the aquifer indicates that the concentration of hazardous substance(s) has increased significantly above the background concentration for the site (see section 2.3). **Some portion of the significant increase must be attributable to the site to establish the observed release** [emphasis added]

In establishing attribution of a release to a site, HRS Section 2.3 instructs in the relevant part:

> …Establish an observed release either by direct observation of the release of a hazardous substance into the media being evaluated (for example, surface water) or by chemical analysis of samples appropriate to the pathway being evaluated (see sections 3, 4, and 6).The minimum standard to establish an observed release by chemical analysis is analytical evidence of a hazardous substance in the media significantly above the background level. Further, **some portion of the release must be attributable** to the site. [emphasis added]

Page 58 of the HRS documentation record at proposal states:

> It has been documented that arsenic, total chromium, total cyanide and manganese have all been found in sources onsite. Chromium is used in making aluminum alloys and total cyanide is found in spent potliner material that has been disposed of onsite (Refs. 9, p. 7; 19, p. 12). Total cyanide has been previously documented in a release to both ground water and surface water (Ref. 3, p. 25). Cadmium, total chromium and iron are common in aluminum ores. Further, these substances have been documented in onsite sources evaluated for this site. There are no other potential sources for these contaminants located either up-gradient or in the immediate area (Ref. 39).

[19] The RDSC is the screening concentration for noncancer toxicological response for cyanide. (See Reference 2 of the HRS package at proposal.)

The HRS documentation record at proposal indicates that cyanide was identified in all sources at the Site included in the HRS documentation record at proposal and that cyanide was identified in spent potliner material on the facility property. Hence, cyanide was present and could be associated with the Site due to facility operations. As discussed above in section 3.19.1, Observed Release to Ground Water, and section 3.19.3, Presence of Cyanide in a Domestic Drinking Water Well, of this support document, cyanide was appropriately evaluated as part of a significant increase to ground water. Because cyanide was present as a significant increase in ground water in all sources, and also associated with operations, the release to ground water of cyanide was appropriately attributed, at least in part, to the Site.

The attribution of the significant increase in cyanide concentrations documented in a sample from the domestic drinking water well (CF-GW-OP-02), and in samples from the two monitoring wells (MW-03 and MW-04), is further supported by other site specific considerations. As discussed above in section 3.18, Aquifer Hydrogeology, of this support document, the ground water flow direction was properly identified in the HRS documentation record at proposal as flowing from the facility toward the domestic drinking water well (page 49). In addition, no barrier to ground water flow is present between site sources and the downgradient domestic drinking water well (CF-GW-OP-02). Additionally, page 58 of the HRS documentation record at proposal identifies that no other possible contributors of contaminants are present in the vicinity of the facility. Specifically, it states that "[t]here are no other potential sources for these contaminants [arsenic, total chromium, total cyanide and manganese] located either up-gradient or in the immediate area (Ref. 39)." Hence, no other non-natural contributor of contamination exists to be the origin of the significant increase in contamination identified in the monitoring wells and domestic drinking water wells.

This comment results in no change to the HRS score or the decision to list the Site on the NPL.

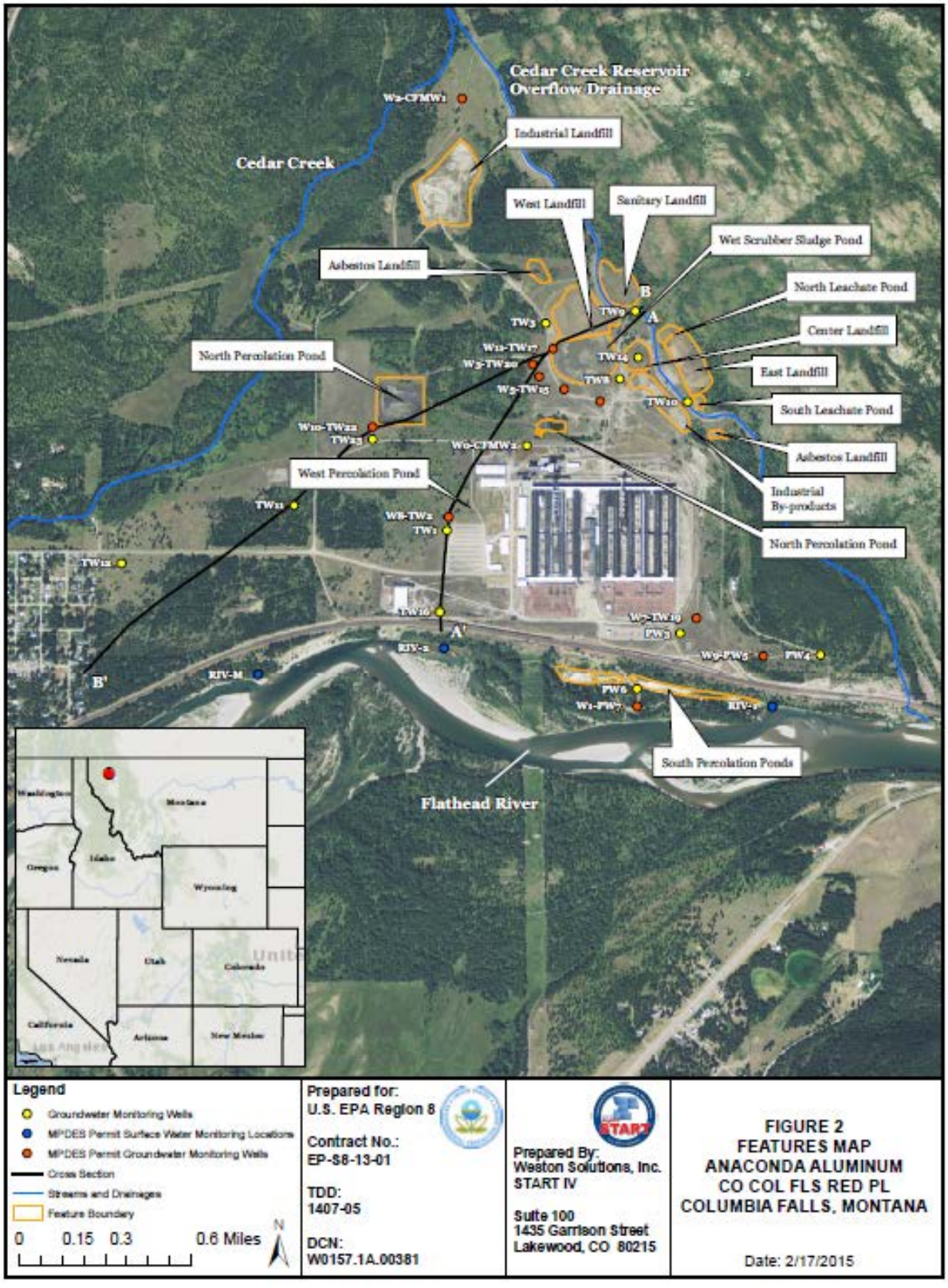


Figure 1 – Facility Features Map

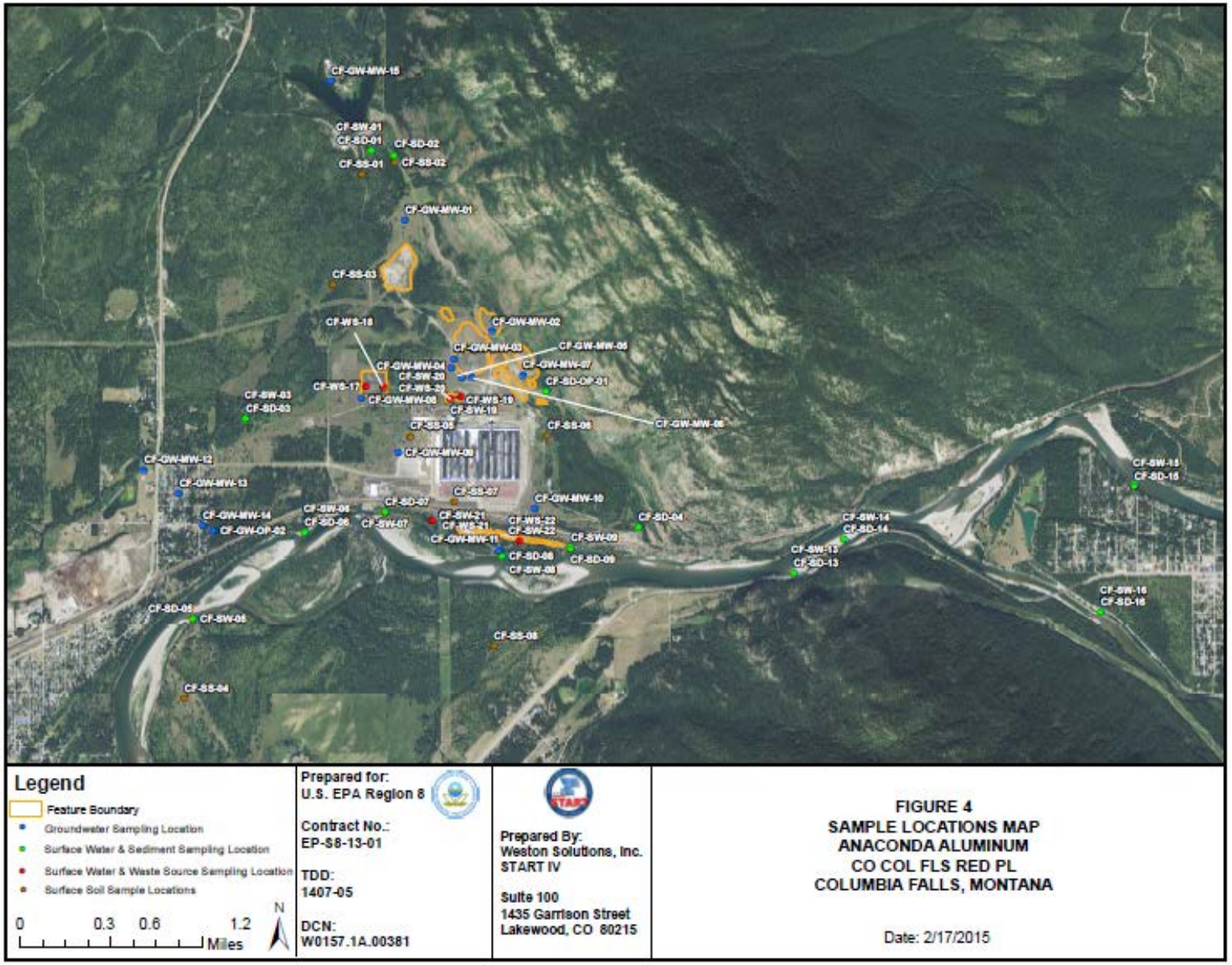


Figure 2 – Sample Locations Map

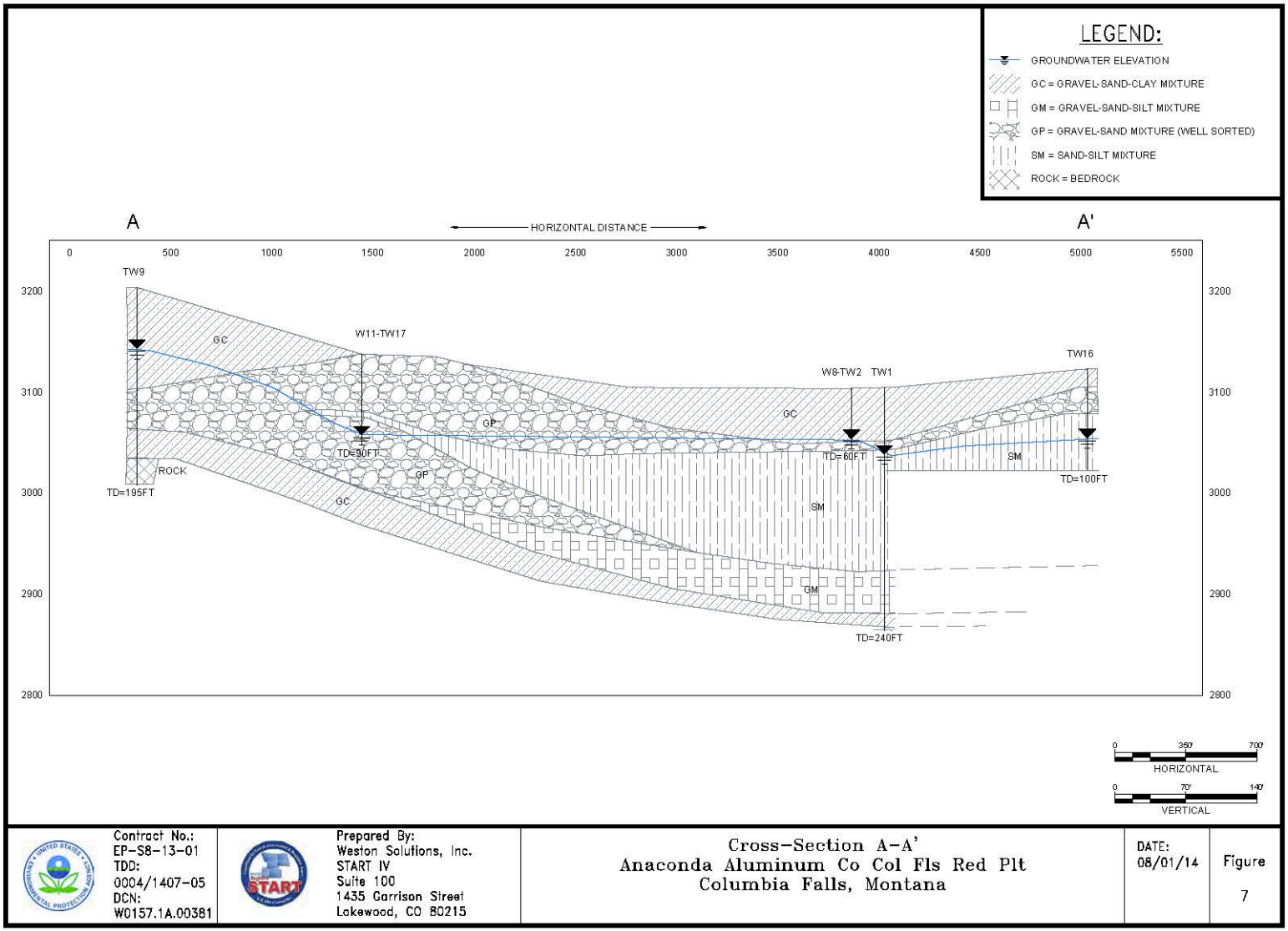


Figure 3 – Cross Section A-A'

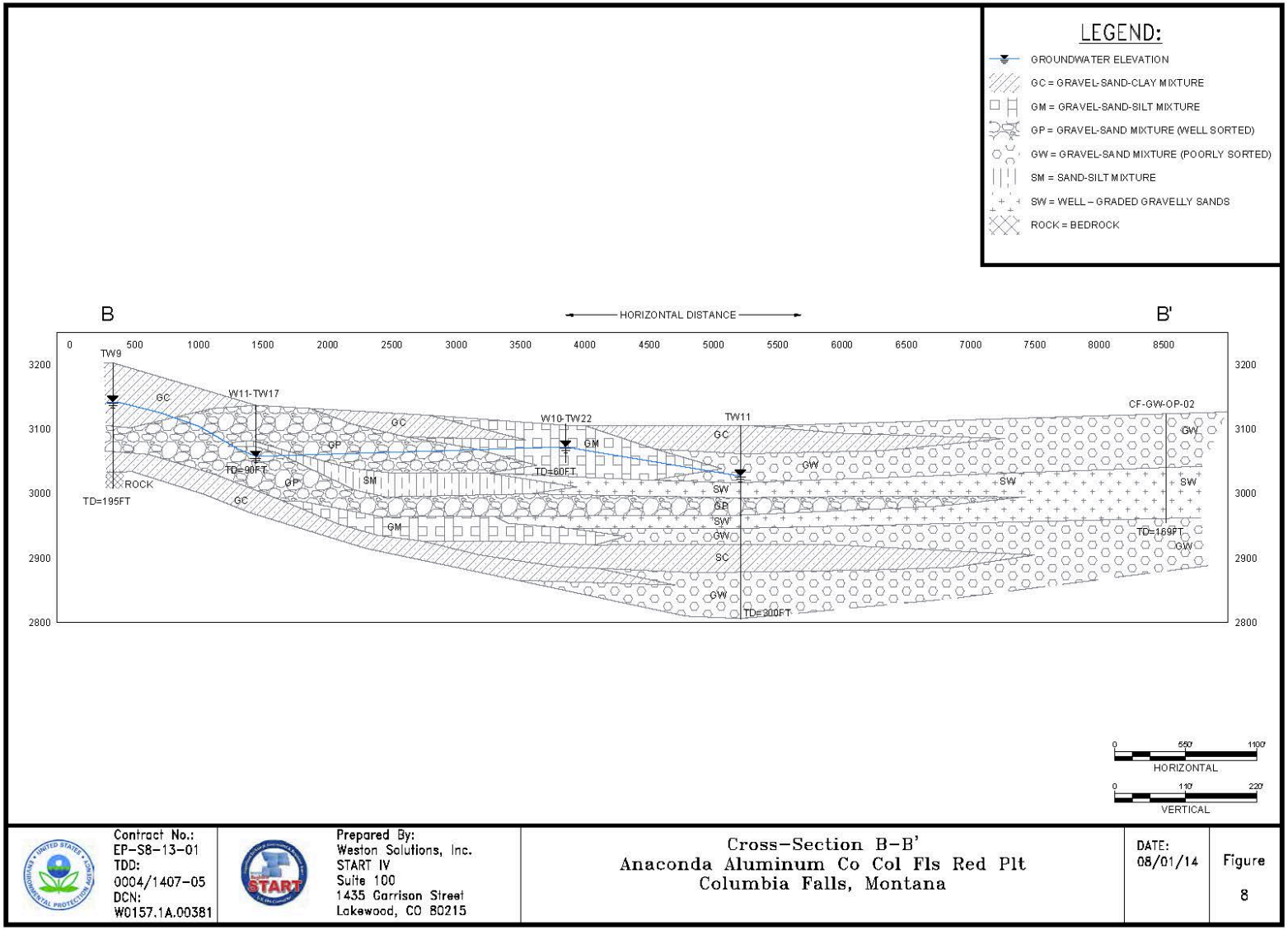


Figure 4 – Cross Section B-B'

3.20 Ground Water Targets: Actual Contamination and Level I Targets

Comment: CFAC and ARCO submitted comments regarding the presence of actual contamination in the domestic drinking water well and the resulting Level I concentrations factor value. CFAC commented that EPA "incorrectly determined that actual contamination related to the Site existed in the groundwater" at the Site. Furthermore, CFAC commented that because actual contamination was incorrectly determined at the Site, the establishment of Level I contamination for the ground water pathway was incorrect. ARCO commented that the ground water target factor value should be revised to take into consideration subsequent sampling results.

Response: The presence of actual contamination and Level I targets were properly established consistent with the HRS requirements for the ground water migration pathway in the HRS documentation record at proposal. As discussed above in section 3.19, Observed Release to Ground Water, and section 3.19.3, Cyanide Ground Water Background Level, of this support document, an observed release to the drinking water well (CF-GW-OP-02) was correctly established. Documenting an observed release to ground water in a sample from the domestic drinking water well (CF-GW-OP-02), documents that actual contamination of this well is present. Further as identified below, the level of cyanide contamination in the ground water sample from the domestic drinking water well (CF-GW-OP-02) was greater than the Reference Dose Screening Concentrations (RDSC), an HRS benchmark. Thus, Level I targets also were correctly identified.

HRS Section 2.5, *Targets*, explains how to determine the number of level I targets:

> The types of targets evaluated include the following:
> . . .
> • Actual contamination: Target is associated either with a sampling location that meets the criteria for an observed release (or observed contamination) for the pathway . . . Determine whether the actual contamination is Level I or Level II as follows:
>
> o Level I:
>
> ▪ Media-specific concentrations for the target meet the criteria for an observed release (or observed contamination) for a pathway and are at or above media-specific benchmark values. These benchmark values (see section 2.5.2) include both screening concentrations and concentrations specified in regulatory limits (such as Maximum Contaminant Level (MCL) values)

HRS Section 2.5.2, *Comparison to benchmark*, discusses the benchmarks used to determine whether a concentration meets the definition of a Level I concentration, including in the Ground Water Migration pathway. This section states:

> Use the following media-specific benchmarks for making the comparisons for the indicated pathway (or threat):
>
> …
>
> • Maximum Contaminant Levels (MCLs)—ground water migration pathway and drinking water threat in surface water migration pathway.
> . . .
>
> • Screening concentration for noncancer toxicological responses corresponding to the RfD for inhalation exposures (air migration pathway) or for oral exposures (ground water migration

pathway; drinking water and human food chain threats in surface water migration pathway; and soil exposure pathway)

Regarding identification of level of contamination, HRS Section 3.3.2.1, *Level of contamination*, states:

> Evaluate the population served by water from a point of withdrawal based on the level of contamination for that point of withdrawal. Use the applicable factor: Level I concentrations, Level II concentrations, or potential contamination.
>
> …
>
> If there is an observed release by direct observation, use Level II concentrations for that point of withdrawal. However, if one or more samples meet the criteria for an observed release for the point of withdrawal, determine which factor (Level I or Level II concentrations) applies to that point of withdrawal as specified in sections 2.5.1 and 2.5.2.

To calculate the targets that are subject to Level I concentrations, HRS Section 3.3.2.2, *Level I concentrations*, states:

> Sum the number of people served by drinking water from points of withdrawal subject to Level I concentrations. Multiply this sum by 10. Assign this product as the value for this factor.

Page 62 of the HRS documentation record at proposal documents how the targets were scored at the Site. It states:

> **3.3.2 POPULATION**
>
> **3.3.2.1 Level of Contamination**
>
> **3.3.2.2 Level I Concentrations**
>
> Level I Samples

Hazardous Substance	Sample ID (Description)	Hazardous Substance Conc. (µg/L)	Benchmark Concentration (µg/L)	Bench-mark	References
Total Cyanide	GW-OP-02: private well supplying 5 residences	111	9	RDSC	2, p. BII-4: 3, pp. 36, App. D, p. 208; 3a, App. F, Section 5, pp. 661, Section 7, pp. 1,350, 1,362; 43, p. 1

> RDSC Reference Dose Screening Concentration

Level I Well	Population	References
CF-GW-OP-02	9	3, pp. 35, 36, App E, Table E29, pp. 287; 3a, App F, Section 7, p. 1361; 4; 43, p.1

Population served by Level I Wells: 9
Population served by Level I Wells x 10: 90
Level I Concentration Factor Value: 90

Page 62 of the HRS documentation record at proposal indicates that the number of people served by the well with contaminant concentrations exceeding the applicable benchmark was multiplied by 10 to assign a Level I Concentration Factor Value consistent with the HRS. As discussed above in section 3.19.1, Observed Release to Ground Water, of this support document, an observed release to ground water was correctly scored based on contaminant concentrations meeting observed release criteria. Actual contamination of well CF-GW-OP-02 was correctly associated with the domestic drinking water well (CF-GW-OP-02) consistent with the HRS because an observed release to ground water was established. As presented on page 62 of the HRS documentation record at proposal, the concentration of cyanide in well CF-GW-OP-02 exceeded the appropriate benchmark. Therefore, targets associated with this well were appropriately evaluated as Level I targets and actual contamination of this well was correctly established consistent with the HRS.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.21 Surface Water Migration Pathway: Ground Water to Surface Water Migration Component

Comment: ARCO questioned the appropriateness of scoring the ground water to surface water component of the surface water migration pathway in the HRS documentation record at proposal. ARCO also questioned whether site specific conditions allow for the evaluation of a release to surface water from the ground water. Specifically, ARCO questioned whether the ground water flow direction was toward surface water, whether there is an observed release of contamination to the ground water, and whether the hazardous substances in surface water was due to a release to ground water from the Site. ARCO also questioned the presence of manganese in ground water and whether it was migrating to surface water.

Response: The HRS evaluation correctly scored the ground water to surface water component of the surface water migration pathway. EPA documented that a contaminant migration route is present that allows for contaminated ground water to enter surface water and migrate downstream through surface water as required by the HRS.

HRS Section 4.0.1, *Migration components*, gives directions for determining which component of the surface water migration pathway to evaluate and states:

> Evaluate the surface water migration pathway based on two migration components:
>
> - Overland/flood migration to surface water (see section 4.1).
> - Ground water to surface water migration (see section 4.2).
>
> Evaluate each component based on the same three threats: drinking water threat, human food chain threat, and environmental threat.

> Score one or both components, considering their relative importance. If only one component is scored, assign its score as the surface water migration pathway score. If both components are scored, select the higher of the two scores and assign it as the surface water migration pathway score.

HRS Section 4.2.1.1, *Eligible surface waters*, instructs when it is appropriate to evaluate the ground water to surface water component:

> [c]alculate ground water to surface water migration component scores only for surface waters (see section 4.0.2) for which all the following conditions are met:
>
> • A portion of the surface water is within 1 mile of one or more sources at the site having a containment factor value greater than 0 (see section 4.2.2.1.2).
>
> • No aquifer discontinuity is established between the source and the portion of the surface water within 1 mile of the source (see section 3.0.1.2.2). However, if hazardous substances have migrated across an apparent discontinuity within this 1 mile distance, do not consider a discontinuity present in scoring the site.
>
> • The top of the uppermost aquifer is at or above the bottom of the surface water.
> Do not evaluate this component for sites consisting solely of contaminated sediments with no identified source.

To establish the presence of the three above conditions at the Anaconda site, pages 63–64 of the HRS documentation record at proposal document stated:

> Condition 1:
> A portion of the surface water is located within 1 mile of one or more sources at the site having a containment value greater than 0:
>
> Although two watersheds are present in the study area, only the Flathead River is being evaluated for this pathway. The Cedar Creek watershed is located to the west of the westernmost source (Source No. 2), there is no overland runoff pathway from any sources reaching the Creek, and the bottom of the Creek at the westernmost (lowest) sample point (CF-SW/SD-06) is approximately 44 feet above the aquifer (Figures 3, 5, 6, 7, and 8 of this HRS documentation record). The Flathead River is located approximately 5,000 feet in straight-line as measured from the east edge of Source No. 1, approximately 3,700 feet in straight-line from the east edge of Source No. 2, approximately 600 feet in straight-line from the east edge of Source No. 3, and approximately 200 feet in straight-line from the east edge of Source No. 4 (Ref. 33; Figure 6 of this HRS documentation record). All four of these sources have a containment value of 10 for the ground water migration pathway (Refs. 3, p. 23; 6, p. 5; 7, pp. 4, 5, 26; 19, p. 17; Section 2.2.3 for Sources 1, 2, 3 and 4, and Figure 2 of this HRS documentation record).
>
> Condition 2:
> The top of the uppermost aquifer is at or above the bottom of the surface water body:
> A detailed description of the geology and hydrogeology of the site is found within section 4.2.1.2 (Definition of Hazardous Substance Migration Path for Ground Water to Surface Water Component) below. The pertinent information from section 4.2.1.2 is summarized here.

The uppermost aquifer beneath the Anaconda Aluminum Co Columbia Falls Reduction Plant property is the alluvial/glacial aquifer that exists throughout the site vicinity (Refs. 18, pp. 43, 44, 46; 20 p. 20). Ground water elevations were measured within existing facility monitoring wells completed in the alluvial/glacial aquifer during the 2013 field investigation (as demonstrated by the well logs) (Refs. 3, p. 189, App. A pp. 111–150; Figures 7 and 8 and Section 3.1.1 of this HRS documentation record). Two representative wells, CF-GW-MW-02 and CF-GW-MW-09, have been selected to demonstrate the elevation of the top of the uppermost aquifer. These wells have been chosen as they are in line with the general ground water flow direction within the aquifer (Table in Section 3.1.1, Figures 8 and 9 of this HRS documentation record).

The elevation measured for the bottom of the Flathead River (i.e. its deepest point) was 2,977.67 feet amsl, measured at the USGS gauging station in Columbia Falls located at the highway 2 bridge over the Flathead River (Ref. 25, pp. 1–3). This elevation is 79 feet lower than the ground water elevation measured in CF-GW-MW-09 (3,056 feet amsl), and 127 feet lower than the ground water elevation measured in CF-GW-MW-02 (3,104 feet amsl) (Refs. 3, p. 97, 103, 189, 195, 112, 115, 130, 134, 135, 153-156; 8, pp. 264, 265). Historically, ground water elevations measured in these wells are also higher than the elevation of the bottom of the river (Ref. 18, pp. 49, 50). Therefore, the condition that the top of the uppermost aquifer is at or above the bottom of the surface water body is met.

Condition 3:
No aquifer discontinuity is established between the source and the portion of the Flathead River within 1 mile of any of the sources:

In the vicinity of the Anaconda Aluminum Co Columbia Falls Reduction Plant site, the uppermost aquifer is present in valley-fill glacial/alluvium that is continuous between the areas of the sources, drinking water wells, and the Flathead River (Refs. 8, p. 38; 20, p. 20 Figure 18; Figures 7 and 8, and the well log table in Section 3.1.1 of this HRS documentation record). There is no evidence that any geologic, topographic, or other structure or feature, that entirely transects the aquifer or that creates a continuous boundary to ground water flow, exists anywhere between the sources (i.e., ponds and landfill) and the Flathead River (Figures 7 and 8). Evidence that there are no discontinuities between the source areas and the river includes that seepage water from the ponds that entered the uppermost aquifer eventually reached the river as documented by the MPDES permit (Ref. 7, pp. 1, 5, 25, 26).

The HRS documentation record at proposal appropriately documented that an eligible surface water body is in hydraulic connection with the ground water at the site. The information in the HRS documentation record at proposal also establishes a route of ground water flow from the site to the surface water (i.e., the Flathead River). Thus, the documentation required to show the ground water to surface water component of the surface water migration pathway was eligible for evaluation was presented.

Comments on specific aspects of the evaluation of the ground water to surface water component are discussed below in the following subsections:

- 3.21.1 Surface Water Migration Pathway: Ground Water to Surface Water Migration Component
- 3.21.2 Presence of Manganese in Ground Water and Migration to Surface Water

3.21.1 Migration of Hazardous Substances via Ground Water to Surface Water

Comment: ARCO commented that insufficient information was available to support the ground water to surface water component evaluation. ARCO asserted that analytical results did not support the conclusion that ground

water discharges were affecting surface water quality in the Flathead River. ARCO further asserted that the methodologies and conclusions used in the evaluation of this component were insufficiently supported by data. ARCO commented that conclusions were inappropriately drawn from a single manganese sample location in support of establishing the potential ground water to surface water path.

ARCO commented that samples collected downstream of the observed release sample CF-SW-07 had total manganese concentrations lower than the average background concentration. ARCO concluded that this variation and decrease in concentration indicated that ground water from the Site is not impacting contaminant levels in the Flathead River. ARCO further commented that sample CF-SW-07 is likely the result of a significant quantity of "alluvial groundwater discharging to this backwatered area of the Flathead River."

Response: The information presented in the HRS package is sufficient to document the evaluation of the ground water to surface water component of the surface water pathway based on the HRS. The evaluation was based on the following:

- An observed release of manganese to both the ground water and to the surface water (the Flathead River)
- The waste quantity of the site sources
- The toxicity, persistence, and mobility of the substances associated with the Site
- The threat to wetlands and human food chain fishery in the Flathead River adjacent to and downstream of the Site

Sections 3.19, Observed Release to Ground Water, and 3.22, Observed Release to Surface Water, of this support document, discuss why the observed releases of hazardous substances were correctly evaluated in the HRS documentation record at proposal and address comments regarding each specific observed release have been fully discussed in their respective observed release sections. The HRS documentation record at proposal sufficiently documented the migration of hazardous substances from ground water to surface water for HRS purposes, because the HRS documentation record at proposal was consistent with the HRS requirements for establishing an observed release to an eligible surface water body, using the ground water to surface component of the surface water pathway and established a connection between ground water to surface water.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.21.2 Presence of Manganese in Ground Water and Migration to Surface Water

Comment: ARCO questioned the presence of manganese in ground water at the Site and the migration of manganese from ground water to surface water. ARCO commented that results from sample CF-SW-07, which was collected from a backwater location downgradient of a NPDES outfall, do not demonstrate the presence of manganese in ground water at the Site.

Response: The presence of dissolved manganese in ground water was sufficiently documented in the HRS documentation record at proposal to establish an observed release by chemical analysis to surface water in the ground water to surface water migration component of the surface water migration pathway. Dissolved manganese was properly scored in the ground water pathway in an observed release to ground water, and the evaluation of dissolved manganese in an observed release by chemical analysis to surface water in the ground water to surface water migration component of the surface water migration pathway is eligible, in part, because the HRS documentation record at proposal documented an observed release by chemical analysis of dissolved manganese to ground water. This is discussed above in detail in section 3.19, Observed Release to Ground Water, of this support document.

Regarding evidence of migration of manganese from ground water to surface water, the HRS evaluation of this pathway component does not require documentation that the contamination in ground water has migrated via ground water into surface water to score the ground water to surface water component; the HRS only requires that the ground water and surface water be hydraulically connected. The scoring of this component requires that the identified hazardous substance in the observed release by chemical analysis to surface water also be identified in an observed release to ground water. Additionally, as explained below, if a hazardous substance is identified in observed releases to both ground water and surface, then that hazardous substance can be used to identify actually contaminated targets. To identify actually contaminated surface water targets, the same hazardous substance is required to be identified in observed releases to ground water and to surface water.

HRS Section 4.2.1.3, *Observed release of a specific hazardous substance to surface water in-water segment*, contains the instructions for evaluating observed release for the ground water to surface water component. It states:

> Section 4.2.2.1.1 specifies the criteria for assigning values to the observed release factor for the ground water to surface water migration component. With regard to an individual hazardous substance, consider an observed release of that hazardous substance to be established for the surface water in-water segment of the ground water to surface water migration component only when the hazardous substance meets the criteria both for an observed release both to ground water (see section 4.2.2.1.1) and for an observed release by chemical analysis to surface water (see section 4.1.2.1.1).
>
> If the hazardous substance meets the section 4.1.2.1.1 criteria for an observed release by chemical analysis to surface water but does not also meet the criteria for an observed release to ground water, do not use any samples of that hazardous substance from the surface water in-water segment in evaluating the factors of this component (for example, do not use the hazardous substance in establishing targets subject to actual contamination or in determining the level of actual contamination for a target).

In evaluating the likelihood of release factor value for the environmental threat of the ground water to surface water migration component of the surface water migration pathway, HRS Section 4.2.4.1 Environmental threat-likelihood of release states:

> Assign the same likelihood of release factor category value for the environmental threat for the watershed as would be assigned in section 4.2.2.1.3 for the drinking water threat. Enter this value in table 4–25.

HRS Section 4.2.2.1.3, instructs:

> If an observed release is established for the uppermost aquifer, assign the observed release factor value of 550 as the likelihood of release factor category value for the watershed.

Therefore, manganese can be used to identify actually contaminated targets because the observed releases of manganese was correctly evaluated in the HRS documentation record at proposal.as discussed fully in sections 3.19.1, Observed Release to Ground Water, and 3.22, Observed Release to Surface Water, of this support document.

Regarding ARCO's assertion that analytical results from sample CF-SW-07 do not demonstrate the presence of dissolved manganese in ground water, as discussed in section 3.19, Observed Release to Ground Water, of this support document, EPA demonstrated that dissolved manganese is present in ground water based on analytical results from background and release ground water samples, establishing a significant increase in dissolved

manganese in ground water and observed release of manganese to ground water. Similarly, section 3.22, Observed Release to Surface Water, of this support document, demonstrates that EPA established the observed release of manganese to the surface water as a result of ground water to surface water flow and not solely on a release from an outfall at the Anaconda facility. Furthermore, section 3.22, Observed Release to Surface Water, of this support document demonstrates that dissolved manganese identified in sample CF-SW-07 is eligible for use in establishing an observed release by chemical analysis to surface water in the ground water to surface water migration component of the surface water migration pathway.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.22 Observed Release to Surface Water

Comment: CFAC and ARCO took issue with the scoring of an observed release to surface water of manganese. CFAC and ARCO generally commented that EPA incorrectly determined that an observed release of manganese occurred from the Site to surface water. CFAC and ARCO questioned:

- Background levels of manganese in surface water
- Similarity in the sampling and analysis procedures in the background and release samples
- Significant increase in manganese concentrations
- Attribution of the increase in manganese levels to the Site

Response: An observed release of manganese to surface water was correctly established in the HRS documentation record at proposal, including presence of a significant increase in dissolved manganese, and attribution of the increase to the Site. As identified in section 3.21, Surface Water Migration Pathway: Ground Water to Surface Water Migration Component, of this support document, the HRS documentation record at proposal documented that the contaminated ground water from the Site is migrating to the Flathead River. Furthermore, EPA correctly identified background locations in the Flathead River upstream of the probable point of entry of the Site sources and correctly determined that an observed release of manganese (an increase in dissolved manganese concentration of three times or greater) occurred in the Flathead River at the Site.

The HRS states that an observed release by chemical analysis of a specific hazardous substance (e.g., manganese) in the surface water in-water migration segment of the ground water to surface water migration component must be established to both an observed release to ground water and an observed release by chemical analysis to surface water for that substance to be eligible in the surface water to ground water component of the HRS in scoring an observed release to surface water. Section 4.2.1.3, *Observed release*, of the Ground Water to Surface Water Component of the HRS states:

> Section 4.2.2.1.1 specifies the criteria for assigning values to the observed release factor for the ground water to surface water migration component. With regard to an individual hazardous substance, consider an observed release of that hazardous substance to be established for the surface water in-water segment of the ground water to surface water migration component only when the hazardous substance meets the criteria both for an observed release both to ground water (see section 4.2.2.1.1) and for an observed release by chemical analysis to surface water (see section 4.1.2.1.1).

At this Site, EPA established both a release to ground water and to surface water of dissolved manganese. As established in section 3.19, Observed Release to Ground Water, and subsections, of this support document, an observed release of dissolved manganese to the ground water has been properly established in the HRS documentation record at proposal.

Section 4.1.2.1.1, *Observed release*, of the HRS discusses how to establish an observed release to Surface water by chemical analysis. It states:

> Establish an observed release to surface water for a watershed by demonstrating that the site has released a hazardous substance to the surface water in the watershed. Base this demonstration on either:
>
> • Direct observation:
>
> …
>
> • Chemical analysis:
>
> –Analysis of surface water, benthic, or sediment samples indicates that the concentration of hazardous substance(s) has increased significantly above the background concentration for the site for that type of sample (see section 2.3).
> –Limit comparisons to similar types of samples and background concentrations—for example, compare surface water samples to surface water background concentrations.
> –For benthic samples, limit comparisons to essentially sessile organisms.
> –Some portion of the significant increase must be attributable to the site to establish the observed release, except: when the site itself consists of contaminated sediments with no identified source, no separate attribution is required.

Section 2.3, *Likelihood of release*, of the HRS describes the minimum standards to show that a hazardous substance has increased significantly above the background concentration. It states:

> The minimum standard to establish an observed release by chemical analysis is analytical evidence of a hazardous substance in the media significantly above the background level. Further, some portion of the release must be attributable to the site. Use the criteria in table 2–3 as the standard for determining analytical significance.

Table 2-3 of the HRS provides the following observed release criteria:

Table 2–3—Observed Release Criteria for Chemical Analysis

Sample Measurement< Sample Quantitation Limit[a]
No observed release is established.
Sample Measurement≥ Sample Quantitation Limit[a]
An observed release is established as follows:
• If the background concentration is not detected (or is less than the detection limit), an observed release is established when the sample measurement equals or exceeds the sample quantitation limit.[a]
• If the background concentration equals or exceeds the detection limit, an observed release is established when the sample measurement is 3 times or more above the background concentration.

[a] If the sample quantitation limit (SQL) cannot be established, determine if there is an observed release as follows:
—If the sample analysis was performed under the EPA Contract Laboratory Program, use the EPA contract-required quantitation limit (CRQL) in place of the SQL.
—If the sample analysis is not performed under the EPA Contract Laboratory Program, use the detection limit (DL) in place of the SQL.

The observed release to surface water is documented on pages 68–70 of the HRS documentation record at proposal. The observed release to surface water discussion states:

> All surface water sampling was done in accordance with EPA ERT SOP 2013 (Ref. 32, p. 47). All samples were collected during the same 2013 sampling event, over a period of nine days (September 23 through October 1) (Ref. 3, pp. 27, 198, 219, 220). All samples adjacent to the Site were collected from the north bank of the Flathead River, the side closest to the site (Figure 6). Surface water quality parameters, such as pH, temperature, and conductivity, were measured at each sampling location and the results were similar at each (Ref. 3, p. 187). The specific areas sampled were backwater locations that acted as sediment traps for the finer-grained material (sands and silts) that were targeted for sampling (Figure 6 of this HRS documentation record). All surface water samples were collected from 0 to 1 foot depth, and were collected before the sediment samples (Ref. 32, p. 27)...

Regarding the significant increase in dissolved manganese, pages 69 and 70 of the HRS documentation record at proposal states:

> Surface Water Background Concentrations:
>
> The background concentration for each analyte was selected from the highest detected laboratory result of the evaluated surface water background samples collected from SW-13, SW-14, SW-15, SW-16 (CF-SW-13, CF-SW-14, CF-SW-15, CF-SW-16 [Figure 6]) (Ref. 3, Tables E32-E39, 293-307)…

Summary table of the background sample with the highest concentration of manganese:

Sample ID	Hazardous Substance	Concentration (µg/L)
CF-SW-13	Manganese (dissolved)	2.2 (1.0[1])

[1] – Sample specific contract required quantitation limit (CRQL)

> Contaminated Surface Water Concentrations:
>
> The analytical results of the Flathead River surface water samples (CF-SW-05 through CF-SW-12 [Figure 6]) were compared to three times background concentration for surface water to further ensure that contaminants attributed to site activities were not also naturally occurring at similar concentrations and meeting observed release criteria. The three times background concentration was calculated for each analyte using the highest detected laboratory result of the evaluated Flathead River surface water background samples (CF-SW-13, CF-SW-14, CF-SW-15, CF-SW-16, CF-SW-24 [duplicate] [Tables E32-E39, Appendix E]) (Ref. 3, pp. 293-307; 3a, App. F, Section 7, pp. 1458, 1474-1476). If the background results are non-detect for a specific analyte, then a detection in a release sample above the reporting limit for the Flathead River background sample for the associated analyte is considered an exceedance of the background concentration. (Ref. 1, Section 2.3, p. 51589).

Summary table of the contaminated surface water sample:

Sample ID	Hazardous Substance	Concentration (µg/L)
CF-SW-07	Manganese (dissolved)	31.4

In establishing attribution of dissolved manganese to the Site, page 7 of the HRS documentation record at proposal states:

> Attribution
> Manganese is an analyte associated with the Anaconda Aluminum Co Columbia Falls Reduction Plant sources listed in Section 2.2.1. No sources were found to be fully contained and the southern ponds are located adjacent to the surface water (Ref. 3, p. 23; 6, p. 5; 7, pp. 4, 5, 26; 19, p. 17; Figure 2 of this HRS documentation record). There are no other potential sources for these contaminants located either up-gradient or in the immediate area (Ref. 39).

Therefore, the HRS documentation record at proposal correctly documents an observed release of dissolved manganese in the surface water at the Anaconda Aluminum CFRP site. As identified in sections 3.19, Observed Release to Ground Water, and 3.21, Ground Water to Surface Water Pathway, of this support document, EPA sufficiently documented both an observed release of manganese to ground water and that the Site contamination has migrated to the Flathead River. As directed by the HRS, EPA appropriately collected background samples from upstream of the Site in the Flathead River and demonstrated that a release of manganese from site related activities caused a significant increase in manganese concentrations in the Flathead River downstream of the Site sources. Thus, an observed release of manganese was appropriately established in the HRS documentation record at proposal.

Additional comments by CFAC and ARCO on specific aspects of the identification of an observed release to surface water are addressed in the following subsections of this document:

- 3.22.1 Surface Water Observed Release: Background Level
- 3.22.2 Background and Release Sample Similarity
- 3.22.3 Surface Water Observed Release: Significant Increase in Manganese
- 3.22.4 Attribution of Manganese

3.22.1 Surface Water Observed Release: Background Level

Comment: CFAC and ARCO questioned the background level of manganese used in establishing an observed release to surface water.

CFAC commented that the concentrations of manganese in surface water are reasonable for surface water concentrations. CFAC commented that natural levels of manganese in freshwater typically range from 1 to 200 µg/L, and that a manganese concentration of 31.4 µg/L is within the range of concentrations commonly observed in natural levels of manganese in the environment. CFAC commented that dissolved manganese levels in surface water range from less than 11 to more than 51 µg/L. CFAC also commented that the USGS has indicated a median manganese level of 16 µg/L in surface water with a 99th percentile concentration ranging from 400 to 800 µg/L[20]. CFAC asserted that the manganese concentration of 31.4 µg/L found in sample CF-SW-07 (the sample used to establish a release of dissolved manganese) is indicative of lower levels of manganese concentrations when compared to published EPA literature[21].

ARCO asserted that the background level used to establish an observed release to surface water was inappropriately determined. ARCO commented that the scoring of the Site should take into consideration the background concentrations from Cedar Creek and upgradient background ground water concentrations in addition to the surface water concentrations from the Flathead River.

[20] CFAC cites to EPA-822-R-04-003, Drinking Water Health Advisory for Manganese (2004).
[21] CFAC cites toEPA-822-R-04-003, Drinking Water Health Advisory for Manganese (2004).

Response: EPA appropriately determined the background level for dissolved manganese in the Flathead River based on multiple background samples collected upstream of the release sample. The background level for manganese in the surface water was correctly determined in the HRS documentation record at proposal from upstream Flathead River water samples that were sufficiently similar to the release surface water samples to establish background and significant increase concentrations.

HRS Section 4.1.2.1.1, *Observed release*, (subsection of the surface water migration pathway) states that background and release samples should be similar types of samples. This HRS section is fully quoted above in section 3.22, Observed Release to Surface Water, of this support document. Specifically it states to "[l]imit comparisons to similar types of samples and background concentrations—for example, compare surface water samples to surface water background concentrations."

Regarding using ground water samples or a sample from Cedar Creek to select a background level; doing so is inconsistent with the criteria in HRS Section 4.1.2.1.1, *Observed release*, quoted above. Neither the Cedar Creek sample nor the upgradient ground water samples are appropriate for use to determine a background level, and these upgradient ground water samples do not meet the HRS criterion which requires background samples to be sufficiently similar to the release samples. The samples from Cedar Creek are not located in the same watershed as the Flathead River, and thus, are not upgradient of the release samples. Therefore, these samples should not be used for sample comparison for establishing a significant increase in contamination levels in surface water at the Site. Upgradient ground water samples are also not comparable to surface water samples according to HRS criterion.

The Cedar Creek surface water sample was determined to be in a separate watershed than most of the overland flow from the facility and it was determined that Cedar Creek surface water flow would not enter the Flathead River in the immediate vicinity of the Site. Page 63 of the HRS documentation record at proposal describes Cedar Creek as follows:

> The Cedar Creek watershed is located to the west of the westernmost source (Source No. 2), there is no overland runoff pathway from any sources reaching the Creek, and the bottom of the Creek at the westernmost (lowest) sample point (CF-SW/SD-06) is approximately 44 feet above the aquifer (Figures 3, 5, 6, 7, and 8 of this HRS documentation record). Therefore, the overland flow pathway is not used for scoring the ground water to surface water migration component.

The Cedar Creek sample was collected from a creek that was determined to be located in a different sub-watershed with different mixing and depositional characteristics to that of the Flathead River and the ground water samples are not collected from the surface water. (However, even if the Cedar Creek sample were improperly used for sample comparison at this Site, because dissolved manganese was scored at this Site, the Cedar Creek sample (containing 6.1 µg/L dissolved manganese) would confirm an observed release in sample CF-SW-07 (containing 31.4 µg/L dissolved manganese)).

Regarding CFAC's comments on natural levels of manganese, EPA appropriately considered natural levels of manganese when establishing the surface water background level. As quoted in section 3.22, Observed Release to Surface Water, of this support document, and presented on pages 69 and 70 of the HRS documentation record at proposal, a site specific background level of manganese was established by taking multiple surface water samples from locations immediately upstream of the uppermost probable point of entry (PPE) (PPE Source 4; see Figure 6 of the HRS documentation record at proposal).

These background samples document the natural levels of manganese in surface water of the Flathead River upstream of the Site and would reveal any upgradient inputs of manganese to the river (including man-made or natural sources). Therefore, the background samples are appropriately used to determine the background level for

manganese. Furthermore, these site specific background samples establish that a significant increase in manganese concentration was appropriately documented in the HRS documentation record at proposal downstream of the site source PPEs (see Figure 4 of the HRS documentation record at proposal).

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.22.2 Background and Release Sample Similarity

Comment: CFAC and ARCO questioned the similarity of release samples to background samples used to establish the observed release to the Flathead River. CFAC commented that EPA did not follow guidance because it compared dissimilar surface water samples. CFAC asserted that the background and observed release surface waters were not comparable, because these samples were potentially subject to differing environmental conditions.

ARCO also questioned the appropriateness of the surface water sample locations used to establish an observed release to surface water. ARCO commented that guidance was not followed in selecting sample locations. ARCO also asserted that EPA did not follow guidance by comparing samples from two different and dissimilar sample locations in the Flathead River. ARCO commented that the location from which an observed release is established is located in a "backwater wetland area," unlike the main channel from which background samples were collected. ARCO also commented that the observed release sample location was located downgradient of a ground water seep area, which includes a chronic mixing zone from the permitted outfall from the facility.

Response: The surface water background samples and the surface water release samples used to establish an observed release to surface water are sufficiently similar to show that dissolved manganese in the surface water at the Site (downstream of "PPE Source 4") is significantly increased over background levels. EPA collected all surface water samples along the banks of the Flathead River in areas that contained similar sample location attributes (e.g., water quality parameters, low stream flow) and were all collected from 0–1 foot depth in the water column. The presence of a chronic mixing zone between the background and release samples may impact the contaminant concentrations in the surface water samples downgradient of the seep area, but it does not impact the similarity of the samples collected.

HRS Section 4.1.2.1.1, *Observed release*, as fully quoted above in section 3.22, Observed Release to Surface Water, of this support document, states that when determining an observed release by chemical analysis to surface water that the background and release sample comparisons should be limited to only "similar types of samples… for example, compare surface water samples to surface water background concentrations."

Pages 68 and 69 of the HRS documentation record at proposal describe the characteristics of the surface water samples:

> All samples were collected during the same 2013 sampling event, over a period of nine days (September 23 through October 1) (Ref. 3, pp. 27, 198, 219, 220)… Surface water quality parameters, such as pH, temperature, and conductivity, were measured at each sampling location and the results were similar at each (Ref. 3, p. 187). The specific areas sampled were backwater locations that acted as sediment traps for the finer-grained material (sands and silts) that were targeted for sampling (Figure 6 of this HRS documentation record). All surface water samples were collected from 0 to 1 foot depth, and were collected before the sediment samples (Ref. 32, p. 27).

The Agency appropriately compared release samples to similar background samples at the Site. The site release samples were documented to have similar environmental conditions as the background samples (e.g., water quality parameters, sample locations, sampling conditions—presented in Reference 3, Site Reassessment report,

of the HRS documentation record at proposal) and the background level was appropriately assigned in the HRS documentation record at proposal.

Further, as discussed in section 3.22.1, Surface Water Observed Release: Background Level, of this support document, it would have been inappropriate to compare ground water samples to surface water samples in an HRS evaluation because they do not meet the requirement of being "similar types of samples." Surface water and ground water samples are not the same type of sample and thus are not used for comparison in the HRS documentation record at proposal. Ground water samples would be expected to have different characteristics than surface water samples as they are proportionally in greater contact with surface materials and flow at a much lower rate through the subsurface than surface water does in a riverbed. Therefore, ground water samples would be expected to have higher concentrations of dissolved minerals and are not appropriate to compare to surface water samples.

Regarding CFAC and APCO's comments that the release sample was taken from a different "backwater wetland area"; whereas the background samples that were taken, as the commenters assert, from the main channel, as explained above in this section, all samples were collected from the same relative position of the Flathead River and contained similar sampling conditions and attributes. Sample CF-SW-07 (the release sample) was collected from the Flathead River in an area where multiple side input channels from the "main" channel provide continuous downgradient flow; Sample CF-SW-07 was not collected from a backwater area that was not representative of the location of the background Flathead River samples. Background samples CF-SW-13 and CF-SW-14 were collected from areas in the Flathead River that have similar environmental conditions as sample CF-SW-07 because the background samples were collected along the stream banks of bar areas in the Flathead River that receive restricted flow regimes (or low flow) throughout the year. While the flow rate might be variable at each location, as generally described on page 69 of the HRS documentation record at proposal, the upstream background samples were all similarly collected from the stream banks in locally calm water areas that exhibited local low flow conditions similar to sample CF-SW-07. No samples were collected from the center of the channel where the flow regime would be significantly different (see Figure 4 of the HRS documentation record at proposal).

Therefore, the surface water background samples and the surface water release samples are documented to be sufficiently similar for HRS purposes. The presence of a chronic mixing zone between the background and release samples does not contest that the samples are similar; rather, it provides support that a release of contamination has occurred at the Site.

Regarding the commenters' statements that EPA failed to follow guidance in establishing a dissolved manganese background level, the process used to establish this background level was consistent with the HRS and the approach used was consistent with all applicable guidance (specifically, section 5.2, Selecting Appropriate Background Samples, of the HRS *Guidance Manual*) for selecting and sampling to determine the background and release surface water concentrations.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.22.3 Surface Water Observed Release: Significant Increase in Manganese

Comment: In questioning whether ground water discharges from the Site were adversely affecting surface water quality, ARCO questioned the significant increase in manganese levels in surface water above background, asserting:

- Total manganese concentrations from the surface water sample CF-SW-07 were essentially equal to the calculated three times background manganese concentration
- Total manganese concentrations from samples just downstream from CF-SW-07 were below the average Flathead River background concentration for total manganese
- Total manganese concentrations measured in sample CF-SW-07 were less than background concentrations measured in Cedar Creek
- Manganese concentrations in sample CF-SW-07 were less than concentrations in background ground water sample CF-GW-MW-01

Response: An observed release to surface water was established in the HRS documentation record at proposal based on dissolved manganese, **not** "manganese" (i.e., not **total** manganese) as asserted by the ARCO. As presented in section 3.22, Observed Release to Surface Water, of this support document, EPA demonstrated that the increase in dissolved manganese in sample CF-SW-07 in the Flathead River meets significant increase criteria presented Table 2–3 of the HRS. HRS Table 2-3 states:

Table 2–3—Observed Release Criteria for Chemical Analysis

Sample Measurement< Sample Quantitation Limit[a]
No observed release is established.
Sample Measurement≥ Sample Quantitation Limit[a]
An observed release is established as follows:
• If the background concentration is not detected (or is less than the detection limit), an observed release is established when the sample measurement equals or exceeds the sample quantitation limit.[a]
• If the background concentration equals or exceeds the detection limit, an observed release is established when the sample measurement is 3 times or more above the background concentration.

[a] If the sample quantitation limit (SQL) cannot be established, determine if there is an observed release as follows:
—If the sample analysis was performed under the EPA Contract Laboratory Program, use the EPA contract-required quantitation limit (CRQL) in place of the SQL.
—If the sample analysis is not performed under the EPA Contract Laboratory Program, use the detection limit (DL) in place of the SQL.

The downstream surface water release sample CF-SW-07 was collected from the Flathead River and was determined to contain 31.4 µg/L of dissolved manganese (see page 70 of the HRS documentation record at proposal). Four background samples collected upstream of the Site, and upstream of this release sample, contained dissolved manganese concentrations ranging from non-detect (1.0 U µg/L) to 2.2 µg/L (see page 69 of the HRS documentation record at proposal). The concentration in the release sample CF-SW-07 is greater than three times the highest measured background level and therefore meets the HRS requirement that the release sample concentration be significantly above the background concentration.

Comparing total manganese concentrations to dissolved manganese concentrations would not be appropriate because total manganese sample concentrations can be impacted by the entrainment of sediments, or particles, in the sample. Therefore, only those samples that have similar analytical methods (i.e., sample collection, filtration, etc.) were compared, and it is only appropriate to compare release sample concentrations of dissolved manganese with background sample concentrations of dissolved manganese, not total manganese.

Regarding ARCO suggesting comparing surface water samples to background ground water samples; as stated above in section 3.22.2, Background and Release Sample Similarity, of this support document, it is inappropriate to compare surface water samples with ground water samples. The HRS directs that sample comparisons should be limited to "similar types of samples."

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.22.4 Attribution of Manganese

Comment: CFAC and ARCO questioned whether the manganese concentrations scored were attributable to the Site. ARCO commented that sample CF-SW-07 is likely the result of a significant quantity of "alluvial groundwater discharging to this backwatered area of the Flathead River." CFAC commented that EPA has not attributed manganese to industrial activities at the facility. CFAC asserted the manganese present is likely background and naturally occurring.

CFAC asserted that EPA did not consider appropriate information in evaluating the presence of natural manganese. CFAC commented that EPA incorrectly stated that there are no other potential sources of manganese either upgradient or in the immediate area, and asserted that EPA ignored data developed by an EPA contractor that showed background manganese levels to be high. CFAC commented that the manganese in the site soil sediments is ubiquitous and naturally present in high concentrations, and asserted that EPA did not account for these naturally high concentration levels when establishing the release of manganese to surface water. CFAC asserted that EPA ignored its own data which indicated that manganese is naturally occurring in soil in high concentrations on the Site. CFAC commented that background concentrations of manganese in Montana soils average between 508 and 477 mg/kg. CFAC asserted that EPA did not consider background samples of manganese measured onsite at concentrations ranging from 1200–1570 mg/kg.

Response: The HRS documentation record at proposal established that some portion of the significant increase in dissolved manganese contamination found in the Flathead River downgradient of the aluminum production facility was correctly attributed to the release of manganese from the Anaconda Aluminum Co Columbia Falls Reduction Plant site, and that this increase was not due to natural sources for the following reasons:

- Wastes in all 5 site sources included in the HRS site scoring are documented to contain manganese based on source samples, have received various wastestreams from the facility operations, and are documented to not be fully contained to prevent migration of contamination to ground water (containment values of 10 were assigned to each source).The dissolved manganese level in an aqueous site source sample is greater than the dissolved manganese concentrations in background surface water samples immediately upstream of the facility, demonstrating that the elevated manganese in the site source is not due to natural or other manmade releases.
- No other man-made sources of manganese contamination were found in the vicinity of the facility.

HRS Sections 3.1.1 and 4.2.2.1.1 indicate that some portion of the release must be attributable to the Site for scoring either an observed release to ground water or an observed release to surface water. The HRS documentation record at proposal pages 58 and 70 explain the attribution rationale in the evaluations of ground water migration pathway and the surface water migration pathway.

EPA collected background samples in the Flathead River and samples from upgradient ground water wells to show that the dissolved manganese contamination is due to releases at the Site and is not due to the presence of naturally occurring manganese, in establishing either an observed release to surface water or an observed release to ground water. The significant increase in dissolved manganese in site ground water (as documented in section 3.19, Observed Release to Ground Water, of this support document) and the significant increase in dissolved manganese in surface water are elevated above naturally occurring/background levels and were appropriately attributed, at least in part, to releases from the Sites. (The attribution of the significant increase establishes the scoring of an observed release to ground water of dissolved manganese. Dissolved manganese is therefore eligible for consideration in documenting an observed release by chemical analysis to the surface water pathway through

the ground water to surface water migration component of the surface water migration pathway, per HRS Sections 3.1.1, 4,2,1,3, and 4.2.2.1.1.)

The site sources have all received various waste from facility operations and are all documented to contain manganese (See pages 25–27 of the HRS documentation record at proposal and Section 3.14, Source Samples, of this support document, for documentation of manganese in the site sources). The site sources are all also uncontained, and sources 1–4 are actually designed to release to the ground water (percolation ponds).

Investigations at the Site have determined background concentrations of manganese in the ground water at the Site range from 6.4 µg/L to 10.9 µg/L; these concentrations account for the naturally occurring level of manganese in the local ground water. Investigations have also determined that the ground water flow at the Site is generally to the south or southwest. As the ground water flows from the north to the Flathead River in the south, ground water monitoring wells CF-GW-MW-08 and CF-GW-MW-09 (containing 109 µg/L and 181 µg/L of dissolved manganese respectively) document that the site sources are causing a significant increase in manganese in the ground water that is ultimately releasing to the Flathead River (also, see section 3.19, Observed Release to Ground Water, of this support document).

In addition to this documentation of ground water flow, the Anaconda Aluminum facility is documented to have an Montana pollution discharge elimination system (MPDES) permit to discharged waste from the site sources to the Flathead River (Outfall D006; see Reference 7 of the HRS documentation record at proposal). Because manganese is documented to be in each site source at concentrations elevated above background levels, the MPDES permit confirms that the site sources are releasing dissolved manganese in the Flathead River.

In addition to documenting releases from the site sources to the ground water that is travelling to the Flathead River, EPA also collected four upgradient background samples in the Flathead River to determine the background, or natural, level of dissolved manganese in the surface water (see Figure 6 of the HRS documentation record at proposal for the locations of the background samples). Because these samples were filtered and analyzed for dissolved metals, the site samples would not be impacted by entrained particles, as discussed above in section 3.22.3, Surface Water Observed Release: Significant Increase in Manganese, of this support document. These surface water background samples ranged from non-detect to 2.2 µg/L of dissolved manganese and provide an accurate background level, including all natural and non-natural inputs, for dissolved manganese in the surface water of the Flathead River upgradient of the Site.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.23 Other HRS Scoring Issues

Comment: CFAC and ARCO commented on issues they claim were present in the HRS score calculation.

CFAC submitted comments identifying alleged errors in the ground water pathway scoring. CFAC asserted that the revised score would change the nearest well factor to 9. In its rescoring, CFAC estimated 261 people reside in the 0.5–1 mile distance category, asserting that this results in a population value of 52. CFAC commented that a ground water pathway score, corrected for incorrect cyanide data, would be 40.67.

CFAC questioned the accuracy of the surface water pathway score for this Site. CFAC asserted the correct surface water pathway score, correcting for alleged errors, would be 8.3. CFAC asserted that an observed release to surface water did not occur, resulting in an observed release value of 0.

CFAC asserted that the HRS score correcting for errors would be 20.75 instead of the 68.39 presented in the HRS documentation record at proposal.

ARCO took issue with the scoring of the ground water pathway. ARCO asserted that many changes in the score are needed based on results from November 2014 ground water resampling conducted by EPA, including:

- A reduction in the nearest well factor from 50 to 20.
- A reduction in targets to 74.9 from 140.
- A reduction in the ground water pathway score from 93.33 to 49.93.

ARCO commented that the following values should be assigned for the potential to release factors using the ground water to surface migration component:

- A containment factor value of 10 based on no liner.
- A net precipitation factor value of 3.
- A depth to aquifer factor of 3.
- A travel time factor of 25 due to 5 to 100 feet thick lowest hydraulic conductivity layer with a conductivity between 10^{-3} and 10^{-5} cm/s.

ARCO also commented that the surface water pathway score was incorrect, asserting that the environmental threat score and food chain threats scores should be 9.01 and 2.40, respectively. ARCO further commented that both the environmental threat and human food chain threats were biased high. ARCO asserted that revised background concentrations would result in no observed release to the Flathead River, resulting in a likelihood of release factor value of 310 instead of 550.

ARCO further asserted that the food chain individual factor should be 2 and not 45 based on the absence of an observed release and a dilution weight of 0.001.

ARCO asserted that, correcting for errors, the HRS score would be 25.6 instead of the 68.39 presented in the HRS documentation record at proposal.

In addition, CFAC and ARCO both submitted revised scoresheets, outlining alleged issues with scoring. Tables 1, 2, and 3 below present all changes in HRS factor and category values and the HRS site score based on CFAC and ARCO's revised scoring, and the values assigned in the HRS documentation record at proposal.

Table 1 – Pathway Values and Site Score Calculation Assigned at Proposal and Assigned by CFAC and by ARCO in their Rescoring

Scoring Element	Value Assigned in HRS Documentation Record at Proposal		Value Assigned by CFAC		Value Assigned by ARCO	
	S Pathway	S^2 Pathway	S Pathway	S^2 Pathway	S Pathway	S^2 Pathway
Ground Water Migration Pathway Score (Sgw)	93.33	8710.48	40.67	1654.05	49.93	2493.0
Surface Water Migration Pathway Score (Ssw)	100.00	10,000	8.3	68.89	11.41	130.19
Soil Exposure Pathway (Ss)	NS	NS	NS	NS	0.0	0.0
Air Migration Score (Sa)	NS	NS	NS	NS	0.0	0.0
$S_{2\,gw} + S_{2\,sw} + S_{2s} + S_{2a}$		17810.48		1722.94		2623.19
$(S_{2gw} + S_{2sw} + S_{2s} + S_{2a})/4$						655.8
/ $(S_{2\,gw} + S_{2\,sw} + S_{2s} + S_{2a})/4$		68.39		20.75		25.61

Table 2 – [TABLE 3-1] Ground Water Migration Pathway Score Sheet as Assigned at Proposal and as Assigned by CFAC and by ARCO in their Rescoring

PATHWAY SCORESHEET Factor Categories and Factors	**Maximum Value**	**Value Assigned in HRS Documentation Record at Proposal**	**Value Assigned by CFAC**	**Value Assigned by ARCO**
Likelihood of Release to an Aquifer				
1. Observed Release	550	550	550	550
2. Potential to Release:				
2a. Containment	10	NS	NS	10.0
2b. Net Precipitation	10	NS	NS	3.0
2c. Depth to Aquifer	5	NS	NS	3.0
2d. Travel Time	35	NS	NS	35.0
2e. Potential to Release [lines 2a(2b+2c+2d)]	500	NS	NS	410.0
3. Likelihood of Release (higher of lines 1 and 2e)	550	550	550	550
Waste Characteristics				
4. Toxicity/Mobility	a	10,000	10,000	10,000.0
5. Hazardous Waste Quantity	a	10,000	10,000	10,000.0
6. Waste Characteristics	100	100	100	100.0
Targets				
7. Nearest Well	50	50	9	20.0
8. Population				
8a. Level I Concentrations	b	90	0	0.0
8b. Level II Concentrations	b	0	0	0.0
8c. Potential Contamination	b	0	52	54.9
8d. Population (lines 8a + 8b + 8c)	b	90	0	54.9
9. Resources	5	0	0	0.0
10. Wellhead Protection Area	20	0	0	0.0
11. Targets (lines 7 + 8d + 9 + 10)	b	140	61	74.9
Ground Water Migration Score for an Aquifer				
12. Aquifer Score [(lines 3 x 6 x 11)/82,500] [c]	100.00	93.33	40.67	49.93
Ground Water Migration Pathway Score				
13. Pathway Score (SW_{sw}), (highest value from line 12 for all aquifers evaluated) [c]	100.00	93.33	40.67	49.93

Table 3 – [TABLE 4-25] Ground Water to Surface Water Migration Component Score Sheet at Proposal and as Assigned by CFAC and by ARCO in their Rescoring

Factor Categories and Factors	Maximum Value	Value Assigned in HRS Documentation Record at Proposal	Value Assigned by CFAC	Value Assigned by ARCO
Drinking Water Threat				
Likelihood of Release:				
1. Observed Release	550	550	0	0.0
2. Potential to Release:				
2a. Containment	10	NS	10	10.0
2b. Net Precipitation	10	NS	3	3.0
2c. Depth to Aquifer	5	NS	5	3.0
2d. Travel Time	35	NS	35	25.0
2e. Potential to Release (line 2a[2b+2c+2d])	500	NS	430	310.0
3. Likelihood of Release (higher of lines 1 and 4)	550	550	430	310.0
Waste Characteristics:				
4. Toxicity/Mobility/Persistence	(a)	NS	NS	0.0
5. Hazardous Waste Quantity	(a)	NS	NS	10000.0
6. Waste Characteristics	100	NS	NS	0.0
Targets:				
7. Nearest Intake	50	NS	NS	0.0
8. Population				
8a. Level I Concentrations	(b)	NS	NS	0.0
8b. Level II Concentrations	(b)	NS	NS	0.0
8c. Potential Contamination	(b)	NS	NS	0.0
8d. Population (lines 8a+8b+18c)	(b)	NS	NS	0.0
9. Resources	5	NS	NS	0.0
10. Targets (lines 7+18d+19)	(b)	NS	NS	0.0
Drinking Water Threat Score:				
11. Drinking Water Threat Score ([lines 3×6×10]/82,500, subject to a maximum of 100)	100	NS	NS	0.0
Human Food Chain Threat				
Likelihood of Release:				
12. Likelihood of Release (same value as line 3)	550	550	430	310
Waste Characteristics:				
13. Toxicity/Mobility/Persistence/Bio accumulation	(a)	5×10^6	5×10^6	5000000.0
14. Hazardous Waste Quantity	(a)	10,000	10,000	10,000
15. Waste Characteristics	1,000	320	320	320

Factor Categories and Factors	Maximum Value	Value Assigned in HRS Documentation Record at Proposal	Value Assigned by CFAC	Value Assigned by ARCO
Targets:				
16. Food Chain Individual	50	45	0	2.0
17. Population				
17a. Level I Concentrations	(b)	0	0	0.0
17b. Level II Concentrations	(b)	0.03	0	0.0
17c. Potential Human Food Chain Contamination	(b)	0	1.5×10^{-7}	0.0
17d. Population (lines 19a+19b+19c)	(b)	0.03	1.5×10^{-7}	0.0
18. Targets (lines 16+17d)	(b)	45.03	1.5×10^{-7}	2.0
Human Food Chain Threat Score:				
19. Human Food Chain Threat Score ([lines 12×15×18]/82,500, subject to a maximum of 100)	100	96	2.5×10^{-7}	2.4
Environmental Threat				
Likelihood of Release:				
20. Likelihood of Release (same value as line 5)	550	550	430	310.0
Waste Characteristics:				
21. Ecosystem Toxicity/Mobility/Persistence/Bio accumulation	(a)	5×10^{6}	5×10^{6}	5000000.0
22. Hazardous Waste Quantity	(a)	10,000	10,000	10,000
23. Waste Characteristics	1,000	320	320	1000
Targets:				
24. Sensitive Environments				
24a. Level I Concentrations	(b)	0	0	0
24b. Level II Concentrations	(b)	150	0	0
24c. Potential Contamination	(b)	0	5	7.5
24d. Sensitive Environments (lines 26a+26b+26c)	(b)	150	5	7.5
25. Targets (value from line 24d)	(b)	150	5	7.5
Environmental Threat Score:				
26. Environmental Threat Score ([lines 20×23×25]/82,500, subject to a maximum of 60)	60	60	8.3	9.01
Surface Water Overland/Flood Migration Component Score for a Watershed				
27. Watershed Score[c] (lines 11+19+26, subject to a maximum of 100)	100	100	8.3	11.41
Surface Water Overland/Flood Migration Component Score				
27. Component Score (S_{of})[c] (highest score from line 27 for all watersheds evaluated, subject to a maximum of 100)	100	100	8.3	11.41

Response: The HRS score was correctly determined in the HRS documentation record at proposal, and sufficient documentation was presented in the HRS package to support the HRS scoring of the Site. The responses presented above in the support document demonstrate the appropriateness of the scoring of the ground water and surface water pathways in the HRS documentation record at proposal.

ARCO's assertion that the hazardous waste quantity should be revised is unfounded. As discussed above in section 3.15, Source Hazardous Waste Quantity, and section 3.16, Pathway Hazardous Waste Quantity, of this support document, the hazardous waste quantity was appropriately assigned for sources, and this correct value was used to calculate a pathway specific hazardous waste quantity value for each pathway evaluated. Hence, as the hazardous waste quantity values were appropriately determined, the assigned hazardous waste quantity values of 10,000 and 10,000 for the ground water and surface water pathways, respectively, were correctly assigned.

ARCO and CFAC are incorrect in the assertion that the ground water pathway score should be revised to take into consideration a lack of a cyanide observed release to well CF-GW-OP-02 based on subsequent sampling showing non-detections. As discussed above in sections 3.19, Observed Release to Ground Water, 3.19.1, Analytical Cyanide Data Quality of the Sample from the Domestic Drinking Water Well, and 3.19.4, Releases Below Regulatory Benchmarks, of this support document, an observed release to ground water to the domestic drinking water well (CF-GW-OP-02) was established consistent with the HRS. As discussed in section 3.20, Ground Water Targets: Actual Contamination and Level I Targets, of this support document, the Level I targets were appropriately established in the HRS documentation record at proposal based on cyanide concentrations meeting observed release criteria and exceeding the applicable benchmark. Accordingly, the Level I target value of 90 was properly assigned for the ground water pathway.

Regarding ARCO and CFAC's assertions that no observed release to surface water had been sufficiently documented, an observed release by chemical analysis of dissolved manganese was correctly scored in the HRS documentation record at proposal. As discussed above in section 3.22, Observed Release to Surface Water, of this support document, an observed release by chemical to surface water of dissolved manganese was appropriately established based on dissolved manganese concentrations in sample CF-SW-07, supporting the assignment of a 550 likelihood of release value for the observed release to surface water. As an observed release to surface water was sufficiently documented, scoring potential to release in the evaluation of the ground water to surface water component of the surface water pathway would not be appropriate.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

4. Conclusion

The original HRS score for this Site was 68.39. Based on the above responses to public comments, the score is 68.39. The final scores for the Anaconda Aluminum Co Columbia Falls Reduction Plant site are:

Ground Water:	93.33
Surface Water:	100.00
Soil Exposure:	NS
Air Pathway:	NS
HRS Score:	68.39

Attachment 1

Montana Department of Environmental Quality (DEQ)
Permitting and Compliance Division
Montana Pollutant Discharge Elimination System (MPDES) Fact Sheet

DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ)
PERMITTING and COMPLIANCE DIVISION
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (MPDES)

Fact Sheet

Permittee:	Columbia Falls Aluminum Company, LLC
Permit No.:	MT0030066
Receiving Water:	Flathead River

Facility Information:

Name	Columbia Falls Aluminum Company
Location	2000 Aluminum Drive, Columbia Falls Flathead County
Facility Contact:	Steve Wright, Environmental & Laboratory Manager
Address	2000 Aluminum Drive
City/State	Columbia Falls, MT 59912
Phone	(406) 892-8211
Email:	swright@cfaluminum.com

Fee Information:

Major/Minor:	Major Industrial
Number of Outfalls	11 (for fee determination only)
Outfall – Type	002 –Anode Paste Plant Briquette Cooling Water (ELG) 004 – Aluminum Casting Contact Chilling Water (ELG) 005 – Domestic Sewage Treatment (TBEL) 006 – Ground Water Seep (process wastewater, non-process wastewater, noncontact cooling water, stormwater, and contaminated ground water discharges) 007 – North Pond (includes 002 process wastewater, non-process wastewater, and non-contact cooling water) 008 – North Pond (includes non-process wastewater, non-contact cooling water, and stormwater) 009 – South Pond (includes 004 & 005 process wastewater, non-process wastewater, and non-contact cooling water) 010 – West Pond (non-process wastewater, stormwater) 011 – Dry Well 012 – Dry Well 013 – Ground (non-process wastewater)

I. Permit Status

This Fact Sheet identifies the legal requirements and technical rationale for the renewal of Montana Pollutant Discharge Elimination System (MPDES) permit number MT0030066 for Columbia Falls Aluminum Company (CFAC, also referred to as 'the facility'). The owner/ operator of CFAC is the Columbia Falls Aluminum Company, LLC (also referred to as 'the permittee'). Glencore AG is CFAC's parent company.

The initial permit application for wastewater discharged from the CFAC facility was for discharges to ground water, submitted by ARCO in 1983. The ground water discharge permit was issued in September 1984. Subsequently, in 1993 CFAC submitted an MPDES permit application as a result of a ground water seep downgradient from the facility that was found discharging to the Flathead River in 1991. The initial MPDES permit was issued in May 1994.

The most recent MPDES permit for the CFAC facility became effective on February 1, 1999, and expired at midnight, January 31, 2004. On August 4, 2003, CFAC submitted a permit renewal application, including the applicable fees, Form 1, Form 2C, and mixing zone information. Supplemental information was requested on August 18, 2003, and received on October 24, 2003. DEQ sent a letter on October 28, 2003, that deemed the application substantially complete. The existing MPDES permit was administratively continued until such time as the permit is renewed, as per Administrative Rules of Montana (ARM) 17.30.1313.

During spring 2013, DEQ determined that an updated permit application was required for this renewal, since the previous application was submitted in 2003 and thus outdated. CFAC submitted an updated application on July 29, 2013, with corrections made to several Form 2C Item V forms sent by email on August 8, 2013.

II. Facility Information

A. Facility Description

The permittee owns and operates an aluminum reduction plant that electrolytically reduces alumina ore (aluminum oxide, Al_2O_3) to produce aluminum ingots. Aluminum was first produced at this facility in 1955. Between 2003 and 2009, CFAC operated between one and three out of their five potlines. In October 2009 the facility temporarily shut down. Although the facility is currently not operating and is in shutdown mode, it is possible that CFAC will initiate operations during this permit term. Tiered production-based limits have been included to account for production up to the maximum capacity.

Each of the five aluminum potlines has 120 individual pots (**see Figure 1**). Annual operating capacity is approximately 185,000 tons of aluminum, using the Hall-Heroult process. This electrochemical reduction process consists of passing an electric current through aluminum oxide dissolved in molten cryolite (sodium-aluminum fluoride) in a Soderberg-style pot.

Consumable carbon anodes (anode briquettes) used in the Soderberg process are produced at CFAC from petroleum coke and coal tar pitch. Coke is pulverized by ball mills prior to being mixed with heated pitch. The mixture is extruded into a water quench bath, and then transported by conveyor to individual storage locations. From the storage locations, the anode briquettes are loaded into trucks and fed into the process.

Unreacted alumina is brought by rail to unloading and storage silo systems. From those locations, the alumina is conveyed to silos prior to being injected into the Alcoa A398 reactors. The reacted alumina is then fed to storage silos, and ultimately to trucks that feed the reacted ore to the pots once every three hours. The reacted alumina is fed into a molten bath of cryolite, and heated to about 1740°F (949°C). Through the electrochemical process, electricity passes from the anode to the cathode, causing the aluminum to be reduced. The aluminum metal sinks below the cryolite bath to form a molten aluminum "pad."

When operational, each of the five potlines produces a daily average of 204,409 pounds (92,718 kilograms (kg)) of aluminum. Aluminum metal is siphoned from the pot every 48 hours. The molten aluminum can either be sent directly to the casting department, or fluxed and alloyed prior to casting.

In the casting department, the metal first goes to one of six casting furnaces, followed by casting. CFAC can cast bulk aluminum intended for re-melting either as T-bar or sow cast (large shapes weighing 700 to 2000 pounds). There are six casting pits for T-bar and sheet ingots, and one sow casting line. T-bar and sow can be re-melted to produce extrusions or cast into ingots or billets, which are then pressed or rolled to form sheet, plate, foil, wire, rod, and bar. The T-ingots and sheet ingots from casting are then sent to saws for cutting to length.

Outfalls

DEQ assesses a fee for each outfall [ARM 17.30.201(6)(a)]. An "outfall" is a disposal system through which effluent or waste leaves the facility or site [ARM 17.30.201(2)]. CFAC has eleven permitted outfalls for fee purposes. Of these, three are internal monitoring points designed to demonstrate compliance with Technology-based Effluent Limits (TBELs), including two processes with federal Effluent Limitation Guidelines (ELGs).

Table 1 summarizes key information about each of the proposed outfalls (also see **Figure 2**). Average daily flows are based on full production, as estimated from data from 1993 through 1998 (July 2013 renewal application).

Table 1: List of Outfalls to Flathead River

Outfall	Receiving Water	Source Description	Average Flow (gpd)	Monitoring Lat/Long
006	**Flathead River via Ground Water Seep**			**48°23'22"N / -114°8'29"W**
		Wastewater discharged through ground water via discreet ground water seep.	unk	
007	**Flathead River via Ground Water from North Ponds**			**48°23'47.0"N / -114°8'14.1"W**
002 (internal)		ELG: Anode Paste Plant Briquette Cooling Water	525,000	48°23'43.9"N / -114°8'9.9"W
		Noncontact Cooling Water (NCCW)	1,280,000	
		Non-process wastewater (Masonry Shop)	200	
		Boiler blowdown (lab)	40	
008	**Flathead River via Ground Water from North Ponds**			**48°23'46.8"N / -114°8'4.5"W**
		NCCW	4,200	
		Non-Process wastewater (battery shop, garage, garage steam clean, and pin crane steam clean)	800	
		Unregulated (air conditioner condensate)	3,600	
		Storm water	unk	
009	**Flathead River via Ground Water from South Ponds**			**48°23'20.3"N / -114°8'19.3"W**
004 (internal)		ELG: Aluminum Casting Contact Chilling Water	1,600,000	48°23'34.5"N / -114°8'5.3"W
005 (internal)		TBEL: Sewage Treatment Plant	62,000	48°23'24.9"N / -114°8'18.1"W
		NCCW (rectifier and other equipment)	834,200	
		Process wastewater (Casting Mold Cleaning & Steam Cleaning)	400	
		Non-process wastewater (Fabrication Shop Steam Cleaning)	40	
		Storm water	unk	
010	**Flathead River via Ground Water from West Pond**			**48°23'38.0"N / -114°8'26.0"W**
		Boiler blowdown (Fabrication Shop, Warehouse, and Changehouse)	120	
		Storm water – parking lot	unk	
011	**Flathead River via Ground Water from Dry Wells**			**48°23'43.7"N / -114°8'6.0"W**
		Boiler blowdown (Paste Plant)	40	
012	**Flathead River via Ground Water from Dry Well**			**48°23'34.2"N / -114°8'16.6"W**
		NCCW (Electromelt Furnace)	13,600	
013	**Flathead River via Ground Water**			**48°23'28.9"N / -114°7'37.6"W**
		Non process waste water (Head Tank Cleaning – Chlorinated Water)	500	

DEQ issues permits for *point sources discharging pollutants* into state waters (ARM 17.30.1301).

A point source is any discernible, confined, or discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged [ARM 17.30.1304(51)].

Discharging pollutants means the addition of any pollutant or combination of pollutants to state waters from any point source. This definition includes additions of pollutants into water of the state from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a state, municipality, or other person which do not lead to a treatment works [ARM 17.30.1304(22)].

The outfall information in this permit renewal includes a characterization of each discharge source (as defined by 40 Code of Federal Regulations (CFR) 401.11, except as noted):

- *noncontact cooling water* means water used for cooling which does not come into direct contact with any raw material, intermediate product, waste product or finished product.
- *blowdown* means the minimum discharge of recirculating water for the purpose of discharging materials contained in the water, the further buildup of which would cause concentration in amounts exceeding limits established by best engineering practice.
- *process waste water* means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, by-product, or waste product.
- *storm water* means storm water runoff, snow melt runoff, and surface runoff and drainage [40 CFR 122.26(b)(13)].
- *storm water discharge associated with industrial activity* means the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant . . . the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at part 401 of this chapter); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and final products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the purposes of this paragraph, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas . . . [40 CFR 122.26(b)(14)].

The following describes each of the CFAC outfalls (including the three internal monitoring points) as point sources permitted under this renewal. The previous permit required that CFAC monitor only Outfalls 002, 004, and 005. Limited data on the ground water quality leading to the ground water seep at Outfall 006 was also provided. Lastly, CFAC provided information on the other outfalls (Outfalls 007 – 013) for this permit renewal based on engineering estimation.

Outfall 002 – Anode Briquette Quenching (Internal Monitoring Point)

The discharge of anode paste plant briquette quenching water from the coke and coal tar pitch mixer and extruder is regulated under an Effluent Limit Guideline (ELG), as will be discussed in Part III. The internal monitoring point for this regulated discharge, identified as Outfall 002, is the tank after the end of the main briquette cooling belt, prior to dilution with any wastewater that is not covered under this ELG.

The only production for this process over the past six years was partial operation from March 2008 to October 2009 before shutting down in 2009. The discharge flow reported in the 2013 updated Application Form 2C Part V was based on the most recent five years of production (January 2005 – September 2009), in million gallons per day (mgd):

- Average daily flow: 0.329 mgd.
- Maximum daily flow: 0.602 mgd.

In addition, CFAC has reported that the average flow for full production is 0.525 mgd based on operation in the 1990's.

The anode briquette quenching flow combines with noncontact cooling water, non-process wastewater, and boiler blowdown to discharge through Outfall 007 at the North Ponds. Water quality-based effluent limits (WQBELs) for the comingled discharge will be monitored at Outfall 007 prior to discharge into the North Pond, since the end of the pipe is the last point of control.

Outfall 004 – Casting Ingot Contact Quenching (Internal Monitoring Point)

The discharge of aluminum casting contact cooling water from direct chill casting of aluminum ingots (T-bar and sow casting lines) is regulated under an ELG, as will be discussed in Part III. The internal monitoring point for this regulated discharge, identified as Outfall 004, is one of three casting pits, prior to dilution with any wastewater that is not covered under this ELG. There are two different types of casting included in this outfall:

T-bar casting lines: contact water is used to cool a mold. The cooling water flows on the aluminum ingot and into one of three pits that are monitored on a rotating basis.

Sow casting line: installed during the fall of 2006 in the existing cast house to produce sow ingots. Sow molds are transported on a rail system to a molten aluminum pouring station. The sows are filled with molten aluminum and then cooled through a combination of air cooling and water cooling. Water is sprayed on the molds and sows to facilitate cooling. A trough, located under the sow line, collects waste cooling water. The trough carries the water to one of the three existing casting pits (T-bar casting pit for lines #3/#4).

The only production for these processes over the past six years was partial operation from March 2008 to October 2009 before shutting down in 2009. The discharge flow reported in the 2013 updated Application Form 2C was based on the most recent five years of production (January 2005 – September 2009):

- Average daily flow: 0.326 mgd.
- Maximum daily flow: 0.740 mgd.

In addition, CFAC has reported that the average flow for full production is 1.6 mgd based on information from the 1990's.

The discharge from 004 (T-bar and sow casting lines) combines with 005, noncontact cooling water, non-process wastewater, and stormwater to discharge through Outfall 009 at the South Ponds. WQBELs of the comingled discharge will be monitored at Outfall 009 prior to discharge into the South Ponds, since the end of the pipe is the last point of control.

Outfall 005 – Sewage Treatment Plant (Internal Monitoring Point)

The sewage treatment plant treats wastewater from sanitary and domestic uses and from the laboratory (sinks, noncontact cooling water, and non-solvent wastewater). Wastewater treatment consists of solids removal, aeration, and chlorination in a package wastewater treatment plant. The discharge from the sewage treatment plant has TBEL limits, as discussed in Part III. The internal monitoring point for this discharge is at the end of the package treatment plant, prior to dilution with other wastewater.

The sewage treatment facility has continued to operate even though production has ceased. The discharge flow as reported in the 2013 updated Application Form 2C was:

- Average daily flow: 0.055 mgd.
- Maximum daily flow: 0.095 mgd.

In addition, CFAC has reported that the average flow for full production is 0.062 mgd based on operation in the 1990's.

The regulated flow from 005 combines with 004, noncontact cooling water, non-process wastewater, and stormwater to discharge through Outfall 009 at the South Ponds. WQBELs of the comingled discharge will be monitored at Outfall 009 prior to discharge into the South Ponds, since the end of the pipe is the last point of control.

Outfall 006 – Ground Water Seep to Flathead River

CFAC first applied for MPDES permit coverage in 1993 as a result of a 1991 Environmental Protection Agency (EPA) inspection that found a ground water seep discharging to the Flathead River. Outfall 006 has been maintained in permit renewals since that time. Furthermore, both the 2003 and the updated 2013 renewal applications requested continued MPDES coverage. In the 2013 updated application, CFAC identified the sources that contribute pollutants to the ground water seep in Form 2E Section I. These point sources, included with newly identified outfall numbers in this renewal, are as follows:

- North Pond System (Outfalls 007 & 008);
- South Pond System (Outfall 009);
- West Pond (Outfall 010);
- Drywells (Outfalls 011 and 012); and
- Site Ground Water.

CFAC provided an estimated ground water seep discharge rate of 270,000 gpd; however, this figure is the total facility ground water flow rate calculated in the 1998 Mixing Zone study (see Part IV.B of this Fact Sheet).

Outfall 007 – North Ponds

CFAC estimates that Outfall 007 includes the following average daily contributions from various sources at full production:

0.5250 mgd anode briquette quenching (Outfall 002 - ELG)
1.2500 mgd noncontact cooling water from the compressor house
0.0300 mgd noncontact cooling water from paste plant ball mill
0.0002 mgd non-process wastewater (masonry shop)
<0.0001 mgd boiler blowdown (lab)
1.8053 mgd combined.

The outfall has no treatment prior to discharging to the first of the two North Ponds. As the ponds are not lined, the wastewater can percolate into ground waters which are hydraulically connected to the Flathead River. WQBELs for the comingled discharge will be monitored at Outfall 007 prior to discharge into the North Pond, since the end of the pipe is the last point of control.

Outfall 008 – North Ponds

CFAC estimates that Outfall 008, the second outfall to the first of two North Ponds, includes the following average daily contributions from various sources at full production:

0.004 mgd non-contact cooling water
<0.001 mgd non-process wastewater (battery shop, garage, garage steam cleaning, pin crane steam cleaning)
0.004 mgd unregulated (air conditioner condensate)
Unknown production area stormwater
0.009 mgd combined, plus stormwater

The outfall has no treatment prior to discharging to the first of two North Ponds. As the ponds are not lined, the wastewater can percolate into ground waters which are hydraulically connected to the Flathead River. WQBELs of the comingled discharge will be monitored at Outfall 008 prior to discharge into the North Pond, since the end of the pipe is the last point of control.

Outfall 009 – South Ponds

CFAC estimates that Outfall 009 includes the following average daily contributions from various sources at full production:

1.6000 mgd contact ingot contact quenching (Outfall 004 - TBEL)
0.0620 mgd sewage treatment plant (Outfall 005 – TBEL)
0.8300 mgd non-contact cooling water from rectifier
0.0040 mgd non-contact cooling water from other equipment
0.0004 mgd process wastewater (casting mold cleaning & steam cleaning)
<0.0001 mgd non-process wastewater (fabrication shop steam clean, 40 gpd)
Unknown production area stormwater
2.4965 mgd combined, plus stormwater

The combined discharge is pumped to three percolation ponds located approximately 1,000 feet south of the plant near the Flathead River (South Ponds). Other than treatment for two of the sources (the sewage treatment plant and an oil/water separator for the rectifier yard stormwater), the outfall has no treatment prior to discharging to the first of the three South Ponds. As the ponds are not lined, the wastewater can percolate into ground waters which are hydraulically connected to the Flathead River. WQBELs of the comingled discharge will be monitored at Outfall 009 prior to discharge into the South Ponds, since the end of the pipe is the last point of control.

Outfall 010 – West Pond

This pond is located to the west of the main parking area; percolation ground water to discharge to the Flathead River. CFAC estimates that Outfall 010 includes the following average daily contributions from various sources at full production:

0.0001 mgd boiler blowdown (fabrication shop, warehouse, and changehouse)
Unknown parking lot stormwater
0.0001 mgd, plus stormwater

As the pond is not lined, wastewater will percolate into state ground waters which are hydraulically connected to the Flathead River. Any monitoring required for this combined flow will be at the discharge into the pond, identified as Outfall 010.

Outfall 011 – Dry Well

This dry well, located north of the main plant, receives approximately 40 gpd paste plant boiler blowdown.

Outfall 012 – Dry Well

This dry well, located west of the main plant, receives approximately 13,600 gpd noncontact cooling water from the electromelt furnace.

Outfall 013 – Head Tank Cleaning

CFAC periodically (approximately once per year) cleans out the head tank (main water supply holding tank) with chlorinated water. The spent rinse water is discharged to the ground at 500 gpd.

B. Effluent Characteristics

Effluent data in Table 2 (Outfall 002) and Table 3 (Outfall 004) are obtained from facility Discharge Monitoring Reports (DMRs) for the period of record (POR) January 1, 2005 through October 2009 (production ceased as of November 2009). Effluent data in Table 4 (Outfall 005) for the sewage treatment plant are obtained from the DMRs for the POR January 2008 through May 2013). Lastly, monitoring data from the ground water seep is summarized in Table 5.

There was no other available monitoring data, other than the ground water and Flathead River samples which are addressed in Part IV.B of this Fact Sheet (WQBELs). There is no available data for Outfalls 007 – 013, since they are newly identified as outfalls and are not operating.

Outfall 002 – Anode Briquette Quenching Effluent Characteristics

The previous permit required CFAC to monitor anode quenching effluent at the tank after the end of the main anode briquette cooling belt. Data was reported on DMRs under Outfall 002-A. CFAC discharged for less than two years of the most recent six years (2008 – 2009), so data from the five most recent production years (2005 – 2009) are summarized in Table 2. CFAC was required to monitor Outfall 002 monthly for flow, benzo(a)pyrene, aluminum, nickel, and fluoride, and annually for antimony under their previous permit.

Other than benzo(a)pyrene, the analysis was required to be reported for *net dissolved* concentrations. Therefore, DMR concentrations for permitted parameters, as shown in Table 2, were reported by CFAC as "net dissolved" by subtracting the corresponding ambient concentration measured at monitoring well W02. In addition, Table 2 includes gross, dissolved metals information from Item V on the 2013 application update under the Maximum Value column.

Table 2: Outfall 002 Effluent Characteristics – January 2005 to shutdown (October 2009)

Parameter	Units	Previous Permit Limits	Minimum DMR Value	Average DMR Value	Maximum DMR Value	No. DMR Reports	Maximum Values 2013 Applic [1]
			Monthly/ Daily				
Effluent Flow Rate [3]	gal/day	NA [2]	10,226/ 63,400	144,705/ 312,351	581,314/ 601,933	58	329,000 / 602,000
Benzo(a)pyrene [3]	µg/L	NA [2]	ND	ND	ND	58	< 0.1
	kg/day	0.001/0.003	0	0	0	58	< 0.00023
Aluminum [4]	µg/L	NA [2]	ND	ND	100	58	< 200
	kg/day	0.207/0.600	0	0	0.04/ 0.08	58	< 0.23
Antimony [4]	µg/L	NA [2]	ND	ND	ND	4	< 3
	kg/day	0.066/0.189	0	0	0	4	< 0.005
Nickel [4]	µg/L	NA [2]	ND	ND	ND	58	< 20
	kg/day	0.028/0.054	0	0	0	58	< 0.02
Fluoride [4]	µg/L	NA [2]	ND	260	860	58	1,140
	kg/day	2.016/5.845	0	0.11 / 0.31	0.86/ 1.56	58	2.07
Copper	µg/L	NA	--	--	--	0	1
Cyanide (CN)	µg/L	NA	--	--	--	0	27

Footnotes: ND = nondetect, NA = not applicable.

1. Data supplied as part of 2013 renewal application update, including package received July 29, 2013 and follow-up application material emailed on August 7, 2013. Based on 2013 Application Table 2C-3 other than copper and cyanide. Gross -- not net figures. Metals are dissolved.
2. No limit in previous permit, reporting only.
3. Gross average monthly /gross maximum daily.
4. Net average monthly /net maximum daily. The previous permit required CFAC to monitor as net dissolved (Well #W02 dissolved concentration minus effluent dissolved concentration) in order to mimic the settling and infiltration from the North Ponds.

Outfall 004 – Casting Contact Chilling Effluent Characteristics

The previous permit required CFAC to monitor contact casting chilling at one of three casting pits on a rotating basis. Data was reported on DMRs under Outfall 004-A. CFAC discharged for less than two years of the most recent six years (2008 – 2009), so data from the five most recent production years are summarized in Table 3. CFAC was required to monitor monthly for flow, aluminum, nickel, and fluoride, and annually for benzo(a)pyrene and antimony.

Other than benzo(a)pyrene, the analysis was required to be reported for *net dissolved* concentrations. Therefore, DMR concentrations for permitted parameters, as shown in Table 3, were reported by CFAC as "net dissolved" by subtracting the corresponding ambient concentration measured at monitoring well W02. In addition, Table 3 includes gross, dissolved metals information from Item V on the 2013 application update under the Maximum Value column.

Table 3: Outfall 004 Effluent Characteristics – January 2005 to shutdown (October 2009)

Parameter	Units	Previous Permit Limits	Minimum DMR Value	Average DMR Value	Maximum DMR Value	No. DMR Reports	Maximum Values 2013 Applic (1)
			Monthly/ Daily				
Effluent Flow Rate	gal/day	NA (2)	10,421	326,015	740,020	58	326,000 / 740,000 (3)
Benzo(a)pyrene (3)	µg/L	NA (2)	--	--	--	4	< 0.1
	kg/day	No discharge	0	0	0	4	< 0.00023
Aluminum (4)	µg/L	NA	ND	54	180	58	280
	kg/day	1.671/ 5.0	0	0.055	0.30	58	0.5
Antimony (4)	µg/L	NA (2)	ND	ND	ND	4	< 3
	kg/day	0.530/ 1.579	0	0	0	4	< 0.0068
Nickel (4)	µg/L	NA (2)	ND	ND	ND	58	< 20
	kg/day	0.228/0.450	0	0	0	58	< 0.06
Fluoride (4)	µg/L	NA (2)	ND	460	3,110	58	3,210
	kg/day	16.282/ 48.696	0	0.37	2.4	58	3.0
Zinc	µg/L	NA	--	--	--	0	< 10
Cyanide (CN)	µg/L	NA	--	--	--	0	< 27

Footnotes: ND = nondetect, NA = not applicable.

1. Data supplied as part of 2013 renewal application update, including package received July 29, 2013 and follow-up application material emailed on August 7, 2013. Based on 2013 Application Table 2C-3 other than copper and cyanide. Gross -- not net figures. Metals are dissolved.
2. No limit in previous permit, reporting only.
3. Gross average monthly /gross maximum daily.
4. Net average monthly /net maximum daily. The previous permit required CFAC to monitor as net dissolved (Well #W02 dissolved concentration minus effluent dissolved concentration) in order to mimic the settling and infiltration from the North Ponds.

Outfall 005 – Sewage Treatment Plant Effluent Characteristics

The previous permit required CFAC to monitor the sewage treatment plant effluent monthly, from a location after treatment. Data was reported on DMRs under Outfall 005-A.

Table 4: Outfall 005 Effluent Characteristics – January 2005 to May 2013

Parameter	Units	Previous Permit Limits	Minimum Value	Average Value	Maximum Value	No. Sample Reports
			Monthly/ Daily			
Effluent Flow Rate	gal/day	NA (1)	12	55,000 (2)	94,562	98
Total Suspended Solids (TSS)	mg/L	30/45 (3)	<1.0	5.1	27	92
	kg/day	NA (4)		1.5	7.2	60
5-Day Biochemical Oxygen Demand (BOD_5)	mg/L	30/45 (3)	<1.0	6.7	29	95
	kg/day	NA (4)		2.1	9.3	60
pH	s.u.	6.0 – 9.0	6.8	7.6	8.1	98
Ammonia	mg/L	NA (4)	--	--	4.96	1
Nitrogen, Total as N	mg/L	NA (4)	--	--	2.2	1
Phosphorus, Total as P	mg/L	NA (4)	--	--	0.96	1

Footnotes:
1. No limit in previous permit, reporting only.
2. The average flow was inconsistent since the facility was shut down in 2009. The average flow prior to shutdown was approximately 55,000 gpd.
3. Monthly / 30-day average limits.
4. No limit in previous permit, renewal application data, only.

Outfall 006 – Ground Water Seep Effluent Characteristics

As part of the updated 2013 application, CFAC provided effluent quality information on the discharge from Outfall 006 in Form 2E Section J, as presented in the following table:

Table 5: Outfall 006 Ground Water Seep Effluent Characteristics

Parameter	Units	Maximum	Average	# Samples
pH	s.u.	7.37 – 8.12		21
Fluoride (F)	µg/L	4,780	3,120	18
Cyanide (CN)	µg/L	170	100	22
Aluminum	µg/L	170	--	1

Additional Outfalls

As part of this permit renewal, CFAC also provided estimates of pollutant concentrations at the other outfalls (Outfalls 007 – 011 and Outfall 013) on Form 2C Part V. The figures provided for the other outfalls were engineering estimates because there is no opportunity to obtain monitoring data as long as the plant is shut down.

C. Compliance History

Data and information submitted to or collected by DEQ indicate that the permittee has failed to comply with existing permit requirements as follows:

- Failure to submit DMR information for Outfalls 002, 004, and 005 in August 2007; and
- Failure to report pH for Outfall 005 for June 2011 and July 2011.

DEQ conducted a compliance evaluation inspection on August 13, 2010. The inspector confirmed that the facility was in operational shutdown. No violations were noted.

III. Technology-based Effluent Limits (TBELs)

Clean Water Act (CWA) section 402(a)(1) [33 U.S.C. 1342(a)(1)] and the federal regulations at 40 CFR 125.3(a) and 40 CFR 122.44 require that MPDES permits contain TBELs that implement the technology-based treatment requirements specified in the CWA, when applicable. ARM 17.30.1203(1) also requires that all permits contain, at a minimum, applicable technology-based controls. These technology-based requirements may be national technology standards established by EPA or, in some cases, standards established by the permit writer on a case-by-case basis.

For discharges from permittees other than publicly-owned treatment works (POTWs), EPA promulgates national technology standards of performance for both existing and new sources at 40 CFR Subchapter N. These effluent limitations guidelines (ELGs) and standards are commonly referred to as "effluent guidelines." The Board of Environmental Review (Board) pursuant to 75-5-304(1), MCA, has adopted effluent standards, toxic effluent standards and new source performance standards in ARM 17.30.1203, 1206 and 1207, respectively, based on the applicable federal regulation.

Pursuant to section 402(a)(2) of the federal CWA [33 U.S.C. 1342(a)(2)], where EPA has not established effluent guidelines that are applicable to a particular class or category of industrial discharger or to a specific discharge, the permit writer establishes applicable technology-based treatment requirements on a case-by-case basis using best professional judgment (BPJ). Regulations for establishing these case-by-case requirements using BPJ are given in 40 CFR 125.3 and ARM 17.30.1203. ARM 17.30.1203(5)(b) grants DEQ authority to impose technology-based treatment requirements on a case-by-case basis using BPJ, using the appropriate factors listed in ARM 17.30.1203(6).

As specified in ARM 17.30.1345(1), permit effluent limits must be established for each outfall or discharge point of the permitted facility, except:

- *Best Management Practices (BMPs) where limits are infeasible* [ARM 17.30.1344 and 40 CFR 122.44(k)]. BMPs may be imposed to control or abate pollutions, including when numeric effluent limitation are infeasible and when the practices are reasonably necessary to achieve effluent limitation or standards or to carry out the purposes and intent of the CWA.
- *Limits on internal waste streams* [ARM 17.30.1345(10)]. Effluent limits for discharges of pollutants may be imposed on internal waste streams before mixing with other waste streams or cooling water streams when permit effluent limits imposed at the point of discharge are impractical or infeasible [ARM 17.30.1345(10)(a)].

A. Applicable Technology Standards

The following evaluates the applicable TBELs for each of the sources contributing wastewater.

Outfalls 002 & 004 Primary Aluminum Smelting (Internal Monitoring Points):

EPA has promulgated effluent guidelines in 40 CFR 421, Subpart B for facilities in the Nonferrous Metals Manufacturing Point Source Category – Primary Aluminum Smelting. These effluent guidelines are found at §§ 421.20 – 421.27. This part applies to facilities producing primary metals from ore concentrates … the applicability of this part to alloying or casting of nonferrous metals is limited to alloying or casting of hot metal directly from the

nonferrous metals manufacturing process without cooling. The effluent guidelines under 40 CFR 421 address the following processes conducted at the facility:

- 002 - Anode Briquette Quenching
- 004 - Direct Chill Casting Contact Cooling

Outfall 002 - Applicable Effluent Guidelines

Anode paste plant briquette cooling water from the coke and coal tar pitch mixer and extruder discharging from the end of the main anode briquette cooling belt are addressed by:

- 40 CFR 421.22 (Best practicable treatment control technology (BPT)), and
- 40 CFR 421.23(b) (Best available technology economically achievable (BAT)).

DEQ has determined, based on the information given in the discharger's permit application, that the source of discharge from Outfall 002 does not meet the definition of a new source and that New Source Performance Standards (NSPS) are not applicable.

Table 6 summarizes the applicable BPT effluent guidelines in 40 CFR 421.22.

Table 6: Outfall 002 MAIN BRIQUETTE QUENCHING BELT
40 CFR 421.22 – BPT Effluent Guidelines

Parameter	Units [1,2]	Maximum Daily Limitation	Maximum Monthly Average
Fluoride (F)	kg/kkg of product	2.0	1.0
Total Suspended Solids (TSS)	kg/kkg of product	3.0	1.5
pH	s.u.	[1]	[1]

Footnotes:
1. The pH of the effluent must remain between 6.0 – 9.0 s.u. at all times.
2. Unit of product is production of hot aluminum metal, in kg/kkg of product OR lbs/1000 lbs of product.

Table 7 summarizes the applicable BAT effluent guidelines in 40 CFR 421.23(b).

Table 7: Outfall 002 MAIN BRIQUETTE QUENCHING BELT
40 CFR 421.23(b) - BAT EFFLUENT Guidelines

Parameter	Units [1]	Maximum Daily Limitation	Maximum Monthly Average
Benzo(a)pyrene	mg/kg of anodes cast	0.007	0.003
Aluminum, Total Recoverable (TR)	mg/kg of anodes cast	1.277	0.566
Antimony, TR	mg/kg of anodes cast	0.403	0.180
Nickel, TR	mg/kg of anodes cast	0.115	0.077
Fluoride (F)	mg/kg of anodes cast	12.440	5.518

Footnotes:
1. Unit of product is production of anodes cast in mg/kg of product OR lbs/million lbs of product.

Outfall 004 - Applicable Effluent Guidelines

Contact cooling water from casting of aluminum ingots (T-bar casting lines and sow casting line) is addressed as follows:

- For the existing T-bar casting lines, 40 CFR 421.22 (BPT) and 40 CFR 421.23(q) (BAT) are applicable. DEQ has determined that the source of discharge from the T-bar casting line does not meet the definition of a new source and that NSPS are not applicable.
- For the new sow casting line, NSPS are applicable. The discharger notified DEQ in September 2006 of the installation of a new sow casting line in the existing casting house to produce sow ingots. Since the line was constructed after March 8, 1984 (the new source date for this Primary Aluminum Smelting Subcategory) the sow casting line cooling water is subject to 40 CFR 421.24(k) NSPS.

Table 8 summarizes the BPT effluent guidelines in 40 CFR 421.22 applicable to the T-bar casting lines.

Table 8: Outfall 004 T-BAR CASTING LINE COOLING WATER
40 CFR 421.22– BPT Effluent Guidelines

Parameter	Units [1,2]	Maximum Daily Limitation	Maximum Monthly Average
Fluoride (F)	kg/kkg of product	2.0	1.0
Total Suspended Solids (TSS)	kg/kkg of product	3.0	1.5
pH	s.u.	([1])	([1])

Footnotes:
1. Within the range of 6.0 to 9.0 at all times.
2. Product means hot aluminum metal, in kg/kkg of product OR lbs/1000 lbs of product.

Table 9 summarizes the BAT effluent guidelines in 40 CFR 421.23(q) that are applicable to the T-bar casting lines.

Table 9: Outfall 004 T-BAR CASTING LINE COOLING WATER
40 CFR 421.23(q) – BAT Effluent Guidelines

Parameter	Units	Maximum Daily Limitation	Maximum Monthly Average
Benzo(a)pyrene	mg/kg of aluminum product [1]	No Discharge	No Discharge
Aluminum, TR	mg/kg of aluminum product [1]	8.120	3.602
Antimony, TR	mg/kg of aluminum product [1]	2.565	1.143
Nickel, TR	mg/kg of aluminum product [1]	0.731	0.492
Fluoride (F)	mg/kg of aluminum product [1]	79.080	35.090

Footnotes:
1. Product means hot aluminum metal, in mg/kg of product OR lbs/million lbs of product.

Table 10 summarizes the NSPS effluent guidelines in 40 CFR 421.24(k) that are applicable to the sow casting line.

Table 10: Outfall 004 SOW CASTING LINE COOLING WATER
40 CFR 421.24(k) – NSPS Effluent Guideline

Parameter and Code	Units	Maximum Daily Limitation	Maximum Monthly Average
Benzo(a)pyrene	mg/kg of aluminum product (1)	No Discharge	No Discharge
Aluminum, TR	mg/kg of aluminum product (1)	8.120	3.602
Antimony, TR	mg/kg of aluminum product (1)	2.565	1.143
Nickel, TR	mg/kg of aluminum product (1)	0.731	0.492
Fluoride (F)	mg/kg of aluminum product (1)	79.080	35.090
Oil and Grease	mg/kg of aluminum product (1)	13.290	13.290
Total Suspended Solids (TSS)	mg/kg of aluminum product (1)	19.940	15.950
pH	s.u.	(2)	(2)

Footnotes:
1. Product means hot aluminum metal, in mg/kg of product OR lbs/million lbs of product.
2. The pH shall be maintained within the range of 7.0 to 10.0 at all times except for those situations when this waste is discharged separately and without commingling with any other wastewater in which case the pH shall be within the range of 6.0 to 10.0 at all times.

Outfall 005 – Sewage Treatment Plant (Internal Monitoring Point):

The sewage treatment plant at CFAC receives water from sanitary and domestic sources and the laboratory (laboratory sinks, non-contact cooling water, and non-solvent wastewater).

Secondary treatment, or the equivalent, is the basis for the standards for POTWs in 40 CFR 133. Since the on-site sewage treatment plant at CFAC provides treatment equivalent to a POTW, DEQ has determined using BPJ that the National Secondary Standards for BOD_5 and TSS (concentration-based) and pH apply. Because CFAC's sewage treatment plant does not exclusively treat domestic wastes and may be more dilute than municipal sources, DEQ determined that the % removal for BOD_5 and TSS do not apply.

ARM 17.30.1345(8)(a) [40 CFR 122.45(f)(1)] requires that effluent limits must be expressed in terms of mass (mass/time), except when applicable standards and limitations are expressed in other units of measure. Since the applicable standards are concentration-based, mass-based effluent limits are not necessary.

Therefore, the proposed effluent limits for Outfall 005 (internal monitoring point) remain the same from the previous permit.

Outfall 006 – Ground Water Seep:

Except for the site ground water, all point sources discharging pollutants which contribute to the ground water seep have appropriate TBELs developed at the immediate site of discharge. No additional TBELs are necessary for this outfall.

Outfalls 007 – 012:

ELGs have not been promulgated under Subchapter N for the various sources of wastewater for Outfalls 007 – 012, including noncontact cooling water, boiler blowdown, shop sumps (both process and non-process wastewater), and storm water.

- Noncontact cooling water (NCCW) – CFAC does not add anti-scalant or other chemicals, and therefore there should be no pollutants beyond the intake water contaminants and heat. Thermal discharges are subject to technology-based requirements in Sections 301(b) of the federal Clean Water Act. However, since the NCCW is discharged to the ground prior to reaching surface water there are not expected to be any thermal effects.
- Boiler blowdown will contain NALCO or similar boiler chemicals that contain sulfites or other materials not listed on Circular DEQ-7 and heat. .However, since the boiler blowdown is discharged to the ground prior to reaching surface water there are not expected to be any thermal effects.
- Shops (masonry, garage, and battery shops) - CFAC does not add chemicals; however, incidental spills and oil & grease may be present.
- Steam cleaning (garage, pin crane) - CFAC does not add chemicals; however incidental chemicals including oil & grease may be present from cleaning.
- Casting mold cleaning & steam cleaning - CFAC does not add chemicals; however incidental chemicals including oil & grease may be present from cleaning.

Based on the above review, BPJ is no additional treatment for these sources.

Outfall 013 – Head Tank Cleaning Water

There is no ELG for disposal of disinfected water; therefore, BPJ applies. DEQ will include the following TBEL, based on effluent limits for similar disinfection processes and the fact that the effluent is first discharged to the ground: TRC will be limited to <0.1 mg/L.

TBEL Changes from 1999 Permit

Net Limitations

In order to receive an adjustment of TBELs to reflect credit for pollutants in intake water, the permittee must request the adjustment and either the applicable effluent guidelines must provide that they shall be applied on a net basis [§122.45(g)(1)(i) and ARM 17.30.1345(9)(a)(i)] or the permittee must demonstrate that the control system it proposes or uses to meet applicable TBELs and standards would, if properly installed and operated, meet the limitations and standards in the absence of pollutants in the intake waters [§122.45(g)(1)(ii) and ARM 17.30.1345(9)(a)(ii)]. In addition, credit is granted only if the permittee demonstrates that the intake water is drawn from the same body of water into which the discharge is made. DEQ may waive this requirement if it finds that no environmental degradation will result [§122.45(g)(4) and ARM 17.30.1345(9)(d)].

The 1999 permit expressed TBELs calculated from the effluent guidelines as net limitations, based on credit from monitoring well W02. This well is approximately 3600 feet north of the North Ponds. As part of this renewal, CFAC requested inlet credits be continued for 002 and 004, but requested DEQ consider representative samples of the water supply, rather than W02, for calculating credits. However, DEQ finds that CFAC failed to meet the following criteria under §122.45(g) and ARM 17.30.1345(9)(a):

- The applicable effluent guidelines in 40 CFR Part 421 do not specifically provide for net limitations; and
- CFAC has not demonstrated that that the control system it uses would meet the limitations and standards in the absence of pollutants in the intake waters.

Therefore, this permit renewal does not include net limitations.

Metals

All permit effluent limitations, standards or prohibitions for a metal must be expressed as *total recoverable metal* as defined in 40 CFR 136, unless: 1) the applicable effluent standard or limitation has been expressed in another form; 2) in establishing permit limits on a case-by-case basis under 40 CFR 125.3 (ARM 17.30.1203) it is necessary to express the limit on the metal in the dissolved form; or 3) the approved method for the metal only measures the dissolved form (e.g. hexavalent chromium) [ARM 17.30.1345(5)].

CFAC has TBELs for the following metals, which will all be changed from dissolved to total recoverable: aluminum, antimony, and nickel.

Unit of Production

ARM 17.30.1345(2)(b) requires that any permit limitations, standards, or other prohibitions which are based on units of production (or other measure of operation) be based on a reasonable measure of actual production of the facility and not on the designed production capacity.

The permit may include a condition establishing alternative permit limitation, standards, or prohibitions based upon anticipated increased or decreased production levels, however, these alternate limits may not exceed maximum production capacity. In calculating alternative permit limitations, the permit must satisfy the requirements of ARM 17.30.1345(4).

For this permit renewal, the maximum daily production values were used for calculating maximum daily limits, and the reported maximum monthly averages were used for calculating average monthly effluent limits.

002 and 004 - Production Data

The tables below summarizes the average daily production values used to determine the reasonable measure of actual production needed to calculate TBELs from:

- 002 - Main Briquette Quenching Belt contributing to the discharge from Outfall 002; and
- 004 - Aluminum Casting Contact Cooling contributing to the discharge from Outfall 004.

CFAC production capabilities correspond to the number of potlines in operation. CFAC provided the estimated production levels corresponding to the number of potlines potentially in operation, up to maximum production capabilities (i.e., 5 potlines). The anode briquette daily maximum production rate is the same for a one potline operation as for a five potline operation, because the number of operational days per month can be varied and anode briquettes inventoried, to supply the potlines with briquettes.

Table 11: Anode Production [40 CFR 421.23(b)]				
Production Level (# operational potlines)	Operation, Product, or Material	Units	Daily Maximum	Maximum Monthly Average
5	Anode Briquette	kg	469,468	365,051
4	Anode Briquette	kg	469,468	292,041
3	Anode Briquette	kg	469,468	219,031
2	Anode Briquette	kg	469,468	146,020
1	Anode Briquette	kg	469,468	73,010

Table 12: Aluminum Production with T-Bar Casting [40 CFR 421.22 and 421.23(q)]				
Production Level (# operational potlines)	Operation, Product, or Material	Units	Daily Maximum	Maximum Monthly Average
5	Aluminum	kg	615,225	463,590
4	Aluminum	kg	492,180	370,872
3	Aluminum	kg	369,135	278,154
2	Aluminum	kg	246,090	185,436
1	Aluminum	kg	123,045	92,718

Table 13: Aluminum Production with Sow Casting [40 CFR 421.24(k)]				
Production Level (# operational potlines)	Operation, Product, or Material	Units	Daily Maximum	Maximum Monthly Average
2.5	Aluminum	kg	307,613	231,795

The facility is currently in shut down mode and has not operated since October 2009. The permittee anticipates that daily production will resume during the term of the permit. To accommodate an increase in production, DEQ has calculated tiered TBELs that will become effective when production initiates and additional operating potlines are added to production, ranging from one potline up to the maximum production capability of five potlines. Maximum production capability has been established by using actual production data from previous operations during which the facility was operating at full capacity.

B. Proposed TBELs

Outfall 002: Table 14 provides the proposed effluent limits for Outfall 002, at the end of the anode process, prior to dilution from any other wastewater or stormwater:

Table 14: TBELs for Outfall 002				
Parameter and Parameter Code	Units	Daily Max.	Monthly Ave.	Source
Full Production – 5 Potlines				
Benzo(a)pyrene (34247)	kg/day	0.003	0.001	BAT [40 CFR 421.23(b)]
Aluminum, Total Recoverable (01104)	kg/day	0.600	0.207	BAT [40 CFR 421.23(b)]
Antimony, Total Recoverable (01268)	kg/day	0.189	0.066	BAT [40 CFR 421.23(b)]
Nickel, Total Recoverable (01074)	kg/day	0.054	0.028	BAT [40 CFR 421.23(b)]
Fluoride (00949)	kg/day	5.84	2.01	BAT [40 CFR 421.23(b)]
Total Suspended Solids (TSS) (51530)	kg/day	1,846	695	BPT [40 CFR 421.22]
pH (00400)	s.u.	Between 6.0 – 9.0 at all times		BPT [40 CFR 421.22]
4 Potlines				
Benzo(a)pyrene (34247)	kg/day	0.003	0.00088	BAT [40 CFR 421.23(b)]
Aluminum, Total Recoverable (01104)	kg/day	0.600	0.165	BAT [40 CFR 421.23(b)]
Antimony, Total Recoverable (01268)	kg/day	0.189	0.053	BAT [40 CFR 421.23(b)]
Nickel, Total Recoverable (01074)	kg/day	0.054	0.022	BAT [40 CFR 421.23(b)]
Fluoride (00949)	kg/day	5.84	1.61	BAT [40 CFR 421.23(b)]
Total Suspended Solids (TSS) (51530)	kg/day	1,477	556	BPT [40 CFR 421.22]
pH (00400)	s.u.	Between 6.0 – 9.0 at all times		BPT [40 CFR 421.22]
3 Potlines				
Benzo(a)pyrene (34247)	kg/day	0.003	0.00066	BAT [40 CFR 421.23(b)]
Aluminum, Total Recoverable (01104)	kg/day	0.600	0.124	BAT [40 CFR 421.23(b)]
Antimony, Total Recoverable (01268)	kg/day	0.189	0.039	BAT [40 CFR 421.23(b)]
Nickel, Total Recoverable (01074)	kg/day	0.054	0.017	BAT [40 CFR 421.23(b)]
Fluoride (00949)	kg/day	5.84	1.21	BAT [40 CFR 421.23(b)]
Total Suspended Solids (TSS) (51530)	kg/day	1,107	417	BPT [40 CFR 421.22]
pH (00400)	s.u.	Between 6.0 – 9.0 at all times		BPT [40 CFR 421.22]
2 Potlines				
Benzo(a)pyrene (34247)	kg/day	0.003	0.00044	BAT [40 CFR 421.23(b)]
Aluminum, Total Recoverable (01104)	kg/day	0.600	0.083	BAT [40 CFR 421.23(b)]
Antimony, Total Recoverable (01268)	kg/day	0.189	0.026	BAT [40 CFR 421.23(b)]
Nickel, Total Recoverable (01074)	kg/day	0.054	0.011	BAT [40 CFR 421.23(b)]
Fluoride (00949)	kg/day	5.84	0.806	BAT [40 CFR 421.23(b)]
Total Suspended Solids (TSS) (51530)	kg/day	738	278	BPT [40 CFR 421.22]
pH (00400)	s.u.	Between 6.0 – 9.0 at all times		BPT [40 CFR 421.22]
1 Potline				
Benzo(a)pyrene (34247)	kg/day	0.003	0.00022	BAT [40 CFR 421.23(b)]
Aluminum, Total Recoverable (01104)	kg/day	0.600	0.041	BAT [40 CFR 421.23(b)]
Antimony, Total Recoverable (01268)	kg/day	0.189	0.013	BAT [40 CFR 421.23(b)]
Nickel, Total Recoverable (01074)	kg/day	0.054	0.0056	BAT [40 CFR 421.23(b)]
Fluoride (00949)	kg/day	5.84	0.403	BAT [40 CFR 421.23(b)]
Total Suspended Solids (TSS) (51530)	kg/day	369	139	BPT [40 CFR 421.22]
pH (00400)	s.u.	Between 6.0 – 9.0 at all times		BPT [40 CFR 421.22]

Outfall 004: Tables 15 and 16 provide the proposed casting effluent limits for aluminum casting (T-Bar and Sow) at the end of each process, prior to dilution from any other wastewater or stormwater:

Table 15: TBELs for Outfall 004 (T-Bar Casting)

Parameter and Parameter Code	Units	Daily Maximum Limitation	Ave. Monthly Limitation	Source
Full Production – 5 Potlines				
Benzo(a)pyrene (34247)	kg/day	No Discharge		BAT [40 CFR 421.23(q)]
Aluminum, Total Recoverable (01104)	kg/day	5.00	1.67	BAT [40 CFR 421.23(q)]
Antimony, Total Recoverable (01268)	kg/day	1.58	0.53	BAT [40 CFR 421.23(q)]
Nickel, Total Recoverable (01074)	kg/day	0.45	0.23	BAT [40 CFR 421.23(q)]
Fluoride (00949)	kg/day	48.65	16.27	BAT [40 CFR 421.23(q)]
Total Suspended Solids (TSS) (51530)	kg/day	1,846	695	BPT [40 CFR 421.22]
pH (00400)	s.u.	Between 6.0 – 9.0 at all times		BPT [40 CFR 421.22]
4 Potlines				
Benzo(a)pyrene (34247)	kg/day	No Discharge		BAT [40 CFR 421.23(q)]
Aluminum, Total Recoverable (01104)	kg/day	4.00	1.34	BAT [40 CFR 421.23(q)]
Antimony, Total Recoverable (01268)	kg/day	1.26	0.42	BAT [40 CFR 421.23(q)]
Nickel, Total Recoverable (01074)	kg/day	0.36	0.18	BAT [40 CFR 421.23(q)]
Fluoride (00949)	kg/day	38.92	13.01	BAT [40 CFR 421.23(q)]
Total Suspended Solids (TSS) (51530)	kg/day	1,477	556	BPT [40 CFR 421.22]
pH (00400)	s.u.	Between 6.0 – 9.0 at all times		BPT [40 CFR 421.22]
3 Potlines				
Benzo(a)pyrene (34247)	kg/day	No Discharge		BAT [40 CFR 421.23(q)]
Aluminum, Total Recoverable (01104)	kg/day	3.00	1.00	BAT [40 CFR 421.23(q)]
Antimony, Total Recoverable (01268)	kg/day	0.95	0.32	BAT [40 CFR 421.23(q)]
Nickel, Total Recoverable (01074)	kg/day	0.27	0.14	BAT [40 CFR 421.23(q)]
Fluoride (00949)	kg/day	29.19	9.76	BAT [40 CFR 421.23(q)]
Total Suspended Solids (TSS) (51530)	kg/day	1,107	417	BPT [40 CFR 421.22]
pH (00400)	s.u.	Between 6.0 – 9.0 at all times		BPT [40 CFR 421.22]
2 Potlines				
Benzo(a)pyrene (34247)	kg/day	No Discharge		BAT [40 CFR 421.23(q)]
Aluminum, Total Recoverable (01104)	kg/day	2.00	0.67	BAT [40 CFR 421.23(q)]
Antimony, Total Recoverable (01268)	kg/day	0.63	0.21	BAT [40 CFR 421.23(q)]
Nickel, Total Recoverable (01074)	kg/day	0.18	0.091	BAT [40 CFR 421.23(q)]
Fluoride (00949)	kg/day	19.46	6.51	BAT [40 CFR 421.23(q)]
Total Suspended Solids (TSS) (51530)	kg/day	738	278	BPT [40 CFR 421.22]
pH (00400)	s.u.	Between 6.0 – 9.0 at all times		BPT [40 CFR 421.22]
1 Potline				
Benzo(a)pyrene (34247)	kg/day	No Discharge		BAT [40 CFR 421.23(q)]
Aluminum, Total Recoverable (01104)	kg/day	1.00	0.33	BAT [40 CFR 421.23(q)]
Antimony, Total Recoverable (01268)	kg/day	0.32	0.11	BAT [40 CFR 421.23(q)]
Nickel, Total Recoverable (01074)	kg/day	0.09	0.046	BAT [40 CFR 421.23(q)]
Fluoride (00949)	kg/day	9.73	3.25	BAT [40 CFR 421.23(q)]
Total Suspended Solids (TSS) (51530)	kg/day	369	139	BPT [40 CFR 421.22]
pH (00400)	s.u.	Between 6.0 – 9.0 at all times		BPT [40 CFR 421.22]

Table 16: TBELs for Outfall 004 (Sow Casting)			
Parameter and Parameter Code	Units	Daily Max. Limitation	Ave. Monthly Limitation
2.5 Potlines			
Benzo(a)pyrene (34247)	kg/day	No Discharge	
Aluminum, Total Recoverable (01104)	kg/day	2.50	0.84
Antimony, Total Recoverable (01268)	kg/day	0.79	0.27
Nickel, Total Recoverable (01074)	kg/day	0.23	0.11
Fluoride (00949)	kg/day	24.33	8.13
Oil and Grease (00182)	kg/day	4.09	3.08
Total Suspended Solids (TSS) (51530)	kg/day	6.13	3.70
pH (00400)	s.u.	(1)	

Footnotes:
1. The pH shall be maintained within the range of 7.0 to 10.0 at all times except for those situations when this waste is discharged separately and without commingling with any other wastewater in which case the pH shall be within the range of 6.0 to 10.0 at all times.

Outfall 005: The following TBELs apply after the sewage treatment plant, prior to confluence with discharge from Outfall 004 and other waste water streams.

Table 17: Outfall 005 – Sewage Treatment Plant Effluent Limits			
Parameter and Parameter Code	Units	Average Weekly Limitation[1]	Average Monthly Limitation[1]
5-day Biochemical Oxygen Demand (BOD_5) (00310)	mg/L	45	30
Total Suspended Solids (TSS) (51530)	mg/L	45	30
pH (00400)	s.u.	Between 6.0 to 9.0 at all times	

Footnotes:
1. See Definitions and Abbreviations in the permit for an explanation of terms.

Outfall 013: The following TBEL applies: TRC will be limited to <0.1 mg/L.

IV. Water Quality-Based Effluent Limits (WQBELs)

A. Scope and Authority

Permits are required to include WQBELs when technology-based effluent limits are not adequate to protect state water quality standards (40 CFR 122.44 and ARM 17.30.1344). ARM 17.30.637(2) states that no wastes may be discharged that can reasonably be expected to violate any state water quality standards. Montana water quality standards (ARM 17.30.601 *et seq.*) define both water use classifications for all state waters and numeric and narrative standards that protect those designated uses. In addition, dischargers are also subject to the mixing zone rules (ARM 17.30.501 *et seq.*) and Montana's nondegradation policy (ARM 17.30.701 *et seq.*).

The purpose of this section is to provide a basis and rationale for the proposed effluent limitations on the CFAC discharges to protect designated uses of the receiving water based on Montana water quality standards.

B. Receiving Water

CFAC comprises approximately 600 acres, bounded to the north by Teakettle Mountains and the south by the Flathead River. The administrative record indicates that the initial facility wastewater permit was for discharge to ground water. Subsequently, in 1993 CFAC applied for MPDES surface water permit coverage for ground water seeps to the Flathead River (D006). The MPDES permit was issued in 1994 and renewed in 1999. In this permitting action, DEQ is again renewing the surface water MPDES permit for discharges to the Flathead River that enter through the ground water.

Ground water

The 1994 MPDES permit included a requirement for CFAC to investigate the site hydrology. As a result, CFAC hired Hydrometrics to conduct a study, which was submitted with their 1998 MPDES permit renewal application as "Attachment A. *Application for Groundwater and Surface Water Mixing Zones*, August 1998" ("1998 Mixing Zone Study"). The study concluded that CFAC sits atop glacially-derived sedimentary material, with localized areas of recent alluvial deposits. Bedrock is deep (from 70 to greater than 300 feet below the ground surface). Ground water was determined to flow roughly from the north to the south towards the Flathead River.

The 1998 mixing zone study provided hydrogeologic information from two on-site wells – TW-16 (Western portion) and TW-19 (Eastern portion). The study found that the ground water characteristics were widely variable from the western portion to the eastern portion (see Table 18). Part IV.D. contains a further discussion on the ground water flow.

Table 18: Ground Water Flow Calculations

Variable	Units	Western Portion TW-16	Eastern Portion TW-19
Hydraulic Conductivity (K)	gpd/ft^2	0.5	245
Hydraulic Gradient (I)	ft/ft	0.1	0.02
Area (A)	ft^2	23,400	54,600
Calculated ground water flow (Q)	gpd	1,170	267,540

The calculated ground water flow was based on Darcy's Law using these values:

Darcy's Law:

Q = KIA where:

K = hydraulic conductivity (the study provided in units of gallons per day per square foot)

I = hydraulic gradient (ft/ft), and

A = cross-sectional area (saturated thickness times width)

Furthermore, the 1999 permit renewal required CFAC to monitor 12 ground water wells for cyanide, fluoride, pH, and specific conductance (W00 to W11). **See Figure 3** (Exhibit 1). DEQ provided a summary of the ground water monitoring data from 2001 to 2012 in Table 19.

Table 19: CFAC Ground Water Monitoring Results (2001 – 2012)

Monitoring Location		Maximum Monitoring Result			
		Cyanide µg/L	Fluoride µg/L	pH s.u.	Specific conductance umho/cm
Ground Water Human Health Standards (HHS)		**200**	**4,000**	--	--
Outfall W00 - CFMW2	200 ft North of Plant	1,120	5,470	8.2	710
Outfall W01 - PW-7	**800 ft South of Plant (1)**	**60**	**1,710**	**8.2**	**450**
Outfall W02 - CF-MW-1	2,700 ft NW of landfill	10	710	7.9	452
Outfall W03 Well TW-20	500 ft W/SW of Landfill	3,570	4,180	8.1	739
Outfall W04 - TW-21	400 ft south of Landfill	5,600	32,100	9.2	2,280
Outfall W05 - TW-15	750 ft south of Landfill	1,720	3,820	8.1	975
Outfall W06 - TW-18	600 ft south of Landfill	2,110	3,000	8.0	753
Outfall W07 - TW-19	3,800 ft SE of Landfill	500	1,600	8.0	752
Outfall W08 - Well TW-2	2,800 ft SW of Landfill	590	3,160	8.2	624
Outfall W09- Well PW-5	**4,600 ft SE of Landfill (1)**	**170**	**810**	**8.2**	**646**
Outfall W10 - Wells TW-22 and TW-23	Downgradient of NW Percolation Pond	10	1,610	8.1	525
Outfall W11 - TW-17	60 ft SW of Landfill	77,400	138,000	10.1	8,720

Footnote:

1. W01 and W09 monitoring wells represent the downgradient mixing zone boundary, and are also water supply wells.

The following conclusions were drawn using the above information:

- All ground water human health standards (HHS) were met at the edge of the ground water mixing zone, as observed at W01 and W09.
- W02 is 2,700 feet upstream from the capped landfills. The data from this well was considered to be the 'background' for netting in the previous permit.

Surface Water

Discharges from CFAC percolate into ground waters that flow towards the Flathead River. This segment of the Flathead River is located in USGS Hydrological Unit Code (HUC) 17010208 and identified as Montana stream segment MT76O001_010.

This segment is not listed as impaired on the 1996 or 2012 303(d) lists as a waterbody in need of development of a TMDL. However, the Flathead River supplies approximately 85 percent of the water that enters Flathead Lake, which is listed as impaired. Mercury, nitrogen (total), phosphorus (total), polychlorinated biphenyls, and sedimentation/siltation have been identified as the causes of the Flathead Lake impairment. The Nutrient Management Plan & TMDL for Flathead Lake was approved by EPA on March 31, 2002. A wasteload allocation has not been assigned to CFAC.

This segment of the Flathead River is classified as "B-1" according to Montana Water Use Classifications, ARM 17.30.608(1). Waters classified B-1 are to be maintained suitable for drinking, culinary, and food processing purposes, after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply [ARM 17.30.623(1)].

ARM 17.30.635(2) states that the receiving water design flow for point source discharges must be based on the minimum consecutive seven day average flow which may be expected to occur on the average once in 10 years (7Q10). The 7Q10 for Flathead River at Columbia Falls is 1,250 cubic feet per second (cfs), based on 50 years of record for regulated streamflow at site 12363000 "Flathead River at Columbia Falls, MT" [USGS *Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002,* Scientific Investigations Report 2004-5266]. Although this station is more than 2.5 miles downstream of the end of CFAC's mixing zone, there are no other major contributions and this 7Q10 should be representative of the upstream conditions.

The North Fork, Middle Fork, and South Fork combine to create the Flathead River approximately 1.5 miles upstream of CFAC. Based on the three data points available for each waterbody over the past ten years, the North Fork and Middle Fork each comprise approximately 40% and the South Fork comprises 20% of the combined flow of the Flathead River.

The following monitoring locations were reviewed in order to obtain background concentrations and characteristics of the Flathead River upstream from CFAC:

Table 20: List of Flathead River Monitoring Stations			
Station ID	Station Name	Location	Relevance
USGS12363000	Flathead River @ Columbia Falls, MT	Lat 48.3620 Long -114.1838	7Q10. 2.5 miles downstream of CFAC
MT0030066	Flathead River @ CFAC		Data Years: 2008 – 2012
RIV1	Upstream	Lat 48.3871 Long -114.1246	
RIV2	Mixing Zone	Lat 48.3864 Long -114.1396	
RIVM	Downstream	Lat 48.3879 Long -114.1518	
C06NFKFR01	Flathead River **North Fork** near Glacier Rim	Lat 48.4933 Long -114.1253	Data Years: 2001 – 2005 40% of Flathead River flow.
C07MFKFR01	Flathead River **Middle Fork** in West Glacier	Lat 48.5056 Long -113.9933	Data Years: 2001 – 2005 40% of Flathead River flow.
C08FRSFK01 C08FRSFK02 C08FRSFK03 C08FRSFK04 FLBSSFFLATR01	Flathead River **South Fork** (5 stations)	Varies	Data Years: 2003 – 2009 20% of Flathead River flow.

The magnitude of some numeric standards is dependent on characteristics of the receiving water, such as hardness, pH, and temperature. The characteristics of the receiving water used in determining specific numeric standards for Flathead River are shown in Table 21. This information is based on monitoring of the upstream receiving water during the previous permit term.

Table 21: Flathead River Ambient Water Quality Data (2001 – current)[1]

Parameter	Units	Agency	# Samples	Minimum	Average	75th Percentile[2]	Maximum
Temperature	°C	CFAC-RIV1 USGS[3]	11 35	6.8	12.8	**15.7**	19.7
pH	s.u.	CFAC-RIV1 USGS[3]	11 34	7.2	8.0	**8.3**	8.6
Hardness, as $CaCO_3$	mg/L	USGS[3]	6	89	105	**100**	116
Aluminum, Dissolved [4]	µg/L	CFAC-RIV1	10	5	56	**100**	200
Antimony, Total Recoverable (TR)	µg/L	USGS[3]	6	ND	ND	**ND**	ND
Copper, TR	µg/L	USGS[3]	6	ND	ND	**ND**	ND
Nickel, TR	µg/L	USGS[3]	6	ND	ND	**ND**	ND
Benzo(a)pyrene	µg/L	--	--	--	--	--	--
Cyanide (CN)	µg/L	CFAC-RIV1	11	< 3	5.4	**5.0**	10
Fluoride (F)	µg/L	CFAC-RIV1	11	67	178	**185**	530
Ammonia, Total as N	mg/L	USGS[3]	21	ND	--	--	0.016
Nitrogen, Total as N (TN)	mg/L	USGS[3]	26	ND	--	--	0.48
Phosphorus, Total as P (TP)	mg/L	USGS[3]	32	ND	--	--	0.10

Footnotes: ND = Nondetect

1. See Table 18 for additional information on data sources. CFAC-RIV1 upstream samples 2008 – current.
2. Hardness is the 25th percentile rather than 75th percentile to be conservative.
3. USGS – analyses on individual North, Middle, and South Fork River data combined.
4. Lab noted contamination in method blank for June 2010 analysis that resulted in 200 ug/L river concentration for dissolved aluminum, since data suspect it was not included in statistical calculations.

C. Nondegradation

Flathead River in the vicinity of the discharge is considered high quality water, and degradation of high quality water is not allowed unless authorized by DEQ [75-5-303(3), MCA]. The provisions of ARM 17.30.701 *et seq.* (Nondegradation of Water Quality) apply to new or increased sources of pollution [ARM 17.30.702(18)]. Sources that are in compliance with the conditions of their permit and do not exceed the limitations established in the permit or determined from a permit issued by DEQ prior to April 29, 1993, are not considered new or increased sources.

Except for the sow casting line, all of the point sources at CFAC were installed prior to 1993 and are considered existing discharges. The sow casting line was installed in 2006 and is considered equivalent to 2.5 of the older T-bar casting lines. Although the sow line has lower flow and pollutant loading than the T-bar casting lines, the change could be considered an increase unless the facility discharge is restricted to the permitted discharge at maximum production in 1993. Therefore, the final limits will require that no more than five casting lines be in operation on any day.

The effluent limitations applied to these outfalls are derived from and comply with the state's water quality standards and, therefore, ensure the level of water quality necessary to attain and maintain existing and anticipated uses.

D. Mixing Zone

A mixing zone is an area where the effluent mixes with the receiving water and certain water quality standards may be exceeded [ARM 17.30.502(6)].

DEQ must determine the applicability of currently granted mixing zones [ARM 17.30.505(1)]. Mixing zones allowed under a permit issued prior to April 29, 1993 will remain in effect unless there is evidence that previously allowed mixing zones will impair existing or anticipated uses [ARM 17.30.505(1)(c)].

CFAC applied for MPDES permit coverage because of ground water seeps discharging into the Flathead River in 1993. The MPDES discharge permit was issued in 1994. The 1999 permit renewal granted a ground water mixing zone for cyanide (CN) and fluoride (F), as well as a standard surface water mixing zone for CN, based on information provided in the 1998 renewal package.

CFAC requested to continue the ground water and surface water mixing zones as part of their current renewal application (2013 Renewal Update, including reference to the 2003 Renewal Application, Attachment A). DEQ evaluated this request with consideration of the new outfall configurations and effluent data, as discussed below.

Mixing Zone Summary

The mixing zone rules require DEQ to determine whether a mixing zone is appropriate for a particular discharge during the permit development process. Where a mixing zone is requested, DEQ must determine whether the requested mixing zone may be granted for a particular parameter and, if a mixing zone is granted, the type of mixing zone that is appropriate [ARM 17.30.515(1)].

Ground Water Mixing Zone

CFAC discharges are first to the ground water prior to reaching surface water. If a ground water mixing zone is needed, it may be either a standard or a source-specific mixing zone. An applicant may request a source-specific mixing zone if there is not adequate information regarding ground water flow or if a standard mixing zone is not applicable or desired [ARM 17.30.518(1)]. A source-specific ground water mixing zone will only be granted after the applicant demonstrates to DEQ that the requested mixing zone will comply with the requirements of ARM 17.30.506 and 17.30.507 and the provisions of 75-5-303, MCA.

The previous permit granted a facility-wide source-specific ground water mixing zone for CN and F [see Figure 3 (Exhibit 1)]. CFAC provided the required demonstration as part of the previous permit renewal application in 1998. The criteria for delineating the ground water mixing zone boundary is that no existing drinking water supply wells are located within the mixing zone, and the human health standards (HHS) for cyanide and fluoride were not exceeded beyond the mixing zone boundary [ARM 17.30.508].

According to the *CFAC Plant Public Water System Source Water Delineation and Assessment Report* (PWSID #MT0000906), CFAC has four active on-site water supply wells. The wells

were each installed in the 1950's. Two of the wells overlap with MPDES ground water monitoring wells, as follows:

- Well #4 – East of Well #5, outside of the ground water mixing zone.
- **Well #5 (MPDES monitoring Well W09)** – boundary of the ground water mixing zone.
- Well #6 – Southwest of Well #7, outside of the ground water mixing zone.
- **Well #7 (MPDES monitoring Well W01)** – boundary of ground water mixing zone.

Ground water monitoring for the past twelve years demonstrates that the ground water mixing zone criteria was met: the Human Health Standards (HHS) of 200 µg/L CN and 4,000 µg/L F were not exceeded outside the downgradient mixing zone boundary (see Table 19).

However, DEQ has determined that the previous ground water mixing zone was improperly applied to the entire facility, rather than applied to each permitted outfall [ARM 17.30.515(1)]. The ground water mixing zones are re-evaluated in this section. As presented in Table 18, above, the mixing zone study submitted in 1998 found that the ground water characteristics were widely variable from the western portion to the eastern portion of the site. Because the ground water was shown to be so variable, DEQ calculated the following specific ground water dilution values for each outfall that requires a mixing zone:

Table 22: Summary of Ground Water Mixing Zone Dilution

Outfall	Outfall Discharge Location	K[1]	I	Width	Mixing Zone Length[2]	A[3]	Q_{GW}
	Units:	*gpd/ft²*	*ft/ft*	*ft*	*ft*	*ft²*	***gpd***
007	North Ponds	0.5	0.1	850	2,700	27,000	**1,350**
009	South Ponds	245	0.02	2,450	250[4]	39,000	**190,000**
013	Headtank Cleaning	245	0.02	40	1,500	4,500	**22,000**

Footnote:
1. Hydraulic conductivity (K) in gallons per day per square foot (gpd/ft^2) as reported in 1998 Mixing Zone Study.
2. Distance from Outfall to Flathead River.
3. Area = [(Mixing Zone Width) + (Mixing Zone Length x tangent 5° both sides)] x 15 ft saturated thickness.
4. Average of distance for the three south ponds to Flathead River (50, 100, and 600 feet).

Surface Water Mixing Zones

All CFAC discharges enter the ground water prior to reaching surface water. Facilities that discharge to surface waters through the ground may qualify for a standard surface water mixing zone [ARM 17.30.516(3)(c)]. For discharges to surface water that first pass through the ground, the surface water mixing zone begins at the most upstream point of discharge into the receiving surface water. If the discharge continues to occur downstream beyond a distance equal to 10 times the stream width measured at the upstream discharge point at low flow, a standard mixing zone will not be granted [ARM 17.30.507(3)].

Acute and chronic standards for aquatic life and human health standards may not be exceeded outside of the mixing zone [ARM 17.30.507(1)(a)]. The discharge must comply with the general prohibitions of ARM 17.30.637(1) which require that state surface waters, including mixing zones, must be free from substances which will:

(i) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines;

(ii) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 mg/L) or globules of grease or other floating materials;

(iii) produce odors, colors or other conditions as to which create a nuisance or render undesirable tastes to fish flesh or make fish inedible;

(iv) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life; and

(v) create conditions which produce undesirable aquatic life.

Acute Mixing Zone

In general, an acute mixing zone (zone of initial dilution) is not granted for toxic or persistent substances [ARM 17.30.506(2)(d)]. To grant a mixing zone for acute standards, the discharger must demonstrate to DEQ that allowing minimal, initial dilution will not threaten or impair existing beneficial uses [ARM 17.30.507(1)(b)].

DEQ granted a CN acute surface water mixing zone as part of the 1998 renewal (Figure 4 "Exhibit 2"). CFAC exceeded the acute CN standard of 22 µg/L within the surface water mixing zone (DMR data for Flathead River mixing zone monitoring location RIV2 showed a maximum concentration of 53 µg/L). It is unknown whether CN exceeded acute water quality standards at the end of the 150-foot acute water mixing zone. However, CFAC has not demonstrated that CN will naturally dissipate in the receiving water sufficiently to avoid acute affects. DEQ will not include an acute mixing zone for cyanide.

With this renewal, DEQ set the available dilution flow to achieve acute limits for cyanide and persistent toxic parameters, including metals, as zero (no acute mixing).

DEQ will grant a 150-foot acute surface water mixing zone for parameters that are known to naturally dissipate in the receiving water – ammonia, and TRC. The dilution flow used to evaluate RP and develop acute limits for these parameters are established at one percent (1%) of the 7Q10 based on an alternate mixing zone (1,250 x 0.01 = 12.5 cfs, or 8.1 mgd) [ARM 17.30.507(1)(b) and 17.30.515(1)(d)].

Chronic Mixing Zone

DEQ granted a CN chronic surface water mixing zone as part of the 1998 renewal. CFAC exceeded the chronic CN standard of 5.2 µg/L within the surface water mixing zone (DMR data for monitoring location RIV2), but data shows nondetect [laboratory reporting limit ranging from 3.5 to 10 µg/L] at the downstream boundary (RIVM). DEQ will maintain the CN chronic mixing zone length of 2,800 feet, which DEQ estimates to be approximately 10 times the stream width in the mixing zone vicinity.

ARM 17.30 Subchapter 5 allows for standard mixing zones for facilities that discharge to the surface water through the ground. In addition to cyanide, DEQ will grant a standard chronic surface water mixing zone for aluminum, ammonia, antimony, benzo(a)pyrene, chlorine, copper, fluoride, and nickel. The dilution flow used to evaluate RP and develop chronic and human health limits is 10% of the 7Q10 (1,250 x 0.10 = 125 cfs, or 81 mgd) [ARM 17.30.516(3)(c)].

E. Basis for WQBELs

ARM 17.30.1345 requires DEQ to develop WQBELs for any pollutant for which there is reasonable potential (RP) for discharges to cause or contribute to exceedences of instream numeric or narrative water quality standards, after application of any approved mixing zones.

RP Analysis

Table 23 lists the parameters of concern, for which RP is evaluated during this permit renewal:

Table 23: Pollutants and Possible Parameters of Concern for WQBELs

	Parameter	Basis for Identifying as a Pollutant of Concern
Outfall 006 (Ground Water Seep)		
	TSS	TBEL
	pH	TBEL
	Aluminum, Total Dissolved	TBEL, Indicated as Present in Discharge on Application
	Antimony, Total Recoverable (TR)	TBEL
	Nickel, TR	TBEL
	Benzo(a)pyrene	TBEL
	Cyanide	Indicated as Present in Discharge on Application
	Fluoride	TBEL, Indicated as Present in Discharge on Application
Outfall 007 (North Ponds)		
	TSS	TBEL
	pH	TBEL
	Aluminum, Total Dissolved	TBEL
	Antimony, Total Recoverable (TR)	TBEL
	Copper, TR	Indicated as Believed Present in Discharge on Application
	Nickel, TR	TBEL
	Benzo(a)pyrene	TBEL
	Cyanide	Indicated as Believed Present in Discharge on Application
	Fluoride	TBEL
Outfall 009 (South Ponds)		
	TSS	TBEL
	pH	TBEL
	Oil & Grease	TBEL
	Aluminum, Total Dissolved	TBEL
	Antimony, TR	TBEL
	Copper, TR	Indicated as Believed Present in Discharge on Application
	Nickel, TR	TBEL
	Benzo(a)pyrene	TBEL
	Cyanide	Indicated as Believed Present in Discharge on Application
	Fluoride	TBEL
	Ammonia, TRC	Typical sewage treatment parameters
	Nitrate + Nitrite, TN, TP	Typical sewage treatment parameters & TMDL for Flathead Lake
Outfall 013 (Head Tank Cleaning)		
	TRC	Known to be Present

In addition to the above, CFAC provided the following information regarding possible pollutants of concern on Form 2C Item V:

- Outfall 008 – all parameters are 'believed absent;'
- Outfall 010 – copper and iron are 'believed present' but CFAC had no data to provide. All other parameters were 'believed absent;'
- Outfall 011 – aluminum, copper, and iron are 'believed present.' All other parameters were 'believed absent;' and
- Outfall 012 – CFAC indicated that only CN and F from water supply wells would be present in the discharge.

As no effluent data exists from each of these outfalls (008, 010, 011, and 012), DEQ will require CFAC to monitor the discharge from these outfalls during this permit renewal cycle.

RP for the discharge from Outfalls 006, 007, 009, and 013 to cause exceedences of a WQBEL in Flathead River was evaluated using the following mass-balance equation (*Eq. 1*):

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_d + Q_s} \qquad (Eq.\ 1)$$

Given:

Q_s = critical stream flow of receiving water, 7Q10 - available dilution
C_s = critical river concentration - Flathead River 75th percentile ambient concentration
Q_d = critical effluent discharge flow rate
C_d = critical discharge concentration [maximum concentration during the POR x Table 3-2 multiplier (C_{95})]
C_r = the resulting receiving water concentration

Where the projected receiving water concentration (C_r) exceeds the lowest applicable numeric standard for the parameter of concern, there is reasonable potential and WQBELs must be calculated.

Critical Stream Flow (Q_s)

Critical stream flow is based on the available part of the 7Q10 considering dilution, except that effluent limitations for controlling nitrogen and phosphorus concentration in surface water are based on the minimum consecutive 14-day average flow which may be expected to occur on the average once in five years (14Q5). The 14Q5 is 1,760 cfs. As discussed in Part IV.B., the 7Q10 for the Flathead River at this location is 1,250 cfs.

Table 24: Critical Stream Flow (Q_s) in cfs

Parameter	Acute Dilution	Chronic/HH Dilution	Information Source
Ammonia, Chlorine	12.5 (1% 7Q10)	125.0 (10% 7Q10)	ARM 17.30.507(1)(b), 17.30.515(1)(d), and 17.30.516(3)
Aluminum, Antimony, Copper, Nickel, Benzo(a)pyrene, Cyanide, Fluoride	0.0 (0% 7Q10)		ARM 17.30.507(1)(b) and 17.30.516(3)
Nutrients	NA	1,760 (100% 14Q5)	ARM 17.30.635 and Draft Circular DEQ-12

In addition to the critical stream flow available for dilution, the discharges from Outfalls 007, 009 and 013 are first diluted with ground water, as follows (also see Table 22):

- 007 North Ponds 1,350 gpd
- 009 South Ponds 190,000 gpd
- 013 Headtank Cleaning 22,000 gpd

Critical Background Receiving Water Pollutant Concentration (C_s)

Critical background pollutant concentrations (C_s) for Flathead River are given in Table 21. These values are based on facility DMR data for the Flathead River upstream from the plant and the average of available USGS monitoring data from the three forks of the Flathead River. DEQ uses the 75th percentile of the data as C_s.

It is important to note that the data from CFAC's upstream monitoring showed elevated aluminum (100 µg/L, which is above the chronic standard) and CN (5 µg/L, which is approaching the chronic standard). Elevated background concentrations of these parameters is suspect since there are no known upstream sources of aluminum or cyanide. DEQ has requested that CFAC identify a monitoring location that is representative of ambient conditions without impact from the site as a Special Condition.

Critical Effluent Flow (Q_d)

For existing industrial facilities, DEQ bases the critical effluent flow on either the reported average daily flow and maximum 30-day (monthly) average flow reported on Application Form 2C, or a measure of average daily flow based on data submitted through DMRs. Because applicable outfalls have been identified during this renewal process, after the facility production has been shut down, there is no DMR data for the current configuration. Table 25 provides a summary of the Q_d and the sources of information.

Table 25: Critical Effluent Flow (Q_d)

Outfall	Critical Effluent Flow (mgd)	Information Source/Period of Record
006	unknown	2013 Renewal Application Update (Form 2E) provided a flow estimate of 0.27 mgd. However, this estimate was based on the 1998 Mixing Zone study calculations for ground water flow through the entire site, and is not representative of the flow from the ground water seep.
007	1.81	2013 Renewal Application Update. Sum of known discharges without storm water contribution. These figures represent the long-term average value flow during 1993 – 1998, when operation of all five potlines was the norm.
009	2.50	
013	0.0005	2013 Renewal Application Update.

DEQ may establish alternate permit limits based on anticipated increased production levels (not to exceed maximum production capabilities) [ARM 17.30.1345(3)]. Any increase in flow for an existing facility might need to be evaluated under Montana's nondegradation criteria [ARM 17.30.715(2)] if there is a commensurate increase in the load or concentration of a pollutant.

Critical Effluent Pollutant Concentration (C_d)

The RP analysis uses the critical effluent concentration for each parameter as part of the steady state model. Due to the low frequency of sampling and the non-normal distribution of most effluents, DEQ estimates the critical effluent concentration based on the 95th percentile of the expected effluent concentration (*Technical Support Document for Water Quality Based Toxic Control (TSD)*, EPA/505/2-90-001, March 1991). A multiplier is determined using Table 3-2 in the TSD (based on the data set coefficient of variation and sample size at the 95% confidence interval). The critical effluent pollutant concentration is the multiplier times the maximum reported effluent concentration.

Critical effluent pollutant concentrations (C_d) are given in Table 26 to Table 28 for Outfalls 006, 007 and 009, as determined using the procedures described above.

Table 26: Outfall 006 Concentration of Discharge at River (C_d)

	Units	Max Conc	*TSD*			C_d
			CV	*n*	Multiplier	
Aluminum, Dissolved	µg/L	170	*0.6*	*1*	6.2	1,054
Antimony, TR	µg/L	ND	--	--	--	--
Nickel, TR	µg/L	ND	--	--	--	--
Benzo(a)pyrene	µg/L	ND	--	--	--	--
Cyanide	µg/L	170	*0.6*	*22*	1.4	238
Fluoride	µg/L	4,780	*0.6*	*18*	1.4	6,692

Since the facility has not been in operation since 2009, and Outfalls 007 - 013 were not previously monitored, the maximum concentration provided in the 2013 updated renewal application package was an engineering projection, based on known concentration of the contributing waste streams (internal monitoring points). The coefficient of variation (CV) and number of samples reflect the monitoring conducted for the internal monitoring points.

Ground water provides some dilution for Outfalls 007 and 009 discharge prior to reaching the Flathead River. Therefore, the dilution flows developed in Table 22 are applied to determine the critical effluent pollutant concentration for each parameter upon reaching the river from these outfalls (see Tables 27 and 28, below). The maximum concentration values are presented as reported in the 2013 application package. If the concentration was presented as a "less than," this is reflected in the following tables:

Table 27: Outfall 007 Concentration of Discharge at River (C_d)							
	Units	Max Conc [1]	*TSD* [2]			C_d	**C_d [3] after GW Dilution**
			CV	*n*	Multiplier		
Aluminum, Dissolved	µg/L	< 200	*0.6*	*58*	1.4	280	**280**
Antimony, TR	µg/L	< 3	*0.6*	*8*	1.9	5.7	**5.7**
Copper, TR	µg/L	1	*0.6*	*1*	6.2	6.2	**6.2**
Nickel, TR	µg/L	< 20	*0.6*	*58*	1.4	28	**28**
Benzo(a)pyrene	µg/L	<0.1	*0.6*	*1*	6.2	0.62	**0.62**
Cyanide	µg/L	27	*0.6*	*1*	6.2	167	**167**
Fluoride	µg/L	750	*2.6*	*57*	2.0	1,500	**1,500**

Footnotes:
1. The maximum concentrations are estimates as provided in Form 2C Part V, except benzo(a)pyrene was corrected to <0.1 based on Table 2C-3 for Outfall 002.
2. The TSD statistical multipliers are based on monitoring data for Outfall 002.
3. Ground water flow provides 1,300 gallons per day dilution for Outfall 007, which was not enough to effect the calculated parameter concentrations.

Table 28: Outfall 009 Concentration of Discharge at River (C_d)							
	Units	Max Conc [1]	*TSD* [2]			C_d	**C_d [3] after GW Dilution**
			CV	*n*	Multiplier		
Aluminum, Dissolved	µg/L	< 200	*0.3*	*11*	*1.34*	270	**249**
Antimony, TR	µg/L	< 3	*0.6*	*8*	*1.9*	5.7	**5.3**
Copper, TR	µg/L	1	*0.6*	*1*	*6.2*	6.2	**5.8**
Nickel, TR	µg/L	< 20	*0.6*	*58*	*1.4*	28	**26**
Benzo(a)pyrene	µg/L	<0.1	*0.6*	*1*	*6.2*	0.62	**0.58**
Cyanide	µg/L	27	*0.6*	*1*	*6.2*	167	**176**
Fluoride	µg/L	3,200	*0.7*	*58*	*1.4*	4,480	**4,165**
Ammonia	mg/L	5.0	*0.6*	*1*	*6.2*	31.0	**28.8**

Footnotes:
1. The maximum concentrations are estimates as provided in Form 2C Part V, except benzo(a)pyrene was corrected to <0.1 based on Table 2C-3 for Outfall 004.
2. The TSD statistical multipliers are based on monitoring data for internal Outfall 004.
3. Ground water flow provides 190,000 gpd dilution flow; background for cyanide and fluoride in ground water obtained from DMR data.

Similar analysis for Outfall 013 indicated the maximum concentration of TRC (C_d), after ground water dilution, is 4.09 mg/L.

Reasonable Potential (RP) Analysis

The RP analysis for Outfalls 006, 007, 009, and 013 are presented in Attachments #1 - #4. If the resulting receiving water concentration (C_r) is greater than the lowest applicable surface water quality standard, CFAC has RP and effluent limits will be developed. However, there were several difficulties in conducting this evaluation for CFAC:

- The previous permit required monitoring of *dissolved* metals; therefore, since 1999 all facility DMR data is based on dissolved and not total recoverable. (This requirement was based on the fact that ground water standards in Circular DEQ-7 are based on the dissolved portion of the sample. However, except for aluminum, all surface water standards for metals are in the *total recoverable* form.) Furthermore, DEQ is required to express permit limits as total recoverable [ARM 17.30.1345(5)]. Since CFAC analyzed for the dissolved faction, the data may under-represent the actual quantity of the parameters that would be seen in the discharge from Outfalls 007 & 009 before it enters the waters of the state. The dissolved faction is expected to be fairly representative of the discharge from Outfall 006, however, since this discharge passes through ground water before it enters Flathead River.
- Monitoring was conducted at internal monitoring points D002, D004, and D005, in order to demonstrate compliance with the TBELs without dilution. However, this does not provide data of the diluted waste stream as it is discharged into 'waters of the state,' which is the basis for the WQBELs. Although the projected effluent limits provided in the 2013 renewal application update represent an engineering estimate of the water quality from Outfalls 007, 009, and 013, there is an extra level of uncertainty introduced.
- CFAC has not had production since 2009, and therefore there is a lack of recent effluent quality data and no way to obtain it.
- Effluent limits and DMR data were based on "net" concentrations for aluminum, antimony, nickel, and fluoride. Net limitations (intake credits) are not approved as part of this permit renewal. Therefore, the 2013 renewal application update included the gross effluent characteristics without netting.

DEQ develops an effluent limit for any parameter with RP. The following summarizes the RP analysis conducted for all parameters of concern in CFAC discharge that have numeric water quality standards listed in Circular DEQ-7. The acute and chronic standards for copper, nickel, and zinc are based on the 25th percentile hardness value for Flathead River of 100 mg/L.

Outfall 006 – Ground Water Seep RP

Table 29 presents an overview of the RP analysis for Outfall 006, based on the above assumptions (also see Attachment #1).

Table 29: RP Summary for Outfall 006 (Ground Water Seep)

Parameter (all units in µg/L)	Surface Water Quality Standards			Concentration after Mixing (C_r)		WQBEL Needed?
	Acute	Chronic	Human Health	Acute	Chronic/ HH	
Aluminum, Dissolved	750	87	None	1,054	103	Yes (C_r>Aquatic Life Stds)
Cyanide	22	5.2	140	238	5.8	Yes (C_r>Aquatic Life Stds)
Fluoride	None	None	4000	6,692	207	No (C_r<HHS)

The RP analysis included the assumption that the discharge flow from the seep was the entire 270,000 gpd calculated ground water flow, which is not believed to be true. However, DEQ confirmed that the RP analysis would derive the same conclusions even if the flow from the

ground water seep was significantly lower. This evaluation demonstrated that there is RP to exceed the dissolved aluminum and cyanide standards, and WQBELs will be developed. In addition:

TSS and pH: TBELs for TSS and pH are applied at Outfalls 002 & 004. There are no TSS water quality standards, and the effluent is discharged through the ground to the surface water; therefore DEQ determined that no additional TSS limits are needed. CFAC will be required to monitor pH semi-annually in order to determine if there is potential for an excursion from 6.0 – 9.0 s.u., which is the typical pH limit imposed at end of pipe.

Antimony, Benzo(a)pyrene, and Nickel: Although there are TBELs for these parameters, CFAC has not monitored for them at the ground water seep. These three parameters were monitored at internal outfalls 002 & 004 and found to be nondetect. Monitoring for these parameters at Outfall 006 will be required during this permit cycle in order to determine if the parameters are present in the discharge, and if so evaluate RP during the next permit renewal.

Fluoride: There are TBELs for this parameter. Although the maximum concentration at Outfall 006 was 4,780 µg/L, the analysis did not show RP to exceed the human health standard of 4,000 µg/L after consideration of mixing. Monitoring will be required during this permit cycle in order to provide information for an updated RP analysis during the next permit renewal.

Outfall 007 – North Ponds RP

The anode paste plant briquette cooling water (Outfall 002), compressor house non-contact cooling water, general plant water use, and industrial storm water runoff combine in the first of two sequential North Ponds. The primary purpose of the first pond is settling and evaporation, and the second is infiltration to ground water which is hydraulically connected to the Flathead River. Because the ponds are not lined, DEQ applied the WQBEL review to the end of the pipe.

Table 30 presents an overview of the RP analysis for Outfall 007, based on the above assumptions and as shown in Attachment #2.

Table 30: RP Summary for Outfall 007 (to North Ponds)						
Parameter (all units in µg/L)	Surface Water Quality Standards			Concentration after Mixing (C_r)		WQBEL Needed?
	Acute	Chronic	Human Health	Acute	Chronic/ HH	
Aluminum, Dissolved	750	87	None	280	104	Yes (C_r> Chronic Std)
Antimony, Total Recoverable (TR)	None	None	5.6	5.7	0.12	No (C_r<HHS)
Copper, TR [(1)]	14.0	9.3	1300	6.2	0.14	No (C_r<Stds)
Nickel, TR [(1)]	469	52	100	28	0.61	No (C_r<Stds)
Benzo(a)pyrene	None	None	0.038	0.62	0.014	No (C_r<HHS)
Cyanide	22	5.2	140	167	8.5	Yes (C_r>Aquatic Life Stds)
Fluoride	None	None	4000	1,499	214	No (C_r<HHS)

Footnotes:
1. Acute and chronic water quality standards for copper and nickel based on the 25th percentile hardness of the Flathead River of 100 mg/L, in accordance with Circular DEQ-7.

This evaluation demonstrated that there is RP to exceed the dissolved aluminum and cyanide standards, and WQBELs will be developed with this permit renewal. In addition:

Oil and Grease (O&G): The O&G water quality standard is 10 mg/L [ARM 17.30.637(1)(b)]. CFAC reported "believed absent," but did not include any monitoring data. Semi-annual monitoring will be required for the duration of the permit in order to determine RP during the next permit renewal cycle.

TSS and pH: There are TSS and pH TBELs applied at Outfall 002. There are no TSS water quality standards, and the effluent is discharged through the ground to the surface water – so no additional TSS limits are needed. CFAC will be required to monitor pH semi-annually at Outfall 007 in order to determine if there is potential for an excursion from 6.0 – 9.0 s.u., which is the typical pH limit at end of pipe.

Antimony, Benzo(a)pyrene, Nickel, and Fluoride: Although there are TBELs for these parameters, the analysis did not show RP to exceed water quality standards based on the information provided. Furthermore, these parameters were found to be "nondetect" at the internal monitoring point, Outfall 002. However, the effluent concentrations were estimates; CFAC has not monitored for these parameters at Outfall 007. Monitoring will be required during this permit cycle in order to determine RP during the next permit renewal.

Copper: Although this parameter is "expected present," the analysis did not show RP to exceed water quality standards based on the information provided. However, the effluent concentration was an estimate; CFAC has not monitored for it at Outfall 007. Monitoring will be required during this permit cycle in order to determine RP during the next permit renewal.

Outfall 009 – South Ponds RP

Table 31 presents an overview of the RP for Outfall 009, based on the above assumptions and shown in Attachment #3.

Table 31: RP Summary for Outfall 009 (to South Ponds)						
Parameter (all units in µg/L except as noted)	Surface Water Quality Standards			Concentration after Mixing (C_r)		WQBEL Needed?
	Acute	Chronic	Human Health	Acute	Chronic/ HH	
Aluminum, Dissolved	750	87	None	249	104	Yes (C_r> Chronic Std)
Antimony, TR	None	None	5.6	5.3	0.16	No (C_r<HHS)
Copper, TR [1]	14.0	9.3	1,300	5.8	0.17	No (C_r<Stds)
Nickel, TR [1]	469	52	100	26	0.78	No (C_r<Stds)
Benzo(a)pyrene	None	None	0.038	0.58	0.017	No (C_r<HHS)
Cyanide	22	5.2	140	176	10.1	Yes (C_r>Stds)
Fluoride	None	None	4,000	4,165	304	No (C_r<HHS)
Ammonia (mg/L)	3.15	1.41	NA	6.81	0.87	Yes (C_r >Acute Std)

Footnotes:
1. Acute and chronic water quality standards for copper and nickel based on the 25th percentile hardness of the Flathead River of 100 mg/L, in accordance with Circular DEQ-7.

This evaluation demonstrated that there is RP to exceed the dissolved aluminum, cyanide, and ammonia standards, and WQBELs will be developed with this permit renewal. In addition, DEQ evaluated RP for the following parameters at Outfall 009:

Oil and Grease (O&G): The O&G water quality standard is 10 mg/L [ARM 17.30.637(1)(b)]. In addition this parameter has a TBEL applied at Outfall 004 for the Sow Casting Line. CFAC reported "believed absent," and provided the results from one O&G sample, which had a result of "less than 5 mg/L." Semi-annual monitoring of oil & grease from Outfall 009 will be required once production is started up, for the duration of the permit. This will provide data for determining RP during the next permit renewal cycle.

Antimony, Benzo(a)pyrene, and Nickel: Although there are TBELs for these parameters, the analysis did not show RP to exceed water quality standards based on the information provided. Furthermore, these parameters were found to be "nondetect" at the internal monitoring point, Outfall 004. However, the effluent concentrations were estimates; CFAC has not monitored for them at Outfall 009. Monitoring will be required during this permit cycle in order to determine RP during the next permit renewal.

Fluoride: Although there are TBELs for this parameter, the analysis did not show RP to exceed water quality standards based on the information provided. However, the effluent concentrations were estimates; CFAC has not monitored for fluoride at Outfall 009. Monitoring will be required during this permit cycle in order to determine RP during the next permit renewal.

Copper: Although this parameter is "expected present," the analysis did not show RP to exceed water quality standards based on the information provided. However, the effluent concentration was an estimate; CFAC has not monitored for it at Outfall 009. Monitoring will be required during this permit cycle in order to determine RP during the next permit renewal.

BOD_5: The facility provides a significant amount of control of BOD_5 through TBELs for the sewage treatment plant (Section III). No additional WQBELs will be required for this parameter.

TSS and pH: there are TSS and pH TBELs applied at Outfall 004 and 005. There are no TSS water quality standards, and the effluent is discharged through the ground to the surface water – so no additional TSS limits are needed. Semi-annual monitoring of pH at Outfall 009 will be required once production is started up, for the duration of the permit. This will provide data in order to determine if there is potential for an excursion from 6.0 – 9.0 s.u., which is the typical pH limit at end of pipe.

***Escherichia coli* (*E. coli*) Bacteria:** *E. coli* bacteria standards became effective February 1, 2006. The applicable standards for *E. coli* are:

(1) April 1 through October 31, of each year, the geometric mean number of the microbial species *E. coli* must not exceed 126 colony forming units (cfu) per 100 milliliters (mL), nor are 10% of the total samples during any 30-day period to exceed 252 cfu per 100 mL [ARM 17.30.623(2)(a)(i)]; and

(2) November 1 through March 31, of each year, the geometric mean number of *E. coli* shall not exceed 630 cfu per 100 mL and 10% of the samples during any 30-day period may not exceed 1,260 cfu per 100 mL [ARM 17.30.623(2)(a)(ii)].

No analysis was provided. CFAC will be required to perform monitoring of *E. coli* at Outfall 009, in order to determine RP during the next permit renewal cycle.

Total Residual Chlorine (TRC): Circular DEQ-7 contains the TRC water quality standards of 0.011 mg/L Average Monthly Limit (AML) and 0.019 mg/L Maximum Daily Limit (MDL). CFAC reported "believed absent," but did not include any monitoring data for TRC. Chlorine is used to disinfect effluent from the package plant. Semi-annual monitoring for TRC will be required at Outfall 009 for the duration of the permit in order to determine RP during the next permit renewal cycle, as long as CFAC continues to use chlorine for disinfection.

Total Ammonia: Total ammonia limits are developed based on standards that account for a combination of pH and temperature of the receiving stream, the presence or absence of salmonid fish species, and the presence or absence of fish in early life stages. Based on Circular DEQ-7, DEQ calculated ammonia water quality standards for Flathead River:

Table 32: Total Ammonia-Nitrogen Water Quality Standards for Flathead River

Condition	Period	Salmonids Present	Early Life Stages	Ambient Conditions [1]		Water Quality Standard (mg/L) [2]
				pH (s.u.)	Temperature (°C)	
Acute Criterion	Annual	Yes	NA	8.3	NA	3.15
Chronic Criterion	Annual	NA	Yes	8.3	15.7	1.41

Footnotes: NA – Not Applicable
1. Based on 75th percentile of data from Flathead River (see Part IV.B).
2. Acute and chronic standards based on Department Circular DEQ-7 (2012).

RP to exceed the ammonia standards was assessed using Equation 1 (see Attachment #3), and there is RP to exceed these standards. WQBELs are developed, below.

Total Nitrogen (TN) and Total Phosphorus (TP): The Flathead River is not listed as impaired for TN or TP and there are no nutrient standards. Flathead River is a major tributary to Flathead Lake, which is impaired and has a TMDL. The Nutrient Management Plan & Total Maximum Daily Load for Flathead Lake was approved by EPA on March 31, 2002. CFAC was not assigned a wasteload allocation.

The effluent concentration of the one TN sample was 2.2 mg/L. The effluent concentration of TP was 0.96 mg/L. The new permit will continue to require monitoring of nutrients, and effluent limits for TN and TP may be developed during the next permit renewal in accordance with any nutrient standards that may be implemented during this permit cycle.

Nitrate + Nitrite (NO_3+NO_2): The human health standard for NO_3+NO_2 is 10 mg/L. The C_d for NO_3+NO_2 was 1.7 mg/L, based on a maximum observed effluent concentration of 0.26 mg/L x TSD multiplier of 6.7. Using *Equation 1*, DEQ determined that even if the available dilution were zero, the worst-case $C_s = C_d$ (=1.7 mg/L), therefore there is no RP to exceed the NO_3+NO_2 standard. DEQ will need to re-evaluate RP for NO_3 + NO_2 if CFAC conducts ammonia-removal treatment.

Outfall 013 – Head Tank Cleaning RP

Table 33 presents an overview of the RP for Outfall 013 developed in Attachment #4, which shows that there is no RP to exceed water quality standards and no WQBEL is needed.

Table 33: RP Summary for Outfall 013 (Head Tank Cleaning)

Parameter	Units	Surface Water Quality Standards			Concentration after Mixing (C_r)		WQBEL Needed?
		Acute	Chronic	Human Health	Acute	Chronic / HH	
Chlorine	µg/L	19	11	4,000	0.25	0.03	No

WQBEL Calculations—Individual Pollutants and Parameters

For most parameters with RP, to establish WQBELs for an existing discharger DEQ first calculates Wasteload Allocations (WLAs) from the numeric water quality standards. These WLAs are then translated into maximum daily limitations (MDLs) and average monthly limitations (AMLs). The most protective AML and the most protective MDL are the WQBELs for each pollutant of concern.

As shown in *Equation 2* below, the mass-balance equation given in the previous section can be arranged to calculate the WLA (C_d) so that the discharge does not cause or contribute to an exceedance of the applicable water quality standard under critical conditions.

$$C_d = \frac{Q_r C_r - Q_s C_s}{Q_d} \qquad (Eq.\ 2)$$

Given:

C_d = Effluent Pollutant Concentration (WLA)
Q_s = critical stream flow of receiving water, 7Q10 - available dilution
Q_d = critical effluent discharge flow rate
C_s = critical river concentration – Flathead River 75th percentile ambient concentration
C_r = the resulting receiving water concentration

Arranging the equation in this manner, it can be applied to any effluent and receiving water where the applicable dilution ratio is known (see Attachment #5). Where an existing discharge is to a water body that is not meeting a concentration-based numeric standard in the water column, the WLAs for that pollutant of concern may be set equal to the applicable numeric water quality standards.

Outfall 006 – Ground Water Seep WQBELs

A summary of the WQBEL for Outfall 006 is found in the table below.

Table 34: WQBEL Development for Outfall 006

Parameter (µg/L)	WQBEL		Basis for WQBEL
	MDL	AML	
Aluminum, Dissolved	143	71	Circular DEQ-7 (no assimilative capacity; WLA = WQS)
Cyanide	22	11	Circular DEQ-7 (aquatic life stds)

DEQ developed the Outfall 006 dissolved aluminum and cyanide MDLs and AMLs based on the TSD approach (see Attachment #5). However, this included the assumption that the discharge flow from the seep was the entire 270,000 gpd calculated ground water flow, which is not believed to be true. Regardless, the calculations for developing the WQBELs result in the same limits, even if the ground water seep was significantly lower.

Based on 22 samples, the Outfall 006 average CN concentration was 100 µg/L and the maximum was 170 µg/L. Furthermore, the one dissolved aluminum sample was 170 µg/L which is greater than both the AML and MDL.

Outfall 007 – North Ponds WQBELs

A summary of the WQBELs for Outfalls 007 is found in the table below.

Table 35: WQBEL Development for Outfall 007

Parameter (µg/L)	WQBEL		Basis for WQBEL
	MDL	AML	
Aluminum, Dissolved	152	49	Circular DEQ-7 (no assimilative capacity; WLA = WQS)
Cyanide	22	11	Circular DEQ-7 (aquatic life stds)

Outfall 009 – South Ponds WQBELs

A summary of the WQBELs for Outfalls 009 is found in the table below.

Table 36: WQBEL Development for Outfall 009			
Parameter (µg/L unless otherwise noted)	WQBEL		Basis for WQBEL
	MDL	AML	
Aluminum, Dissolved	118	78	Circular DEQ-7 (no assimilative capacity; WLA = WQS)
Cyanide	19	9.5	Circular DEQ-7 (aquatic life standards)
Ammonia (mg/L)	13.5	6.7	Circular DEQ-7 (aquatic life standards)

Based on the TSD approach the proposed ammonia MDL is 13.5 mg/L and AML is 6.7 mg/L (see Attachment #5). However, during the POR, there was only one effluent ammonia sample, with a concentration of 5 mg/L. This is not enough data to determine whether CFAC is currently capable of meeting the new ammonia limits proposed in this permit renewal. Therefore, the special condition section will include a compliance schedule (see Section VIII.B) and the ammonia limits will become effective January 1, 2017.

Whole Effluent Toxicity (WET) Monitoring – Acute Toxicity

ARM 17.30.637(1)(d) requires that state water be free from substances attributable to industrial waste that create conditions which are harmful or toxic to human, animal, plant or aquatic life, except DEQ may allow limited toxicity in a mixing zone provided that there is no acute lethality to organisms.

Except Outfall 006, all discharges report to site ground water prior to entering surface water and WET testing is not appropriate. CFAC will be required to monitor Outfall 006 for WET. Should the effluent exceed the acute toxicity limitation in a routine test and is confirmed as persistent by the additional test, a Toxicity Identification Evaluation / Toxicity Reduction Evaluation (TIE-TRE) shall be undertaken by the permittee to establish the cause of the toxicity, locate the source(s) of the toxicity, and develop control of, or treatment for the toxicity.

If the results for four consecutive quarters of testing indicate no acute toxicity, the permittee may request a reduction to quarterly acute toxicity testing on only one species on an alternating basis.

V. Final Effluent Limits

Section 402(o) of the CWA and 40 CFR 122.44(l) require that effluent limits or conditions in reissued permits be at least as stringent as those in the existing permit, with certain exceptions. Also, regulations at 40 CFR 122.44 require that permits contain the more stringent TBEL or WQBEL limitation applicable to an individual pollutant. The more stringent technology-based limit was used to determine the final effluent limits.

Outfall 002 – Anode Casting (Internal Monitoring):

TBELs apply at the end of the process, prior to any dilution. Therefore, DEQ will continue to assign TBEL effluent limits at Outfall 002, the internal monitoring point for the anode casting process discharge, before it combines with unregulated waste streams regulated at Outfall 007.

The mass-based limits are tiered on a production-basis. **As CFAC is in shutdown mode at the time of renewal, the effluent limits for Outfall 002 are '0.'** Any time production changes the facility must provide a 30-day advance notice to DEQ. At that time, the effluent limits for the anode casting plant corresponding to the appropriate level of production will be effective, as shown in Table 37:

Table 37: Final Limits for Outfall 002 (Anode Casting Internal Monitoring Point)

Parameter and Parameter Code	Units	Daily Max.	Monthly Ave.
Full Production – 5 Potlines			
Benzo(a)pyrene (34247)	kg/day	0.003	0.001
Aluminum, Total Recoverable (01104)	kg/day	0.600	0.207
Antimony, Total Recoverable (01268)	kg/day	0.189	0.066
Nickel, Total Recoverable (01074)	kg/day	0.054	0.028
Fluoride (00949)	kg/day	5.84	2.01
Total Suspended Solids (TSS) (51530)	kg/day	1,846	695
pH (00400)	s.u.	Between 6.0 – 9.0 at all times	
4 Potlines			
Benzo(a)pyrene (34247)	kg/day	0.003	0.00088
Aluminum, Total Recoverable (01104)	kg/day	0.600	0.165
Antimony, Total Recoverable (01268)	kg/day	0.189	0.053
Nickel, Total Recoverable (01074)	kg/day	0.054	0.022
Fluoride (00949)	kg/day	5.84	1.61
Total Suspended Solids (TSS) (51530)	kg/day	1,477	556
pH (00400)	s.u.	Between 6.0 – 9.0 at all times	
3 Potlines			
Benzo(a)pyrene (34247)	kg/day	0.003	0.00066
Aluminum, Total Recoverable (01104)	kg/day	0.600	0.124
Antimony, Total Recoverable (01268)	kg/day	0.189	0.039
Nickel, Total Recoverable (01074)	kg/day	0.054	0.017
Fluoride (00949)	kg/day	5.84	1.21
Total Suspended Solids (TSS) (51530)	kg/day	1,107	417
pH (00400)	s.u.	Between 6.0 – 9.0 at all times	
2 Potlines			
Benzo(a)pyrene (34247)	kg/day	0.003	0.00044
Aluminum, Total Recoverable (01104)	kg/day	0.600	0.083
Antimony, Total Recoverable (01268)	kg/day	0.189	0.026
Nickel, Total Recoverable (01074)	kg/day	0.054	0.011
Fluoride (00949)	kg/day	5.84	0.806
Total Suspended Solids (TSS) (51530)	kg/day	738	278
pH (00400)	s.u.	Between 6.0 – 9.0 at all times	
1 Potline			
Benzo(a)pyrene (34247)	kg/day	0.003	0.00022
Aluminum, Total Recoverable (01104)	kg/day	0.600	0.041
Antimony, Total Recoverable (01268)	kg/day	0.189	0.013
Nickel, Total Recoverable (01074)	kg/day	0.054	0.0056
Fluoride (00949)	kg/day	5.84	0.403
Total Suspended Solids (TSS) (51530)	kg/day	369	139
pH (00400)	s.u.	Between 6.0 – 9.0 at all times	

Outfall 004 – Aluminum Chilling (Internal Monitoring):

TBELs apply at the end of the process, prior to any dilution. Therefore, DEQ will continue to assign TBEL effluent limits at Outfall 004 for the aluminum casting chilling discharge, the internal monitoring point for the aluminum casting chilling discharge, before it combines with unregulated waste streams regulated at Outfall 009. The mass-based limits are tiered on a production-basis.

As CFAC is in shutdown mode at the time of renewal, the effluent limits for Outfall 004 are '0.' Any time production changes the facility must provide a 30-day advance notice to DEQ. At that time, the effluent limits corresponding to the appropriate level of production will be effective, as shown in Tables 38 (T-Bar Casting) and 39 (Sow Casting):

Table 38: Final Limits for Outfall 004 (Internal Monitoring for T-Bar Casting)

Parameter and Parameter Code	Units	Daily Max.	Ave. Monthly
Full Production – 5 Potlines			
Benzo(a)pyrene (34247)	kg/day	No Discharge	
Aluminum, Total Recoverable (01104)	kg/day	5.00	1.67
Antimony, Total Recoverable (01268)	kg/day	1.58	0.53
Nickel, Total Recoverable (01074)	kg/day	0.45	0.23
Fluoride (00949)	kg/day	48.65	16.27
Total Suspended Solids (TSS) (51530)	kg/day	1,846	695
pH (00400)	s.u.	Between 6.0 – 9.0 at all times	
4 Potlines			
Benzo(a)pyrene (34247)	kg/day	No Discharge	
Aluminum, Total Recoverable (01104)	kg/day	4.00	1.34
Antimony, Total Recoverable (01268)	kg/day	1.26	0.42
Nickel, Total Recoverable (01074)	kg/day	0.36	0.18
Fluoride (00949)	kg/day	38.92	13.01
Total Suspended Solids (TSS) (51530)	kg/day	1,477	556
pH (00400)	s.u.	Between 6.0 – 9.0 at all times	
3 Potlines			
Benzo(a)pyrene (34247)	kg/day	No Discharge	
Aluminum, Total Recoverable (01104)	kg/day	3.00	1.00
Antimony, Total Recoverable (01268)	kg/day	0.95	0.32
Nickel, Total Recoverable (01074)	kg/day	0.27	0.14
Fluoride (00949)	kg/day	29.19	9.76
Total Suspended Solids (TSS) (51530)	kg/day	1,107	417
pH (00400)	s.u.	Between 6.0 – 9.0 at all times	
2 Potlines			
Benzo(a)pyrene (34247)	kg/day	No Discharge	
Aluminum, Total Recoverable (01104)	kg/day	2.00	0.67
Antimony, Total Recoverable (01268)	kg/day	0.63	0.21
Nickel, Total Recoverable (01074)	kg/day	0.18	0.091
Fluoride (00949)	kg/day	19.46	6.51
Total Suspended Solids (TSS) (51530)	kg/day	738	278
pH (00400)	s.u.	Between 6.0 – 9.0 at all times	

Table 38: Final Limits for Outfall 004 (Internal Monitoring for T-Bar Casting)			
Parameter and Parameter Code	Units	Daily Max.	Ave. Monthly
1 Potline			
Benzo(a)pyrene (34247)	kg/day	No Discharge	
Aluminum, Total Recoverable (01104)	kg/day	1.00	0.33
Antimony, Total Recoverable (01268)	kg/day	0.32	0.11
Nickel, Total Recoverable (01074)	kg/day	0.09	0.046
Fluoride (00949)	kg/day	9.73	3.25
Total Suspended Solids (TSS) (51530)	kg/day	369	139
pH (00400)	s.u.	Between 6.0 – 9.0 at all times	

A total of no more than five casting lines (both T-bar and sow) may be in operation on any day.

Table 39: Final Limits for Outfall 004 (Internal Monitoring for Sow Casting)			
Parameter and Parameter Code	Units	Daily Max. Limitation	Ave. Monthly Limitation
2.5 Potlines			
Benzo(a)pyrene (34247)	kg/day	No Discharge	
Aluminum, Total Recoverable (01104)	kg/day	2.50	0.84
Antimony, Total Recoverable (01268)	kg/day	0.79	0.27
Nickel, Total Recoverable (01074)	kg/day	0.23	0.11
Fluoride (00949)	kg/day	24.33	8.13
Oil and Grease (00182)	kg/day	4.09	3.08
Total Suspended Solids (TSS) (51530)	kg/day	6.13	3.70
pH (00400)	s.u.	(1)	

Footnotes:
1. The pH shall be maintained within the range of 7.0 to 10.0 at all times except for those situations when this waste is discharged separately and without commingling with any other wastewater in which case the pH shall be within the range of 6.0 to 10.0 at all times.

Outfall 005 - Sewage Treatment Plant (Internal Monitoring):

Effective immediately, the following limits apply after the sewage treatment plant, prior to confluence with discharge from Outfall 004 and other unregulated waste streams.

Table 40: Outfall 005 – Sewage Treatment Plant Effluent Limits			
Parameter and Parameter Code	Units	Average Weekly Limitation	Average Monthly Limitation
5-day Biochemical Oxygen Demand (BOD_5) (00310)	mg/L	45	30
Total Suspended Solids (TSS) (51530)	mg/L	45	30
pH (00400)	s.u.	Between 6.0 to 9.0 at all times	

Outfall 006 – Ground Water Seep:

Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 006, at the ground water seep prior to discharge into the Flathead River:

Table 41: Final Limits for Outfall 006			
Parameter	Units	MDL	AML
Aluminum, Dissolved	µg/L	143	71
Cyanide	µg/L	22	11

In addition, there shall be no acute toxicity in the effluent discharged by the facility from Outfall 006.

Outfall 007 – Outfall to North Ponds:

Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 007, at the end of the pipe prior to discharge into the North Pond system:

Table 42: Final Effluent Limits for Outfall 007			
Parameter	Units	MDL	AML
Aluminum, Dissolved	µg/L	152	49
Cyanide	µg/L	22	11

Outfall 009 – Outfall to South Ponds:

Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 009, at the end of the pipe prior to discharge into the South Pond system:

Table 43: Final Limits for Outfall 009			
Parameter	Units	MDL	AML
Aluminum, Dissolved	µg/L	118	78
Cyanide	µg/L	19	9.5
Ammonia [1]	mg/L	13.5	6.7
Footnote: 1. The ammonia limits become effective **January 1, 2017** since it is unknown whether CFAC can currently meet these limits. CFAC is required to monitor, only until that time.			

Outfall 013:

Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 013 at the end of the pipe prior to discharge onto the ground: TRC will be limited to <0.1 mg/L.

Outfall 013:

Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 013 at the end of the pipe prior to discharge onto the ground: TRC will be limited to <0.1 mg/L.

VI. Monitoring Requirements

Regulations requiring the establishment of monitoring and reporting conditions in MPDES permits are found at 40 CFR 122.44(i) and 122.48 and ARM 17.30.1351.

All analytical procedures must comply with the specifications of 40 CFR Part 136 and the analysis must meet any Required Reporting Values (RRVs) listed in Circular DEQ-7 unless otherwise specified. Samples shall be collected, preserved and analyzed in accordance with approved procedures listed in 40 CFR 136.

A. Effluent Monitoring

Self-monitoring of effluent discharged from the anode paste plant (Outfall 002) shall be conducted downstream of the process, prior to the addition of any other wastewater. Samples must be representative of the volume and quantity of the effluent.

Table 44: Outfall 002 (Internal) Summary of Monitoring Requirements

Parameter	Units	Monitoring Frequency (1)	Type
Flow	mgd	Continuous	Instantaneous
Duration of Discharge	# days	Daily	Calculated
Aluminum, Total Recoverable	µg/L	Monthly	Composite
	kg/day	Monthly	Calculated
Antimony, Total Recoverable	µg/L	Monthly	Composite
	kg/day	Monthly	Calculated
Nickel, Total Recoverable	µg/L	Monthly	Composite
	kg/day	Monthly	Calculated
Benzo(a)pyrene	µg/L	Monthly	Composite
	kg/day	Monthly	Calculated
Fluoride	µg/L	Monthly	Composite
	kg/day	Monthly	Calculated
Total Suspended Solids	mg/L	Monthly	Composite
	kg/day	Monthly	Calculated
pH	s.u.	Monthly	Instantaneous
Cyanide	µg/L	Quarterly	Grab

Footnotes:
1. Monitoring required only during periods of discharge.

Table 45. Outfall 004 (Internal) Summary of Monitoring Requirements			
Parameter	Units	Monitoring Frequency (1)	Type
Flow	mgd	Continuous	Instantaneous
Duration of Discharge	# days	Daily	Calculated
Aluminum, Total Recoverable	µg/L	Monthly	Composite
	kg/day	Monthly	Calculated
Antimony, Total Recoverable	µg/L	Monthly	Composite
	kg/day	Monthly	Calculated
Nickel, Total Recoverable	µg/L	Monthly	Composite
	kg/day	Monthly	Calculated
Benzo(a)pyrene	µg/L	Monthly	Composite
	kg/day	Monthly	Calculated
Fluoride	µg/L	Monthly	Composite
	kg/day	Monthly	Calculated
Total Suspended Solids	mg/L	Monthly	Composite
	kg/day	Monthly	Calculated
pH	s.u.	Monthly	Instantaneous
Oil & Grease	mg/L	Monthly	Grab
Cyanide	µg/L	Quarterly	Grab
Footnotes: 1. Monitoring required only during periods of discharge.			

Table 46. Outfall 005 (Internal) Summary of Monitoring Requirements			
Parameter	Units	Monitoring Frequency	Type
Flow	mgd	Continuous	Instantaneous
5-Day Biochemical Oxygen Demand (BOD_5)	mg/L	Monthly	Composite
Total Suspended Solids	mg/L	Monthly	Composite
pH	s.u.	Monthly	Instantaneous

Table 47. Outfall 006 Ground Water Seep - Summary of Monitoring Requirements			
Parameter	Units	Monitoring Frequency [1]	Type
Flow	mgd	Continuous [2]	Instantaneous
Duration of Discharge	# days	Daily [2]	Calculated
Aluminum, Dissolved	µg/L	Monthly	Grab
Cyanide	µg/L	Monthly	Grab
pH	s.u.	Semi-annual	Instantaneous
Antimony, Total Recoverable	µg/L	Semi-annual	Grab
Benzo(a)pyrene	µg/L	Semi-annual	Grab
Nickel, Total Recoverable	µg/L	Semi-annual	Grab
Fluoride	µg/L	Semi-annual	Grab
WET – Two Species	Pass/Fail	Quarterly [3]	Grab

Footnotes:
1. Monitoring required immediately upon the effective date of this permit except for flow volume and frequency.
2. By no later than **September 1, 2015**, CFAC will install necessary flow monitoring equipment and continuously monitor the flow from the ground water seep.
3. Sampling is required starting the first full calendar quarter following the effective date of the permit. If the results for four consecutive quarters of testing indicate no acute toxicity, the permittee may request a reduction to quarterly acute toxicity testing on only one species on an alternating basis.

Table 48. Outfall 007 North Ponds - Summary of Monitoring Requirements			
Parameter	Units	Monitoring Frequency	Type
Flow [1]	mgd	Continuous	Instantaneous
Duration of Discharge	# days	Daily	Calculated
Aluminum, Dissolved	µg/L	Monthly	Composite
Cyanide	µg/L	Monthly	Grab
Oil & Grease	mg/L	Semi-annual	Grab
pH	s.u.	Semi-annual	Instantaneous
Antimony, Total Recoverable	µg/L	Semi-annual	Composite
Benzo(a)pyrene	µg/L	Semi-annual	Composite
Copper, Total Recoverable	µg/L	Semi-annual	Composite
Nickel, Total Recoverable	µg/L	Semi-annual	Composite
Fluoride	µg/L	Semi-annual	Composite

Footnotes:
1. Effective immediately, the discharge flow rate for Outfall 007 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.

Table 49. Outfall 008 North Ponds - Summary of Monitoring Requirements			
Parameter	Units	Monitoring Frequency	Type
Flow [1]	mgd	Continuous	Instantaneous
Duration of Discharge	# days	Daily	Calculated
TSS	mg/L	Semi-annual	Composite
pH	s.u.	Semi-annual	Instantaneous
Aluminum, Dissolved	µg/L	Semi-annual	Composite
Benzo(a)pyrene	µg/L	Semi-annual	Composite
Cyanide	µg/L	Semi-annual	Grab
Antimony, Total Recoverable	µg/L	Semi-annual	Composite
Copper, Total Recoverable	µg/L	Semi-annual	Composite
Nickel, Total Recoverable	µg/L	Semi-annual	Composite
Fluoride	µg/L	Semi-annual	Composite

Footnotes:
1. Effective immediately, the discharge flow rate for Outfall 008 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.

Table 50. Outfall 009 South Ponds - Summary of Monitoring Requirements			
Parameter	Units	Monitoring Frequency	Type
Flow [1]	mgd	Continuous	Instantaneous
Duration of Discharge	# days	Daily	Calculated
Aluminum, Dissolved	µg/L	Monthly	Composite
Cyanide	µg/L	Monthly	Grab
Ammonia	mg/L	Monthly	Composite
pH	s.u.	Semi-annual	Instantaneous
Oil & Grease	mg/L	Semi-annual	Grab
Chlorine, Total Residual	µg/L	Semi-annual	Grab
E. coli bacteria	cfu/100 mL	Semi-annual	Grab
Antimony, Total Recoverable	µg/L	Semi-annual	Composite
Benzo(a)pyrene	µg/L	Semi-annual	Composite
Copper, Total Recoverable	µg/L	Semi-annual	Composite
Fluoride	µg/L	Semi-annual	Composite
Nickel, Total Recoverable	µg/L	Semi-annual	Composite
Nitrate + Nitrite	mg/L	Semi-annual	Composite
Total Kjeldahl Nitrogen	mg/L	Semi-annual	Composite
Total Nitrogen	mg/L	Semi-annual	Calculated
Total Phosphorus	mg/L	Semi-annual	Composite

Footnotes:
1. Effective immediately, the discharge flow rate for Outfall 009 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.

Table 51. Outfall 010 - Summary of Monitoring Requirements			
Parameter	Units	Monitoring Frequency	Type
Flow [1]	mgd	Continuous	Instantaneous
Duration of Discharge	# days	Daily	Calculated
pH	s.u.	Semi-annual	Instantaneous
Aluminum, Dissolved	µg/L	Semi-annual	Composite
Benzo(a)pyrene	µg/L	Semi-annual	Composite
Cyanide	µg/L	Semi-annual	Grab
Antimony, Total Recoverable	µg/L	Semi-annual	Composite
Copper, Total Recoverable	µg/L	Semi-annual	Composite
Iron, Total Recoverable	µg/L	Semi-annual	Composite
Nickel, Total Recoverable	µg/L	Semi-annual	Composite
Fluoride	µg/L	Semi-annual	Composite
Footnotes: 1. Effective immediately, the discharge flow rate for Outfall 010 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.			

Table 52. Outfall 011 - Summary of Monitoring Requirements			
Parameter	Units	Monitoring Frequency	Type
Flow [1]	mgd	Continuous	Instantaneous
Duration of Discharge	# days	Daily	Calculated
pH	s.u.	Semi-annual	Instantaneous
Aluminum, Dissolved	µg/L	Semi-annual	Composite
Benzo(a)pyrene	µg/L	Semi-annual	Composite
Cyanide	µg/L	Semi-annual	Grab
Antimony, Total Recoverable	µg/L	Semi-annual	Composite
Copper, Total Recoverable	µg/L	Semi-annual	Composite
Iron, Total Recoverable	µg/L	Semi-annual	Composite
Nickel, Total Recoverable	µg/L	Semi-annual	Composite
Fluoride	µg/L	Semi-annual	Composite
Footnotes: 1. Effective immediately, the discharge flow rate from Outfall 011 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.			

Table 53. Outfall 012 - Summary of Monitoring Requirements			
Parameter	Units	Monitoring Frequency	Type
Flow [1]	mgd	Continuous	Instantaneous
Duration of Discharge	# days	Daily	Calculated
pH	s.u.	Semi-annual	Instantaneous
Aluminum, Dissolved	µg/L	Semi-annual	Composite
Benzo(a)pyrene	µg/L	Semi-annual	Composite
Cyanide	µg/L	Semi-annual	Grab
Antimony, Total Recoverable	µg/L	Semi-annual	Composite
Copper, Total Recoverable	µg/L	Semi-annual	Composite
Nickel, Total Recoverable	µg/L	Semi-annual	Composite
Fluoride	µg/L	Semi-annual	Composite

Footnotes:
1. Effective immediately, the discharge flow rate From Outfall 012 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.

Table 54. Outfall 013 - Summary of Monitoring Requirements			
Parameter	Units	Monitoring Frequency	Type
Flow	mgd	Continuous	Instantaneous
Duration of Discharge	# days	Daily	Calculated
Total Residual Chlorine (TRC)	µg/L	Monthly	Grab
pH	s.u.	Semi-annual	Instantaneous

B. Upstream Monitoring

CFAC will supply DEQ with a location, both using coordinates and indicated on a diagram, of the upstream sampling location within thirty days of the effective date of this permit. The location must be at a location that is representative of the Flathead River ambient quality before any impacts from CFAC.

CFAC shall monitor the following parameters from a monitoring site upstream of any expected influence from the process wastewater or ground water as listed in Table 55. The analysis must meet the RRV as listed in the most recent Circular DEQ-7.

Table 55. Flathead River Upstream of Facility - Summary of Monitoring Requirements			
Parameter	Units	Monitoring Frequency [1]	Type
Aluminum, Dissolved	µg/L	Semi-annual	Grab
Antimony, Total Recoverable	µg/L	Semi-annual	Grab
Copper, Total Recoverable	µg/L	Semi-annual	Grab
Nickel, Total Recoverable	µg/L	Semi-annual	Grab
Benzo(a)pyrene	µg/L	Semi-annual	Grab
Fluoride	µg/L	Semi-annual	Grab
Cyanide	µg/L	Semi-annual	Grab
Temperature	deg C	Semi-annual	Grab
pH	s.u.	Semi-annual	Instantaneous
Ammonia	mg/L	Semi-annual	Grab
Nitrate + Nitrite	mg/L	Semi-annual	Grab
Total Kjeldahl Nitrogen	mg/L	Semi-annual	Grab
Total Nitrogen	mg/L	Semi-annual	Calculated
Total Phosphorus	mg/L	Semi-annual	Grab

VII. Special Conditions/Compliance Schedules

A. Compliance Schedule

1. *Upstream Monitoring* – Within thirty (30) days of the effective date of this permit, CFAC shall submit both latitude/longitude coordinates and a diagram of the upstream sampling location to DEQ. The submittal shall include a discussion on how CFAC has ensured the monitoring will be representative of the background concentration in Flathead River without any influence from their site.

2. *Outfall 006 Ground Water Seep* – Monitoring of the ground water seep flow rate will become effective **September 1, 2015**. Until this date, CFAC shall submit to DEQ:

   - a plan of action within six (6) months from the effective date of this permit, and
   - a report by no later than January 28, 2015, describing the actions taken in 2014 and planned in 2015. If necessary, an updated plan of action shall be included with this report.

3. *Ammonia* – The Outfall 009 ammonia effluent limits will become effective **January 1, 2017**. Until this date, CFAC shall submit an annual report dated no later than the 28th of January following each year, describing the actions taken in the previous year and proposed for the upcoming year, to ensure compliance with the new limits.

B. Storm water Pollution Prevention Plan

Storm water effluent quality is typically managed through the implementation of Storm Water Pollution Prevention Plans (SWPPPs) and BMPs and, where necessary, effluent monitoring requirements. CFAC shall operate the facility in accordance with a current SWPPP. The SWPPP shall be updated as soon as possible but no later than **January 1, 2015**.

a. The SWPPP and associated documentation, as well as BMPs developed and implemented, must be accomplished using good standard engineering practices.

b. The SWPPP must be retained onsite.

c. The SWPPP must be signed in accordance with the signatory requirements stated in the renewed MPDES permit Part IV.G.

d. The SWPPP must be made available upon request of DEQ staff, such as during inspections.

e. CFAC must develop and maintain the SWPPP in accordance with the "*Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity*," MPDES MTR000000, Part 3.1.

CFAC must notify DEQ after the SWPPP has been updated, by no later than January 28, 2015.

C. Toxicity Identification Evaluation / Toxicity Reduction Evaluation (TIE-TRE)

Should acute toxicity be detected in the required WET resample, a TIE-TRE shall be undertaken by the permittee to establish the cause of the toxicity, locate the source(s) of the toxicity, and develop control or treatment for the toxicity. Failure to initiate or conduct an adequate TIE-TRE, or delays in the conduct of such tests, shall not be considered a justification for noncompliance with the WET limits.

A TRE plan needs to be submitted to DEQ within 45 days after confirmation of the continuance of effluent toxicity (resample failure).

VIII. Nonsignificance Determination

The proposed effluent limits have been maintained below the nondegradation levels and do not constitute a new or increased source of pollutants pursuant to ARM 17.30.702(16). Therefore, a nonsignificance analysis is not required [ARM 17.30.705(1)].

IX. Other Information

On September 21, 2000, a US District Judge issued an order stating that until all necessary total maximum daily loads (TMDLs) under Section 303(d) of the Clean Water Act are established for a particular water quality limited segment, the State is not to issue any new permits or increase permitted discharges under the MPDES program. The order was issued under the lawsuit Friends of the Wild Swan vs. US EPA, *et al.*, CV 97-35-M-DWM, District of Montana, Missoula Division. The renewal of this permit does not conflict with Judge Molloy's order because the permit includes effluent limits that prohibit any increases above previously-allowed authorized amounts and it is therefore not a new or increased discharge.

X. Information Source

1. Montana Code Annotated Title 75, Chapter 5 - Water Quality
2. Administrative Rules of Montana Title 17 Chapter 30 - Water Quality
   Subchapter 2 - *Water Quality Permit and Application Fees*
   Subchapter 5 - *Mixing Zones in Surface and Ground Water*
   Subchapter 6 - *Montana Surface Water Quality Standards and Procedures*
   Subchapter 7- *Nondegradation of Water Quality*
   Subchapter 10 - *Montana Ground Water Pollution Control System*
   Subchapter 12 - *Montana Pollutant Discharge Elimination System (MPDES) Standards*
   Subchapter 13 - *Montana Pollutant Discharge Elimination System (MPDES) Permits*
3. Montana Department of Environmental Quality Circular DEQ-7, *Montana Numeric Water Quality Standards*, October 2012.
4. Montana Pollutant Discharge Elimination System (MPDES) Permit Number MT0030066
   a. Administrative Record.
   b. 2003 Renewal Application & 2013 Renewal Update
5. Clean Water Act § 303(d), 33 USC 1313(d) *Montana List of Waterbodies in Need of Total Maximum Daily Load Development*, 1996 and 2012.
6. Federal Water Pollution Control Act (Clean Water Act), 33 U.S.C. §§ 1251-1387, October 18, 1972, as amended 1973-1983, 1987, 1988, 1990-1992, 1994, 1995 and 1996.
7. US Code of Federal Regulations, 40 CFR Parts 122-125, 136, and 421
8. US Department of the Interior US Geological Survey, *Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002*, Scientific Investigations Report 2004-5266, 2004.
9. EPA *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-30-001, March 1991.
10. EPA NPDES *Permit Writers' Manual*, EPA 833-K-10-001, September, 2010.

Completed by: Christine Weaver, February 2014

Figure 1: CFAC Process Flow

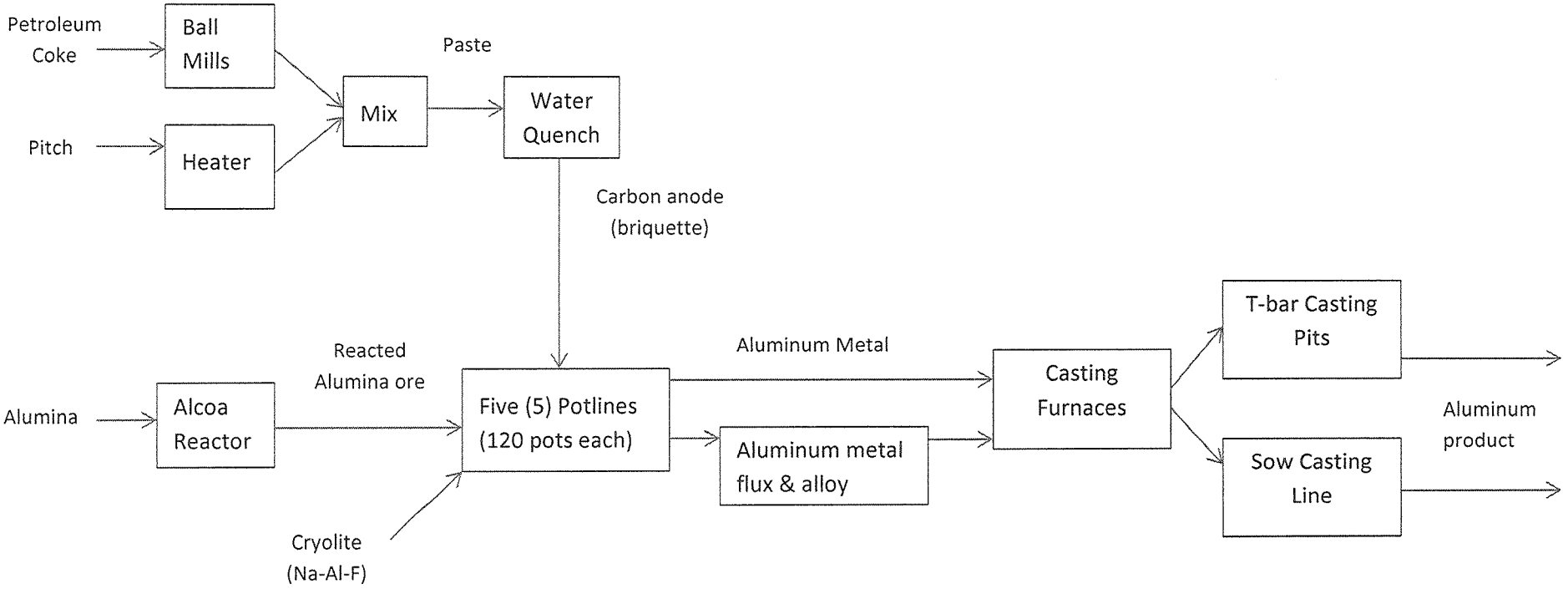
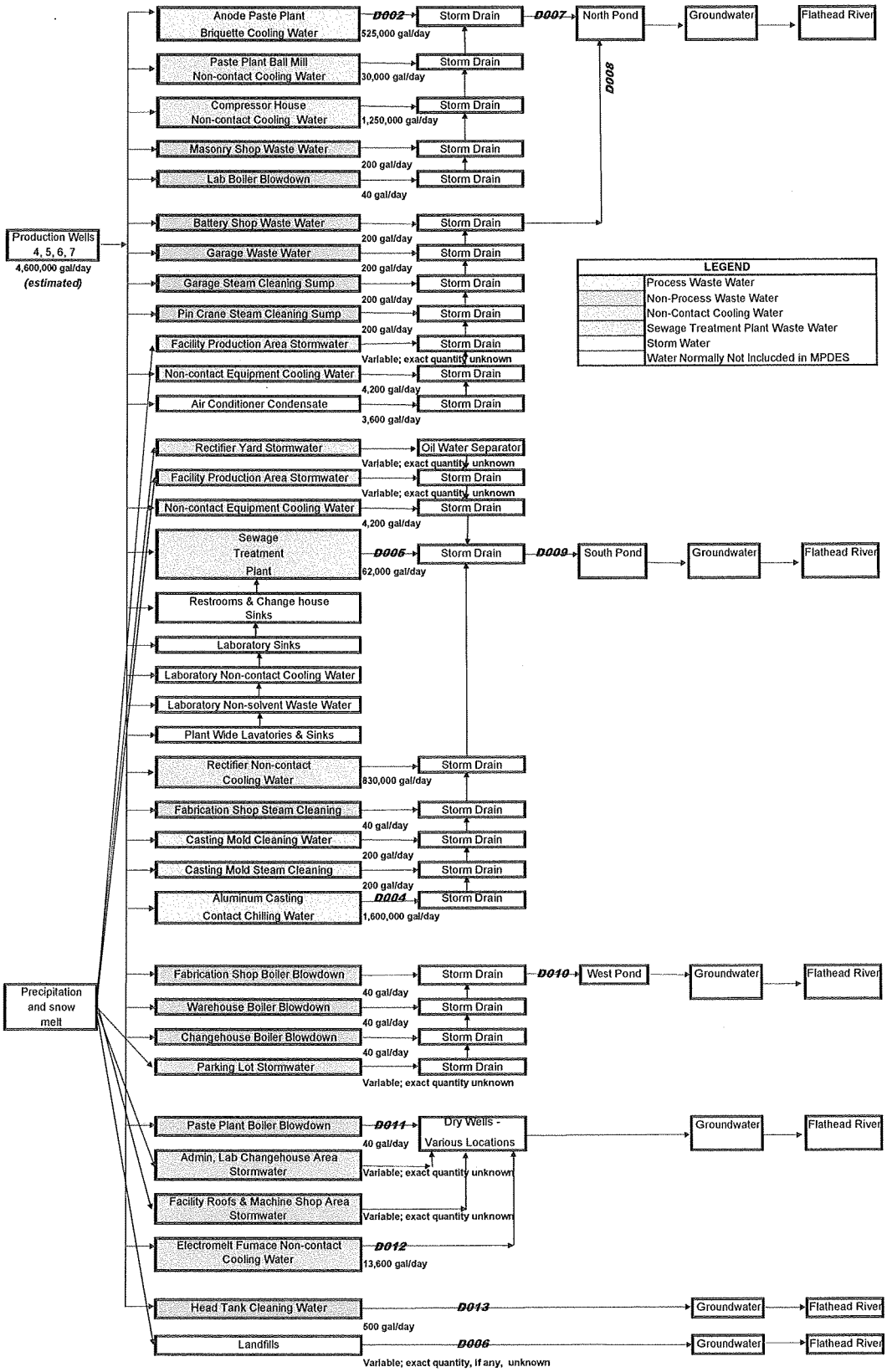


Figure 2 Columbia Falls Aluminum Company Line Drawing of Sources and Discharges



Note: Outfalls 006 and 012 are addressed in Form 2E and included here for completeness.

Figure 3

EXHIBIT 1
COLUMBIA FALLS ALUMINUM COMPANY
GROUNDWATER MONITORING LOCATIONS & PROPOSED MIXING ZONE BOUNDARIES

SCALE 1"=1200'

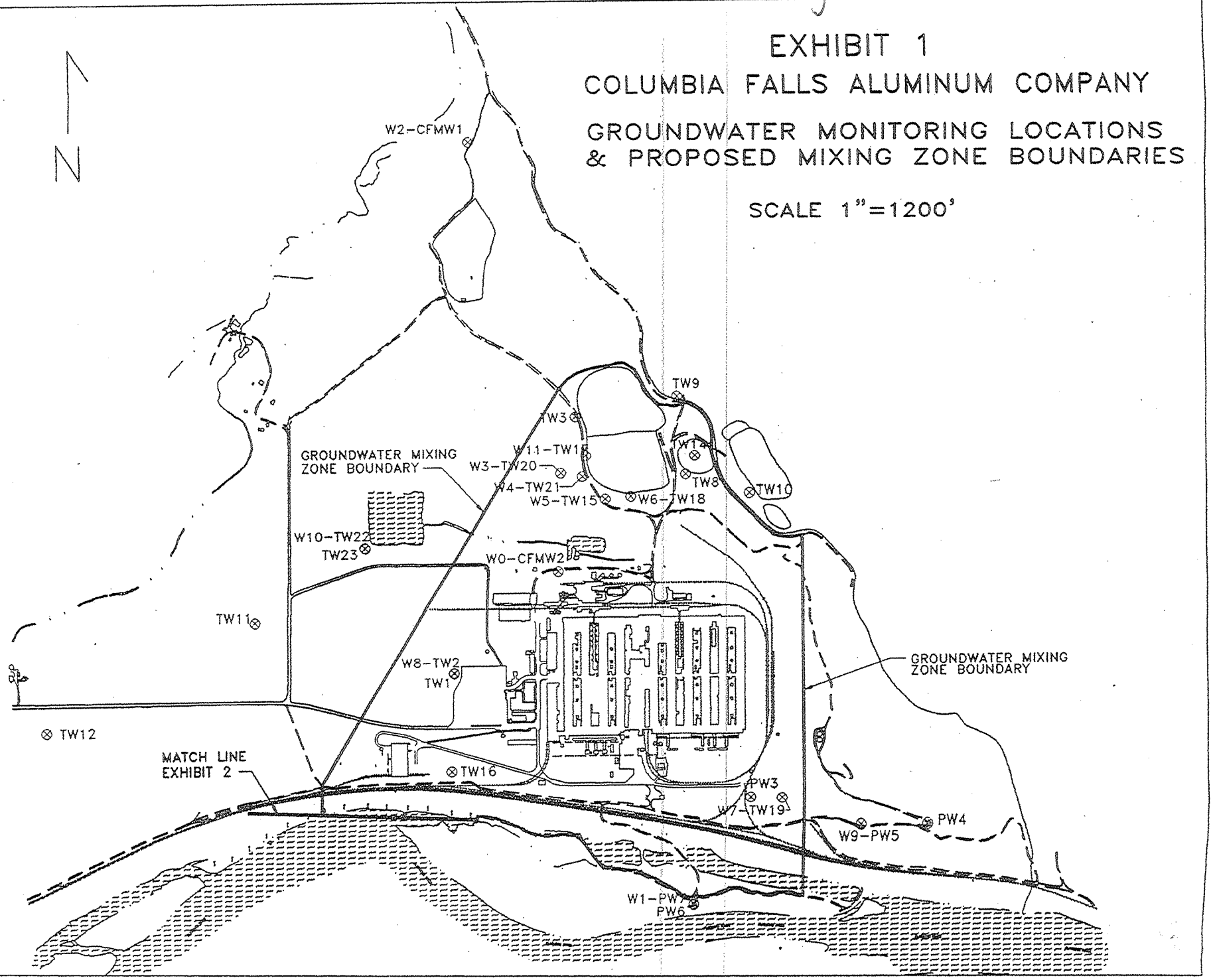
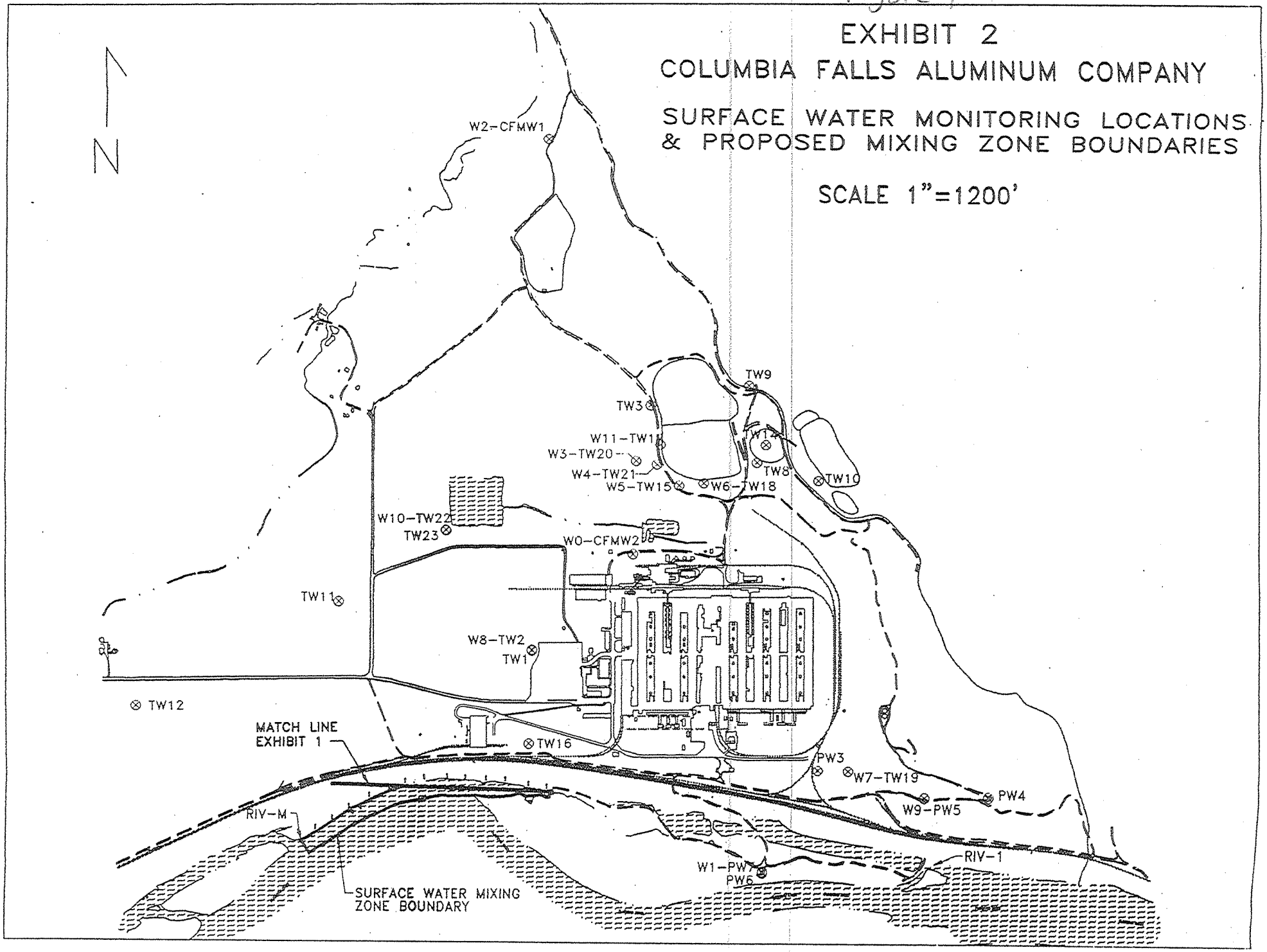


Figure 4

EXHIBIT 2
COLUMBIA FALLS ALUMINUM COMPANY
SURFACE WATER MONITORING LOCATIONS & PROPOSED MIXING ZONE BOUNDARIES

SCALE 1"=1200'



Attachment #1: CFAC - Effluent RP for Outfall 006

		Aluminum	Cyanide	Fluoride
Q_d	**discharge flow (mgd)**	**0.27**	**0.27**	**0.27**
	Max Observed Effluent Concentration (mg/L)	0.170	0.170	4.78
	TSD multiplier (95/95)	6.2	1.4	1.4
	Projected Max Conc @ Discharge (mg/L)	1.054	0.238	6.69
C_d	GW Dilution (mgd)	0	0	0
	GW Background Conc - 75th percentile (mg/L)	0	0.010	0.029
	Projected Max Conc @ Surface Water (mg/L)	1.054	0.238	6.69
	Projected Max Conc. (ug/L)	**1,054**	**238**	**6,692**
Q_s				
	7Q10 (cfs)	1,250	1,250	1,250
	Acute Dilution Allowed	0%	0%	0%
	Chronic Dilution Allowed	10%	10%	10%
	Acute stream flow dilution (mgd)	**0.0**	**0.0**	**0.0**
	Chronic stream flow dilution (mgd)	**81**	**81**	**81**
C_s	**Upstream Concentration - 75th percentile (ug/L)**	100	5.0	185
	Cr =(QdCd + QsCs) / (Qd + Qs)			
C_r	**Acute Concentration After Mixing (ug/L)**	**1,054**	**238.0**	**6,692**
	Chronic Concentration After Mixing (ug/L)	**103**	**5.8**	**207**
Circular DEQ-7 Stream Standard (ug/L)				
	Acute	750	22.0	na
	Chronic	87	5.2	na
	Human Health	na	140	4,000
Reasonable Potential (RP)? (if Cr > Standard)				
	Acute	**YES**	**YES**	NO
	Chronic	**YES**	**YES**	NO
	Human Health	NO	NO	NO

Attachment #2: CFAC - Effluent RP for Outfall 007 (Including consideration for GW Mixing)

		Aluminum	Antimony	Copper	Nickel	Benzo(a) pyrene	Cyanide	Fluoride
Q_d	**discharge flow (mgd)**	**1.81**	**1.81**	**1.81**	**1.81**	**1.81**	**1.81**	**1.81**
	Max Observed Effluent Concentration [(1)] (mg/L)	< 0.200	< 0.0030	0.0010	< 0.020	< 0.0001	0.027	0.75
	TSD multiplier (95/95)	1.4	1.9	6.2	1.4	6.2	6.2	2.0
	Projected Max Conc @ Discharge (mg/L)	< 0.280	< 0.0057	0.0062	< 0.028	< 0.001	0.167	1.50
C_d	GW Dilution (mgd)	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
	GW Background Conc - 75th percentile (mg/L)	0	0	0	0	0	0.0100	0.0290
	Projected Max Conc @ Surface Water (mg/L)	0.280	0.0057	0.0062	0.028	0.001	0.167	1.50
	Projected Max Conc. (ug/L)	**280**	**5.7**	**6.2**	**28**	**1**	**167**	**1,499**
Q_s								
	7Q10 (cfs)	1,250	1,250	1,250	1,250	1,250	1,250	1,250
	Acute Dilution Allowed	0%	0%	0%	0%	0%	0%	0%
	Chronic Dilution Allowed	10%	10%	10%	10%	10%	10%	10%
	Acute stream flow dilution (mgd)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
	Chronic stream flow dilution (mgd)	**81**	**81**	**81**	**81**	**81**	**81**	**81**
C_s	**Upstream Concentration - 75th percentile (ug/L)**	100	0.0	0.0	0.0	0.0	5.0	185
	Cr =(QdCd + QsCs) / (Qd + Qs)							
C_r	**Acute Concentration After Mixing (ug/L)**	**280**	**5.7**	**6.2**	**28**	**0.62**	**167**	**1,499**
	Chronic Concentration After Mixing (ug/L)	**104**	**0.1**	**0.1**	**0.61**	**0.014**	**8.5**	**214**
Circular DEQ-7 Stream Standard (ug/L)								
	Acute	750	na	14.0	469	na	22.0	na
	Chronic	87	na	9.3	52	na	5.2	na
	Human Health	na	5.6	1,300	100	0.038	140	4,000
Reasonable Potential (RP)? (if Cr > Standard)								
	Acute	NO	NO	NO	NO	NO	**YES**	NO
	Chronic	**YES**	NO	NO	NO	NO	**YES**	NO
	Human Health	NO	NO	NO	NO	NO	NO	NO

Footnote:
(1) Max observed effluent concentrations for Outfall 007 were estimates provided in application Form 2C (submitted August 8, 2013). The data for Benzo(a)pyrene on Form 2C, page V-6 was corrected for Outfall 007 to reflect the maximum observed monitoring data in Table 2C-3, of < 0.1 µg/L.

Attachment #3: CFAC - Effluent RP for Outfall 009 (Including consideration for GW Mixing)

		Aluminum	Antimony	Copper	Nickel	Benzo(a) pyrene	Cyanide	Fluoride	Ammonia
Q_d	**discharge flow (mgd)**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**
C_d	Max Observed Effluent Concentration (mg/L)	< 0.200	< 0.003	0.001	< 0.02	< 0.0001	< 0.027	3.20	5.0
	TSD multiplier (95/95)	1.34	1.9	6.2	1.4	6.2	6.2	1.4	6.2
	Projected Max Conc @ Discharge (mg/L)	< 0.27	< 0.0057	0.0062	< 0.028	< 0.001	< 0.167	4.48	31
	GW Dilution (mgd)	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
	GW Background Conc - 75th percentile (mg/L)	0	0	0	0	0	**0.29**	**0.01**	0
	Projected Max Conc @ Surface Water (mg/L)	0.249	0.0053	0.0058	0.026	0.001	0.176	4.165	28.8
	Projected Max Conc. (ug/L)	**249**	**5.3**	**5.8**	**26**	**1**	**176**	**4,165**	**28,813**
Q_s	7Q10 (cfs)	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250
	Acute Dilution Allowed	0%	0%	0%	0%	0%	0%	0%	**1%**
	Chronic Diluton Allowed	10%	10%	10%	10%	10%	10%	10%	10%
	Acute stream flow dilution (mgd)	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**8.1**
	Chronic stream flow dilution (mgd)	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**
C_s	**Upstream Concentration - 75th percentile (ug/L)**	100	0.0	0.0	0.0	0.0	5.0	185	0.02
	Cr =(QdCd + QsCs) / (Qd + Qs)								
C_r	**Acute Concentration After Mixing (ug/L)**	**249**	**5.3**	**5.8**	**26**	**0.58**	**176**	**4,165**	**6,809**
	Chronic Concentration After Mixing (ug/L)	**104**	**0.2**	**0.2**	**0.8**	**0.017**	**10**	**304**	**865**
Circular DEQ-7 Stream Standard (ug/L)									
	Acute	750	na	14.0	469	na	22.0	na	3,150
	Chronic	87	na	9.3	52	na	5.2	na	1,410
	Human Health	na	5.6	1,300	100	0.038	140	4,000	na
Reasonable Potential (RP)? (if Cr > Standard)									
	Acute	NO	NO	NO	NO	NO	**YES**	NO	**YES**
	Chronic	**YES**	NO	NO	NO	NO	**YES**	NO	NO
	Human Health	NO	NO	NO	NO	NO	NO	NO	NO

Footnote:

(1) Max observed effluent concentrations for Outfall 009 were estimates provided in application Form 2C (submitted August 8, 2013). The data for Benzo(a)pyrene on Form 2C, page V-6 was corrected for Outfall 009 to reflect the maximum observed monitoring data in Table 2C-3, of < 0.1 µg/L.

Attachment #4: CFAC - Effluent RP for Outfall 013
Head Tank Cleaning

		Chlorine
Q_d	**discharge flow (mgd)**	**0.0005**
C_d	Max Observed Effluent (mg/L)	30
	TSD multiplier (95/95)	6.2
	Projected Max Conc @ Discharge (mg/L)	186
	GW Dilution (mgd)	0.022
	GW Background Conc - 75th percentile (mg/L)	0.0
	Projected Max Conc @ Surface Water (mg/L)	4.09
	Projected Max Conc. (ug/L)	**4,091**
Q_s	7Q10 (cfs)	1250
	Acute Dilution Allowed	1%
	Chronic Dilution Allowed	10%
	Acute stream flow dilution (mgd)	**8.1**
	Chronic stream flow dilution (mgd)	**81**
C_s	**Upstream Concentration - 75th percentile (ug/L)**	0.0
C_r	**Acute Concentration After Mixing (ug/L)**	**0.25**
	Chronic Concentration After Mixing (ug/L)	**0.03**
Circular DEQ-7 Stream Standard (ug/L)		
	Acute	19
	Chronic	11
	Human Health	4000
Reasonable Potential (RP)?		
	Acute	NO
	Chronic	NO
	Human Health	NO

$$C_r = (Q_d C_d + Q_s C_s) / (Q_d + Q_s)$$

Attachment #5 - WQBEL Development

WLA = Cd = Cr + (Qs/Qd x (Cr-Cs))

	Standards (C_r)			C_s				Qs [2]			Q_d	Wasteload Allocations (C_d)			CV	Long Term Average					MDL Multiplier	AML Multiplier	MDL/AML Multiplier	WQBELs (µg/L)			
	Acute	Chronic	HH	Background Stream Conc [1]	7Q10	Acute Dilution	Chronic Dilution	*GW*	Acute	Chronic		Acute (WLA_a)	Chronic (WLA_c)	HH (WLA_{hh})		Acute Multiplier	Chronic Multiplier	Acute (LTAa)	Chronic (LTAc)	Minimum (LTAm)				Acute ALS	Chronic ALS	Human Health	Human Health
	µg/L	µg/L	µg/L	µg/L	cfs	%	%	*mgd*	mgd	mgd	mgd	µg/L	µg/L [3]	µg/L		99th	99th	µg/L	µg/L	µg/L	99th	95th		MDL	AML	MDL	AML
Outfall 006																											
Aluminum, Dissolved	750	87	NA	100	1250	0%	10%	*0*	0.0	80.8	0.27	750	**87**	NA	0.6	0.321	0.527	241	46	46	3.11	1.55	3.07	**143**	**71**	NA	NA
Cyanide	22	5.2	140	5	1250	0%	10%	*0*	0.0	80.8	0.27	22	65	40,534	0.6	0.321	0.527	7.1	34.3	7.1	3.11	1.55	2.01	**22.0**	**10.9**	140	70
Outfall 007																											
Aluminum, Dissolved	750	87	NA	100	1250	0%	10%	*0.0013*	0.0013	80.8	1.81	750	**87**	NA	2.0	0.117	0.204	88	18	18	8.55	2.78	3.07	**152**	**49**	NA	NA
Cyanide	22	5.2	140	5	1250	0%	10%	*0.0013*	0.0013	80.8	1.81	22	14	6,166	0.6	0.321	0.527	7.1	7.4	7.1	3.11	1.55	2.01	**22.0**	**11.0**	140	70
Outfall 009																											
Aluminum, Dissolved	750	87	NA	100	1250	0%	10%	*0.19*	0.19	81.0	2.5	799	**87**	NA	0.3	0.527	0.715	421	62	62	1.90	1.26	1.50	**118**	**78**	NA	NA
Cyanide	22	5.2	140	5	1250	0%	10%	*0.19*	0.19	81.0	2.5	23	12	4,513	0.6	0.321	0.527	7.5	6.2	6.2	3.11	1.55	2.01	**19.1**	**9.5**	140	70
Ammonia	3,150	1,410	NA	16	1,250	1%	10%	*0.19*	8.27	81.0	2.5	13,516	46,563	NA	0.6	0.321	0.527	4,339	24,539	4,339	3.11	1.55	2.01	**13,493**	**6,725**	NA	NA

Footnote:

(1) 75th Percentile of upstream concentration

(2) Qs = Upstream flow [7Q10 x % dilution allowed] + Ground Water Dilution

(3) If Cs > Cr, then WLA = Cr

Attachment 2

Discharge Monitoring Data Report for Permit No. MT0030066

NPDES ID	State Code	Region Code	Permit Name	Permittee Address	Facility Name	County	Major Minor Indicator	Permit Type	Permit Status	Federal Grant Flag	Primary SIC Code	Primary NAICS Code	State Waterbody	Latitude in Decimal Degrees	Longitude in Decimal Degrees	Mon. Period End Date	Limit Set	Param Cd - MLC - Season ID	Parameter	Mon. Loc. Desc.	Worst % exced.	Quantity 1	Quantity 2	Quantity Units	Concentration 1	Concentration 2	Concentration 3	Concentration Units	Effluent Vio. Exists	Non-Receipt Vio. Exists	DMR Received Date	Sea Type Code	Change of Limit Status Code	Limit Type Code
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A	00400-1-0	pH	Effluent Gross					NODI C		NODI C	SU	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A	00530-1-0	Solids, total suspended	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A	00951-1-0	Fluoride, total [as F]	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2014	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2014	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2014	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/14/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2014	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/5/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2014	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2014	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2014	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2014	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2013	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/5/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2013	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/8/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2013	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2013	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2013	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2013	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2013	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2013	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/13/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2013	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2013	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/11/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2013	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/7/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2012	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2012	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/5/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2012	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/4/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2012	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2012	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/16/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2012	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2012	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/8/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2012	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2012	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2012	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2011	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2011	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2011	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2011	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2011	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2011	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2011	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2011	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/5/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2011	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/5/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2011	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2011	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/11/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2010	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2010	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/4/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2010	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2010	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2010	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2010	002-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/8/2010		BAS	ENF

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MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2005	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.007	.015	kg/d		.02	.02	mg/L	N	N	10/28/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2005	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2005	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.064	.18	kg/d		.21	.21	mg/L	N	N	8/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2005	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.032	.064	kg/d		.14	.14	mg/L	N	N	7/12/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2005	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.065	.201	kg/d		.19	.19	mg/L	N	N	6/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2005	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.039	.083	kg/d		.16	.16	mg/L	N	N	5/25/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2005	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.013	.046	kg/d		.06	.06	mg/L	N	N	4/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2005	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.017	.083	kg/d		.11	.11	mg/L	N	N	3/3/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2005	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.026	.088	kg/d		.14	.14	mg/L	N	N	3/2/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.007	.02	kg/d		.03	.03	mg/L	N	N	1/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2004	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.029	.073	kg/d		.08	.08	mg/L	N	N	12/8/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2004	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.026	.089	kg/d		.11	.11	mg/L	N	N	11/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2004	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.027	.068	kg/d		.09	.09	mg/L	N	N	10/13/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2004	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.059	.152	kg/d		.22	.22	mg/L	N	N	9/15/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2004	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.097	.272	kg/d		.28	.28	mg/L	N	N	8/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2004	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.032	.095	kg/d		.18	.18	mg/L	N	N	7/9/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2004	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.05	.212	kg/d		.23	.23	mg/L	N	N	6/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2004	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.072	.153	kg/d		.23	.23	mg/L	N	N	5/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2004	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.027	.077	kg/d		.12	.12	mg/L	N	N	4/5/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2004	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.04	.088	kg/d		.28	.28	mg/L	N	N	3/11/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2004	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.113	.234	kg/d		.26	.26	mg/L	N	N	2/19/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.076	.295	kg/d		.34	.34	mg/L	N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2003	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.147	.315	kg/d		.32	.32	mg/L	N	N	12/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2003	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.03	.093	kg/d		.17	.17	mg/L	N	N	11/19/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2003	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.098	.21	kg/d		.22	.22	mg/L	N	N	10/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2003	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.006	.044	kg/d		.08	.08	mg/L	N	N	9/23/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2003	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.244	.473	kg/d		.64	.64	mg/L	N	N	8/25/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2003	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.042	.042	kg/d		.07	.07	mg/L	N	N	7/11/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2003	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.38	.38	kg/d		.39	.39	mg/L	N	N	6/4/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2003	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.153	.153	kg/d		.15	.15	mg/L	N	N	5/27/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2003	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.338	.338	kg/d		.32	.32	mg/L	N	N	4/17/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2003	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.107	.107	kg/d		.1	.1	mg/L	N	N	3/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2003	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.186	.186	kg/d		.16	.16	mg/L	N	N	2/13/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.24	.24	kg/d		.22	.22	mg/L	N	N	1/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2002	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.628	.628	kg/d		.36	.36	mg/L	N	N	12/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2002	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.269	.269	kg/d		.25	.25	mg/L	N	N	11/8/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2002	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.101	.101	kg/d		.1	.1	mg/L	N	N	10/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2002	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.305	.305	kg/d		.31	.31	mg/L	N	N	9/13/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2002	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.307	.307	kg/d		.33	.33	mg/L	N	N	8/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2002	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.185	.185	kg/d		.18	.18	mg/L	N	N	7/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2002	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.046	.046	kg/d		.1	.1	mg/L	N	N	6/27/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2002	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2002	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/7/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2002	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2002	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2001	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2001	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/2/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2001	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/9/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2001	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/18/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2001	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/9/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2001	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/6/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2001	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/19/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2001	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/10/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2001	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		1.24	1.24	kg/d		1.31	1.31	mg/L	N	N	4/25/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2001	002-A	00951-2-0	Fluoride, total (as F)	Effluent Net		.791	.791	kg/d		.46	.46	mg/L	N	N	3/28/2001		BAS	ENF

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MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2007	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/21/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2007	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/25/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2007	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/13/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2007	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/27/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2007	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/16/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2006	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/17/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2006	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/20/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2006	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/21/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2006	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/17/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2006	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/8/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2006	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/17/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2006	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2006	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/21/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2006	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/23/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2006	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/19/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2006	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/3/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2006	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/22/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2005	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2005	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/14/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2005	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/22/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2005	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/28/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2005	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2005	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2005	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/12/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2005	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2005	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/25/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2005	002-A	01074-2-0	Nickel, total recoverable	Effluent Net	.001	0	0	kg/d		0	0	mg/L	N	N	4/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2005	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/3/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2005	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/2/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2004	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/8/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2004	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2004	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/13/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2004	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/15/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2004	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2004	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/9/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2004	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2004	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2004	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/5/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2004	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/11/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2004	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/19/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2003	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2003	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/19/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2003	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2003	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/23/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2003	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/25/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2003	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/11/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2003	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/4/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2003	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/27/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2003	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/17/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2003	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2003	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/13/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2002	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2002	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/8/2002		BAS	ENF

MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2002	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2002	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/13/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2002	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2002	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2002	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.0005	.0005	kg/d		.001	.001	mg/L	N	N	6/27/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2002	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2002	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/30/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2002	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2002	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2001	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2001	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/2/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2001	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/9/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2001	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/18/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2001	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/9/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2001	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/6/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2001	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/19/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2001	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/10/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2001	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.001	.001	kg/d		.001	.001	mg/L	N	N	4/25/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2001	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/28/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2001	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.001	.001	kg/d		.001	.001	mg/L	N	N	2/16/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2000	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		< .002	< .002	kg/d		< .004	< .004	mg/L	N	N	1/23/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2000	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.002	.002	kg/d		.001	.001	mg/L	N	N	12/4/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2000	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.002	.002	kg/d		.001	.001	mg/L	N	N	11/3/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2000	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.003	.003	kg/d		.001	.001	mg/L	N	N	10/13/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2000	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.002	.002	kg/d		.001	.001	mg/L	N	N	9/28/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2000	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.002	.002	kg/d		.001	.001	mg/L	N	N	8/28/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2000	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/28/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2000	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/12/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2000	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/5/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2000	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/13/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2000	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	Y	3/28/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2000	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		< .004	< .004	mg/L	N	N	2/24/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/1999	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.003	.003	kg/d		.002	.002	mg/L	N	N	1/18/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/1999	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.004	.004	kg/d		.002	.002	mg/L	N	N	12/27/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/1999	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.003	.003	kg/d		.002	.002	mg/L	N	N	11/24/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/1999	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.001	.001	kg/d		.002	.002	mg/L	N	N	10/22/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/1999	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.004	.004	kg/d		.002	.002	mg/L	N	N	9/22/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/1999	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		.003	.003	kg/d		.002	.002	mg/L	N	N	8/26/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/1999	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/29/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/1999	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/17/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/1999	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/20/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/1999	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/21/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/1999	002-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/18/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A	01104-1-0	Aluminum, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2014	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2014	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2014	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/14/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2014	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/5/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2014	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2014	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2014	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2014	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2013	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/5/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2013	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/8/2013		BAS	ENF

MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2013	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2013	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2013	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2013	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2013	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2013	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/13/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2013	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2013	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/11/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2013	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/7/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2012	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2012	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/5/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2012	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/4/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2012	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2012	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/16/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2012	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2012	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/8/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2012	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2012	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2012	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2011	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2011	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2011	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2011	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2011	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2011	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2011	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2011	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/5/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2011	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/5/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2011	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2011	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/11/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2010	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2010	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/4/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2010	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2010	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2010	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2010	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/8/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2010	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/7/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2010	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/7/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2010	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2010	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/8/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2010	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/9/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2009	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/8/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2009	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/19/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2009	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/22/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2009	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/21/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2009	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/6/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2009	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/17/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2009	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/12/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2009	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/14/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2009	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/15/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2009	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/17/2009		BAS	ENF

MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2009	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/19/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2008	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/16/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2008	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/19/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2008	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/24/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2008	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/15/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2008	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/4/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2008	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/19/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2008	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/10/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2008	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/20/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2008	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/8/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2008	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/8/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2008	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/20/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2008	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/28/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2007	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/28/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2007	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/26/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2007	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/27/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2007	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/10/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2007	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	Y	8/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2007	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/23/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2007	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/26/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2007	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/21/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2007	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/25/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2007	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/13/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2007	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/27/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2007	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/16/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2006	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/17/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2006	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	.036	.082	.1	kg/d		.1	.1	mg/L	N	N	12/20/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2006	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/21/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2006	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/17/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2006	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/8/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2006	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/17/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2006	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2006	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/21/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2006	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/23/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2006	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/19/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2006	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/3/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2006	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/22/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2005	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2005	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/14/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2005	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/22/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2005	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/28/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2005	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2005	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2005	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/12/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2005	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2005	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/25/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2005	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2005	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/3/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2005	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/2/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2004	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/8/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2004	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2004	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/13/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2004	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/15/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2004	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2004	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/9/2004		BAS	ENF

MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2004	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2004	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2004	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/5/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2004	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/11/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2004	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/19/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2003	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2003	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/19/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2003	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2003	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/23/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2003	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/25/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2003	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/11/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2003	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/4/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2003	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/27/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2003	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/17/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2003	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2003	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/13/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2002	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2002	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/8/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2002	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2002	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/13/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2002	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2002	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	.002	.002	.002	kg/d		.002	.002	mg/L	N	N	7/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2002	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/27/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2002	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	NODI C	NODI C		kg/d		NODI C	NODI C	mg/L	N	N	5/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2002	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	NODI C	NODI C		kg/d		NODI C	NODI C	mg/L	N	N	4/30/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2002	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	NODI C	NODI C		kg/d		NODI C	NODI C	mg/L	N	N	3/7/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2002	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	NODI C	NODI C		kg/d		NODI C	NODI C	mg/L	N	N	2/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	NODI C	NODI C		kg/d		NODI C	NODI C	mg/L	N	N	1/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2001	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	NODI C	NODI C		kg/d		NODI C	NODI C	mg/L	N	N	12/6/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2001	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	NODI C	NODI C		kg/d		NODI C	NODI C	mg/L	N	N	11/2/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2001	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	NODI C	NODI C		kg/d		NODI C	NODI C	mg/L	N	N	10/9/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2001	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	NODI C	NODI C		kg/d		NODI C	NODI C	mg/L	N	N	9/18/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2001	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	NODI C	NODI C		kg/d		NODI C	NODI C	mg/L	N	N	8/9/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2001	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	NODI C	NODI C		kg/d		NODI C	NODI C	mg/L	N	N	7/6/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2001	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	NODI C	NODI C		kg/d		NODI C	NODI C	mg/L	N	N	6/19/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2001	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	NODI C	NODI C		kg/d		NODI C	NODI C	mg/L	N	N	5/10/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2001	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	4/25/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2001	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	3/29/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2001	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	2/16/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2000	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	1/23/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2000	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	12/4/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2000	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	11/3/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2000	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	10/13/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2000	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	9/28/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2000	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	8/28/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2000	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	7/28/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2000	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	6/12/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2000	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	5/5/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2000	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	4/13/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2000	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0	0	kg/d		0	0	mg/L	N	Y	3/29/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2000	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	2/24/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/1999	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	1/18/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/1999	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	12/27/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/1999	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net	0	0		kg/d		0	0	mg/L	N	N	11/24/1999		BAS	ENF

MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/1999	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/22/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/1999	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/22/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/1999	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/26/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/1999	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.016	.016	kg/d		.009	.009	mg/L	N	N	7/29/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/1999	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.023	.023	kg/d		.014	.014	mg/L	N	N	6/17/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/1999	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.024	.024	kg/d		.012	.012	mg/L	N	N	5/20/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/1999	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.009	.009	kg/d		.005	.005	mg/L	N	N	4/21/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/1999	002-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.021	.021	kg/d		.012	.012	mg/L	N	N	3/18/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A	01268-1-0	Antimony, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/11/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2008	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/16/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2007	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/29/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2006	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		< .003	< .003	kg/d				mg/L	N	N	1/17/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2005	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2000	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/23/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/1999	002-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/18/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2014	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2014	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2014	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/14/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2014	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/5/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2014	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2014	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2014	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2014	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2013	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/5/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2013	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/8/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2013	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2013	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2013	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2013	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2013	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2013	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/13/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2013	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2013	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/11/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2013	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/7/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2012	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2012	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/5/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2012	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/4/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2012	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2012	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/16/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2012	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2012	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/8/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2012	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2012	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2012		BAS	ENF

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MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2007	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	6/21/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2007	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	5/25/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2007	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	4/13/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2007	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	3/27/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2007	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	2/16/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2006	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		.0001	.0001	kg/d		< .00011	< .00011	mg/L	N	N	1/17/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2006	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	12/20/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2006	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	11/21/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2006	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	10/17/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2006	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	9/8/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2006	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		< .00004	.0004	kg/d		< .0001	< .0001	mg/L	N	N	8/17/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2006	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	7/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2006	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	6/21/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2006	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	5/23/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2006	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	4/19/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2006	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	3/3/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2006	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	2/22/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2005	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	1/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2005	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	12/14/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2005	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	11/22/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2005	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	10/28/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2005	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	9/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2005	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .001	mg/L	N	N	8/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2005	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	7/12/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2005	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	6/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2005	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	5/25/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2005	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	4/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2005	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	3/3/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2005	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	3/2/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	1/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2004	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	12/8/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2004	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	11/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2004	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	10/13/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2004	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	9/15/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2004	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	8/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2004	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	7/9/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2004	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	6/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2004	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	5/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2004	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	4/5/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2004	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	3/11/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2004	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	2/19/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2003	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	12/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2003	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	11/19/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2003	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	10/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2003	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	9/23/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2003	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	8/25/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2003	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	7/11/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2003	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	6/4/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2003	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	5/27/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2003	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	4/17/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2003	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	3/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2003	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	2/13/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	1/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2002	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	12/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2002	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	11/8/2002		BAS	ENF

MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2002	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	10/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2002	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	9/13/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2002	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	8/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2002	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	7/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2002	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .00002	< .00002	mg/L	N	N	6/27/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2002	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2002	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/30/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2002	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2002	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2001	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2001	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/2/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2001	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/9/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2001	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/18/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2001	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/9/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2001	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/6/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2001	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/19/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2001	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/10/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2001	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	4/25/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2001	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	3/28/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2001	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< 0	< 0	mg/L	N	N	2/16/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2000	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	1/23/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2000	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	12/4/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2000	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	11/3/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2000	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	10/13/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2000	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	9/28/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2000	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	8/28/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2000	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	7/28/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2000	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	6/12/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2000	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	5/5/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2000	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	4/13/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2000	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	Y	3/28/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2000	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	2/24/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/1999	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	1/18/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/1999	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	12/27/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/1999	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	11/24/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/1999	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	10/22/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/1999	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	9/22/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/1999	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	8/26/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/1999	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	7/29/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/1999	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	6/17/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/1999	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	5/20/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/1999	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	4/21/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/1999	002-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	3/18/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2014	002-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2014	002-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2014	002-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	7/14/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2014	002-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	6/5/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2014	002-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	5/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2014	002-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	4/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2014	002-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	3/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2014	002-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	2/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	002-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2013	002-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	12/5/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2013	002-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	11/8/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2013	002-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	10/9/2013		BAS	ENF

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MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A4	00400-1-0	pH	Effluent Gross				NODI C		NODI C	SU	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A4	00530-1-0	Solids, total suspended	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A4	00951-1-0	Fluoride, total [as F]	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A4	01074-1-0	Nickel, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A4	01104-1-0	Aluminum, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A4	01268-1-0	Antimony, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A4	34247-1-0	Benzo[a]pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	002-A4	81381-1-0	Duration of discharge	Effluent Gross		NODI C		d					N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	002-Q	01257-1-0	Cyanide [A]	Effluent Gross						NODI C	NODI C	ug/L	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A	00400-1-0	pH	Effluent Gross					NODI C		NODI C	SU	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A	00530-1-0	Solids, total suspended	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A	00552-1-0	Oil and grease, hexane extr method	Effluent Gross						NODI C	NODI C	mg/L	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A	00951-1-0	Fluoride, total [as F]	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2014	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2014	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2014	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/14/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2014	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/5/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2014	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2014	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2014	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2014	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2013	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/5/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2013	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/8/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2013	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2013	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2013	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2013	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2013	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2013	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/13/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2013	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2013	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/11/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2013	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/7/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2012	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2012	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/5/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2012	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/4/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2012	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2012	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/16/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2012	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2012	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/8/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2012	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2012	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2012	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2011	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2011	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2011	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2011	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2011	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2011	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2011	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2011	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/5/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2011	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/5/2011		BAS	ENF

MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2011	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2011	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/11/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2010	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2010	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/4/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2010	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2010	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2010	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2010	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/8/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2010	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/7/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2010	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/7/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2010	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2010	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/8/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2010	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/9/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2009	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/8/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2009	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.012	.012	kg/d		.23	.23	mg/L	N	N	11/19/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2009	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.009	.009	kg/d		.17	.17	mg/L	N	N	10/22/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2009	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.008	.008	kg/d		.19	.19	mg/L	N	N	9/21/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2009	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.028	.028	kg/d		.64	.64	mg/L	N	N	8/6/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2009	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.031	.031	kg/d		.7	.7	mg/L	N	N	7/17/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2009	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.028	.028	kg/d		.7	.7	mg/L	N	N	6/12/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2009	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.079	.079	kg/d		.57	.57	mg/L	N	N	5/14/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2009	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.109	.109	kg/d		.8	.8	mg/L	N	N	4/15/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2009	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.114	.114	kg/d		.9	.9	mg/L	N	N	3/17/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2009	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.112	.112	kg/d		.92	.92	mg/L	N	N	2/19/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2008	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.318	.318	kg/d		2.1	2.1	mg/L	N	N	1/16/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2008	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.211	.211	kg/d		1.53	1.53	mg/L	N	N	12/19/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2008	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.226	.226	kg/d		1.36	1.36	mg/L	N	N	11/24/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2008	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.44	.44	kg/d		3.11	3.11	mg/L	N	N	10/15/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2008	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		2.438	2.438	kg/d		2.13	2.13	mg/L	N	N	9/4/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2008	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.758	.758	kg/d		.45	.45	mg/L	N	N	8/19/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2008	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/10/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2008	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/20/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2008	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/8/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2008	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/8/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2008	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.081	.081	kg/d		.045	.045	mg/L	N	N	3/20/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2008	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.166	.166	kg/d		.094	.094	mg/L	N	N	2/29/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2007	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.894	.894	kg/d		.423	.423	mg/L	N	N	1/28/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2007	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.808	.808	kg/d		.61	.61	mg/L	N	N	12/26/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2007	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		2.333	2.333	kg/d		.92	.92	mg/L	N	N	11/27/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2007	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.856	.856	kg/d		.63	.63	mg/L	N	N	10/10/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2007	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.96	.96	kg/d		.4	.4	mg/L	N	Y	8/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2007	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		1.179	1.179	kg/d		.59	.59	mg/L	N	N	8/22/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2007	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.341	.341	kg/d		.25	.25	mg/L	N	N	7/26/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2007	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.058	.058	kg/d		.03	.03	mg/L	N	N	6/21/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2007	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/25/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2007	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/13/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2007	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/27/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2007	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/16/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2006	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.264	.264	kg/d		.26	.26	mg/L	N	N	1/17/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2006	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.865	.865	kg/d		.38	.38	mg/L	N	N	12/20/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2006	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.483	.483	kg/d		.29	.29	mg/L	N	N	11/21/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2006	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.414	.414	kg/d		.24	.24	mg/L	N	N	10/17/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2006	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.53	.53	kg/d		.29	.29	mg/L	N	N	9/8/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2006	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		1.198	1.198	kg/d		.76	.76	mg/L	N	N	8/17/2006		BAS	ENF

MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2006	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.588	.588	kg/d		.56	.56	mg/L	N	N	7/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2006	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.718	.718	kg/d		.53	.53	mg/L	N	N	6/21/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2006	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.166	.166	kg/d		.13	.13	mg/L	N	N	5/23/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2006	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.309	.309	kg/d		.19	.19	mg/L	N	N	4/19/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2006	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.753	.753	kg/d		.58	.58	mg/L	N	N	3/3/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2006	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.44	.44	kg/d		.26	.26	mg/L	N	N	2/22/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2005	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.298	.298	kg/d		.14	.14	mg/L	N	N	1/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2005	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.213	.213	kg/d		.17	.17	mg/L	N	N	12/14/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2005	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.201	.201	kg/d		.17	.17	mg/L	N	N	11/22/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2005	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.111	.111	kg/d		.15	.15	mg/L	N	N	10/28/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2005	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2005	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.168	.168	kg/d		.16	.16	mg/L	N	N	8/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2005	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.216	.216	kg/d		.19	.19	mg/L	N	N	7/12/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2005	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.273	.273	kg/d		.24	.24	mg/L	N	N	6/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2005	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.101	.101	kg/d		.12	.12	mg/L	N	N	5/25/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2005	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.162	.162	kg/d		.16	.16	mg/L	N	N	4/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2005	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.119	.119	kg/d		.12	.12	mg/L	N	N	3/3/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2005	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.217	.217	kg/d		.11	.11	mg/L	N	N	3/2/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2004	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.017	.017	kg/d		.02	.02	mg/L	N	N	12/9/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2004	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.111	.111	kg/d		.11	.11	mg/L	N	N	11/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2004	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.078	.078	kg/d		.08	.08	mg/L	N	N	10/13/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2004	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.029	.029	kg/d		.03	.03	mg/L	N	N	9/15/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2004	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2004	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.12	.12	kg/d		.12	.12	mg/L	N	N	7/9/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2004	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.212	.212	kg/d		.13	.13	mg/L	N	N	6/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2004	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.31	.31	kg/d		.3	.3	mg/L	N	N	5/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2004	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.009	.009	kg/d		.01	.01	mg/L	N	N	4/5/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2004	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.874	.874	kg/d		.4	.4	mg/L	N	N	3/11/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2004	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.495	.495	kg/d		.2	.2	mg/L	N	N	2/19/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.732	.732	kg/d		.37	.37	mg/L	N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2003	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.653	.653	kg/d		.33	.33	mg/L	N	N	12/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2003	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.196	.196	kg/d		.22	.22	mg/L	N	N	11/19/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2003	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.214	.214	kg/d		.24	.24	mg/L	N	N	10/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2003	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.145	.145	kg/d		.19	.19	mg/L	N	N	9/23/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2003	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.335	.335	kg/d		.4	.4	mg/L	N	N	8/25/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2003	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.164	.164	kg/d		.11	.11	mg/L	N	N	7/11/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2003	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.316	.316	kg/d		.26	.26	mg/L	N	N	6/4/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2003	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.173	.173	kg/d		.09	.09	mg/L	N	N	5/27/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2003	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.687	.687	kg/d		.25	.25	mg/L	N	N	4/17/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2003	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.311	.311	kg/d		.11	.11	mg/L	N	N	3/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2003	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.552	.552	kg/d		.22	.22	mg/L	N	N	2/13/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.834	.834	kg/d		.24	.24	mg/L	N	N	1/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2002	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		1.159	1.159	kg/d		.38	.38	mg/L	N	N	12/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2002	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.557	.557	kg/d		.22	.22	mg/L	N	N	11/8/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2002	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.153	.153	kg/d		.06	.06	mg/L	N	N	10/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2002	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.779	.779	kg/d		.33	.33	mg/L	N	N	9/13/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2002	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.874	.874	kg/d		.33	.33	mg/L	N	N	8/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2002	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.112	.112	kg/d		.09	.09	mg/L	N	N	7/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2002	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.258	.258	kg/d		.28	.28	mg/L	N	N	6/27/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2002	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.885	.885	kg/d		.93	.93	mg/L	N	N	5/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2002	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		.291	.291	kg/d		.282	.282	mg/L	N	N	4/30/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2002	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2002	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/18/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2001	004-A	00951-2-0	Fluoride, total [as F]	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2001		BAS	ENF

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MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2012	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/5/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2012	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/4/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2012	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2012	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/16/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2012	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2012	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/8/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2012	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2012	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2012	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2011	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2011	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2011	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2011	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2011	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2011	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2011	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2011	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/5/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2011	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/5/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2011	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2011	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/11/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2010	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2010	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/4/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2010	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2010	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	9/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2010	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2010	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/8/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2010	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/7/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2010	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/7/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2010	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	4/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2010	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/8/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2010	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/9/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2009	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/8/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2009	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/19/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2009	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/22/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2009	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/21/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2009	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/6/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2009	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/17/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2009	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/12/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2009	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/14/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2009	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/15/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2009	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/17/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2009	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/19/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2008	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/16/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2008	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/19/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2008	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/24/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2008	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/15/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2008	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/4/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2008	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/19/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2008	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/10/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2008	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/20/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2008	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/8/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2008	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/8/2008		BAS	ENF

MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2008	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/20/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2008	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/28/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2007	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/28/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2007	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/26/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2007	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/27/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2007	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/10/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2007	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	Y	8/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2007	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/22/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2007	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/26/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2007	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/21/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2007	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/25/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2007	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/13/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2007	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/27/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2007	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/16/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2006	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/17/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2006	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/20/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2006	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/21/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2006	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/17/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2006	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/8/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2006	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/17/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2006	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2006	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/21/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2006	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/23/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2006	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/19/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2006	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/3/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2006	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/22/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2005	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2005	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/14/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2005	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/22/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2005	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/28/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2005	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2005	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2005	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/12/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2005	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2005	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/25/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2005	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2005	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/3/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2005	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/2/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2004	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/9/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2004	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2004	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/13/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2004	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/15/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2004	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2004	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/9/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2004	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2004	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2004	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/5/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2004	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/11/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2004	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/19/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2003	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2003	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/19/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2003	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2003	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/23/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2003	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/25/2003		BAS	ENF

MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2003	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/11/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2003	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/4/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2003	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/27/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2003	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/17/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2003	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2003	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/13/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2002	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2002	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/8/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2002	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2002	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/13/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2002	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2002	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2002	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/27/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2002	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2002	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/30/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2002	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2002	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2001	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2001	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/2/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2001	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/9/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2001	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		.004	.004	kg/d		.001	.001	mg/L	N	N	4/11/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2001	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/9/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2001	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/6/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2001	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/19/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2001	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/10/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2001	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		.001	.001	mg/L	N	N	4/25/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2001	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/28/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2001	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		.003	.003	kg/d		.001	.001	mg/L	N	N	2/16/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2000	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		< .005	< .005	kg/d		< .004	< .004	mg/L	N	N	1/23/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2000	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		.006	.006	kg/d		.001	.001	mg/L	N	N	12/4/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2000	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		.004	.004	kg/d		.001	.001	mg/L	N	N	11/3/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2000	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		.004	.004	kg/d		.001	.001	mg/L	N	N	10/13/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2000	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		.004	.004	kg/d		.001	.001	mg/L	N	Y	4/11/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2000	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		.005	.005	kg/d		.001	.001	mg/L	N	N	8/28/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2000	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/28/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2000	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/12/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2000	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/5/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2000	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/13/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2000	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	Y	3/28/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2000	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		< .004	< .004	mg/L	N	N	2/24/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/1999	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		.009	.009	kg/d		.002	.002	mg/L	N	N	1/18/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/1999	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		.008	.008	kg/d		.002	.002	mg/L	N	N	12/27/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/1999	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		.006	.006	kg/d		.002	.002	mg/L	N	N	11/24/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/1999	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		.004	.004	kg/d		.002	.002	mg/L	N	N	10/22/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/1999	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		.007	.007	kg/d		.002	.002	mg/L	N	N	9/22/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/1999	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		.007	.007	kg/d		.002	.002	mg/L	N	N	8/26/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/1999	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/29/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/1999	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/17/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/1999	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/20/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/1999	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/21/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/1999	004-A	01074-2-0	Nickel, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/18/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A	01104-1-0	Aluminum, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2014	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2014	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF

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MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2009	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.004	.004	kg/d		.078	.078	mg/L	N	N	11/19/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2009	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.009	.009	kg/d		.17	.17	mg/L	N	N	10/22/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2009	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.003	.003	kg/d		.066	.066	mg/L	N	N	9/21/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2009	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.005	.005	kg/d		.12	.12	mg/L	N	N	8/6/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2009	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.007	.007	kg/d		.157	.157	mg/L	N	N	7/17/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2009	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.005	.005	kg/d		.119	.119	mg/L	N	N	6/12/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2009	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/14/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2009	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/15/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2009	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.019	.019	kg/d		.15	.15	mg/L	N	N	3/17/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2009	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.009	.009	kg/d		.07	.07	mg/L	N	N	2/19/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2008	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.017	.017	kg/d		.112	.112	mg/L	N	N	1/16/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2008	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/19/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2008	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.017	.017	kg/d		.1	.1	mg/L	N	N	11/24/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2008	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/15/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2008	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.114	.114	kg/d		.1	.1	mg/L	N	N	9/4/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2008	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.298	.298	kg/d		.177	.177	mg/L	N	N	8/19/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2008	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/10/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2008	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/20/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2008	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.211	.211	kg/d		.1	.1	mg/L	N	N	5/8/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2008	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/8/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2008	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.172	.172	kg/d		.096	.096	mg/L	N	N	3/20/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2008	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.177	.177	kg/d		.1	.1	mg/L	N	N	2/28/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2007	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/28/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2007	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/26/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2007	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.254	.254	kg/d		.1	.1	mg/L	N	N	11/27/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2007	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/10/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2007	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	Y	8/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2007	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.012	.012	kg/d		.006	.006	mg/L	N	N	8/22/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2007	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.136	.136	kg/d		.1	.1	mg/L	N	N	7/26/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2007	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.019	.019	kg/d		.01	.01	mg/L	N	N	6/21/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2007	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/25/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2007	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/13/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2007	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/27/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2007	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/16/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2006	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/17/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2006	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.228	.228	kg/d		.1	.1	mg/L	N	N	12/20/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2006	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.167	.167	kg/d		.1	.1	mg/L	N	N	11/21/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2006	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.172	.172	kg/d		.1	.1	mg/L	N	N	10/17/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2006	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.183	.183	kg/d		.1	.1	mg/L	N	N	9/8/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2006	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.158	.158	kg/d		.1	.1	mg/L	N	N	8/17/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2006	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2006	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.135	.135	kg/d		.1	.1	mg/L	N	N	6/21/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2006	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/23/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2006	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/19/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2006	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/3/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2006	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/22/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2005	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2005	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.125	.125	kg/d		.1	.1	mg/L	N	N	12/14/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2005	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.118	.118	kg/d		.1	.1	mg/L	N	N	11/22/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2005	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.066	.066	kg/d		.09	.09	mg/L	N	N	10/28/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2005	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.101	.101	kg/d		.1	.1	mg/L	N	N	9/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2005	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.105	.105	kg/d		.1	.1	mg/L	N	N	8/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2005	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/12/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2005	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/15/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2005	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/25/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2005	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/15/2005		BAS	ENF

MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2005	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.1	.1	kg/d		.1	.1	mg/L	N	N	3/3/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2005	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/2/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.113	.113	kg/d		.1	.1	mg/L	N	N	1/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2004	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/8/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2004	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2004	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/13/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2004	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.098	.098	kg/d		.1	.1	mg/L	N	N	9/15/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2004	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/18/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2004	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.1	.1	kg/d		.1	.1	mg/L	N	N	7/9/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2004	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.04	.04	kg/d		.04	.04	mg/L	N	N	6/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2004	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/28/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2004	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/5/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2004	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/11/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2004	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/19/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2003	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2003	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/19/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2003	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2003	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.076	.076	kg/d		.1	.1	mg/L	N	N	9/23/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2003	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/25/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2003	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	7/11/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2003	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	6/4/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2003	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	5/27/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2003	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	4/17/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2003	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	3/5/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2003	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	2/13/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2002	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2002	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/8/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2002	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	10/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2002	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	9/13/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2002	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	8/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2002	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.18	.18	kg/d		.145	.145	mg/L	N	N	7/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2002	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.14	.14	kg/d		.14	.14	mg/L	N	N	6/27/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2002	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.033	.033	kg/d		.035	.035	mg/L	N	N	5/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2002	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.088	.088	kg/d		.085	.085	mg/L	N	N	4/30/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2002	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	3/7/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2002	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	2/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2001	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	12/6/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2001	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	11/2/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2001	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/9/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2001	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.907	.907	kg/d		.287	.287	mg/L	N	N	4/11/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2001	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	8/9/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2001	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	7/6/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2001	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	6/19/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2001	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	5/10/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2001	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		.002	.002	mg/L	N	N	4/25/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2001	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.889	.889	kg/d		.318	.318	mg/L	N	N	3/28/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2001	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.056	.056	kg/d		.018	.018	mg/L	N	N	2/16/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2000	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.176	.176	kg/d		.046	.046	mg/L	N	N	1/23/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2000	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.363	.363	kg/d		.082	.082	mg/L	N	N	12/4/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2000	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.475	.475	kg/d		.16	.16	mg/L	N	N	11/3/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2000	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.26	.26	kg/d		.082	.082	mg/L	N	N	10/13/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2000	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.907	.907	kg/d		.287	.287	mg/L	N	Y	4/11/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2000	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.82	.82	kg/d		.239	.239	mg/L	N	N	8/29/2000		BAS	ENF

MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2000	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.39	.39	kg/d		.128	.128	mg/L	N	N	7/29/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2000	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.374	.374	kg/d		.216	.216	mg/L	N	N	6/12/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2000	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		1.517	1.517	kg/d		.452	.452	mg/L	N	N	5/5/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2000	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		1.137	1.137	kg/d		.314	.314	mg/L	N	N	4/13/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2000	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.889	.889	kg/d		.318	.318	mg/L	N	Y	3/28/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2000	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		1.045	1.045	kg/d		.27	.27	mg/L	N	N	2/24/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/1999	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		1.264	1.264	kg/d		.284	.284	mg/L	N	N	1/19/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/1999	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.128	.128	kg/d		.032	.032	mg/L	N	N	12/27/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/1999	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	11/24/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/1999	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.529	.529	kg/d		.275	.275	mg/L	N	N	10/22/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/1999	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.965	.965	kg/d		.281	.281	mg/L	N	N	9/22/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/1999	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.776	.776	kg/d		.234	.234	mg/L	N	N	8/26/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/1999	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		1.064	1.064	kg/d		.35	.35	mg/L	N	N	7/29/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/1999	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.534	.534	kg/d		.176	.176	mg/L	N	N	6/17/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/1999	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		1.196	1.196	kg/d		.272	.272	mg/L	N	N	5/20/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/1999	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		.765	.765	kg/d		.238	.238	mg/L	N	N	4/21/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/1999	004-A	01104-2-0	Aluminum, total recoverable	Effluent Net		1.053	1.053	kg/d		.293	.293	mg/L	N	N	3/18/1999		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A	01268-1-0	Antimony, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/11/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2008	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/16/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2007	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/28/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2006	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		< .003	< .003	mg/L	N	N	1/17/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2005	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2000	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		< .003	< .003	mg/L	N	N	1/23/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/1999	004-A	01268-2-0	Antimony, total recoverable	Effluent Net		0	0	kg/d		0	0	mg/L	N	N	1/18/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/11/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2008	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	1/16/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2007	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	1/28/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2006	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	1/17/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2005	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	1/12/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	1/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/14/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	1/4/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2000	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	1/23/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/1999	004-A	34247-1-0	Benzo(a)pyrene	Effluent Gross		0	0	kg/d		< .0001	< .0001	mg/L	N	N	1/18/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2014	004-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2014	004-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2014	004-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	7/14/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2014	004-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	6/5/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2014	004-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	5/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2014	004-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	4/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2014	004-A	50050-1-0	Flow, in conduit or thru treatment plant	Effluent Gross		NODI C	NODI C	gal/d					N	N	3/7/2014		BAS	ENF

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MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A3	00951-1-0	Fluoride, total [as F]	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A3	01074-1-0	Nickel, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A3	01104-1-0	Aluminum, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A3	01268-1-0	Antimony, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A3	34247-1-0	Benzo[a]pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A3	81381-1-0	Duration of discharge	Effluent Gross		NODI C		d					N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A4	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A4	00400-1-0	pH	Effluent Gross						NODI C	NODI C	SU	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A4	00530-1-0	Solids, total suspended	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A4	00951-1-0	Fluoride, total [as F]	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A4	01074-1-0	Nickel, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A4	01104-1-0	Aluminum, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A4	01268-1-0	Antimony, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A4	34247-1-0	Benzo[a]pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A4	81381-1-0	Duration of discharge	Effluent Gross		NODI C		d					N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A5	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A5	00400-1-0	pH	Effluent Gross						NODI C	NODI C	SU	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A5	00530-1-0	Solids, total suspended	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A5	00552-1-0	Oil and grease, hexane extr method	Effluent Gross						NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A5	00951-1-0	Fluoride, total [as F]	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A5	01074-1-0	Nickel, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A5	01104-1-0	Aluminum, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A5	01268-1-0	Antimony, total recoverable	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A5	34247-1-0	Benzo[a]pyrene	Effluent Gross		NODI C	NODI C	kg/d		NODI C	NODI C	ug/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	004-A5	81381-1-0	Duration of discharge	Effluent Gross		NODI C		d					N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	004-Q	01257-1-0	Cyanide [A]	Effluent Gross						NODI C	NODI C	ug/L	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2016	005-A	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	5/17/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2016	005-A	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	4/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2016	005-A	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	3/21/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2016	005-A	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	2/15/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	005-A	00056-1-0	Flow rate	Effluent Gross		.004476	.004476	MGD					N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2015	005-A	00056-1-0	Flow rate	Effluent Gross		.027595	.027595	MGD					N	N	12/14/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2015	005-A	00056-1-0	Flow rate	Effluent Gross		.023584	.023584	MGD					N	N	11/11/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2015	005-A	00056-1-0	Flow rate	Effluent Gross		.021572	.021572	MGD					N	N	10/15/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2015	005-A	00056-1-0	Flow rate	Effluent Gross		.03168	.03168	MGD					N	N	9/14/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2015	005-A	00056-1-0	Flow rate	Effluent Gross		.0186	.0186	MGD					N	N	8/17/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	005-A	00056-1-0	Flow rate	Effluent Gross		.0083	.0083	MGD					N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2015	005-A	00056-1-0	Flow rate	Effluent Gross		.019448	.019448	MGD					N	N	6/19/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2015	005-A	00056-1-0	Flow rate	Effluent Gross		.022745	.022745	MGD					N	N	5/20/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2015	005-A	00056-1-0	Flow rate	Effluent Gross		.025	.025	MGD					N	N	4/20/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2015	005-A	00056-1-0	Flow rate	Effluent Gross		.0264	.0264	MGD					N	N	3/18/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2015	005-A	00056-1-0	Flow rate	Effluent Gross		.0107	.0107	MGD					N	N	2/18/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	005-A	00056-1-0	Flow rate	Effluent Gross		.018708	.018708	MGD					N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2014	005-A	00056-1-0	Flow rate	Effluent Gross		.0122	.0122	MGD					N	N	12/15/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2014	005-A	00056-1-0	Flow rate	Effluent Gross		.016	.016	MGD					N	N	11/24/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	005-A	00056-1-0	Flow rate	Effluent Gross		NODI 9	NODI 9	MGD					N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2016	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross						NODI C	NODI C	mg/L	N	N	5/17/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2016	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross						NODI C	NODI C	mg/L	N	N	4/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2016	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross						NODI C	NODI C	mg/L	N	N	3/21/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2016	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross						NODI C	NODI C	mg/L	N	N	2/15/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross						3	3	mg/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2015	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross						3	3	mg/L	N	N	12/14/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2015	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross						< 1	< 1	mg/L	N	N	11/11/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2015	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross						< 1	< 1	mg/L	N	N	10/15/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2015	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross						< 1	< 1	mg/L	N	N	9/14/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2015	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross						< 1	< 1	mg/L	N	N	8/17/2015		BAS	ENF

MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					< 1	< 1	mg/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2015	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					< 1	< 1	mg/L	N	N	6/19/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2015	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					< 1	< 1	mg/L	N	N	5/20/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2015	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					< 1	< 1	mg/L	N	N	4/20/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2015	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					2	2	mg/L	N	N	3/18/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2015	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					2	2	mg/L	N	N	2/18/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					2	2	mg/L	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2014	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					3	3	mg/L	N	N	12/15/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2014	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					< 1	< 1	mg/L	N	N	11/24/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2014	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1	NODI 9	mg/L	N	N	10/6/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2014	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					< 1		mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2014	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					< 1		mg/L	N	N	10/27/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2014	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	7/14/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2014	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					7		mg/L	N	N	6/5/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2014	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	5/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2014	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					2		mg/L	N	N	4/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2014	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	3/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2014	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	2/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					NODI C		mg/L	N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2013	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	12/5/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2013	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	11/8/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2013	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	10/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2013	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	9/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2013	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	8/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2013	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	7/3/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2013	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	6/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2013	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					< 2		mg/L	N	N	5/13/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2013	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	4/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2013	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1.6		mg/L	N	N	3/11/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2013	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	2/7/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	1/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2012	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	12/6/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2012	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	11/5/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2012	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	10/4/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2012	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	9/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2012	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	8/16/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2012	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2012	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	5/7/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2012	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	4/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2012	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	3/7/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2012	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	2/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2011	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	12/6/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2011	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	11/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2011	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	10/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2011	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					< 1		mg/L	N	N	8/31/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2011	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	8/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2011	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					2		mg/L	N	N	7/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2011	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	5/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2011	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					2		mg/L	N	N	5/5/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2011	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	4/5/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2011	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					NODI C		mg/L	N	N	3/7/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2011	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					1		mg/L	N	N	2/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					NODI C		mg/L	N	N	1/11/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2010	005-A	00310-1-0	BOD, 5-day, 20 deg. C	Effluent Gross					2		mg/L	N	N	12/6/2010		BAS	ENF

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MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2014	005-A	00400-1-0	pH	Effluent Gross					7.9		7.9	SU	N	N	2/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	005-A	00400-1-0	pH	Effluent Gross					NODI C		NODI C	SU	N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2013	005-A	00400-1-0	pH	Effluent Gross					8.6		8.6	SU	N	N	12/5/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2013	005-A	00400-1-0	pH	Effluent Gross					8.2		8.2	SU	N	N	11/8/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2013	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	10/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2013	005-A	00400-1-0	pH	Effluent Gross					8.1		8.1	SU	N	N	9/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2013	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	8/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2013	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	7/3/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2013	005-A	00400-1-0	pH	Effluent Gross					8.1		8.1	SU	N	N	6/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2013	005-A	00400-1-0	pH	Effluent Gross					7.99		7.99	SU	N	N	5/13/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2013	005-A	00400-1-0	pH	Effluent Gross					8.1		8.1	SU	N	N	4/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2013	005-A	00400-1-0	pH	Effluent Gross					8.1		8.1	SU	N	N	3/11/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2013	005-A	00400-1-0	pH	Effluent Gross					7.9		7.9	SU	N	N	2/7/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	005-A	00400-1-0	pH	Effluent Gross					7.76		7.76	SU	N	N	1/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2012	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	12/6/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2012	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	11/5/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2012	005-A	00400-1-0	pH	Effluent Gross					7.6		7.6	SU	N	N	10/4/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2012	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	9/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2012	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	8/16/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2012	005-A	00400-1-0	pH	Effluent Gross					7.6		7.6	SU	N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2012	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	5/7/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2012	005-A	00400-1-0	pH	Effluent Gross					8		8	SU	N	N	4/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2012	005-A	00400-1-0	pH	Effluent Gross					8		8	SU	N	N	3/7/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2012	005-A	00400-1-0	pH	Effluent Gross					7.9		7.9	SU	N	N	2/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2011	005-A	00400-1-0	pH	Effluent Gross					7.9		7.9	SU	N	N	12/6/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2011	005-A	00400-1-0	pH	Effluent Gross					7.9		7.9	SU	N	N	11/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2011	005-A	00400-1-0	pH	Effluent Gross					7.7		7.7	SU	N	N	10/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2011	005-A	00400-1-0	pH	Effluent Gross					7.7		7.7	SU	N	N	8/31/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2011	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	Y	8/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2011	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	Y	7/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2011	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	5/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2011	005-A	00400-1-0	pH	Effluent Gross					7.7		7.7	SU	N	N	5/5/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2011	005-A	00400-1-0	pH	Effluent Gross					7.6		7.6	SU	N	N	4/5/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2011	005-A	00400-1-0	pH	Effluent Gross					NODI C		NODI C	SU	N	N	3/7/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2011	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	2/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	005-A	00400-1-0	pH	Effluent Gross					NODI C		NODI C	SU	N	N	1/11/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2010	005-A	00400-1-0	pH	Effluent Gross					7.9		7.9	SU	N	N	12/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2010	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	11/4/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2010	005-A	00400-1-0	pH	Effluent Gross					7.5		7.5	SU	N	N	10/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2010	005-A	00400-1-0	pH	Effluent Gross					7.9		7.9	SU	N	N	9/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2010	005-A	00400-1-0	pH	Effluent Gross					7.8		7.8	SU	N	N	8/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2010	005-A	00400-1-0	pH	Effluent Gross					7.9		7.9	SU	N	N	7/8/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2010	005-A	00400-1-0	pH	Effluent Gross					7.9		7.9	SU	N	N	6/7/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2010	005-A	00400-1-0	pH	Effluent Gross					8.02		8.02	SU	N	N	5/7/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2010	005-A	00400-1-0	pH	Effluent Gross					8		8	SU	N	N	4/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2010	005-A	00400-1-0	pH	Effluent Gross					7.6		7.6	SU	N	N	3/8/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2010	005-A	00400-1-0	pH	Effluent Gross					7.6		7.6	SU	N	N	2/9/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	005-A	00400-1-0	pH	Effluent Gross					7.6		7.6	SU	N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2009	005-A	00400-1-0	pH	Effluent Gross					7.5		7.5	SU	N	N	12/8/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2009	005-A	00400-1-0	pH	Effluent Gross					7.4		7.4	SU	N	N	11/19/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2009	005-A	00400-1-0	pH	Effluent Gross					7.3		7.3	SU	N	N	10/22/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2009	005-A	00400-1-0	pH	Effluent Gross					7.6		7.6	SU	N	N	9/21/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2009	005-A	00400-1-0	pH	Effluent Gross					7.4		7.4	SU	N	N	8/6/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2009	005-A	00400-1-0	pH	Effluent Gross					7.7		7.7	SU	N	N	7/17/2009		BAS	ENF

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MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2014	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		18107		gal/d						N	N	4/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2014	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		19270		gal/d						N	N	3/7/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2014	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		8313		gal/d						N	N	2/11/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		NOOI C		gal/d						N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2013	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		9468		gal/d						N	N	12/5/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2013	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		10668		gal/d						N	N	11/8/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2013	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		10988		gal/d						N	N	10/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2013	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		7481		gal/d						N	N	9/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2013	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		7131		gal/d						N	N	8/9/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2013	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		8430		gal/d						N	N	7/3/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2013	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		13549		gal/d						N	N	6/6/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2013	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		13.916		gal/d						N	N	5/13/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2013	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		13173		gal/d						N	N	4/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2013	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		7488		gal/d						N	N	3/11/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2013	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		12439		gal/d						N	N	2/7/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		12.333		gal/d						N	N	1/4/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2012	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		5904		gal/d						N	N	12/6/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2012	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		3207		gal/d						N	N	11/5/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2012	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		5262		gal/d						N	N	10/4/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2012	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		5391		gal/d						N	N	9/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2012	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		564		gal/d						N	N	8/16/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		5227		gal/d						N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2012	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		4232		gal/d						N	N	7/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2012	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		3771		gal/d						N	N	5/7/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2012	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		4026		gal/d						N	N	4/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/29/2012	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		3905		gal/d						N	N	3/7/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2012	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		3896		gal/d						N	N	2/3/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		3933		gal/d						N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2011	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		3925		gal/d						N	N	12/6/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2011	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		4152		gal/d						N	N	11/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2011	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		5309		gal/d						N	N	10/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2011	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		6443		gal/d						N	N	8/31/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2011	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		6056		gal/d						N	N	8/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2011	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		4508		gal/d						N	N	7/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2011	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		4127		gal/d						N	N	5/8/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2011	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		3509		gal/d						N	N	5/5/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2011	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		11861		gal/d						N	N	4/5/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2011	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		NOOI C		gal/d						N	N	3/7/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2011	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		4341		gal/d						N	N	2/4/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		NOOI C		gal/d						N	N	1/11/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2010	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		4421		gal/d						N	N	12/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2010	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		4762		gal/d						N	N	11/4/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2010	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		5151		gal/d						N	N	10/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2010	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		6062		gal/d						N	N	9/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	07/31/2010	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		7008		gal/d						N	N	8/13/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2010	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		5946		gal/d						N	N	7/8/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	05/31/2010	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		12824		gal/d						N	N	6/7/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	04/30/2010	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		4835		gal/d						N	N	5/7/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	03/31/2010	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		12453		gal/d						N	N	4/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	02/28/2010	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		10019		gal/d						N	N	3/8/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	01/31/2010	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		5117		gal/d						N	N	2/9/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		5276		gal/d						N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	11/30/2009	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		8257		gal/d						N	N	12/8/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	10/31/2009	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		18217		gal/d						N	N	11/19/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	09/30/2009	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		17933		gal/d						N	N	10/22/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	08/31/2009	005-A	50050-1-I-0	Flow, in conduit or thru treatment plant	Effluent Gross		26548		gal/d						N	N	9/21/2009		BAS	ENF

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MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	010-S	01106-1-0	Aluminum, dissolved [as Al]	Effluent Gross						589		ug/L	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	010-S	01119-1-0	Copper, total recoverable	Effluent Gross						9		ug/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	010-S	01119-1-0	Copper, total recoverable	Effluent Gross						4		ug/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	010-S	01119-1-0	Copper, total recoverable	Effluent Gross						3		ug/L	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	010-S	01257-1-0	Cyanide [A]	Effluent Gross						< 2		ug/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	010-S	01257-1-0	Cyanide [A]	Effluent Gross						3		ug/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	010-S	01257-1-0	Cyanide [A]	Effluent Gross						14		ug/L	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	010-S	01268-1-0	Antimony, total recoverable	Effluent Gross						.8		ug/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	010-S	01268-1-0	Antimony, total recoverable	Effluent Gross						< .5		ug/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	010-S	01268-1-0	Antimony, total recoverable	Effluent Gross						< .5		ug/L	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	010-S	34247-1-0	Benzo[a]pyrene	Effluent Gross						.74		ug/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	010-S	34247-1-0	Benzo[a]pyrene	Effluent Gross						1		ug/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	010-S	34247-1-0	Benzo[a]pyrene	Effluent Gross						.19		ug/L	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	010-S	82517-1-0	Duration of discharge	Effluent Gross		51		#/mo					N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	010-S	82517-1-0	Duration of discharge	Effluent Gross		4		#/mo					N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	010-S	82517-1-0	Duration of discharge	Effluent Gross		4		#/mo					N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	011-S	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	011-S	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	011-S	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	011-S	00400-1-0	pH	Effluent Gross						NODI C		SU	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	011-S	00400-1-0	pH	Effluent Gross						NODI C		SU	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	011-S	00400-1-0	pH	Effluent Gross						NODI C		SU	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	011-S	00949-1-0	Fluoride	Effluent Gross						NODI C		ug/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	011-S	00949-1-0	Fluoride	Effluent Gross						NODI C		ug/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	011-S	00949-1-0	Fluoride	Effluent Gross						NODI C		ug/L	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	011-S	00980-1-0	Iron, total recoverable	Effluent Gross						NODI C		ug/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	011-S	00980-1-0	Iron, total recoverable	Effluent Gross						NODI C		ug/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	011-S	00980-1-0	Iron, total recoverable	Effluent Gross						NODI C		ug/L	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	011-S	01257-1-0	Cyanide [A]	Effluent Gross						NODI C		ug/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	011-S	01257-1-0	Cyanide [A]	Effluent Gross						NODI C		ug/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	011-S	01257-1-0	Cyanide [A]	Effluent Gross						NODI C		ug/L	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	011-S	01268-1-0	Antimony, total recoverable	Effluent Gross						NODI C		ug/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	011-S	01268-1-0	Antimony, total recoverable	Effluent Gross						NODI C		ug/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	011-S	01268-1-0	Antimony, total recoverable	Effluent Gross						NODI C		ug/L	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	011-S	34247-1-0	Benzo[a]pyrene	Effluent Gross						NODI C		ug/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	011-S	34247-1-0	Benzo[a]pyrene	Effluent Gross						NODI C		ug/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	011-S	34247-1-0	Benzo[a]pyrene	Effluent Gross						NODI C		ug/L	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	012-S	82517-1-0	Duration of discharge	Effluent Gross		NODI C		#/mo					N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	012-S	82517-1-0	Duration of discharge	Effluent Gross		NODI C		#/mo					N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	012-S	82517-1-0	Duration of discharge	Effluent Gross		NODI C		#/mo					N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	012-S	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	012-S	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	012-S	00056-1-0	Flow rate	Effluent Gross		NODI C	NODI C	MGD					N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	012-S	00400-1-0	pH	Effluent Gross						NODI C		SU	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	012-S	00400-1-0	pH	Effluent Gross						NODI C		SU	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2014	012-S	00400-1-0	pH	Effluent Gross						NODI C		SU	N	N	1/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	012-S	00949-1-0	Fluoride	Effluent Gross						NODI C		ug/L	N	N	1/14/2016		BAS	ENF

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MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	RIV-1	01074-5-0	Nickel, total recoverable	Upstream Monitoring					< 2		ug/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	RIV-1	01074-5-0	Nickel, total recoverable	Upstream Monitoring					< 2		ug/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2014	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .009	mg/L	N	N	7/23/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .009	mg/L	N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2013	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						.053	mg/L	N	N	7/12/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .03	mg/L	N	N	12/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .03	mg/L	N	N	7/27/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .03	mg/L	N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2011	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	7/18/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						.0075	mg/L	N	N	1/10/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2010	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						.2	mg/L	N	N	7/22/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						.0049	mg/L	N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2009	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	6/15/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2008	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	12/17/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2008	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	6/9/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2007	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	1/10/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2007	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	7/5/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2006	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	12/11/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2006	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	7/5/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2005	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	11/22/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2005	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	5/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	11/12/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2004	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	7/29/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2003	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	7/11/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	12/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2002	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						.017	mg/L	N	N	7/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .005	mg/L	N	N	1/3/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2001	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .005	mg/L	N	N	7/20/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2000	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .1	mg/L	N	N	1/3/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2000	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						< .01	mg/L	N	N	7/31/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/1999	RIV-1	01104-5-0	Aluminum, total recoverable	Upstream Monitoring						.043	mg/L	N	N	1/20/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	RIV-1	01106-5-0	Aluminum, dissolved [as Al]	Upstream Monitoring					< .009		mg/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	RIV-1	01106-5-0	Aluminum, dissolved [as Al]	Upstream Monitoring					< 9		mg/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	RIV-1	01119-5-0	Copper, total recoverable	Upstream Monitoring					< 2		ug/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	RIV-1	01119-5-0	Copper, total recoverable	Upstream Monitoring					< 2		ug/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	RIV-1	01268-5-0	Antimony, total recoverable	Upstream Monitoring					< .5		ug/L	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	RIV-1	01268-5-0	Antimony, total recoverable	Upstream Monitoring					< .5		ug/L	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2015	RIV-1	34247-5-0	Benzo[a]pyrene	Upstream Monitoring					< .094		ug/kg	N	N	1/14/2016		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Effective	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2015	RIV-1	34247-5-0	Benzo[a]pyrene	Upstream Monitoring					< .094		ug/kg	N	N	7/21/2015		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2014	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					48.7		deg F	N	N	7/23/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					48.9		deg F	N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2013	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					51.1		deg F	N	N	7/12/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					57.6		deg F	N	N	12/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					59.4		deg F	N	N	7/27/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					60.4		deg F	N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2011	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					47.7		deg F	N	N	7/18/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					65.3		deg F	N	N	1/10/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2010	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					51.4		deg F	N	N	7/22/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					58.1		deg F	N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2009	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					47.3		deg F	N	N	6/15/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2008	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					53		deg F	N	N	12/17/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2008	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					44.2		deg F	N	N	6/9/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2007	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					45.3		deg F	N	N	1/10/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2007	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					55.9		deg F	N	N	7/5/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2006	RIV-2	00011-6-0	Temperature, water deg. fahrenheit	Downstream Monitoring					50.9		deg F	N	N	12/11/2006		BAS	ENF

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MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2005	W00-A	00951-W-0	Fluoride, total [as F]	See Comments						3.41	mg/L	N	N	5/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	W00-A	00951-W-0	Fluoride, total [as F]	See Comments						2.95	mg/L	N	N	11/12/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2004	W00-A	00951-W-0	Fluoride, total [as F]	See Comments						2.71	mg/L	N	N	7/29/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	W00-A	00951-W-0	Fluoride, total [as F]	See Comments						2.85	mg/L	N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2003	W00-A	00951-W-0	Fluoride, total [as F]	See Comments						3.11	mg/L	N	N	7/11/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	W00-A	00951-W-0	Fluoride, total [as F]	See Comments						2.62	mg/L	N	N	12/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2002	W00-A	00951-W-0	Fluoride, total [as F]	See Comments						3.02	mg/L	N	N	7/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	W00-A	00951-W-0	Fluoride, total [as F]	See Comments						3.08	mg/L	N	N	1/3/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2001	W00-A	00951-W-0	Fluoride, total [as F]	See Comments						3.61	mg/L	N	N	7/20/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2000	W00-A	00951-W-0	Fluoride, total [as F]	See Comments						3.13	mg/L	N	N	1/3/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2000	W00-A	00951-W-0	Fluoride, total [as F]	See Comments						2.72	mg/L	N	N	7/31/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/1999	W00-A	00951-W-0	Fluoride, total [as F]	See Comments						3.46	mg/L	N	N	1/20/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2014	W00-A	85327-W-0	Water level at sample collection time	See Comments		38.2	ft					N	N	7/23/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	W00-A	85327-W-0	Water level at sample collection time	See Comments		38.3	ft					N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2013	W00-A	85327-W-0	Water level at sample collection time	See Comments		38.3	ft					N	N	7/12/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	W00-A	85327-W-0	Water level at sample collection time	See Comments		45.3	ft					N	N	12/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	W00-A	85327-W-0	Water level at sample collection time	See Comments		36.4	ft					N	N	7/27/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	W00-A	85327-W-0	Water level at sample collection time	See Comments		44	ft					N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2011	W00-A	85327-W-0	Water level at sample collection time	See Comments		36	ft					N	N	7/18/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	W00-A	85327-W-0	Water level at sample collection time	See Comments		43	ft					N	N	1/10/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2010	W00-A	85327-W-0	Water level at sample collection time	See Comments		42	ft					N	N	7/22/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	W00-A	85327-W-0	Water level at sample collection time	See Comments		39.7	ft					N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2009	W00-A	85327-W-0	Water level at sample collection time	See Comments		42.1	ft					N	N	6/15/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2008	W00-A	85327-W-0	Water level at sample collection time	See Comments		43	ft					N	N	12/17/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2008	W00-A	85327-W-0	Water level at sample collection time	See Comments		38	ft					N	N	6/9/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2007	W00-A	85327-W-0	Water level at sample collection time	See Comments		42.7	ft					N	N	1/10/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2007	W00-A	85327-W-0	Water level at sample collection time	See Comments		38.9	ft					N	N	7/5/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2006	W00-A	85327-W-0	Water level at sample collection time	See Comments		43	ft					N	N	12/11/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2006	W00-A	85327-W-0	Water level at sample collection time	See Comments		35.6	ft					N	N	7/5/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2005	W00-A	85327-W-0	Water level at sample collection time	See Comments		42.2	ft					N	N	11/22/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2005	W00-A	85327-W-0	Water level at sample collection time	See Comments		42.2	ft					N	N	5/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	W00-A	85327-W-0	Water level at sample collection time	See Comments		43.3	ft					N	N	11/12/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2004	W00-A	85327-W-0	Water level at sample collection time	See Comments		41.6	ft					N	N	7/29/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	W00-A	85327-W-0	Water level at sample collection time	See Comments		42.75	ft					N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2003	W00-A	85327-W-0	Water level at sample collection time	See Comments		37.8	ft					N	N	7/11/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	W00-A	85327-W-0	Water level at sample collection time	See Comments		42.17	ft					N	N	12/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2002	W00-A	85327-W-0	Water level at sample collection time	See Comments		42.6	ft					N	N	7/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	W00-A	85327-W-0	Water level at sample collection time	See Comments		46.25	ft					N	N	1/3/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2001	W00-A	85327-W-0	Water level at sample collection time	See Comments		41.3	ft					N	N	7/20/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2000	W00-A	85327-W-0	Water level at sample collection time	See Comments		41.68	ft					N	N	1/3/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2000	W00-A	85327-W-0	Water level at sample collection time	See Comments		37.38	ft					N	N	7/31/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/1999	W00-A	85327-W-0	Water level at sample collection time	See Comments		41.98	ft					N	N	1/20/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2014	W01-A	00095-W-0	Specific conductance	See Comments						175	umho/cm	N	N	7/23/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	W01-A	00095-W-0	Specific conductance	See Comments						334	umho/cm	N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2013	W01-A	00095-W-0	Specific conductance	See Comments						334	umho/cm	N	N	7/12/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	W01-A	00095-W-0	Specific conductance	See Comments						415	umho/cm	N	N	12/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	W01-A	00095-W-0	Specific conductance	See Comments						314	umho/cm	N	N	7/27/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	W01-A	00095-W-0	Specific conductance	See Comments						374	umho/cm	N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2011	W01-A	00095-W-0	Specific conductance	See Comments						340	umho/cm	N	N	7/18/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	W01-A	00095-W-0	Specific conductance	See Comments						341	umho/cm	N	N	1/10/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2010	W01-A	00095-W-0	Specific conductance	See Comments						291	umho/cm	N	N	7/22/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	W01-A	00095-W-0	Specific conductance	See Comments						333	umho/cm	N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2009	W01-A	00095-W-0	Specific conductance	See Comments						297	umho/cm	N	N	6/15/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2008	W01-A	00095-W-0	Specific conductance	See Comments						194	umho/cm	N	N	12/17/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2008	W01-A	00095-W-0	Specific conductance	See Comments						188	umho/cm	N	N	6/9/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2007	W01-A	00095-W-0	Specific conductance	See Comments						238	umho/cm	N	N	1/10/2008		BAS	ENF

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MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2005	W05-A	00951-W-0	Fluoride, total [as F]	See Comments						2.71	mg/L	N	N	5/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	W05-A	00951-W-0	Fluoride, total [as F]	See Comments						2.22	mg/L	N	N	11/12/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2004	W05-A	00951-W-0	Fluoride, total [as F]	See Comments						2.05	mg/L	N	N	7/29/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	W05-A	00951-W-0	Fluoride, total [as F]	See Comments						2.42	mg/L	N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2003	W05-A	00951-W-0	Fluoride, total [as F]	See Comments						2.69	mg/L	N	N	7/11/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	W05-A	00951-W-0	Fluoride, total [as F]	See Comments						2.18	mg/L	N	N	12/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2002	W05-A	00951-W-0	Fluoride, total [as F]	See Comments						2.58	mg/L	N	N	7/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	W05-A	00951-W-0	Fluoride, total [as F]	See Comments						3.3	mg/L	N	N	1/3/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2001	W05-A	00951-W-0	Fluoride, total [as F]	See Comments						3.03	mg/L	N	N	7/20/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2000	W05-A	00951-W-0	Fluoride, total [as F]	See Comments						3.46	mg/L	N	N	1/3/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2000	W05-A	00951-W-0	Fluoride, total [as F]	See Comments						2.79	mg/L	N	N	7/31/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/1999	W05-A	00951-W-0	Fluoride, total [as F]	See Comments						2.27	mg/L	N	N	1/20/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2014	W05-A	85327-W-0	Water level at sample collection time	See Comments		81.9	ft					N	N	7/23/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	W05-A	85327-W-0	Water level at sample collection time	See Comments		62.7	ft					N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2013	W05-A	85327-W-0	Water level at sample collection time	See Comments		62.7	ft					N	N	7/12/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	W05-A	85327-W-0	Water level at sample collection time	See Comments		73.1	ft					N	N	12/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	W05-A	85327-W-0	Water level at sample collection time	See Comments		60.8	ft					N	N	7/27/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	W05-A	85327-W-0	Water level at sample collection time	See Comments		71.7	ft					N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2011	W05-A	85327-W-0	Water level at sample collection time	See Comments		60	ft					N	N	7/18/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	W05-A	85327-W-0	Water level at sample collection time	See Comments		70.5	ft					N	N	1/10/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2010	W05-A	85327-W-0	Water level at sample collection time	See Comments		67	ft					N	N	7/22/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	W05-A	85327-W-0	Water level at sample collection time	See Comments		67	ft					N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2009	W05-A	85327-W-0	Water level at sample collection time	See Comments		69.1	ft					N	N	6/15/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2008	W05-A	85327-W-0	Water level at sample collection time	See Comments		71	ft					N	N	12/17/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2008	W05-A	85327-W-0	Water level at sample collection time	See Comments		71.1	ft					N	N	6/9/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2007	W05-A	85327-W-0	Water level at sample collection time	See Comments		70.5	ft					N	N	1/10/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2007	W05-A	85327-W-0	Water level at sample collection time	See Comments		84.9	ft					N	N	7/5/2007		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2006	W05-A	85327-W-0	Water level at sample collection time	See Comments		71.3	ft					N	N	12/11/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2006	W05-A	85327-W-0	Water level at sample collection time	See Comments		60.2	ft					N	N	7/5/2006		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2005	W05-A	85327-W-0	Water level at sample collection time	See Comments		89.9	ft					N	N	11/22/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2005	W05-A	85327-W-0	Water level at sample collection time	See Comments		69.8	ft					N	N	5/6/2005		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2004	W05-A	85327-W-0	Water level at sample collection time	See Comments		71.3	ft					N	N	11/12/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2004	W05-A	85327-W-0	Water level at sample collection time	See Comments		63.9	ft					N	N	7/29/2004		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2003	W05-A	85327-W-0	Water level at sample collection time	See Comments		70.7	ft					N	N	12/3/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2003	W05-A	85327-W-0	Water level at sample collection time	See Comments		64	ft					N	N	7/11/2003		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2002	W05-A	85327-W-0	Water level at sample collection time	See Comments		70.16	ft					N	N	12/6/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2002	W05-A	85327-W-0	Water level at sample collection time	See Comments		67.2	ft					N	N	7/5/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2001	W05-A	85327-W-0	Water level at sample collection time	See Comments		74.09	ft					N	N	1/3/2002		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2001	W05-A	85327-W-0	Water level at sample collection time	See Comments		67.19	ft					N	N	7/20/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2000	W05-A	85327-W-0	Water level at sample collection time	See Comments		69.53	ft					N	N	1/3/2001		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2000	W05-A	85327-W-0	Water level at sample collection time	See Comments		63.52	ft					N	N	7/31/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/1999	W05-A	85327-W-0	Water level at sample collection time	See Comments		69.94	ft					N	N	1/20/2000		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2014	W06-A	00095-W-0	Specific conductance	See Comments						655	umho/cm	N	N	7/23/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2013	W06-A	00095-W-0	Specific conductance	See Comments						655	umho/cm	N	N	1/9/2014		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2013	W06-A	00095-W-0	Specific conductance	See Comments						655	umho/cm	N	N	7/12/2013		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2012	W06-A	00095-W-0	Specific conductance	See Comments						615	umho/cm	N	N	12/10/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2012	W06-A	00095-W-0	Specific conductance	See Comments						566	umho/cm	N	N	7/27/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2011	W06-A	00095-W-0	Specific conductance	See Comments						501	umho/cm	N	N	1/9/2012		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2011	W06-A	00095-W-0	Specific conductance	See Comments						635	umho/cm	N	N	7/18/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2010	W06-A	00095-W-0	Specific conductance	See Comments						533	umho/cm	N	N	1/10/2011		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2010	W06-A	00095-W-0	Specific conductance	See Comments						578	umho/cm	N	N	7/22/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2009	W06-A	00095-W-0	Specific conductance	See Comments						467	umho/cm	N	N	1/6/2010		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2009	W06-A	00095-W-0	Specific conductance	See Comments						753	umho/cm	N	N	6/15/2009		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2008	W06-A	00095-W-0	Specific conductance	See Comments						577	umho/cm	N	N	12/17/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	06/30/2008	W06-A	00095-W-0	Specific conductance	See Comments						595	umho/cm	N	N	6/9/2008		BAS	ENF
MT0030066	MT	08	COLUMBIA FALLS ALUMINUM CO	2000 ALUMINUM DRIVE COLUMBIA FALLS, MT 59912	COLUMBIA FALLS ALUMINUM CO	Flathead	Minor	NPDES Individual Permit	Admin Continued	N	3334		17010208-FLATHEAD RIVER	48.391944	-114.139444	12/31/2007	W06-A	00095-W-0	Specific conductance	See Comments						613	umho/cm	N	N	1/10/2008		BAS	ENF

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Environmental Protection Agency
Integrated Compliance Information System
DMR Data Report
(DMR Data Summary)

Version 1.0, modified 08/12/2011
Created Date: 05/02/2011
Last Refresh Date: 05/25/2016

Report Selection Criteria:

NPDES ID(s): MT0030066
State Code: MT
Region Code(s):
SIC Code(s):
NAICS Code(s):
Major/Minor Indicator:
County(ies):
Permit Type(s):
Permit Status(es):
Monitoring Period Date Range: 01/04/1999 - 05/25/2016
Violation Type: All Data
Parameter Code(s):
State Water Body(ies):

NODI Codes

NODI Code	Acceptable?	NODI Desc
1	N	Wrong Flow
2	Y	Operation Shutdown
3	Y	Special Report Attached
4	Y	Discharge to Lagoon/Groundwater
5	Y	Frozen Conditions
7	Y	No Influent
8	N	Other (See Comments)
9	Y	Conditional Monitoring - Not Required This Period
A	Y	General Permit Exemption
B	Y	Below Detection Limit/No Detection
C	Y	No Discharge
D	N	Lost Sample/Data Not Available
E	N	Analysis Not Conducted/No Sample
F	Y	Insufficient Flow for Sampling
G	N	Sampling Equipment Failure
H	N	Invalid Test
I	Y	Land Applied
J	Y	Recycled - Water-Closed System
K	Y	Natural Disaster
L	N	DMR Received but not Entered
M	N	Laboratory Error
N	Y	Not Constructed
Q	Y	Not Quantifiable
R	Y	Administratively Resolved
S	Y	Fire Conditions
V	Y	Weather Related
W	Y	Dry Lysimeter/Well
X	N	Parameter/Value Not Reported

Attachment 3

USEPA Contract Laboratory Program

Statement of Work for Inorganic Superfund Methods (Multi-media, Multi-Concentration) ISM01.2

January 2010

Modifications Updating ISM01.2 to ISM 1.3

Exhibit Section(s)	Revisions
Exhibit A, Section 4.2.1.2.3.4	The recording of cooler temperature has been revised as follows: "The Contractor shall record the temperature of the cooler on Form DC-1, under Item 9 - Cooler Temperature. BEGIN INSERTION If ice is present, that will be noted in the remarks column. END INSERTION (see Exhibit B)."
Exhibit Section(s)	Revisions
Exhibit B, Section 2.5.2.3.4, Table 2	The Codes for Labeling Data have been revised as follows: For Continuing Calibration Verification the laboratory shall use CCV##. For Continuing Calibration Blank the laboratory shall use CCB##. For Laboratory Control Sample the laboratory shall use LCS##. For Preparation Blank (Aqueous/Water) the laboratory shall use PBW##. For Preparation Blank (Soil/Sediment) the laboratory shall use PBS##. For Preparation Blank (Wipe/Filter) the laboratory shall use PBF##. Insert Footnote 3 "Within a fraction, the two-character suffix (##) should be unique for each instance of each sample type within an SDG. The Contractor may achieve this by replacing the suffix with one or two alpha-numeric characters".
Exhibit B, Section 2.12	The delivery of hardcopy data in PDF format has been revised as follows: In addition to all required deliverables identified in the Laboratory's contract and the ISM01.2 SOW, the laboratory shall provide a complete copy of the hardcopy deliverable in PDF via EXES. The Laboratory may upload CSF in PDF via EXES at: http://epasmoweb.fedcsc.com/scstr/ and follow the naming convention for the PDF file. The format of the PDF file name should be Case Number_SDG Number_Contract Number_Submission type. For Example: 40000_MAB123_EPW05000_FS. The following identifiers are utilized for submission type: First Submission = FS

	Replacement Submission = RS (if you have to send in a complete replacement of the first submission PDF) Reconciliation Submission = R# (# representing the recon submission number – for example the first recon will be R1) Additional Data Submission = A# (# representing the additional data submission number - for example the first additional data will be A1)

Exhibit Section(s)	Revisions
Exhibit B, Section 3.3.9.1	The language has been revised as follows: FROM: "NOTE: All results shall be transcribed to Inorganic Forms IIA-IN through XV-IN from..." TO: NOTE: All results shall be transcribed to Inorganic Forms IIA-IN through XVI-IN from...

Exhibit Section(s)	Revisions
Exhibit D – Part A, Analytical Methods for ICP – Atomic Emission Spectroscopy, Section 10.1.5.1.5	The sample preparation instructions have been revised as follows: From: "Filter the sample digestate... make to volume with reagent water, stopper, and mix." (BEGIN INSERTION) NOTE: In place of filtering, the sample (after dilution and mixing) may be centrifuged or allowed to settle by gravity overnight to remove insoluble material. (END INSERTION) "The sample is now ready for analysis."

Exhibit Section(s)	Revisions
Exhibit D – Part B, Analytical Methods for Inductively Coupled Plasma – Mass Spectrometry, Table 3	The Recommended Isotopes and Masses for Selected Elements have been revised as follows: For Element of Interest: Calcium Under "Analyte Masses – Choose One, or More – Calibrated" (BEGIN INSERTION) 40 (END INSERTION)
Exhibit Section(s)	Revisions
Exhibit D – Part B, Analytical Methods for Inductively Coupled Plasma – Mass Spectrometry, Table 6	The spiking Levels for Spike Sample Analysis have been revised as follows: The spike level for selenium is 100 ug/L and 10 mg/Kg for aqueous and soils respectively

USEPA CONTRACT LABORATORY PROGRAM

STATEMENT OF WORK

FOR

INORGANIC SUPERFUND METHODS

(Multi-Media, Multi-Concentration)

ISM01.2

January 2010

STATEMENT OF WORK

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EXHIBIT B: REPORTING AND DELIVERABLES REQUIREMENTS

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EXHIBIT D: ANALYTICAL METHODS

EXHIBIT E: CONTRACT LABORATORY PROGRAM QUALITY ASSURANCE MONITORING PLAN

EXHIBIT F: CHAIN-OF-CUSTODY, DOCUMENT CONTROL, AND WRITTEN STANDARD OPERATING PROCEDURES

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EXHIBIT A

SUMMARY OF REQUIREMENTS

Exhibit A - Summary of Requirements

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1.0 PURPOSE

The purpose of the multi-media, multi-concentration inorganic analytical service is to provide analytical data for use by the U.S. Environmental Protection Agency (USEPA) in support of the investigation and clean-up activities under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). Other USEPA Program Offices that have similar analytical data needs can also use this service.

2.0 DESCRIPTION OF SERVICE

The inorganic analytical service provides a contractual framework for laboratories. This framework applies USEPA Contract Laboratory Program (CLP) analytical methods for the isolation, detection, and quantitative measurement of 23 metals (including mercury) and cyanide in aqueous/water and soil/sediment samples. The Statement of Work (SOW) also includes methods for total metals analysis in wipes and air filters. The analytical service contract provides specific contractual requirements by which USEPA will evaluate the data.

3.0 DATA USES

This analytical service contract provides data which USEPA uses for a variety of purposes, such as: determining the nature and extent of contamination at a hazardous waste site, assessing priorities for response based on risks to human health and the environment, determining appropriate cleanup actions, and determining when remedial actions are complete. The data may be used in all stages in the investigation of hazardous waste sites, including: site inspections, Hazard Ranking System (HRS) scoring, remedial investigation/feasibility studies, remedial design, treatability studies, and removal actions.

The data may also be used in litigation against Potentially Responsible Parties in the enforcement of Superfund legislation. As a result, the Contractor must be aware of the importance of maintaining the integrity of the data generated under this contract, since it is used to make major decisions regarding public health and environmental welfare. The Contractor may be required to appear and testify to the accuracy and/or validity of the data generated.

4.0 SUMMARY OF REQUIREMENTS

4.1 Introduction to the Inorganic Statement of Work

The Statement of Work (SOW) is comprised of eight Exhibits. Exhibit A provides an overview of the SOW and its general requirements. Exhibit B contains a description of the reporting and deliverables requirements, in addition to the data reporting forms and instructions. Exhibit C specifies the Inorganic Target Analyte List (TAL) for this SOW with the Contract Required Quantitation Limits (CRQLs) for the sample matrices. Exhibit D details the required analytical procedures to be used with this SOW and resulting contracts. Exhibit E provides descriptions of required Quality Assurance/Quality Control (QA/QC), Standard Operating Procedures (SOPs), QA/QC performance, and the reporting of data. Exhibit F contains chain-of-custody and sample documentation requirements. To ensure proper understanding of the terms utilized in this SOW, a glossary can be found in Exhibit G. When a term is used in the text without explanation, the glossary meaning shall be applicable. Specifications for electronically reporting data appear in Exhibit H.

4.2 Overview of Major Task Areas

For each sample, the Contractor shall perform the tasks described in each section. Specific requirements for each task are detailed in the Exhibits referenced in the following sections.

4.2.1 Task I: Sample Receiving, Storage, and Disposal

4.2.1.1 Chain-of-Custody

The Contractor shall receive and maintain samples under proper chain-of-custody. All associated document control and inventory procedures shall be developed and followed. Documentation described herein shall be required to show that all procedures are strictly followed. Inventory procedures shall include documenting sample location and transfer within the laboratory. This documentation shall be reported as the Complete Sample Delivery Group (SDG) File (CSF) (see Exhibit B). The Contractor shall establish and use appropriate procedures to safeguard confidential information received from USEPA.

4.2.1.2 Sample Scheduling/Shipments

Sample shipments to the Contractor’s facility will be scheduled and coordinated by the Contract Laboratory Program (CLP) Sample Management Office (SMO). USEPA may request analyses that include all or a subset of the Inorganic Target Analytes listed in Exhibit C. USEPA may also request modified analyses due to the nature of the samples received or project requirements. The Contractor shall communicate with SMO as necessary throughout the process of sample scheduling, shipment, analysis, and data reporting, to ensure that samples are properly processed.

4.2.1.2.1

Samples will be shipped routinely to the Contractor through an overnight delivery service. However, as necessary, the Contractor shall be responsible for any handling or processing of the receipt of sample shipments. This includes the pick-up of samples at the nearest servicing airport, bus station, or other carrier within the Contractor’s geographical area. The Contractor shall be available to receive and process sample

shipments at any time the delivery service is operating, including Saturdays, to ensure that short sample preparation and analysis time requirements can be met.

4.2.1.2.2 If there are problems with the samples (e.g., mixed media, containers broken or leaking), coolers (e.g., scheduled but not delivered), or sample documentation and paperwork (e.g., Traffic Reports/Chain of Custody Records not with shipment, sample and Traffic Report/Chain of Custody Record do not correspond), the Contractor shall immediately contact SMO for resolution. The Contractor shall immediately notify SMO regarding any problems and laboratory conditions that affect the timeliness of analyses and data reporting. In particular, the Contractor shall immediately notify SMO in advance regarding sample data that will be delivered late and shall specify the estimated delivery date.

4.2.1.2.3 To monitor the temperature of the sample shipping cooler more effectively, each USEPA Regional Office may include a sample shipping cooler temperature indicator bottle with each cooler shipped. The temperature indicator will be clearly labeled: COOLER TEMPERATURE INDICATOR BOTTLE. The Contractor shall record the presence or absence of the cooler temperature indicator bottle on Form DC-1, Item 8 - Cooler Temperature Indicator Bottle (see Exhibit B).

4.2.1.2.3.1 When the USEPA Regional Office supplies a cooler temperature indicator bottle in the sample shipping cooler, the Contractor shall use the USEPA supplied cooler temperature indicator bottle to determine the cooler temperature. The temperature of the cooler shall be measured at the time of sample receipt by the Contractor.

4.2.1.2.3.2 The temperature of the sample shipping cooler shall be measured and recorded immediately upon opening the cooler.

To determine the temperature of the cooler, the Contractor shall locate the cooler temperature indicator bottle in the sample shipping cooler, invert it several times, remove the cap, and insert a calibrated thermometer into the cooler temperature indicator bottle. The temperature can then be read after the reading has stabilized. Prior to recording the temperature, the Contractor shall allow a minimum of 3 minutes, but not greater than 5 minutes, for the thermometer to equilibrate with the liquid in the bottle. At a minimum, the calibrated thermometer (±1°C) shall have a measurable range of 0-50°C. Other devices which can measure temperature may be used if they can be calibrated to ±1°C and have a range of 0-50°C. If a temperature indicator bottle is not present in the cooler, an alternative means of determining cooler temperature shall be used. Under no circumstances shall a thermometer or any other device be inserted into a sample bottle for the purpose of determining cooler temperature. The Contractor shall contact SMO and inform them that a temperature indicator bottle was not present in the cooler. The Contractor shall document the alternative technique used to determine cooler temperature in the SDG Narrative.

4.2.1.2.3.3 If the temperature of the sample shipping cooler's temperature indicator exceeds 10°C, the Contractor shall contact SMO and inform them of the temperature deviation. SMO will contact the USEPA Region from which the samples were shipped for instruction on how to proceed. The Region will either require that no sample analysis(es) be performed or that the Contractor proceed with the analysis(es). SMO will in turn notify the Contractor of the Region's decision. The Contractor shall document the Region's decision and the EPA sample numbers of all samples for which temperatures exceeded 10°C in the SDG Narrative.

4.2.1.2.3.4 The Contractor shall record the temperature of the cooler on Form DC-1, under Item 9 - Cooler Temperature (see Exhibit B).

4.2.1.2.4 The Contractor is required to retain unused sample volume in the original containers for a period of 60 days after data submission. From time of receipt until analysis, the Contractor shall maintain all aqueous/water (preserved and unpreserved) and soil/sediment samples at 4°C (±2°C) (see Exhibit D). Wipe and filter samples may be stored at room temperature within the laboratory until preparation.

4.2.1.2.5 The Contractor shall be required to routinely return sample shipping containers (e.g., coolers) to the appropriate sampling office within 14 calendar days following shipment receipt (see contract Section G titled, "Government Furnished Samples").

4.2.1.2.6 Sample analyses will be scheduled by groups of samples, each defined as a Case and identified by a unique EPA Case number assigned by SMO. A Case signifies a group of samples collected at one site or geographical area over a finite time period, and will include one or more field samples with associated blanks. Samples may be shipped to the Contractor in a single shipment or multiple shipments over a period of time, depending on the size of the Case.

4.2.1.2.6.1 A Case consists of one or more SDGs. An SDG is defined by the following, whichever is most frequent:

- Each 20 field samples [excluding Performance Evaluation (PE) samples] within a Case, or each 7 calendar day period (3 calendar day period for 7-day turnaround) during which field samples in a Case are received (said period beginning with the receipt of the first sample in the SDG).
- All samples scheduled with the same level of deliverables.
- In addition, all samples and/or sample fractions assigned to an SDG must have been scheduled under the same contractual turnaround time. Preliminary Results have **no impact** on defining the SDG.

The laboratory shall take all precautions to meet the 20 sample per SDG criteria.

4.2.1.2.6.2 Samples may be assigned to SDGs by matrix (i.e., all soil/sediment in one SDG, all aqueous/water in another), at the discretion of the laboratory. However, PE samples received within a Case shall be assigned to an SDG containing field samples for that Case. Such assignment shall be made at the time the samples are received, and shall not be made retroactively.

4.2.1.2.6.3 Each sample received by the Contractor will be labeled with an EPA sample number, and accompanied by a Traffic Report/Chain of Custody Record bearing the sample number and descriptive information regarding the sample. EPA sample numbers are continuous, without spaces or hyphens. The Contractor shall complete and sign the Traffic Report/Chain of Custody Record, recording the date of sample receipt and sample condition on receipt for each sample container. The Contractor shall also follow the instructions given on the Traffic Report/Chain of Custody Record in choosing the Quality Control (QC) samples when such information is provided. If no QC sample is designated on the Traffic Report/Chain of Custody Record, the Contractor shall select a sample and notify SMO for USEPA Regional acceptance. SMO shall contact the Region for confirmation immediately after notification.

4.2.1.2.6.4 The Contractor shall submit signed copies of Traffic Reports/Chain of Custody Records for all samples in an SDG to SMO within **three working days** following receipt of the last sample in the SDG. Faxed copies of Traffic Reports/Chain of Custody Records do not meet this requirement. Traffic Reports/Chain of Custody Records shall be submitted in SDG sets (i.e., all Traffic Reports/Chain of Custody Records for an SDG shall be clipped together) with an SDG Cover Sheet containing information regarding the SDG, as specified in Exhibit B.

4.2.1.2.6.5 EPA Case numbers, SDG numbers, and EPA sample numbers shall be used by the Contractor in identifying samples received under this contract both verbally and in reports/correspondence.

4.2.1.3 Modified Analysis

The Contractor may be requested by USEPA to perform modified analyses. These modifications will be within the scope of this SOW and may include, but are not limited to: modified preparation, cleanup, or analysis procedures; analysis of additional analytes; additional sample matrices; and/or lower quantitation limits. These requests will be made in writing, prior to sample scheduling. All contract requirements specified in the SOW/Specifications will remain in effect unless specifically modified.

4.2.2 Task II: Sample Preparation and Analysis

4.2.2.1 Overview

The Contractor is advised that the samples received under this contract are usually from known or suspected hazardous waste sites and may contain high (greater than 15%) levels of organic and inorganic materials of a potentially hazardous nature and of

unknown structure and concentration, and should be handled throughout the analysis with appropriate caution. It is the Contractor's responsibility to take all necessary measures to ensure laboratory safety.

4.2.2.2 The Contractor shall prepare and analyze samples as described in Exhibit D. Sample preparation methods shall remain consistent for all samples analyzed within a Case. Prior to sample analysis, the Contractor shall review the Traffic Report/Chain of Custody Record for any special sample analysis instructions. Anomalies that occur during sample analysis shall be reported to SMO immediately.

The Contractor shall collectively review all analytical results associated with a sample. This includes undiluted, diluted, serial dilution, and interference results. The Contractor shall report any significant anomalies between these results in the SDG Narrative indicating possible matrix interferences.

4.2.2.3 Quality Assurance/Quality Control Procedures

4.2.2.3.1 The Contractor shall strictly adhere to all specific QA/QC procedures prescribed in Exhibits D and E. Records documenting the use of the protocol shall be maintained in accordance with the document control procedures prescribed in Exhibit F, and shall be reported in accordance with Exhibits B and H.

4.2.2.3.2 The Contractor shall maintain a Quality Assurance Plan (QAP) with the objective of providing sound analytical chemical measurements. This program shall incorporate the QC procedures, any necessary corrective action, and all documentation required during data collection, as well as the quality assessment measures performed by management, to ensure acceptable data production.

4.2.2.3.3 Additional QC shall be conducted in the form of the analysis of laboratory PE samples submitted to the laboratory by USEPA. Unacceptable results of any such QC or laboratory PE samples may be used as the basis for an equitable adjustment to reflect the reduced value of the data to USEPA or rejection of the data for specific analyte(s) within an SDG or the entire SDG. Also, unacceptable results may be used as the basis for contract action. "Compliant performance" is defined as that which yields correct analyte identification and concentration values as determined by USEPA, as well as meeting the contract requirements for analysis (Exhibit D); QA/QC (Exhibit E); data reporting and other deliverables (Exhibits B and H); and sample custody, sample documentation, and SOP documentation (Exhibit F).

4.2.3 Task III: Sample Reporting

4.2.3.1 USEPA has provided to the Contractor formats for the reporting of data (Exhibits B and H). The Contractor shall be responsible for completing and submitting analysis data sheets and electronic data as requested in a format specified in this SOW and within the time specified in Exhibit B, Section 1.1.

4.2.3.2 Use of formats other than those designated by USEPA (see Exhibits B and H) will be deemed as noncompliant. Such data are unacceptable. Resubmission in the specified format at no additional cost to the Government shall be required.

4.2.3.3 Computer generated forms may be submitted in the hardcopy CSF(s) provided that the forms provide equivalent information as the **USEPA format**. This means that the order of data elements is the same as on each USEPA required form, including form numbers and titles, page numbers, and header information.

4.2.3.4 The data reported by the Contractor on the hardcopy data forms and the associated electronic data submitted by the Contractor shall contain identical information. If discrepancies are found during Government inspection, the Contractor shall be required to resubmit either the corrected hardcopy forms or the corrected electronic data, or both sets of corrected data, at no additional cost to USEPA.

EXHIBIT B

REPORTING AND DELIVERABLES REQUIREMENTS

Exhibit B – Reporting and Deliverables Requirements

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1.0 CONTRACT REPORTS/DELIVERABLES DISTRIBUTION

1.1 Report Deliverable Schedule

The following table reiterates the contract reporting and deliverables requirements, and specifies the distribution that is required for each deliverable. The turnaround times for Items B through E are 7, 14, or 21 days.

NOTE: Specific recipient names and addresses are subject to change during the term of the contract. The U.S. Environmental Protection Agency (USEPA) Office of Superfund Remediation and Technology Innovation (OSRTI) Analytical Services Branch (ASB) Inorganic Program Manager (ASB PM) will notify the Contractor in writing of such changes when they occur.

TABLE 1

Item		No. of Copies[A]	Delivery Schedule	Distribution	
				SMO	Region
A.	Sample Traffic Reports/Chain of Custody Records	1	3 working days after receipt of last sample in Sample Delivery Group (SDG).[1]	X	
B.[2]	Complete SDG File (CSF)	1	XX[C] days after Validated Time of Sample Receipt (VTSR) of last sample in SDG.[1]		X
C.[2,3]	Copy of CSF and Hardcopy Data in PDF Format[B]	1	XX[C] days after VTSR of last sample in SDG.	X	
D.[2,4]	Preliminary Results	1	Within 48 hours after receipt of each sample at laboratory, if requested.	X	X
E.[2]	Electronic Data Deliverable	1	XX[C] days after VTSR of last sample in SDG.	X	
F.[2]	Results of Intercomparison Study/PE Sample Analysis Study	1	XX[C] days after VTSR of last sample in SDG.	As Directed	
G.[5,6]	Annual Determination of Method Detection Limits (MDL) And Calculation of ICP-AES Interelement Correction Factors	1	Annually	As Directed	

TABLE 1 (Con't)

Item		No. of Copies[A]	Delivery Schedule	Distribution	
				SMO	Region
H.[6,7]	Standard Operating Procedures (SOPs)	1	Revise within 30 days after contract award and receipt of USEPA comments. Submit the latest version within 7 days of receipt of written request to recipients as directed. (See Exhibit E, Section 6) Submit the amended document within 14 days of amended SOP(s) as directed in Exhibit E, Section 6.4.	As Directed	
I.[6,7]	Quality Assurance Plan (QAP)	1	Revise within 30 days after contract award and receipt of USEPA comments. Submit the latest version within 7 days of receipt of written request to recipients as directed. (See Exhibit E, Section 5) Submit the amended document within 14 days of amended QAP as directed in Exhibit E, Section 5.3.	As Directed	
J.	Instrument Electronic Data	Lot	Retain for 3 years after data submission. Submit within 7 days after receipt of written request by the USEPA Regional CLP PO. (See Exhibit E, Section 13)	As Directed	
K.	Digestates	Lot	Retain for total metals 180 days after data submission. Submit within 7 days after receipt of written request by CLP PO or SMO at USEPA's direction.	As Directed	

Footnotes:

[A] The number of copies specified is the number of copies required to be delivered to each recipient.

[B] Contractor-concurrent delivery to USEPA's designated recipient [e.g., Quality Assurance Technical Support (QATS)] may be required upon request by the USEPA Regional Contract Laboratory Program Project Officer (CLP PO). Retain for 365 days after data submission, and submit as directed within 7 days after receipt of written request by the CLP PO. Supplemental data (i.e., logbooks) may be requested in writing from the USEPA Regional staff or QATS. All written communication sent by USEPA must include the laboratory's CLP PO in the distribution list. If the CLP PO has not been included in the distribution list, contact the OSRTI ASB Inorganic Program Manger.

[C] The number of days associated with these elements will be provided in the associated laboratory contract document and will also be provided at the time of sample scheduling by the Sample Management Office (SMO) Contractor.

[1] Sample Delivery Group (SDG) is a group of samples within a Case, received over a period of 7 days or less (3 calendar day period for 7-day turnaround) with the same laboratory turnaround not exceeding 20 samples [excluding Performance Evaluation (PE) samples] and scheduled with the same level of deliverables. Data for all samples in the SDG are due concurrently to USEPA and SMO (or as designated). The date of delivery of the SDG, or any samples within the SDG, is the date that the last sample in the SDG is received. See Exhibit A for further description. Validated Time of Sample Receipt (VTSR) is the date of sample receipt at the Contractor's facility, as recorded on the shipper's delivery receipt and sample Traffic Report/Chain of Custody Record.

[2] **DELIVERABLES ARE TO BE REPORTED TOTAL AND COMPLETE.** Concurrent delivery is required. Delivery shall be made such that all designated recipients receive the item on the same calendar day. This includes resubmission of both the hardcopy and electronic deliverable. The date of delivery of the SDG, or any sample within the SDG, is the date that all samples have been delivered. **If the deliverables are due on a Saturday, Sunday, or Federal holiday, then they shall be delivered on the next business day. Deliverables received after this time will be considered late.**

[3] Complete SDG File (CSF) will contain the original Sample Data for Level 2a or 2b deliverables, plus all of the original documents described in Exhibit B, Section 2.6.

[4] If requested at the time of sample scheduling, the Contractor shall provide Preliminary Results, consisting of Form I sample analyses for field and Quality Control (QC) sample analyses via facsimile or email. The Contractor may submit Preliminary Results in electronic format [i.e., Portable Document Format (PDF), Microsoft Word, etc.) after obtaining permission from USEPA. The Contractor shall be notified of the Fax number or email address at the time of sample scheduling. The Contractor shall also be provided a backup Fax number or email address. Sample Traffic Reports/Chain of Custody Records (TRs/COCs) and SDG Cover Sheets shall be submitted with the Preliminary Results. The Contractor shall contact SMO after confirming transmission. The Contractor shall document all communication in a communication log.

Preliminary Results Delivery Schedule:

If a sample requiring Preliminary Results arrives at the laboratory before 5 p.m., the Preliminary Results are due within the required turnaround time. If a sample requiring Preliminary Results is received at the laboratory after 5 p.m., the Preliminary Results are due within the required turnaround time beginning at 8 a.m. the following day. **DELIVERABLES ARE TO BE REPORTED TOTAL AND COMPLETE. Concurrent delivery is required. Delivery shall be made such that all designated recipients receive the item on the same calendar day. If the deliverables are due on a Saturday, Sunday, or Federal holiday, then they shall be delivered the next business day. Deliverables reported after this time will be considered late.**

[5] Also required in each CSF.

[6] See Exhibit E for description. Time is cited in calendar days.

[7] The Contractor shall deliver both hardcopy and electronic (e.g., diskette/CD) copies of the Standard Operating Procedures (SOPs) and Quality Assurance Plan (QAP).

1.2 Distribution

The following addresses correspond to the "Distribution" column in Exhibit B, Section 1.1, Table 1.

SMO: USEPA Contract Laboratory Program (CLP)
Sample Management Office (SMO)[1]
15000 Conference Center Drive
Chantilly, VA 20151-3808

Region: USEPA REGIONS: SMO will provide the Contractor with the list of addressees for data delivery for the 10 USEPA Regions. SMO will provide the Contractor with updated USEPA Regional address/name lists as necessary throughout the period of the contract and identify other client recipients on a case-by-case basis.

USEPA Regional CLP Project Officer (CLP PO):

SMO will provide the Contractor with the list of addresses for the USEPA Regional CLP POs. SMO will provide the Contractor with updated name/address lists as necessary throughout the period of the contract.

QATS: USEPA Contract Laboratory Program (CLP)
Quality Assurance Technical Support (QATS)[2]
2700 Chandler Avenue, Building C
Las Vegas, NV 89120
Attn: Data Audit Staff

[1] SMO is a Contractor-operated facility operating under the SMO contract awarded and administered by USEPA.

[2] The QATS laboratory is a Contractor-operated facility operating under the QATS contract awarded and administered by USEPA.

In addition, the mailing and delivery addresses for the USEPA ASB Inorganic Program Manager (ASB PM) are:

Mailing Address:	USEPA OSRTI Analytical Services Branch Ariel Rios Building (5203P) 1200 Pennsylvania Avenue, N.W. Washington, DC 20460 Attn: CLP Inorganic Program Manager
Fed-Ex/Overnight Delivery:	USEPA OSRTI Analytical Services Branch One Potomac Yard (South Building) 2777 South Crystal Drive 4th Floor, S4838 Arlington, VA 22202 Attn: CLP Inorganic Program Manager

2.0 REPORTING REQUIREMENTS AND ORDER OF DATA DELIVERABLES

2.1 Introduction

The Contractor shall provide reports and other deliverables as specified in Exhibit B, Section 1.1. The required content and form of each deliverable is described in this Exhibit. All reports and documentation **shall be:**

- Legible;
- Clearly labeled and completed in accordance with instructions in this Exhibit;
- Arranged in the order specified in this Exhibit;
- Paginated sequentially according to instructions in this Exhibit; and
- Double-sided.
- Information reported on the forms listed in this Exhibit [excluding the Sample Log-In Sheet (DC-1) and the Complete SDG File (CSF)Inventory Sheet (DC-2)] must be computer-generated.

2.1.1 The Contractor shall use EPA Case numbers, SDG numbers, and EPA sample numbers to identify samples received under this contract, both verbally and in reports and correspondence. The contract number and the Statement of Work (SOW) number shall be specified in all correspondence. The Modification Reference Number (Mod. Ref. No.) shall also be included for all Modified Analyses.

2.1.2 The Contractor shall submit either Level 2a or 2b deliverables as specified at the time of scheduling. Level 2b deliverables include all data reporting forms and supporting raw data as specified in this Exhibit. Level 2a deliverables consist of a specified limited subset of the data reporting forms and supporting documents as specified in this Exhibit.

2.1.3 Section 4 of this Exhibit contains the required Data Reporting Forms in Agency-specified format. Section 3 of this Exhibit contains instructions to the Contractor for properly completing all data reporting forms to provide USEPA with all required data. Data elements and instructions for electronically reporting data are contained in Exhibit H.

2.2 Resubmission of Data

If submitted documentation does not conform to the above criteria, the Contractor is required to resubmit such documentation with deficiency (ies) corrected within 6 business days, at no additional cost to USEPA.

2.2.1 Whenever the Contractor is required to submit or resubmit data as a result of an on-site laboratory evaluation, through a USEPA Regional CLP Project Officer (CLP PO) action, or through a USEPA Regional data reviewer's request, the data shall be clearly marked as "Additional Data" and shall be sent to both contractual data recipients [Sample Management Office (SMO) and USEPA Region] and to USEPA's designated recipient [e.g., Quality Assurance Technical Support (QATS)] when a written request for a copy of the CSF has been made. A cover letter shall be included which describes what data is being delivered, to which USEPA Case(s) the data pertains, and **who requested the data.**

2.2.2 Whenever the Contractor is required to submit or resubmit data as a result of an on-site laboratory evaluation, through the USEPA Regional CLP Project Officer (CLP PO) action, or through a USEPA Regional data reviewer's request, the data shall be clearly marked as "Additional Data" and shall be sent to both contractual data recipients (SMO and USEPA Region) and to USEPA's designated recipient (e.g., QATS) when a written request for a copy of the CSF has been made. A cover letter shall be included which describes what data is being delivered, to which USEPA Case(s) the data pertains, and **who requested the data**.

2.2.3 Whenever the Contractor is required to submit or resubmit data as a result of Contract Compliance Screening (CCS) review by SMO, the data shall be sent to the two contractual data recipients (SMO and USEPA Region) and to USEPA's designated recipient (e.g., QATS) when a written request for a copy of the CSF has been made. In all instances, the Contractor shall include a cover sheet (Laboratory Response to Results of Contract Compliance Screening). Electronic deliverables shall be submitted or resubmitted to SMO only. Revised DC-1 and DC-2 forms shall be resubmitted to SMO and the USEPA Region.

2.3 Quality Assurance (QA) Management Plan and Standard Operating Procedures (SOPs)

The Contractor shall adhere to the requirements in Exhibits E and F.

2.4 Sample Traffic Reports/Chain of Custody Records

Each sample received by the Contractor will be labeled with an EPA sample number and will be accompanied by a Sample Traffic Report/Chain of Custody Record bearing the sample number and descriptive information regarding the sample. The current CLP Traffic Report is the "Inorganic Traffic Report & Chain of Custody Record". The CLP Traffic Report/Chain of Custody Record is one form divided into two sections: the Traffic Report section and the Chain of Custody Record section. The Contractor shall complete the CLP Traffic Report/Chain of Custody Record (marked "Lab Copy for Return to SMO"), recording the date of sample receipt, verifying the number of samples, and signing the CLP Traffic Report/Chain of Custody Record.

Upon receipt, the Contractor shall sign for the receipt of samples in the Chain of Custody Record section. The laboratory sample custodian or designated recipient opening and verifying the contents of the cooler shall then verify the receipt of all samples identified within the CLP Traffic Report section, and sign and date the signature box located in the CLP Traffic Report section. If a non-CLP Traffic Report/Chain of Custody Record is submitted with the samples (e.g., a Regional Traffic Report/Chain of Custody Record), then the Contractor shall (1) sign and date receipt of the samples to maintain the chain-of-custody and (2) the sample custodian or designated recipient shall sign and date the Traffic Report/Chain of Custody Record to verify sample information.

The Contractor shall also enter the Sample Delivery Group (SDG) number, Case number, and the laboratory contract number on the CLP Traffic Report/Chain of Custody Record, in the appropriate boxes. The EPA sample number of the first sample received in the SDG is the SDG number. When several samples are received together in the first SDG shipment, the SDG number shall be the lowest sample number (considering

both alpha and numeric designations) in the first group of samples received under the SDG. Under no circumstances should any SDG number be replicated within a Case. If necessary, select an alternative sample number for the SDG number. The SDG number is also reported on all data reporting forms (see Exhibit B, Section 3 - Form Instructions). If the laboratory is requested to transfer samples to another facility, the Contractor shall date and enter the name of the facility to where the samples will be transferred on the CLP Traffic Report/Chain of Custody Record.

2.4.1 The Contractor shall submit Traffic Reports/Chain of Custody Records in SDG sets (i.e., Traffic Reports/Chain of Custody Records for all samples in an SDG shall be clipped together), with an SDG Cover Sheet attached. The SDG Cover Sheet shall contain the following items:

- Laboratory name;
- Contract number;
- Modified Analysis number;
- Sample analysis price (full sample price from the contract);
- Case number;
- List of methods/fractions analyzed (i.e., ICP-MS, ICP-AES, etc.); and
- List of EPA sample numbers of all samples in the SDG, identifying the **first** and **last** samples received, and their Laboratory Receipt Dates (LRDs).

NOTE: When more than one sample is received in the first or last SDG shipment, the "first" sample received would be the sample with the lowest sample number (considering both alpha and numeric designations); the "last" sample received would be the sample with the highest sample number (considering both alpha and numeric designations).

2.4.2 EPA field sample numbers are continuous, without spaces or hyphens. The original Sample Traffic Report/Chain of Custody Record page marked "Lab Copy for Return to SMO", with laboratory receipt information and signed with original Contractor signature, shall be submitted for each sample in the SDG.

2.4.3 If samples are received at the laboratory with multi-sample Traffic Reports/Chain of Custody Records, all the samples on one multi-sample Traffic Report/Chain of Custody Record may not necessarily be in the same SDG. In this instance, the Contractor shall make the appropriate number of photocopies of the Traffic Report/Chain of Custody Record, and submit one copy with each SDG Cover Sheet.

2.5 Sample Data

The Sample Data shall include data for analysis of all samples in one SDG, including field and analytical samples, blanks, spikes, duplicates, and Laboratory Control Samples (LCSs). The Sample Data shall be complete before submission, and shall be consecutively paginated (starting with page number one and ending with the number of all pages in the package). The Sample Data shall include the following:

2.5.1 Cover Documentation

2.5.1.1 Cover Page for the inorganic analyses data shall include: laboratory name; laboratory code; contract number; Case number; SDG number; Modification Reference Number (Mod. Ref. No.) (if appropriate); Statement of Work (SOW) number; EPA sample numbers in alphanumeric order showing EPA sample numbers cross-referenced with laboratory Sample ID numbers; and the completion of the questions on the use of background and interelement corrections for the samples.

2.5.1.1.1 The Cover Page shall contain the following statement, verbatim: "I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Data Package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature." This statement shall be directly followed by the signature of the Laboratory Manager or designee with typed lines containing the signer's name and title, and the date of signature.

2.5.1.2 SDG Narrative. This document shall be clearly labeled "SDG Narrative" and shall contain: laboratory name, Case number, SDG number, SOW number, contract number, and detailed documentation of any Quality Control (QC), sample, shipment, and/or analytical problems encountered in processing the samples reported in the Complete SDG File (CSF). The Contractor shall list the target analytes for the SDG. The Contractor shall include any technical and administrative problems encountered, and the resolution or corrective actions taken. These problems may include, but are not limited to interference problems encountered during analysis, listing results from raw results less than the negative Contract Required Quantitation Limit (CRQL), and any problems with the analysis of wipes and filters. This also includes documenting the alternative technique used to determine cooler temperature if a temperature indicator bottle is not present in the cooler. The Contractor shall also provide, in the SDG Narrative, sufficient information, including equations with response factors or calibration curves with its fit expression (at least one equation or calibration curve per method), to allow the recalculation of sample results from raw instrument output. The Contractor shall also include a discussion of any SOW Modified Analyses. This includes attaching a copy of the USEPA approved modification form to the SDG Narrative. Additionally, the Contractor shall also identify and explain any differences which exist between the Form Is and supporting documentation provided in the data package and those previously provided as Preliminary Results.

2.5.1.3 Sample Log-In Sheet [Form DC-1]

2.5.1.4 Full Inorganics Complete SDG File (CSF) Inventory Sheet [Form DC-2]

2.5.1.5 Sample Traffic Reports/Chain of Custody Records

2.5.2 Sample Data Forms and Raw Data

Sample data shall be submitted with the inorganic analysis data reporting forms for all samples in the SDG. Data should be arranged in increasing alphanumeric EPA sample number order, followed by the QC analyses data, annual verification of method and instrument

parameters forms, raw data, and copies of the digestion and distillation logs (for Level 2b deliverables only).

2.5.2.1 Inorganic Analysis Data Sheet [Form IA-IN and Form IB-IN]. Tabulated analytical results of the requested analytes shall be included. The validation and release of these results is authorized by a specific signed statement on the Cover Page. In the event that the laboratory cannot verify all data reported for each sample, the Laboratory Manager shall provide a detailed description of the problems associated with the sample(s) in the SDG Narrative.

2.5.2.1.1 Appropriate concentration units shall be specified and entered on Forms IA-IN and IB-IN. The quantitative values shall be reported in units of ug/L for aqueous/water samples, mg/kg for soil/sediment samples, and ug for wipe and air filter samples. (No other units are acceptable.) Results for soil/sediment samples shall be reported on a dry weight basis. Analytical results shall be reported to two significant figures if the result value is less than 10, and to three significant figures if the value is greater than or equal to 10. Results for percent solids shall be reported to this same format.

2.5.2.2 Quality Control (QC) Data

2.5.2.2.1 The QC summary for inorganic analysis shall contain the forms listed below. Please note some forms are only required for Level 2b deliverables.

NOTE: If more than one form is necessary, duplicate forms must be arranged in chronological order.

2.5.2.2.1.1 Initial and Continuing Calibration Verification [Form IIA-IN]. Required for Level 2b deliverables only.

2.5.2.2.1.2 Blanks [Form III-IN]. Required for Level 2a and Level 2b deliverables. For Level 2a deliverables, only Preparation Blank data is required.

2.5.2.2.1.3 ICP-AES Interference Check Sample [Form IVA-IN]. Required for Level 2b deliverables only.

2.5.2.2.1.4 ICP-MS Interference Check Sample [Form IVB-IN]. Required for Level 2b deliverables only.

2.5.2.2.1.5 Matrix Spike Sample Recovery [Form VA-IN]

2.5.2.2.1.6 Post-Digestion Spike Sample Recovery [Form VB-IN]

2.5.2.2.1.7 Duplicates [Form VI-IN]

2.5.2.2.1.8 Laboratory Control Sample [Form VII-IN]

2.5.2.2.1.9 ICP-AES and ICP-MS Serial Dilutions [Form VIII-IN]

2.5.2.2.1.10 Method Detection Limit (MDL) (Annually) [Form IX-IN]

2.5.2.2.1.11 ICP-AES Interelement Correction Factors (Annually) [Form XA-IN]. Required for Level 2b deliverables only.

2.5.2.2.1.12 ICP-AES Interelement Correction Factors (Annually) [Form XB-IN]. Required for Level 2b deliverables only.

2.5.2.2.1.13 Internal Standard Association [Form XI-IN]. Required for Level 2b deliverables only.

2.5.2.2.1.14 Preparation Log [Form XII-IN]

2.5.2.2.1.15 Analysis Run Log [Form XIII-IN]. Required for Level 2b deliverables only.

2.5.2.2.1.16 ICP-MS Tune [Form XIV-IN]. Required for Level 2b deliverables only.

2.5.2.2.1.17 ICP-MS Internal Standards Relative Intensity Summary [Form XV-IN]. Required for Level 2b deliverables only.

2.5.2.2.1.18 Initial Calibration [Form XVI-IN]. Required for Level 2b deliverables only.

2.5.2.3 Raw Data – Required for Level 2b deliverables only. Not required for Level 2a deliverables.

For each reported value, the Contractor shall include in the Sample Data all raw data used to obtain that value. This applies to all required Quality Assurance/Quality Control (QA/QC) measurements, instrument standardization, as well as all sample analysis results. This statement does not apply to the annual verification of method and instrument parameters submitted as a part of each CSF. When the analysis of the ICP-AES or ICP-MS target analytes listed in Exhibit C of this SOW (or any subset or additional analytes) is requested, the raw data for all samples shall include not only the results for the requested analyte(s), but also those for all the interferents (Exhibit D/ICP-AES, Table 1, or Exhibit D/ICP-MS, Table 1, as appropriate). The raw data shall also contain the results of any other analyte(s) which have been determined to interfere with the requested analytes(s).

2.5.2.3.1 Raw data shall contain all instrument readouts and data pertinent to the reconstruction of the analysis and results (e.g., Bench Sheets) used for the sample results. For example, if the instrument is applying an interelement correction for a reduced analyte list, the data used to calculate the correction must be present in the raw data. Each exposure or instrumental reading shall be provided, including those readouts that may fall below the MDL. Raw data shall not be corrected for dilutions or volume adjustments. All instruments shall provide a legible hardcopy of the direct real-time instrument readout or a printout of the unedited instrument data output file. A photocopy of the instrument's direct sequential readout shall be included.

2.5.2.3.2 The order of raw data in the Sample Data for inorganic analyses shall be: ICP-AES, ICP-MS, mercury, and cyanide. All raw data shall include concentration units for ICP, and absorbances or concentration units for mercury and cyanide.

2.5.2.3.3 Corrections to the laboratory data reporting forms and raw data shall be made by drawing single lines through the errors and entering the correct information. Information shall not be obliterated or rendered unreadable. Corrections and additions to information shall be signed (or initialed) and dated.

2.5.2.3.4 Raw data shall be labeled with EPA sample numbers and appropriate codes, shown in Exhibit B, Table 2 - Codes for Labeling Data to unequivocally identify:

- Calibration standards, including source and preparation date. Standard preparation logbooks can be submitted if they contain this information;
- Initial and Continuing Calibration Blanks (ICBs/CCBs) and Preparation Blanks;
- Initial and Continuing Calibration Verification (ICV/CCV) standards, Interference Check Samples (ICSs), serial dilution samples, LCS, and post-digestion spike;
- Diluted and undiluted samples (by EPA sample number) and all weights, dilutions, and volumes used to obtain the reported values (if the volumes, weights, and dilutions are consistent for all samples in a given SDG, a general statement outlining these parameters is sufficient);
- Duplicates;
- Spikes (indicating standard solutions used, final spike concentrations, and volumes involved). If spike information (e.g., source, concentration, and volume) is consistent for a given SDG, a general statement outlining these parameters is sufficient;
- Instrument used, any instrument adjustments, data corrections, or other apparent anomalies on the measurement record (including all data voided or data not used to obtain reported values), and a brief written explanation; and
- Time and date of each analysis. Instrument run logs can also be submitted if they contain time and date of analysis.

Table 2. Codes for Labeling Data[1,2]	
Sample	XXXXXX
Sample Not Part of the SDG	ZZZZZZ
Duplicate	XXXXXXD
Matrix Spike	XXXXXXS
Serial Dilution	XXXXXXL
Post-Digestion/Distillation Spike	XXXXXXA
Instrument Calibration Standards:	
ICP	S or S0 for blank standard
Atomic Absorption and Cyanide	S0, S10,...etc.
Initial Calibration Verification	ICV
Initial Calibration Blank	ICB
Continuing Calibration Verification	CCV
Continuing Calibration Blank	CCB
Interference Check Samples:	
Solution A	ICSA
Solution AB	ICSAB
Laboratory Control Samples:	LCS
Preparation Blank (Aqueous/Water)	PBW
Preparation Blank (Soil/Sediment)	PBS
Preparation Blank (Wipe/Filter)	PBF
ICP-MS Tune Check	TUNE

[1] The numeric suffix that follows the "S" suffix for the standards indicates the true value of the concentration of the standard in ug/L.

[2] ICP-AES and ICP-MS calibration standards usually consist of several analytes at different concentrations. Therefore, no numeric suffix can follow the ICP calibration standards unless all the analytes in the standard are prepared at the same concentrations. For instance, the blank for ICP shall be formatted "S0".

2.5.2.4 Digestion and Distillation Logs (only required for the Level 2b deliverable). The following logs shall be submitted as appropriate for each preparation procedure: digestion logs for ICP-AES, ICP-MS, and mercury preparations; and distillation logs for cyanide. These logs shall include: (1) date; (2) sample weights and volumes, with initial sample weight/volume and final volume clearly indicated; (3) sufficient information to unequivocally identify which QC samples (i.e., LCS, Preparation Blank) correspond to each batch digested; (4) comments describing any significant sample changes or reactions which occurred during preparation shall be entered in the log and noted in the SDG Narrative; (5) indication of pH less than or equal to 2 or greater than or equal to 12, as applicable; (6) any dilutions used in preparing the PE samples; and (7) identification of the sample preparer(s) [signature(s)].

2.5.2.5 Summary of Level 2a/2b Deliverables

The following table summarizes the contents of the Levels 2a and 2b deliverables.

Form	Level 2a	Level 2b
Cover Page	X	X
SDG Narrative	X	X
Form IA	X	X
Form IIA		X
Form III	X	X
Form IVA		X
Form IVB		X
Form VA	X	X
Form VB	X	X
Form VI	X	X
Form VII	X	X
Form VIII	X	X
Form IX	X	X
Form XA		X
Form XB		X
Form XI		X
Form XII	X	X
Form XIII		X
Form XIV		X
Form XV		X
Form XVI		X
Raw Data		X
Preparation Logs		X

2.6 Complete SDG File (CSF)

As specified in the Delivery Schedule, one CSF (including the original Sample Data) shall be delivered to the USEPA Region concurrently with the delivery of a copy to SMO. In addition, a copy in PDF format shall be delivered to SMO. Delivery to USEPA's designated recipient (e.g., QATS) is only required upon written request.

NOTE: The CSF for the Level 2a deliverable only includes summary forms as defined in Section 2.5.2.2.1 and the data listed in Section 2.6.2.

2.6.1 The CSF shall contain all original documents where possible. No photocopies of original documents shall be placed in the CSF unless the original data was initially written in a bound notebook, maintained by the Contractor, or the originals were previously submitted to USEPA with another Case/SDG in accordance with the requirements described in Exhibit F. The CSF shall contain all original documents and be numbered according to the specifications in Exhibit B, Sections 3 and 4, and Form DC-2.

2.6.2 The CSF shall consist of the following original documents in addition to the documents in the Sample Data.

NOTE: All Case-related documentation may be used or admitted as evidence in subsequent legal proceedings. Any other Case-specific documents generated after the CSF is sent to USEPA, as well as copies that are altered in any fashion, are also deliverables to USEPA. Send the original to the USEPA Region and a copy to SMO. Send to USEPA's designated recipient (e.g., QATS) only upon written request.

2.6.2.1 Original Sample Data

2.6.2.2 A completed and signed Full Inorganics Complete SDG File (CSF) Inventory Sheet [Form DC-2]

2.6.2.3 All original shipping documents, including, but not limited to, the following documents:

- USEPA Sample Traffic Reports/Chain of Custody Records;
- Airbills (if an airbill is not received, include a hardcopy receipt requested from the shipping company or a printout of the shipping company's electronic tracking information);
- Sample Tags (if present) sealed in plastic bags; and
- All original receiving documents, including, but not limited to, the following documents:
  - Form DC-1;
  - Other receiving forms or copies of receiving logbooks; and
  - SDG Cover Sheet.

2.6.2.4 For Level 2b deliverables, all original laboratory records of sample transfer, preparation, and analysis, including, but not limited to, the following documents:

- Original preparation and analysis forms, or copies of preparation and analysis logbook pages;
- Internal sample and sample digestate and distillate transfer Chain of Custody Records; and
- Performance Evaluation (PE) Instruction forms.

2.6.2.5 All other original SDG-specific documents in the possession of the laboratory, including, but not limited to, the following documents:

- Communication logs;
- Copies of personal logbook pages;
- All handwritten SDG-specific notes; and
- Any other SDG-specific documents not covered by the above.

2.6.3 If the Contractor does submit SDG-specific documents to USEPA after the submission of the CSF, the documents shall be numbered as an addendum to the CSF and a revised Form DC-2 shall be submitted; or the documents shall be numbered as a new CSF and a new Form DC-2 shall be submitted to the USEPA Region only.

2.6.4 The Contractor shall retain a legible electronic (PDF) or hardcopy of the CSF for 365 days after submission of the reconciled data package to the Government. After this time, the Contractor may dispose of the package.

2.7 Data in Electronic Format

The Contractor shall provide an electronic data deliverable for Levels 2a or 2b with analytical data for all samples in the SDG, as specified in Exhibit H, and delivered as specified in the Contract Schedule (Performance/Delivery Schedule).

2.8 Results of the Intercomparison and Performance Evaluation (PE) Sample Analyses

Tabulation of analytical results for intercomparison/PE sample analyses includes all requirements specified in Exhibit B, Sections 2.5 and 2.7.

2.9 Preliminary Results

The Form Is data results (including all appropriate qualifiers and flags) shall be submitted for all samples in one SDG of a Case. Sample analysis shall follow all requirements stipulated in Exhibit D. The Contractor shall clearly identify the Preliminary Results by labeling each Form I as "Preliminary Results" under the form title (i.e., under Inorganic Analysis Data Sheet). The Contractor shall also include a disclaimer in the "Comments" field on all Form Is stating that the "Data results contained on this Form I are for screening purposes only, and may not have been validated for CLP criteria." Sample Traffic Reports/Chain of Custody Records and SDG Cover Sheets shall be submitted with the Preliminary Results.

2.9.1 The Contractor shall submit the Cover Page following the specifications in Exhibit B, Sections 2.5.1 and 3.4.1. The Cover Page shall be clearly labeled to indicate that the data being reported are Preliminary Results. The Cover Page shall contain the following statement, verbatim: **"I certify that these Preliminary Results are in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."** This statement shall be directly followed by the signature of the Laboratory Manager or designee with typed lines containing the signer's name and title, and the date of signature.

2.10 Annual Calculation of Method Detection Limits (MDLs) and Interelement Correction Factors

The Contractor shall perform and report annual determination of the MDLs by the method specified in Exhibit D for each instrument used under this contract. The Contractor shall also perform and report annual ICP-AES interelement correction factors (including method of determination), wavelengths used, and integration times. Forms reporting results for the annual verification of method parameters for the current period shall be submitted using Form IX. Submission of the calculation of method and instrument parameters shall include the data used to determine the values reported as well as, for the Interelement Corrections (IECs), the standard preparation logs, sample preparation logs, and analysis logs with analytical sequences.

2.11 Instrument Electronic Data

The Contractor shall adhere to the requirements in Exhibit E.

2.12 Delivery of Hardcopy Data in PDF Format

In addition to all required deliverables identified in the laboratory's contract and the ISM01.2 SOW, the laboratory shall provide a complete copy of the hardcopy deliverable in PDF on a Compact Disc (CD).

2.12.1 The PDF file shall be organized in accordance with the directions provided in Exhibit B, "Reporting Requirements and Order of Data Deliverables", of the ISM01.2 SOW. The PDF shall be bookmarked as described below for ease of data retrieval and navigation.

2.12.2 Inorganic data shall be bookmarked using a hierarchical bookmark structure (i.e., an overview or "parent" bookmark, and a subordinate or "child" bookmark nested underneath the "parent" bookmark). The required hierarchical structure is shown in Table 3.

TABLE 3. Hierarchical Bookmark Structure

Group Bookmark	Parent Bookmark	Child Bookmark
Cover Page for inorganic analyses, SDG Narrative, Form DC-1,Form DC-2, and Sample TR/COCs		
Sample Data	QC Summary	Inorganic Analysis Data Sheets
		Initial and Continuing Calibration Verification
		Blanks
		ICP-AES Interference Check Sample
		ICP-MS Interference Check Sample
		Matrix Spike Sample Recovery
		Post-Digestion Spike Sample Recovery
		Duplicates
		Laboratory Control Sample
		ICP-AES and ICP-MS Serial Dilutions
		Method Detection Limits (Annually)
		ICP-AES Interelement Correction Factors (Annually)
		Internal Standard Association
		Preparation Log
		Analysis Run Log
		ICP-MS Tune
		ICP-MS Internal Standards Relative Intensity Summary
		Initial Calibration
	Raw Data	ICP-AES
		ICP-MS
		Mercury
		Cyanide
		Digestion and Distillation Logs
Receiving Documents, Transfer Records, Miscellaneous	Additional Documents	Receiving Logbooks
		Preparation and Analysis Logbooks
		Internal Sample, Digestate, and Distillate Transfer Chain-of-Custody Records
		PE Instruction Forms
		Communication Logs

2.13 Corrective Action Procedures

If the Contractor fails to adhere to the requirements detailed in this SOW, the Contractor will be in noncompliance with the contract and may be subjected to sanctions as described in the contract.

3.0 FORM INSTRUCTIONS

3.1 Introduction

This section contains specific instructions for the completion of all required Inorganic Data Reporting Forms.

3.2 General Information

Values shall be reported on the hardcopy forms according to the respective form instructions in this section.

3.2.1 The data reporting forms discussed in Exhibit B, Section 3.4, and presented in Exhibit B, Section 4.0, have been designed in conjunction with the electronic data format specified in Exhibit H. Information entered on these forms shall **not** exceed the size of the field given on the form, including such laboratory-generated items as "Lab Name" and "Lab Sample ID".

3.2.2 All characters which appear on the data reporting forms presented in the contract shall be reproduced by the Contractor when submitting data, and the format of the forms submitted shall provide exactly the same information as that shown in the contract. No information may be added, deleted, or moved from its specified position without prior written approval of the USEPA Regional Contract Laboratory Program Project Officer (CLP PO) or the USEPA Office of Superfund Remediation and Technology Innovation (OSRTI) Analytical Services Branch (ASB) Inorganic Program Manager (ASB PM). The names of various fields and analytes (i.e., "Lab Code", "Aluminum") shall appear as they do on the forms in the contract, including the options specified in the form.

3.3 Header Information

Six pieces of information are common to the header sections of each data reporting form. These are: Laboratory Name, Contract, Laboratory Code, Case number, Modification Reference Number (Mod. Ref. No.), and Sample Delivery Group (SDG) number. Except as noted for Mod. Ref. No., this information shall be entered on every form and shall match on all forms.

3.3.1 Laboratory Name. The "Lab Name" shall be the name chosen by the Contractor to identify the laboratory.

3.3.2 Contract. The "Contract" is the number of the USEPA contract under which the analyses were performed.

3.3.3 Laboratory Code. The "Lab Code" is an alphabetic abbreviation, assigned by USEPA, to identify the laboratory and aid in data processing. This laboratory code will be assigned by USEPA at the time a contract is awarded. The laboratory code shall not be modified by the Contractor, except at the direction of USEPA. If a change of name or ownership occurs at the laboratory, the laboratory code will remain the same until the Contractor is directed by USEPA to use another laboratory code.

3.3.4 Case Number. The "Case No." is the Sample Management Office (SMO)-assigned Case number associated with the sample, and reported on the Traffic Report/Chain of Custody Record.

3.3.5 Mod. Ref. Number. The "Mod. Ref. No." is the USEPA assigned number for analyses performed for an analytical method under the modified analysis clause in Exhibit A. If samples are to be analyzed under the modified analysis clause, the Contractor shall list both the Case No. and the modification reference number on all forms. If the analyses have no modified requirements, leave the "Mod. Ref. No." field blank.

3.3.6 SDG Number. The "SDG No." is the Sample Delivery Group (SDG) number. The SDG number is the EPA sample number of the first sample received in the SDG, except when this would cause duplication. When several samples are received together in the first SDG shipment, the SDG number shall be the lowest sample number (considering both alpha and numeric designations) in the first group of samples received under the SDG. If fractions of the same field samples are scheduled under different turnaround times, thus creating separate SDGs containing the same sample numbers, a different sample number shall be utilized in the assignment of the SDG number for each SDG. If a situation arises where there is an insufficient number of samples for assignment of SDG numbers, the contractor shall contact SMO for the assignment of an SDG number.

3.3.7 Sample Number. The "EPA Sample No." appears either in the header information of the form or as the left column of a table summarizing data from a number of samples. When an EPA sample number is entered in the box in the upper right-hand corner of a form, it shall be centered.

3.3.7.1 **All** samples, matrix spikes, post-digestion/distillation spikes, duplicates, and serial dilutions shall be identified with an EPA sample number. For samples, an EPA sample number is the unique identifying number given in the Traffic Report/Chain of Custody Record that accompanied that sample. In order to facilitate data assessment, the sample suffixes listed in Exhibit B, Table 2 - Codes for Labeling Data, must be used.

3.3.8 Matrix. For "Matrix", enter "Soil" for soil/sediment samples, "Water" for aqueous/water samples, "Wipe" for surface wipes, and "Filter" for air filter samples.

3.3.9 Rounding Rule. For rounding off numbers to the appropriate level of precision, observe the following common rules. If the figure following those to be retained is greater than or equal to 5, the absolute value of the result is to be rounded up; otherwise the absolute value of the result is rounded down. For example, -0.4365 rounds to -0.437 and -2.3564 rounds to -2.356. Also see "Rounding Rules" in Exhibit G.

3.3.9.1 Before evaluating a number for being in control or out of control of a certain limit [other than the Contract Required Quantitation Limit (CRQL)], the number evaluated shall be rounded using the above rounding rules to the significance reported for that limit. For example, the control limit for an Initial Calibration Verification is plus or minus 10% of the true value. Then a calculated percent recovery of 110.46 shall be reported on Form IIA-IN as 110, which is within the control limits of 90-110. On the other hand, a calculated percent recovery of 110.50 shall be reported on Form IIA-IN as 111, which is not within the 90-110 percent control limits.

NOTE: All results shall be transcribed to Inorganic Forms IIA-IN through XV-IN from the instrument raw data to two significant figures if the value is less than 10, or three significant figures if the value is greater than or equal to 10 as described in Exhibits B and H. The raw data result is to be rounded only when the number of figures in the raw data result exceeds the maximum number of figures specified for that result entry for that form. The instrument raw data files contain the raw data values. The hardcopy raw data may be a rounded or truncated representation of the instrument raw data.

3.4 Inorganic Forms

3.4.1 Cover Page - [COVER PAGE]

3.4.1.1 Purpose. This form is used to list all samples analyzed within an SDG and provide certain analytical information and general comments. It is also the document that is signed by the Laboratory Manager to authorize and release all data and deliverables associated with the SDG.

3.4.1.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.1.2.1 For samples analyzed using this Statement of Work (SOW), enter "ISM01.2" for the SOW Number.

3.4.1.2.2 Enter an EPA sample number including spikes and duplicates of every sample analyzed within the SDG. Spikes shall contain an "S" suffix and duplicates a "D" suffix. These sample numbers shall be listed on the form in ascending alphanumeric order. Thus, if MA1111 is the lowest (considering both alpha and numeric characters) EPA sample number within the SDG, it would be entered in the first EPA sample number field. Samples would be listed below it, in ascending sequence - MA1111, MA1111D, MAB124, MAB125, MAC111, etc.

3.4.1.2.3 A maximum of 20 field sample numbers can be entered on this form. Submit additional Cover Pages, as appropriate, if the total number of samples, duplicates, and spikes in the SDG is greater than 22.

3.4.1.2.4 A Laboratory Sample ID may be entered for each EPA sample number. If a Laboratory Sample ID is entered, it shall be entered identically (for each EPA sample number) on all associated data.

3.4.1.2.5 Enter "Yes" or "No" in answer to each of the two questions concerning Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP-AES) and Inductively Coupled Plasma - Mass Spectrometry (ICP-MS) corrections. Each question shall be explicitly answered with a "Yes" or a "No". The third question shall be answered with a "Yes" or "No" if the answer to the second question is "Yes". It shall be left blank if the answer to the second question is "No".

3.4.1.2.6 Under "Comments", enter any statements relevant to the analyses or modifications performed under the SDG as a whole.

3.4.1.2.7 Each Cover Page shall be signed and dated, in original, by the Laboratory Manager or the Manager's designee to authorize the release and verify the contents of all data and deliverables associated with an SDG.

3.4.2 Inorganic Analysis Data Sheet [Forms IA-IN and IB-IN]

3.4.2.1 Purpose. These forms are used to tabulate and report sample analysis results for inorganic target analytes for an analytical method (see Exhibit C).

3.4.2.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.2.2.1 "Date Received" is the date (formatted MM/DD/YYYY) of sample receipt at the laboratory, as recorded on the Traffic Report/Chain of Custody Record [i.e., the Validated Time of Sample Receipt (VTSR)].

3.4.2.2.2 "% Solids" is the percent of solids on a weight-by-weight basis in the sample which is determined by drying the sample as specified in Exhibit D - Introduction to Analytical Methods, Section 1.6. Report to two significant figures if the value is less than 10, and to three significant figures if the value is greater than or equal to 10. If the percent solids is not required because the sample is fully aqueous, or is less than 1% solid, then leave blank.

3.4.2.2.3 Enter the appropriate concentration units (ug/L for aqueous/water, mg/kg for soil/sediment, and ug for wipe and air filter). Entering "mg/kg" means "mg/kg dry weight" on this form.

3.4.2.2.4 Under the column labeled "Concentration", enter for each analyte, the value of the result [if the concentration or mass is greater than or equal to the Method Detection Limit (MDL) corrected for any dilutions; or, enter the Contract Required Quantitation Limit (CRQL) for the analyte, adjusted if necessary and corrected for any dilutions, if the concentration is less than the MDL]. The concentration or mass result shall be reported to two significant figures if the result is less than 10, or three significant figures if the value is greater than or equal to 10.

3.4.2.2.5 Under the columns labeled "C", "Q", and "M", enter result qualifiers as identified below. If additional qualifiers are used, their explicit definitions shall be included on the Cover Page in the "Comments" section.

Forms IA-IN and IB-IN include fields for three types of result qualifiers. These qualifiers shall be completed as follows:

3.4.2.2.5.1 C (Concentration) Qualifier. Enter "J" if the reported value was obtained from a reading that was less than the CRQL but greater than or equal to the MDL. If the reading was less than the MDL, a "U" shall be entered.

The MDL obtained for a given preparation method, analysis method, and instrument shall be used for the qualification of the results for samples associated with that preparation method, analysis method, and instrument. Serial dilution

and post-digestion spike results shall be qualified using the MDL and CRQL values utilized for the corresponding field sample.

All three values (i.e., the instrument reading, CRQL, and MDL) shall be converted to the same units prior to determining the appropriate C (Concentration) Qualifier.

NOTE: For ICP-AES and ICP-MS, the Not-Prepared MDL (in ug/L) determined for an instrument and the aqueous/water CRQL shall be used to qualify the results of instrument QC standards that are not taken through a preparation procedure [e.g., Initial Calibration Blank (ICB) and Continuing Calibration Blank (CCB)].

3.4.2.2.5.2 Q Qualifier. Specified entries and their meanings are as follows:

E: The reported value is estimated due to the presence of interference. An explanatory note shall be included under "Comments" on the Cover Page (if the problem applies to all samples), or on the specific Form IA-IN or Form IB-IN (if it is an isolated problem).

N: Spiked sample recovery not within control limits.

*: Duplicate analysis not within control limits.

D: The reported value is from a dilution.

3.4.2.2.5.3 M (Analysis Method) Qualifier. Specified entries and their meanings are as follows:

P: ICP/AES

MS: ICP/MS

CV: Cold Vapor Atomic Absorption (AA) for mercury

AS: Spectrophotometric for cyanide

3.4.2.2.6 A brief physical description of aqueous/water and soil/sediment samples, both before and after digestion, shall be reported in the fields for color (before and after), clarity (before and after), texture, and artifacts. For aqueous/water samples, report color and clarity. For soil/sediment samples, report color, texture, and artifacts. The following descriptive terms are recommended:

- Color - red, blue, yellow, green, orange, violet, white, colorless, brown, grey, and black;
- Clarity - clear, cloudy, and opaque; and
- Texture - fine (powdery), medium (sand), and coarse (large crystals or rocks).

If artifacts are present, enter "Yes" in the artifacts field and describe the artifacts in the "Comments" field. If artifacts are not present, enter "No". Note any significant changes that occur during sample preparation (e.g., emulsion formation) in the "Comments" field. Enter any sample-specific comments concerning the analyte results in the "Comments" field. Also document raw instrument results that are less than minus the CRQL (-CRQL) in the "Comments" field and in the SDG Narrative.

3.4.2.2.7 If more than two additional analytes were requested, submit Form IB-IN as appropriate.

3.4.3 Initial (ICV) and Continuing Calibration Verification (CCV) [Form IIA-IN]. This form is not required for Level 2a deliverables.

3.4.3.1 Purpose. This form is used to report analyte recoveries from calibration verification solutions.

3.4.3.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.3.2.1 Enter the ICV Source and the CCV Source. Enter sufficient information to identify the manufacturer and the solution (lot) used.

Use additional Form(s) IIA-IN if more calibration verification sources were used.

3.4.3.2.2 Under "Initial Calibration Verification True", enter the value in ug/L, of the concentration of each analyte in the ICV Solution.

3.4.3.2.3 Under "Initial Calibration Verification Found", enter the most recent value (in ug/L), of the concentration of each analyte measured in the ICV Solution.

3.4.3.2.4 Under "Initial Calibration Verification %R", enter the value (to the nearest whole number) of the percent recovery computed according to the following equation:

EQ. 1 ICV Percent Recovery

$$\%R = \frac{\text{Found(ICV)}}{\text{True(ICV)}} \times 100$$

WHERE, "True(ICV)" is the true concentration of the analyte in the ICV Solution and "Found(ICV)" is the found concentration of the analyte in the ICV Solution.

3.4.3.2.5 Under "Continuing Calibration Verification True", enter the value (in ug/L) of the concentration of each analyte in the CCV Solution.

3.4.3.2.6 Under "Continuing Calibration Verification Found", enter the value (in ug/L) of the concentration of each analyte measured in the CCV Solution.

NOTE: The form contains two "Continuing Calibration Verification Found" columns. The column to the left shall contain values for the first CCV, and the column to the right shall contain values for the second CCV.

3.4.3.2.7 If more than one Form IIA-IN is required to report multiple CCVs, then the column to the left on the second form shall contain values for the third CCV, the column to the right shall contain values for the fourth CCV, and so on.

3.4.3.2.8 Under "Continuing Calibration Verification %R", enter the value (to the nearest whole number) of the percent recovery computed according to the following equation:

EQ. 2 CCV Percent Recovery

$$\%R = \frac{\text{Found(CCV)}}{\text{True(CCV)}} \times 100$$

WHERE, "True (CCV)" is the true concentration of the analyte in the CCV Solution, and "Found (CCV)" is the found concentration of the analyte in the CCV Solution.

NOTE: The form contains two "Continuing Calibration Verification %R" columns. Entries to these columns shall follow the sequence detailed above for entries to the "Continuing Calibration Verification Found" columns.

3.4.3.2.9 Under "M", enter the method used, as explained in Exhibit B, Section 3.4.2.2.5.3.

3.4.3.2.10 If more than one wavelength/mass is used to analyze an analyte, submit additional Form(s) IIA-IN as appropriate.

3.4.3.2.11 The order of reporting ICVs and CCVs for each analyte shall follow the chronological order in which the standards were run. Start with the first Form IIA-IN and move from the left to the right, continuing to the following Form IIA-INs as appropriate. For instance, the first ICV for all analytes shall be reported on the first Form IIA-IN. In a run where three CCVs were analyzed, the first CCV shall be reported in the left CCV column on the first Form IIA-IN and the second CCV shall be reported in the right column of the same form. The third CCV shall be reported in the left CCV column of the second Form IIA-IN. On the second Form IIA-IN, the ICV column and the right CCV column shall be left empty in this example. In the previous example, if a second run for an analyte was needed, the ICV of that run shall be reported on a third Form IIA-IN and the CCVs follow in the same fashion as explained before. In the case where two wavelengths are used for an analyte, all ICV and CCV results of one wavelength from all runs shall be reported before proceeding to report the results of the second wavelength used.

3.4.4 Blanks [Form III-IN]. Required for Level 2a and Level 2b deliverables. For Level 2a deliverables, only Preparation Blank data is required.

3.4.4.1 Purpose. This form is used to report analyte concentrations found in the ICB, CCB, and the Preparation Blank. For Level 2a deliverables, only the Preparation Blank analyte concentrations are required.

3.4.4.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.4.2.1 Enter "Soil", "Water", "Wipe", or "Filter" as appropriate as the matrix of the Preparation Blank. No abbreviations or other matrix descriptors may be used.

3.4.4.2.2 According to the matrix specified for the Preparation Blank, enter the Preparation Blank concentration units as "ug/L" for aqueous, "mg/kg" for soil/sediment, or "ug" for wipes and filters.

3.4.4.2.3 Under "Initial Calibration Blank", enter the concentration (in ug/L) of each analyte in the most recent ICB, as described in Exhibit B, Section 3.4.4.2.8, below.

3.4.4.2.4 For each calibration blank associated with a given method and instrument, enter "J" under the "C" qualifier field on Form III-IN if the absolute value of the analyte concentration is less than the CRQL for aqueous/water but greater than or equal to the MDL (in ug/L) determined for the default aqueous/water preparation method on that particular instrument.

For prepared calibration blanks (e.g., mercury and cyanide), the CRQL for aqueous/water and the MDL (in ug/L or converted to ug/L) for the preparation method, analysis, and instrument shall be used.

Enter "U" if the absolute value of the analyte in the blank is less than the MDL (in ug/L or converted to ug/L) obtained from the default aqueous/water preparation method on that instrument (unprepared blanks) or determined for the preparation method (prepared blanks).

3.4.4.2.5 Under "Continuing Calibration Blank 1", enter the concentration (in ug/L) of each analyte detected in the first required CCB analyzed after the ICB, as described in Exhibit B, Section 3.4.4.2.8, below. Enter any appropriate qualifier, as explained for the "Initial Calibration Blank", to the "C" qualifier column immediately following the "Continuing Calibration Blank 1" column.

3.4.4.2.6 If up to three CCBs were analyzed, complete the columns labeled "2" and "3" in accordance with the instructions for the "Continuing Calibration Blank 1" column. If more than three CCBs were analyzed, then complete additional Form(s) III-IN as appropriate.

3.4.4.2.7 Under "Preparation Blank", enter the concentration in ug/L for an aqueous/water blank, mg/kg for a soil/sediment blank, or mass in ug for a wipe or filter blank, of each analyte in the Preparation Blank, as described in Exhibit B, Section 3.4.4.2.8, below. Evaluate the absolute value of the analyte concentration to determine the appropriate concentration qualifier, as explained in Exhibit B, Section 3.4.2.2.5.1, and enter the qualifier in the "C" column immediately following the "Preparation Blank" column.

3.4.4.2.8 For all blanks, enter the concentration or mass (positive or negative) for each analyte, if the absolute value of the concentration or mass is greater than or equal to the appropriate MDL. Enter the CRQL value for the analyte, if the absolute value of the concentration or mass is less than the appropriate MDL.

3.4.4.2.9 Under "M", enter the method used, as explained in Exhibit B, Section 3.4.2.2.5.3.

3.4.4.2.10 If more than one wavelength/mass is used to analyze an analyte, submit additional Form(s) III-IN as appropriate.

3.4.4.2.11 The order of reporting ICBs and CCBs for each analyte shall follow the chronological order in which the blanks were run, starting with the first Form III-IN and moving from left to right and continuing to additional Forms III-IN. When multiple wavelengths are used for the analysis of one analyte, all the results of one wavelength shall be reported before proceeding to the next wavelength.

3.4.5 ICP-AES and ICP-MS Interference Check Sample (ICS) [Forms IVA-IN and IVB-IN]. This form is not required for Level 2a deliverables.

3.4.5.1 Purpose. These forms are used to report ICS results for each ICP-AES or ICP-MS instrument used in SDG analyses.

3.4.5.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions. The instructions for Forms IVA-IN and IVB-IN are identical except where specified.

3.4.5.2.1 For "ICP Instrument ID", enter an identifier that uniquely identifies a specific instrument within the Contractor laboratory. No two ICP instruments within a laboratory may have the same ICP Instrument ID.

3.4.5.2.2 Enter "ICSA Source" and "ICSB Source" as explained in Exhibit B, Section 3.4.3.2.1. For USEPA solutions, include in the source name a number identifying it (e.g., ICSA-1206).

3.4.5.2.3 Under "True Sol. A", enter the true concentration (in ug/L) of each analyte present in Solution A. Enter "0" for each analyte with no specified true value in Solution A.

3.4.5.2.4 Under "True Sol. AB", enter the true concentration (in ug/L) of each analyte present in Solution AB. Enter "0" for each analyte with no specified true value in Solution AB.

3.4.5.2.5 Under "Found Sol. A", enter the concentration (positive, negative, or zero, in ug/L). Enter the concentration of each analyte and interferent for ICP-AES, and of each analyte and interferent for ICP-MS in the initial analysis of Solution A as required in Exhibit D.

3.4.5.2.6 Under "Found Sol. A %R", enter the value (to the nearest whole number) of the percent recovery computed for True Solution A greater than zero according to the following equation:

EQ. 3 Initial Found Sol. A Percent Recovery

$$\%R = \frac{\text{Initial Found Solution A}}{\text{True Found Solution A}} \times 100$$

Leave the field blank if "True Solution A" equals zero.

3.4.5.2.7 Under "Found Sol. AB", enter the concentration (positive, negative, or zero, in ug/L. Enter the concentrations of each analyte and interferent for ICP-AES, and of each analyte and interferent for ICP-MS in the initial analysis of Solution AB as required in Exhibit D.

3.4.5.2.8 Under "Found Sol. AB %R", enter the value (to the nearest whole number) of the percent recovery computed for True Solution AB greater than zero according to the following equation:

EQ. 4 Initial Found Sol. AB Percent Recovery

$$\%R = \frac{\text{Initial Found Solution AB}}{\text{True Solution AB}} \times 100$$

Leave the field blank if "True Solution AB" equals zero.

3.4.5.2.9 If more ICS analyses were required, submit additional Form(s) IVA-IN and/or IVB-IN as appropriate.

3.4.5.2.10 The order of reporting ICSs for each analyte shall follow the chronological order in which the standards were run, starting with the first Form IVA-IN and/or IVB-IN and continuing to the following Forms IV-IN as appropriate. When multiple wavelengths/masses are used for one analyte, all the results of one wavelength/mass shall be reported before proceeding to the next wavelength/mass.

3.4.6 Matrix Spike Sample Recovery [Form VA-IN]

3.4.6.1 Purpose. This form is used to report results for the pre-digest spike.

3.4.6.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.6.2.1 Indicate the appropriate matrix and concentration units (ug/L for aqueous/water and mg/kg dry weight for soil/sediment) as explained in Exhibit B, Sections 2.5.2.1.1 and 3.3.8.

3.4.6.2.2 For "% Solids for Sample", enter the percent solids (see Exhibit B, Section 3.4.2.2.2) for the original sample of EPA sample number reported on the form. Note that this number must equal the one reported on Form IA-IN for that sample.

3.4.6.2.3 In the "EPA Sample No." box, enter an EPA sample number of the sample from which the spike results on this form were obtained.

3.4.6.2.4 Under "Control Limit %R", enter "75-125" if the sample result is less than or equal to four times the spike added value. If the sample result is greater than four times the Spike Added (SA) value, leave this field empty.

3.4.6.2.5 Under "Spiked Sample Result (SSR)", enter the measured value, in appropriate units, for each relevant analyte in the matrix spike sample. Enter the value of the result (if the concentration is greater than or equal to the MDL) corrected for any dilutions; or enter the CRQL for the analyte, adjusted if necessary and corrected for any dilutions if the concentration is less than the MDL. Enter any appropriate concentration qualifier, as explained in Exhibit B, Section 3.4.2.2.5.1, to the "C" qualifier column immediately following the "Spiked Sample Result (SSR)" column.

3.4.6.2.6 Under "Sample Result (SR)", enter the measured value for each required analyte in the sample (reported in "EPA Sample No."

box) on which the matrix spike was performed. Enter the value of the result (if the concentration is greater than or equal to the MDL) corrected for any dilutions; or enter the CRQL for the analyte, adjusted if necessary and corrected for any dilutions, if the concentration is less than the MDL. Enter any appropriate concentration qualifier, as explained in Exhibit B, Section 3.4.2.2.5.1, to the "C" qualifier column immediately following the "Sample Result (SR)" column.

3.4.6.2.7 Under "Spike Added (SA)", enter the value for the concentration of each analyte added to the sample. The same concentration units shall be used for "SSR", "SR", and "SA". If the "SA" concentration is specified in the contract, then the value added and reported shall be the specific concentration in appropriate units, corrected for spiked sample weight and percent solids (soil/sediment) or spiked sample volume (aqueous/water).

3.4.6.2.8 Under "%R", enter the value (to the nearest whole number) of the percent recovery for all spiked analytes computed according to the following equation:

EQ. 5 Spike Percent Recovery

$$\%R = \frac{SSR - SR}{SA} \times 100$$

Percent recovery shall be reported, whether it is negative, positive, or zero.

A value of zero shall be used in calculations for "SSR" or "SR" if the analyte value is less than the MDL.

3.4.6.2.9 Under "Q", enter "N" if the Spike Recovery (%R) is out of the control limits (75-125) and the Sample Result (SR) is less than or equal to four times the SA.

3.4.6.2.10 Under "M", enter the method used (as explained in Exhibit B, Section 3.4.2.2.5.3) or enter "NR" if the analyte is not required in the spike.

3.4.6.2.11 If different samples were used for spike sample analysis of different analytes, additional Form(s) VA-IN shall be submitted for each sample as appropriate.

3.4.7 Post-Digestion Spike Sample Recovery [Form VB-IN]

3.4.7.1 Purpose. This form is used to report results for the post-digest spike recovery which is based upon the addition of a known quantity of analyte to an aliquot of the digested sample.

3.4.7.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.7.2.1 In the "EPA Sample No." box, enter an EPA sample number of the sample from which the spike results on this form were obtained.

3.4.7.2.2 The "Control Limit %R" and "Q" fields shall be left blank until limits are established by USEPA. At that time, the Contractor will be informed how to complete these fields.

3.4.7.2.3 Under "Spiked Sample Result (SSR)", enter the measured value in appropriate units for each analyte in the post-digest spike sample. Enter the value of the result (if the concentration is greater than or equal to the MDL); or enter the CRQL for the analyte if the concentration is less than the MDL. Enter any appropriate concentration qualifier, as explained in Exhibit B, Section 3.4.2.2.5.1, to the "C" qualifier column immediately following the "Spiked Sample Result (SSR)" column.

3.4.7.2.4 Under "Sample Result (SR)", enter the measured value in appropriate units for the concentration of each analyte in the sample (reported in "EPA Sample No." box) on which the spike was performed. Enter the value (if the concentration is greater than or equal to the MDL); or enter the CRQL for the analyte if the concentration is less than the MDL. Enter any appropriate concentration qualifier, as explained in Exhibit B, Section 3.4.2.2.5.1, to the "C" qualifier column immediately following the "Sample Result (SR)" column.

3.4.7.2.5 Under "Spike Added (SA)", enter the value in appropriate units for each analyte added to the sample. If the "SA" concentration is specified in the contract, the value added and reported shall be that specific concentration in appropriate units.

3.4.7.2.6 Under "%R", enter the value (to the nearest whole number) of the percent recovery for all spiked analytes computed according to EQ. 5 in Exhibit B, Section 3.4.6.2.8. Percent recovery shall be reported, whether it is negative, positive, or zero. A value of zero shall be substituted for "SSR" or "SR" if the analyte value is less than the MDL.

3.4.7.2.7 Under "M", enter the method used (as explained in Exhibit B, Section 3.4.2.2.5.3) or enter "NR" if the spike was not required.

3.4.7.2.8 If different samples were used for spike sample analysis of different analytes, additional Form(s) VB-IN shall be submitted for each sample as appropriate.

3.4.8 Duplicates [Form VI-IN]

3.4.8.1 Purpose. The duplicates form is used to report results of duplicate analyses. Duplicate analyses are required for percent solids values and all analyte results.

3.4.8.2 Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.8.2.1 Indicate the appropriate matrix and concentration units (ug/L for aqueous/water and mg/kg dry weight for soil/sediment) as explained in Exhibit B, Sections 2.5.2.1.1 and 3.3.8.

3.4.8.2.2 For "% Solids for Sample", enter the percent solids (as explained in Exhibit B, Section 3.4.2.2.2) for the original sample of the EPA sample number reported on the form. Note that this number must equal the one reported on Form IA-IN for that sample.

3.4.8.2.3 In the "EPA Sample No." box, enter the EPA sample number of the sample from which the duplicate sample results on this form were obtained.

3.4.8.2.4 Under "Control Limit", enter the CRQL (in appropriate units, ug/L for aqueous/water or mg/kg percent solids basis corrected for the original sample weight and percent solids) for the analyte if either the sample or duplicate value was less than 5 times the CRQL. If the sample and duplicate values were greater than or equal to 5 times the CRQL, or if the sample and duplicate values were less than the CRQL, leave the field empty.

3.4.8.2.5 Under "Sample (S)", enter the original measured value for the concentration of each analyte in the sample (reported in "EPA Sample No." box) on which a duplicate analysis was performed. Concentration units are those specified on the form. Enter the value of the result (if the concentration is greater than or equal to the MDL) corrected for any dilutions; or enter the CRQL for the analyte, adjusted if necessary and corrected for any dilutions, if the concentration is less than the MDL. Enter any appropriate concentration qualifier, as explained in Exhibit B, Section 3.4.2.2.5.1, to the "C" qualifier column immediately following the "Sample (S)" column.

3.4.8.2.6 Under "Duplicate (D)", enter the measured value for each analyte in the duplicate sample. Concentration units are those specified on the form. Enter the value of the result (if the concentration is greater than or equal to the MDL) corrected for any dilutions; or enter the CRQL for the analyte, adjusted if necessary and corrected for any dilutions, if the concentration is less than the MDL. Enter any appropriate concentration qualifier, as explained in Exhibit B, Section 3.4.2.2.5.1, to the "C" qualifier column immediately following the "Duplicate (D)" column.

3.4.8.2.7 For soil/sediment samples, the concentration of the original sample shall be computed using the weight and percent solids of the original sample. The concentration of the duplicate sample shall be computed using the weight of the duplicate sample, but the percent solids of the original sample.

3.4.8.2.8 Under "RPD", enter the absolute value (to the nearest whole number) of the Relative Percent Difference (RPD) for all analytes detected above the MDL in either the sample or the duplicate, computed according to the following equation:

EQ. 6 Duplicate Sample Relative Percent Difference

$$RPD = \frac{|S - D|}{(S + D)/2} \times 100$$

A value of zero shall be substituted for "S" or "D" if the analyte concentration is less than the MDL in either one. If the analyte concentration is less than the MDL in both "S" and "D", leave the "RPD" field empty.

3.4.8.2.9 Under "Q", enter "*" if the duplicate analysis for the analyte is out of control. If both sample and duplicate values are greater than or equal to 5 times the CRQL, then the RPD must be less than or equal to 20% to be in control. If either the sample or duplicate value is less than 5 times the CRQL, then the absolute difference between the sample and duplicate values shall be less than the CRQL to be in control.

3.4.8.2.10 If both values are below the CRQL, then no control limit is applicable.

3.4.8.2.11 Under "M", enter method used as explained in Exhibit B, Section 3.4.2.2.5.3.

3.4.9 Laboratory Control Sample [Form VII-IN]

3.4.9.1 Purpose. This form is used to report results for the soil/sediment, aqueous/water, wipe, and filter Laboratory Control Samples (LCSs).

3.4.9.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.9.2.1 Under "True", enter the value (in ug/L for aqueous/water, mg/kg for soil/sediment, or ug for wipes and filters) of the concentration of each analyte in the LCS.

3.4.9.2.2 Under "Found", enter the measured mass or concentration (in ug/L, mg/kg, or ug as appropriate) of each analyte found in the LCS solution.

3.4.9.2.3 Under "%R", enter the value of the percent recovery (to the nearest whole number) computed according to the following equation:

EQ. 7 LCS Percent Recovery

$$\%R = \frac{\text{LCS Found}}{\text{LCS True}} \times 100$$

3.4.9.2.4 If the analyte concentration is less than the MDL, a value of zero shall be substituted for the LCS found.

3.4.9.2.5 Submit additional Form(s) VII-IN as appropriate if more than one LCS was required.

3.4.10 ICP-AES and ICP-MS Serial Dilutions [Form VIII-IN]

3.4.10.1 Purpose. This form is used to report results for ICP-AES and ICP-MS serial dilutions.

3.4.10.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.10.2.1 In the "EPA Sample No." box, enter EPA sample number of the sample for which serial dilution analysis results on this form were obtained.

3.4.10.2.2 Under "Initial Sample Result (I)", enter the measured value in appropriate units for each ICP analyte. Enter the value (if the concentration is greater than or equal to the MDL); or enter the CRQL if the concentration is less than the MDL. Enter any appropriate concentration qualifier, as explained in Exhibit B, Section 3.4.2.2.5.1, to the "C" qualifier column immediately following the "Initial Sample Result (I)" column.

3.4.10.2.3 Under "Serial Dilution Result (S)", enter the measured value in appropriate units for each ICP analyte in the diluted sample. Enter the value (if the concentration is greater than or equal to the MDL); or enter the CRQL if the concentration is less than the MDL. Enter any appropriate concentration qualifier, as explained in Exhibit B, Section 3.4.2.2.5.1, to

the "C" qualifier column immediately following the "Serial Dilution Result (S)" column.

3.4.10.2.4 Under "% Difference", enter the absolute value (to the nearest whole number) of the percent difference in the concentration of the required analytes, between the original sample and the diluted sample (adjusted for dilution) according to the following formula:

EQ. 8 Serial Dilution Percent Difference

$$\% \text{ Difference} = \frac{|I - S|}{I} \times 100$$

A value of zero shall be substituted for "S" if the analyte concentration is less than the MDL. If the analyte concentration in (I) is less than the MDL concentration, leave the "% Difference" field empty.

3.4.10.2.5 Under "Q", enter "E" if the percent difference is greater than 10% and the original sample concentration (reported on Form IA-IN) is greater than 50 times the MDL reported on Form IX-IN.

3.4.10.2.6 Under "M", enter the method of analysis for each analyte as explained in Exhibit B, Section 3.4.2.2.5.3.

3.4.11 Method Detection Limit (Annually) [Form IX-IN]

3.4.11.1 Purpose. This form documents the MDL for each preparation method and instrument that the Contractor used to obtain data for the SDG. Only the methods, instruments, and wavelengths used to generate data for the SDG shall be included. The Contractor shall also report the MDLs obtained from direct analysis, for each instrument used to obtain data for the SDG. The MDLs obtained from direct analysis shall be used in the qualification of data associated with samples and instrument QC standards that are not taken through a preparation procedure. Although the MDLs are determined annually, a copy of the annual MDLs shall be included with each Complete Sample Delivery Group File (CSF) on Forms IX-IN.

3.4.11.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.11.2.1 Enter the Analysis Method qualifier as specified in Exhibit B, Section 3.4.2.2.5.3, in the "Instrument Type:" field.

3.4.11.2.2 Enter the Instrument ID in the "Instrument ID:" field. These instrument IDs are used to uniquely identify each instrument that the laboratory used to perform the analysis.

3.4.11.2.3 Enter the date (formatted MM/DD/YYYY) on which the MDL calculation was updated in the "Date" field.

3.4.11.2.4 For "Preparation Method:", enter the method of preparation for which the MDLs listed on Form IX-IN were established. Use the appropriate sample preparation names as specified below:

200.7: ICP-AES aqueous/water samples
200.8: ICP-MS aqueous/water samples
3050B: ICP-AES, ICP-MS soil/sediment samples; ICP-AES wipe samples
7300: ICP-AES filter samples
7470A: Mercury aqueous/water samples
7471B: Mercury soil/sediment samples
Midi-distillation: Cyanide aqueous/water and soil/sediment samples
Micro-distillation: Cyanide aqueous/water and soil/sediment samples
3015A: Alternative for ICP-AES, ICP-MS aqueous/water samples
3051A: Alternative for ICP-AES, ICP-MS soil/sediment samples

3.4.11.2.5 Enter the concentration units (ug/L for aqueous/water, mg/kg for soil/sediment, or ug for wipes and filters) for the results reported on Form IX-IN in the "Concentration Units" field.

3.4.11.2.6 Under "Wavelength/Mass", enter the wavelength in nanometers (nm) or the mass in atomic mass units (amu) for each analyte for which an MDL has been established and is listed in the appropriate column. If more than one wavelength or mass is used for an analyte, use additional Form(s) IX-IN as appropriate to report the MDLs.

3.4.11.2.7 Under "MDL", enter the MDL [in ug/L for aqueous/water and non-prepared (direct analysis), mg/kg for soil/sediment, and ug for wipes and filters, to two significant figures for values less than 10, and three significant figures for values greater than or equal to 10] as determined by the Contractor for each analyte analyzed by the instrument for which the ID is listed on this form. When calculating MDL values, always round up to the appropriate significant figure (e.g., 14.81 rounds to 14.9 and 146.6 rounds to 147). This deviation from the rounding rule is necessary to prevent the reporting of detected values for results that fall in the noise region of the calibration curve.

NOTE: Zeros used to set the decimal point in a number less than one are not significant, but all trailing zeros are significant.

For example, a calculated MDL value of 0.074 ug/L will be reported as 0.074 and a calculated MDL value of 0.1 or 0.08 will be reported as 0.10 and 0.080, respectively.

3.4.11.2.8 Use additional Form(s) IX-IN if more preparation methods, instruments, and wavelengths or masses are used. Note that the date on this form shall not exceed the analysis dates in the CSF or precede them by more than one year.

3.4.11.2.9 Use the "Comments" section to indicate alternative wavelengths and the conditions under which they are used.

3.4.12 ICP-AES Interelement Correction Factors (Annually) [Form XA-IN]. This form is not required for Level 2a deliverables.

3.4.12.1 Purpose. This form documents for each ICP-AES instrument the interelement correction factors applied by the Contractor to obtain data for the SDG. Although the correction factors are

determined annually, a copy of the results of the annual interelement correction factors shall be included with each CSF on Form XA-IN and Form XB-IN as appropriate.

3.4.12.2 Instructions. Complete the header information according to instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.12.2.1 Enter the ICP-AES Instrument ID, which is a unique number designated by the Contractor to identify each ICP-AES instrument used to produce data in the CSF. If more than one ICP-AES instrument is used, submit additional Form(s) XA-IN as appropriate.

3.4.12.2.2 Report the date (formatted as MM/DD/YYYY) on which these correction factors were determined for use.

3.4.12.2.3 Under "Wavelength", list the wavelength in nm used for each ICP-AES analyte. If more than one wavelength is used, submit additional Form(s) XA-IN or Form(s) XB-IN as appropriate.

3.4.12.2.4 Under "Al", "Ca", "Fe", and "Mg", enter the correction factor (negative, positive, or zero) for each ICP-AES analyte. Correction factors for one other analyte shall be reported using the empty column and listing the analyte's chemical symbol in the blank two-space header field provided for that column.

3.4.12.2.5 If corrections are not applied for an analyte, a zero shall be entered for that analyte to indicate that the corrections were determined to be zero. Correction factors for more than one additional analyte shall be reported using Form XB-IN.

NOTE: Correction factors for Al, Ca, Fe, and Mg are all required and are to be listed first (as they appear on Form XA-IN).

3.4.13 ICP-AES Interelement Correction Factors (Annually) [Form XB-IN]. This form is not required for Level 2a deliverables.

3.4.13.1 Purpose. This form is used if correction factors for analytes other than Al, Ca, Fe, Mg, and one more analyte of the Contractor's choice were applied to the analytes analyzed by ICP-AES.

3.4.13.2 Instructions. Complete this form following the instructions for Form XA-IN (see Exhibit B, Section 3.4.12) by listing the chemical symbol for additional analytes in the heading of the empty columns in the two-space fields provided.

3.4.13.2.1 Columns of correction factors for additional analytes shall be entered left to right starting on Form XA-IN and proceeding to Form XB-IN, according to the alphabetical order of their chemical symbols.

3.4.14 Internal Standard Association [Form XI-IN]. This form is not required for Level 2a deliverables.

3.4.14.1 Purpose. This form is used to report the associated internal standards for each target analyte for each ICP-MS instrument used in SDG analyses.

3.4.14.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.14.2.1 For "ICP-MS Instrument ID", enter an identifier that uniquely identifies a specific instrument within the Contractor laboratory. No two ICP-MS instruments within a laboratory may have the same ICP-MS Instrument ID.

3.4.14.2.2 Report the date (formatted as MM/DD/YYYY) on which the ICP-MS tune was performed. This date shall not exceed the dates of analysis by ICP-MS in the CSF.

3.4.14.2.3 For "Assoc. Internal Standard 1", enter the chemical symbol of the internal standard associated with each target analyte in the run.

3.4.14.2.4 For "Assoc. Internal Standard 2" enter the chemical symbol of the second internal standard associated with each target analyte in the run, if a second internal standard is used for the analyte. Otherwise leave blank.

3.4.15 Preparation Log [Form XII-IN]

3.4.15.1 Purpose. This form is used to report the preparation run log.

3.4.15.1.1 All field samples and all Quality Control (QC) preparations (including duplicates, matrix spikes, LCSs, Performance Evaluation (PE) samples, Preparation Blanks (PBs), and re-preparations) associated with the SDG shall be reported on Form XII-IN. In addition, for mercury and cyanide analyses, all prepared calibration standards and QC standards (e.g., ICV, CCV, ICB, CCB) shall also be reported on Form XII-IN for Level 2b deliverables. For Level 2a deliverables, this form will contain data for the samples and associated QC.

3.4.15.1.2 Submit one Form XII-IN per batch, per method, if no more than 32 preparations, including QC preparations, were performed. If more than 32 preparations per batch, per method, were performed, then submit additional copies of Form XII-IN as appropriate. Submit a separate Form XII-IN for each batch.

3.4.15.1.3 The order in which the Preparation Logs are submitted is very important. Form XII-IN shall be organized by method, by batch. Later batches within a method shall follow earlier ones. Each batch shall start on a separate Form XII-IN.

3.4.15.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.15.2.1 For "Preparation Method", enter the method of preparation for which the preparations listed on Form XII-IN were made, as specified in Exhibit B, Section 3.4.11.2.4.

3.4.15.2.2 Under "EPA Sample No.", enter EPA sample number of each sample in the SDG, and of all other preparations such as duplicates, matrix spikes, LCSs, PBs, and re-preparations (all formatted according to Exhibit B, Table 2). Enter any digested/distilled calibration or QC standards. All EPA sample numbers shall be listed in ascending alphanumeric order, continuing to the next Form XII-IN if applicable.

3.4.15.2.3 Under "Preparation Date", enter the date (formatted MM/DD/YYYY) on which each sample was prepared for analysis by the method indicated in the header section of the form.

NOTE: The date never changes on a single Form XII-IN because the form shall be submitted per batch.

3.4.15.2.4 Under "Initial Weight/Volume", enter the wet weight (in g) of each soil/sediment sample or the initial volume (in mL) of each aqueous/water sample prepared for analysis by the method indicated in the header section of the form.

3.4.15.2.5 Under "Volume", enter the final volume (in mL) of the preparation for each sample prepared for analysis by the method indicated in the header section of the form. This field shall have a value for each sample listed.

3.4.16 Analysis Run Log [Form XIII-IN]. This form is not required for Level 2a deliverables.

3.4.16.1 Purpose. This form is used to report the sample analysis run log.

3.4.16.1.1 A run is defined as the totality of analyses performed by an instrument throughout the sequence initiated by, and including, the first SOW-required calibration standard or tune standard, and terminated by, and including, the CCV and CCB following the last SOW-required analytical sample.

3.4.16.1.2 All field samples and all QC analyses (including tunes, calibration standards, ICVs, CCVs, ICBs, CCBs, ICSs, LCSs, PBs, PE samples, duplicates, serial dilutions, matrix spikes, and post-digestion/distillation spikes) associated with the SDG shall be reported on Form XIII-IN. The run shall be continuous and inclusive of all analyses performed on the particular instrument during the run.

3.4.16.1.3 Submit one Form XIII-IN per run if no more than 32 analyses, including instrument calibration, were analyzed in the run. If more than 32 analyses were performed in the run, submit additional Form(s) XIII-IN as appropriate.

3.4.16.1.4 The order in which the Analysis Run Logs are submitted is very important. Form XIII-IN shall be organized by method, and by run. Later runs within a method shall follow earlier ones. Each analytical run shall start on a separate Form XIII-IN. Therefore, an instrument calibration or tune shall be the first entry on the form for each new run. In addition, the run is considered to have ended if it is interrupted for any reason, including termination for failing QC parameters.

3.4.16.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.16.2.1 For "Instrument ID", enter the Instrument ID which shall be an identifier designated by the Contractor to uniquely identify each instrument used to produce data which are required to be reported in the SDG deliverable. If more than one instrument is used, submit additional Form(s) XIII-IN as appropriate. The Instrument ID shall exactly match that reported on Forms IVA, IVB, IX, XA, XB, XI, XIV, XV, and XVI.

3.4.16.2.2 For "Analysis Method", enter the method code according to the specifications in Exhibit B, Section 3.4.2.2.5.3.

3.4.16.2.3 For "Start Date", enter the date (formatted MM/DD/YYYY) on which the analysis run was started.

3.4.16.2.4 For "End Date", enter the date (formatted MM/DD/YYYY) on which the analysis run was ended.

3.4.16.2.5 Under "EPA Sample No.", enter EPA sample number of each analysis, including all QC operations applicable to the SDG (formatted according to Exhibit B, Table 2). All EPA sample numbers shall be listed in increasing chronological (date and time) order of analysis, continuing to the next Form XIII-IN for the instrument run, if applicable. The analysis date and time of other analyses not associated with the SDG, but analyzed by the instrument in the reported analytical run, shall be reported. Those analyses shall be identified with EPA sample number of "ZZZZZZ".

3.4.16.2.6 Under "D/F", enter the dilution factor by which the final digestate or distillate needed to be diluted for each analysis to be performed. The dilution factor does not include the dilution inherent in the preparation as specified by the preparation procedures in Exhibit D.

3.4.16.2.7 The dilution factor is required for all entries on Form XIII-IN.

NOTE: For a particular sample, a dilution factor of "1.0" shall be entered if the digestate or distillate was analyzed without adding any further volume of dilutant, or any other solutions to the "Volume", or an aliquot of the "Volume" listed on Form XII-IN for that sample.

3.4.16.2.8 For USEPA-supplied solutions such as ICVs and ICSs, a dilution factor shall be entered if the supplied solution had to be diluted to a dilution different from that specified by the instructions provided with the solution. The dilution factor reported in such a case shall be that which would make the reported true values on the appropriate form for the solution equal to those that were supplied with the solution by USEPA. For instance, ICV-2(0887) has a true value of 104.0 ug/L at a 20-fold dilution. If the solution is prepared at a 40-fold dilution, a dilution factor of "2.0" shall be entered on Form XIII-IN and the uncorrected instrument reading is compared to a true value of 52 ug/L. In this example, Form IIA-IN will have a true value of 104.0 regardless of the dilution used. The found value for the ICV shall be corrected for the dilution listed on Form XIII-IN using the following formula:

EQ. 9 ICV/CCV Correction for Dilution

$$\text{Found value on Form II} = \text{Instrument readout (ug/L)} \times \text{D/F}$$

3.4.16.2.9 Under "Time", enter the time (in military format - HHMM) that each analysis was performed.

3.4.16.2.10 Under "Analytes", enter "X" in the column of the designated analyte to indicate that the analyte value was used from the reported analysis to report data in the SDG. Leave the column empty for each analyte if the analysis was not used to report the particular analyte.

3.4.16.2.11 Entering "X" appropriately is very important. The "X" is used to link the samples with their related QC. It also links the dilution factor with the appropriate result reported on Forms I-VIII. For each analyte result reported on

any of the Forms I-VIII, there shall be one, and only one, properly identified entry on Form XIII-IN for which an "X" is entered in the column for that analyte.

3.4.16.2.12 If, on Form XIII-IN, an "X" is entered in the column for an analyte for a field sample associated with a dilution factor greater than 1.0, flag the data for that analyte with a "D" on the appropriate Form IA-IN or Form IB-IN.

3.4.17 ICP-MS Tune [Form XIV-IN]. This form is not required for Level 2a deliverables.

3.4.17.1 Purpose. This form is used to report the tuning results for each ICP-MS instrument used in SDG analyses.

3.4.17.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.17.2.1 For "ICP-MS Instrument ID", enter an identifier that uniquely identifies a specific instrument within the Contractor laboratory. No two ICP-MS instruments within a laboratory may have the same ICP-MS Instrument ID.

3.4.17.2.2 Report the date (formatted as MM/DD/YYYY) on which the ICP-MS tune was performed. This date shall not exceed the dates of analysis by ICP-MS in the CSF.

3.4.17.2.3 For "Avg. Measured Mass (amu)", enter the average mass calculated from the five or more tune integrations (in atomic mass units) measured for each isotope.

3.4.17.2.4 For "Avg. Peak Width (amu)" enter the average peak width calculated from the analysis (in atomic mass units) at the percent of peak height recommended by the instrument manufacturer for each isotope.

3.4.17.2.5 For "% Height", enter the percent of peak height at which the Average Peak Width was measured.

3.4.17.2.6 For "%RSD", enter the percent Relative Standard Deviation of the absolute signals (intensities) for each isotope calculated from the five or more tune integrations.

3.4.18 ICP-MS Internal Standards Relative Intensity Summary [Form XV-IN]. This form is not required for Level 2a deliverables.

3.4.18.1 Purpose. This form is used to report the relative internal standard intensity levels during an ICP-MS run. The relative intensity of each of the internal standards in all analyses performed by ICP-MS must be reported on the form. If more than one ICP-MS instrument or run is used, submit additional Form(s) XV-IN as appropriate. All runs for the lowest alphanumeric instrument must be reported in ascending order before proceeding to the runs for the next highest instrument.

3.4.18.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.18.2.1 For "ICP-MS Instrument ID", enter an identifier that uniquely identifies a specific instrument within the Contractor laboratory. No two ICP-MS instruments within a laboratory may have the same ICP-MS Instrument ID.

3.4.18.2.2 For "Start Date", enter the date (formatted MM/DD/YYYY) on which the analysis run was started.

3.4.18.2.3 For "End Date", enter the date (formatted MM/DD/YYYY) on which the analysis run was ended.

3.4.18.2.4 Under "EPA Sample No.", enter EPA sample number of each analysis, including all QC operations applicable to the SDG. All EPA sample numbers must be listed in increasing chronological (date and time) order of analysis, continuing to the next Form XV for the instrument run, if applicable. The order must agree with the order reported on Form XIII-IN for that run. The analysis date and time of other analyses not associated with the SDG, but analyzed by the instrument in the reported analytical run, must be reported. Those analyses must be identified with an EPA Sample Number of "ZZZZZZ." Samples identified as "ZZZZZZ" need not have intensities reported for internal standards.

3.4.18.2.5 Under "Time", enter the time (in military format - HHMM) that each analysis was performed.

3.4.18.2.6 Under "Internal Standards %RI For:", enter the chemical symbol and elemental expression number of the internal standard in the "Element" header field provided to indicate the internal standard and elemental expression for which the Relative Intensity (RI) of the internal standards will be calculated in that column.

3.4.18.2.6.1 In the "Element" column, enter the internal standard relative intensity (to the nearest whole number) of the internal standard for each sample analysis listed on the form (excluding samples identified as "ZZZZZZ"). The internal standard relative intensity (%RI) is calculated using the following formula:

EQ. 10 Internal Standard Percent Relative Intensity

$$\%RI = \frac{I_n}{I_o} \times 100$$

WHERE, "I_o" is the intensity of the internal standard in the blank calibration standard and "I_n" is the intensity of the internal standard in the EPA sample number in the same units.

3.4.18.2.7 Under the "Q" column to the right of each "Element" column, enter an "R" if the %RI for a field sample, PE, duplicate, or spike is less than 60 or greater than 125; otherwise leave the field blank.

3.4.18.2.8 Columns of internal standard RI must be entered left to right, starting with the internal standards of the lower mass on the first Form XV-IN and proceeding to the following Form XV-IN as appropriate. All Forms XV-IN for the lowest numeric instrument must be reported in ascending order by the run number before proceeding to the next Form XV-IN.

3.4.18.3 All field samples and all QC samples (including calibration standards, ICVs, CCVs, ICBs, CCBs, ICSs, LCS, PBs, serial dilutions, duplicates, PE samples, and spikes) associated with the SDG must be reported on Form XV-IN. The run must be

continuous and inclusive of all analyses performed on the particular instrument during the run.

3.4.18.4 Submit one Form XV-IN per run if no more than 32 analyses, including instrument calibration, were analyzed in the run. If more than 32 analyses were performed in the run, submit additional Form(s) XV-IN as appropriate. Each new run must be started on the first line of Form XV-IN.

3.4.19 Initial Calibration [Form XVI-IN]. This form is not required for Level 2a deliverables.

3.4.19.1 Purpose: This form is used to report instrument response and concentration data for each standard in the initial calibration of an instrument. Submit one set of forms for each calibration performed for each instrument used to analyze samples in the reported SDG.

3.4.19.2 Instructions. Complete the header information according to the instructions in Exhibit B, Section 3.3. Complete the remainder of the form using the following instructions.

3.4.19.3 For Instrument ID, enter an identifier that uniquely identifies a specific instrument within the Contractor laboratory. No two instruments within a laboratory may have the same Instrument ID.

3.4.19.4 For "Start Date", enter the date (formatted MM/DD/YYYY) that the calibration was begun.

3.4.19.5 Under "True", enter the expected concentration or amount of each analyte in the calibration standard or level. It is not required to enter a value for each analyte in every standard, so long as a value is entered for each concentration used to calibrate the instrument for the analyte.

3.4.19.6 Under "Found", enter the actual measured found concentration or amount of each analyte in the calibration standard or level obtained when the calibration standard was re-fitted to the calibration equation.

3.4.19.7 Under "%D", enter the percent difference for each analyte at each concentration or amount used to calibrate the instrument other than the blank standard (S0). Calculate the percent difference (reported to the nearest whole number) using the following formula:

EQ. 11 Percent Difference

$$\%D = \frac{\text{True} - \text{Found}}{\text{True}}$$

3.4.19.8 Since a minimum of six levels of calibration are required (a blank plus five standards), submit a minimum of two Forms XVI-IN for each calibration performed. Submit a set of Forms XVI-IN for each calibration performed.

3.5 Sample Log-In Sheet [Form DC-1]

3.5.1 Purpose. This form is used to document the receipt and inspection of samples and containers. At least one original Form DC-1 is required for each sample shipping container (e.g., cooler). If the samples in a single sample shipping container must be assigned to

3.5.2 more than one SDG, the original Form DC-1 shall be placed with the deliverables for the SDG of the lowest alpha-numeric number and a copy of Form DC-1 shall be placed with the deliverables for the other SDG(s). The copies should be identified as "copy(ies)", and the location of the original should be noted on the copies.

3.5.3 Instructions

3.5.3.1 Sign and date the airbill. (If an airbill is not received, include a hardcopy receipt requested from the shipping company or a printout of the shipping company's electronic tracking information).

3.5.3.2 Examine the shipping container and record the presence/absence of custody seals and their condition (i.e., intact, broken) in Item 1.

3.5.3.3 Record the custody seal numbers in Item 2.

3.5.3.4 Open the container, remove the enclosed sample documentation, and record the presence/absence of USEPA forms (i.e., Traffic Reports/Chain of Custody Records, packing lists) and airbills or airbill stickers in Items 3 and 4. Specify if there is an airbill present or an airbill sticker in Item 4. Record the airbill or sticker number in Item 5.

3.5.3.5 Remove the samples from the shipping container(s), examine the samples and the sample tags (if present), and record the condition of the sample bottles (i.e., intact, broken, leaking) and presence or absence of sample tags in Items 6 and 7.

3.5.3.6 Record the presence or absence of a cooler temperature indicator bottle in Item 8.

3.5.3.7 Record the cooler temperature in Item 9.

3.5.3.8 Review the sample shipping documents and compare the information recorded on all the documents and samples and mark the appropriate answer in Item 10.

3.5.3.9 The log-in date should be recorded at the top of Form DC-1; record the date and time of cooler receipt at the laboratory in Items 11 and 12.

3.5.3.10 If there are no problems observed during receipt, sign and date (include the time) Form DC-1 and Traffic Report/Chain of Custody Record, and write the sample numbers in the "EPA Sample No." column.

3.5.3.11 Record the pH for all aqueous/water samples received.

3.5.3.12 Record the appropriate sample tags and assigned laboratory numbers, if applicable.

3.5.3.13 Any comments should be made in the "Remarks" column.

3.5.3.14 Record the fraction designation (if appropriate) and the specific area designation (e.g., refrigerator number) in the "Sample Transfer" block located in the bottom left corner of Form DC-1. Sign and date the sample transfer block.

3.5.3.15 For Items 1, 3, 4, 6, 7, 8, and 10, circle the appropriate response. Responses can be underlined if this form is completed by automated equipment. Unused columns and spaces shall be crossed out, initialed, and dated.

3.5.3.16 If there are problems observed during receipt (including samples that have not been preserved to the proper pH) or an answer marked with an asterisk (e.g., "absent*") was circled, contact SMO and document the contact as well as resolution of the problem on a CLP Communication Log. Following resolution, sign and date the forms as specified in the preceding paragraph and note, where appropriate, the resolution of the problem.

3.6 Full Inorganics Complete SDG File (CSF) Inventory Sheet [Form DC-2]

3.6.1 Purpose. The CSF Inventory Sheet is used to record both the inventory of Complete SDG File (CSF) documents and the number of documents in the original Sample Data Package which is sent to the USEPA Region.

3.6.2 Instructions

3.6.2.1 Organize all EPA-CSF documents as described in Exhibit B, Sections 2 and 3. Assemble the documents in Exhibit B, Section 2 in the order specified on Form DC-2, and stamp each page with the consecutive number. Inventory the CSF by reviewing the document numbers and recording page number ranges in the columns provided on Form DC-2. The Contractor shall verify and record in the "Comments" section on Form DC-2 all intentional gaps in the page numbering sequence (for example, "page numbers not used, XXXX-XXXX, XXXX-XXXX"). If there are no documents for a specific document type, enter an "NA" in the empty space.

3.6.2.2 Certain laboratory-specific documents related to the CSF may not fit into a clearly defined category. The laboratory should review Form DC-2 to determine if it is most appropriate to place them under Categories 32 through 35. Category 35 should be used if there is no appropriate previous category. These types of documents should be described or listed in the blanks under each appropriate category.

3.6.2.3 If it is necessary to insert new or inadvertently omitted documents, the Contractor shall follow these steps:

- Number all documents to be inserted with the next sequential numbers and file the inserts in their logical positions within the CSF (e.g., file document 1000 between documents 6 and 7).
- Identify where the inserts are filed in the CSF by recording the document numbers and their locations under the "Other Records" section of Form DC-2 (e.g., document 1000 is filed between 6 and 7).

4.0 DATA REPORTING FORMS

The data reporting forms are shown on the following pages.

USEPA - CLP

COVER PAGE

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

SOW No.: _____

EPA Sample No.	Lab Sample ID

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS interelement corrections applied?	(Yes/No)		
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)		
If yes, were raw data generated before application of background corrections?	(Yes/No)		

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

_____

_____

_____

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Data Package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: _____

Date: _____ Title: _____

USEPA - CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

Matrix: _____ Lab Sample ID: _____

% Solids: _____ Date Received: _____

Concentration Units (**ug/L, ug,** or **mg/kg** dry weight):

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

_____

_____

_____

EPA SAMPLE NO.

USEPA - CLP

1B-IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

Matrix: _____ Lab Sample ID: _____

% Solids: _____ Date Received: _____

Concentration Units (**ug/L**, **ug**, or **mg/kg** dry weight):

CAS No.	Analyte	Concentration	C	Q	M

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

_____

_____

_____

USEPA - CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

Initial Calibration Verification Source: _____

Continuing Calibration Verification Source: _____

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

USEPA - CLP

3-IN

BLANKS

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

Preparation Blank Matrix (soil/water/wipe/filter): _____

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): _____

Analyte	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
		C	1	C	2	C	3	C		C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

USEPA - CLP

4A-IN

ICP-AES INTERFERENCE CHECK SAMPLE

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

ICP-AES Instrument ID: _____ ICSA Source: _____

ICSB Source: _____

Concentration Units: ug/L

Analyte	True		Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Thallium						
Vanadium						
Zinc						

USEPA - CLP

4B-IN

ICP-MS INTERFERENCE CHECK SAMPLE

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

ICP-MS Instrument ID: _____ ICSA Source: _____

ICSB Source: _____

Concentration Units: ug/L

Analyte	True		Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Thallium						
Titanium						
Vanadium						
Zinc						

USEPA - CLP

5A-IN

MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

Matrix: _____

% Solids for Sample: _____

Concentration Units (ug/L or mg/kg dry weight): _____

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

Comments:

_____

_____

_____

USEPA - CLP

5B-IN

POST-DIGESTION SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

Matrix: _____

Concentration Units: (ug/L or mg/kg dry weight): _____

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

Comments:

_____

_____

_____

USEPA - CLP
6-IN
DUPLICATES

EPA SAMPLE NO.

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

Matrix: _____

% Solids for Sample: _____

Concentration Units (ug/L or mg/kg dry weight): _____

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

USEPA - CLP

7-IN

LABORATORY CONTROL SAMPLE

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

Analyte	Aqueous/Water (ug/L), Soil/Sediment (mg/kg), Wipe/Filter (ug)		
	True	Found	%R
Aluminum			
Antimony			
Arsenic			
Barium			
Beryllium			
Cadmium			
Calcium			
Chromium			
Cobalt			
Copper			
Iron			
Lead			
Magnesium			
Manganese			
Mercury			
Nickel			
Potassium			
Selenium			
Silver			
Sodium			
Thallium			
Vanadium			
Zinc			
Cyanide			

USEPA - CLP

8-IN

ICP-AES AND ICP-MS SERIAL DILUTIONS

EPA SAMPLE NO.

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

Matrix: _____

Concentration Units (ug/L or mg/kg dry weight): _____

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum							
Antimony							
Arsenic							
Barium							
Beryllium							
Cadmium							
Calcium							
Chromium							
Cobalt							
Copper							
Iron							
Lead							
Magnesium							
Manganese							
Nickel							
Potassium							
Selenium							
Silver							
Sodium							
Thallium							
Vanadium							
Zinc							

USEPA - CLP

9-IN

METHOD DETECTION LIMIT (MDL) (ANNUALLY)

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

Instrument Type: _____ Instrument ID: _____ Date: _____

Preparation Method: _____

Concentration Units (ug/L, mg/kg, or ug): _____

Analyte	Wavelength/Mass	MDL
Aluminum		
Antimony		
Arsenic		
Barium		
Beryllium		
Cadmium		
Calcium		
Chromium		
Cobalt		
Copper		
Iron		
Lead		
Magnesium		
Manganese		
Mercury		
Nickel		
Potassium		
Selenium		
Silver		
Sodium		
Thallium		
Vanadium		
Zinc		
Cyanide		

Comments:

_____

_____

_____

USEPA - CLP

10A-IN

ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

ICP-AES Instrument ID: _____ Date: _____

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	____
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Thallium						
Vanadium						
Zinc						

Comments:

_____

_____

_____

USEPA - CLP

10B-IN

ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

ICP-AES Instrument ID: _____ Date: _____

Analyte	Wave-length (nm)	Interelement Correction Factors for: _____	_____	_____	_____	_____
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Thallium						
Vanadium						
Zinc						

Comments:

_____

_____

_____

USEPA - CLP

11-IN

INTERNAL STANDARD ASSOCIATION

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

ICP-MS Instrument ID: _____ Date: _____

Analyte	Assoc. Internal Standard 1	Assoc. Internal Standard 2
Aluminum		
Antimony		
Arsenic		
Barium		
Beryllium		
Cadmium		
Calcium		
Chromium		
Cobalt		
Copper		
Iron		
Lead		
Magnesium		
Manganese		
Nickel		
Potassium		
Selenium		
Silver		
Sodium		
Thallium		
Vanadium		
Zinc		

USEPA - CLP

12-IN

PREPARATION LOG

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

Preparation Method: _____

EPA Sample No.	Preparation Date	Initial Weight/Volume (g) or (mL)	Final Volume (mL)

USEPA - CLP

13-IN

ANALYSIS RUN LOG

Lab Name: ____________________ Contract: ____________________

Lab Code: __________ Case No.: __________ Mod. Ref. No.: __________ SDG No.: __________

Instrument ID: ____________________ Analysis Method: ____________________

Start Date: ____________________ End Date: ____________________

EPA Sample No.	D/F	Time	Analytes																									
			Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn	CN		

USEPA - CLP

14-IN

ICP-MS TUNE

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

ICP-MS Instrument ID: _____ Date: _____

Element - Mass	Avg. Measured Mass (amu)	Average Peak Width (amu)	%Height	%RSD
Be - 9				
Mg - 24				
Mg - 25				
Mg - 26				
Co - 59				
In - 113				
In - 115				
Pb - 206				
Pb - 207				
Pb - 208				

Comments:

USEPA - CLP

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

ICP-MS Instrument ID: _____ Start Date: _____ End Date: _____

EPA Sample No.	Time	Internal Standards %RI For:									
		Element	Q	Element	Q	Element	Q	Element	Q	Element	Q

USEPA - CLP

16-IN

INITIAL CALIBRATION

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

Instrument ID: _____ Start Date: _____

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

Control Limits ±30

SAMPLE LOG-IN SHEET

Lab Name		Page __ of ___
Received By (Print Name)		Log-in Date
Received By (Signature)		
Case Number	Sample Delivery Group No.	Mod. Ref. No.

Remarks:	
1. Custody Seal(s)	Present/Absent* Intact/Broken
2. Custody Seal NOs.	_____ _____
3. Traffic Reports/Chain of Custody Records or Packing Lists	Present/Absent*
4. Airbill	Airbill/Sticker Present/Absent*
5. Airbill No.	_____ _____
6. Sample Tags Sample Tag Numbers	Present/Absent* Listed/Not Listed on Traffic Report/Chain of Custody Record
7. Sample Condition	Intact/Broken*/ Leaking
8. Cooler Temperature Indicator Bottle	Present/Absent*
9. Cooler Temperature	_____
10. Does information on Traffic Reports/Chain of Custody Records and sample tags agree?	Yes/No*
11. Date Received at Lab	_____
12. Time Received	_____

Sample Transfer	
Fraction	Fraction
Area#	Area#
By	By
On	On

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding		Remarks: Condition of Sample Shipment, etc.
			Sample Tag #	Assigned Lab #	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

* Contact SMO and attach record of resolution

Reviewed By	Logbook No.
Date	Logbook Page No.

FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME _____

CITY/STATE _____

CASE NO. _____ SDG NO. _____

SDG NOs. TO FOLLOW _____ _____ _____

MOD. REF. NO. _____

CONTRACT NO. _____

SOW NO. _____

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.6)

		PAGE NOs.		CHECK	
		FROM	TO	LAB	REGION
1.	Inventory Sheet (DC-2)				
2.	SDG Narrative				
3.	Sample Log-In Sheet (DC-1)				
4.	Traffic Report/Chain of Custody Record(s)				
5.	Cover Page				
Inorganic Analysis					
6.	Data Sheet (Form I-IN)				
7.	Initial & Continuing Calibration Verification (Form IIA-IN)				
8.	Blanks (Form III-IN)				
9.	ICP-AES Interference Check Sample (Form IVA-IN)				
10.	ICP-MS Interference Check Sample (Form IVB-IN)				
11.	Matrix Spike Sample Recovery (Form VA-IN)				
12.	Post-Digestion Spike Sample Recovery (Form VB-IN)				
13.	Duplicates (Form VI-IN)				
14.	Laboratory Control Sample (Form VII-IN)				
15.	ICP-AES and ICP-MS Serial Dilutions (Form VIII-IN)				
16.	Method Detection Limit (Annually) (Form IX-IN)				
17.	ICP-AES Interelement Correction Factors (Annually) (Form XA-IN)				
18.	ICP-AES Interelement Correction Factors (Annually) (Form XB-IN)				
19.	Internal Standard Association (Form XI-IN)				
20.	Preparation Log (Form XII-IN)				
21.	Analysis Run Log (Form XIII-IN)				
22.	ICP-MS Tune (Form XIV-IN)				

FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

		PAGE NOs.		CHECK	
		FROM	TO	LAB	REGION
23.	ICP-MS Internal Standards Relative Intensity Summary (Form XV-IN)				
24.	Initial Calibration (Form XVI-IN)				
25.	ICP-AES Raw Data				
26.	ICP-MS Raw Data				
27.	Mercury Raw Data				
28.	Cyanide Raw Data				
29.	Preparation Logs Raw Data				
30.	Percent Solids Determination Log				
31.	USEPA Shipping/Receiving Documents				
	Airbill (No. of Shipments_____)				
	Sample Tags				
	Sample Log-In Sheet (Lab)				
32.	Misc. Shipping/Receiving Records (list all individual records) Communication Logs				
	_____				
	_____				
33.	Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
	_____				
	_____				
34.	Internal Original Sample Prep & Analysis Records (describe or list)				
	Prep Records _____				
	Analysis Records _____				
	PE Instructions _____				
	Description _____				
35.	Other Records (describe or list)				
	Communication Logs				
	_____				
	_____				

36. Comments:

_____

_____

_____

Completed by:
(CLP Lab) _____ _____ _____
(Signature) (Print Name & Title) (Date)

Audited by:
(USEPA) _____ _____ _____
(Signature) (Print Name & Title) (Date)

EXHIBIT C

INORGANIC TARGET ANALYTE LIST
WITH CONTRACT REQUIRED
QUANTITATION LIMITS

Exhibit C - Inorganic Target Analyte List With Contract Required Quantitation Limits

Table of Contents

Section		Page
1.0	INORGANIC TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQLs)	3

1.0 INORGANIC TARGET ANALYTE LIST AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQLS)

Table 1. CRQLS for ICP-AES

Analyte	CAS Number	ICP-AES CRQL for Water[1,2,3] (µg/L)	ICP-AES CRQL for Soil[1,2,3,4] (mg/kg)	ICP-AES for Wipes [1,2] (µg)	ICP-AES for Filters [1,2] (µg)
Aluminum	7429-90-5	200	20	20	2
Antimony	7440-36-0	60	6	6	0.6
Arsenic	7440-38-2	10	1	1	0.1
Barium	7440-39-3	200	20	20	2
Beryllium	7440-41-7	5	0.5	0.5	0.05
Cadmium	7440-43-9	5	0.5	0.5	0.05
Calcium	7440-70-2	5000	500	500	50
Chromium	7440-47-3	10	1	1	0.10
Cobalt	7440-48-4	50	5	5	0.5
Copper	7440-50-8	25	2.5	2.5	0.25
Iron	7439-89-6	100	10	10	1
Lead	7439-92-1	10	1	1	0.1
Magnesium	7439-95-4	5000	500	500	50
Manganese	7439-96-5	15	1.5	1.5	0.15
Nickel	7440-02-0	40	4	4	0.4
Potassium	7440-09-7	5000	500	500	50
Selenium	7782-49-2	35	3.5	3.5	0.35
Silver	7440-22-4	10	1	1	0.10
Sodium	7440-23-5	5000	500	500	50
Thallium	7440-28-0	25	2.5	2.5	0.25
Vanadium	7440-62-2	50	5	5	0.5
Zinc	7440-66-6	60	6	6	0.60

[1] The CRQLs are the minimum levels of quantitation acceptable under the contract Statement of Work (SOW).

[2] Subject to the restrictions specified in Exhibit D, any analytical method specified in ISM01.2 Exhibit D may be utilized as long as the documented MDLs are less than one-half the CRQLs.

[3] Changes to the Inorganic Target Analyte List (TAL) (e.g., adding an additional analyte) or CRQLs may be requested under the modified analysis clause in the contract.

[4] The CRQLs for soil/sediment are based on 100% solids and on the minimum weights and volumes specified in Exhibit D.

Table 2. CRQLS for ICP-MS

Analyte	CAS Number	ICP-MS CRQL for Water[1,2,3] (µg/L)	ICP-MS CRQL for Soil[1,2,3,4] (mg/kg)
Aluminum	7429-90-5	20	--
Antimony	7440-36-0	2	1
Arsenic	7440-38-2	1	0.5
Barium	7440-39-3	10	5
Beryllium	7440-41-7	1	0.5
Cadmium	7440-43-9	1	0.5
Calcium	7440-70-2	500	--
Chromium	7440-47-3	2	1
Cobalt	7440-48-4	1	0.5
Copper	7440-50-8	2	1
Iron	7439-89-6	200	--
Lead	7439-92-1	1	0.5
Magnesium	7439-95-4	500	--
Manganese	7439-96-5	1	0.5
Nickel	7440-02-0	1	0.5
Potassium	7440-09-7	500	--
Selenium	7782-49-2	5	2.5
Silver	7440-22-4	1	0.5
Sodium	7440-23-5	500	--
Thallium	7440-28-0	1	0.5
Vanadium	7440-62-2	5	2.5
Zinc	7440-66-6	2	1

[1] The CRQLs are the minimum levels of quantitation acceptable under the contract Statement of Work (SOW).

[2] Subject to the restrictions specified in Exhibit D, any analytical method specified in ISM01.2 Exhibit D may be utilized as long as the documented MDLs are less than one-half the CRQLs.

[3] Changes to the Inorganic Target Analyte List (TAL) (e.g., adding an additional analyte) or CRQLs may be requested under the modified analysis clause in the contract.

[4] The CRQLs for soil/sediment are based on 100% solids and on the minimum weights and volumes specified in Exhibit D.

Table 3. CRQLS for Mercury by Cold Vapor Atomic Absorption (CVAA)

Analyte	CAS Number	CRQL for Water[1,3] (µg/L)	CRQL for Soil[1,2,3] (mg/kg)
Mercury	7439-97-6	0.2	0.1

[1] The CRQLs are the minimum levels of quantitation acceptable under the contract Statement of Work (SOW).

[2] The CRQL for soil/sediment are based on 100% solids and on the minimum weights and volumes specified in Exhibit D.

[3] Changes to the CRQL may be requested under the Modified Analysis clause in the contract.

Table 4. CRQLS for Cyanide by Spectrophotometry

Analyte	CAS Number	CRQL for Water[1,2,3,5] (µg/L)	CRQL for Soil[1,2,3,4,5] (mg/kg)
Cyanide	57-12-5	10	0.5

[1] The CRQLs are the minimum levels of quantitation acceptable under the contract Statement of Work (SOW).

[2] Subject to the restrictions specified in Exhibit D, any analytical method specified in ISM01.2 Exhibit D may be utilized as long as the documented MDLs are less than one-half the CRQLs.

[3] Changes to the CRQL may be requested under the Modified Analysis clause in the contract.

[4] The CRQL for soil/sediment are based on 100% solids and on the minimum weights and volumes specified in Exhibit D.

[5] Use the CRQLs for cyanide regardless of the preparation or analysis method used to analyze the samples.

EXHIBIT D

INTRODUCTION TO ANALYTICAL METHODS

Exhibit D - Analytical Methods

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Part A - Analytical Methods for Inductively Coupled Plasma - Atomic Emission Spectroscopy

Part B - Analytical Methods for Inductively Coupled Plasma - Mass Spectrometry

Part C - Analytical Methods for Cold Vapor Mercury Analysis

Part D - Analytical Methods for Total Cyanide Analysis

1.0 INTRODUCTION

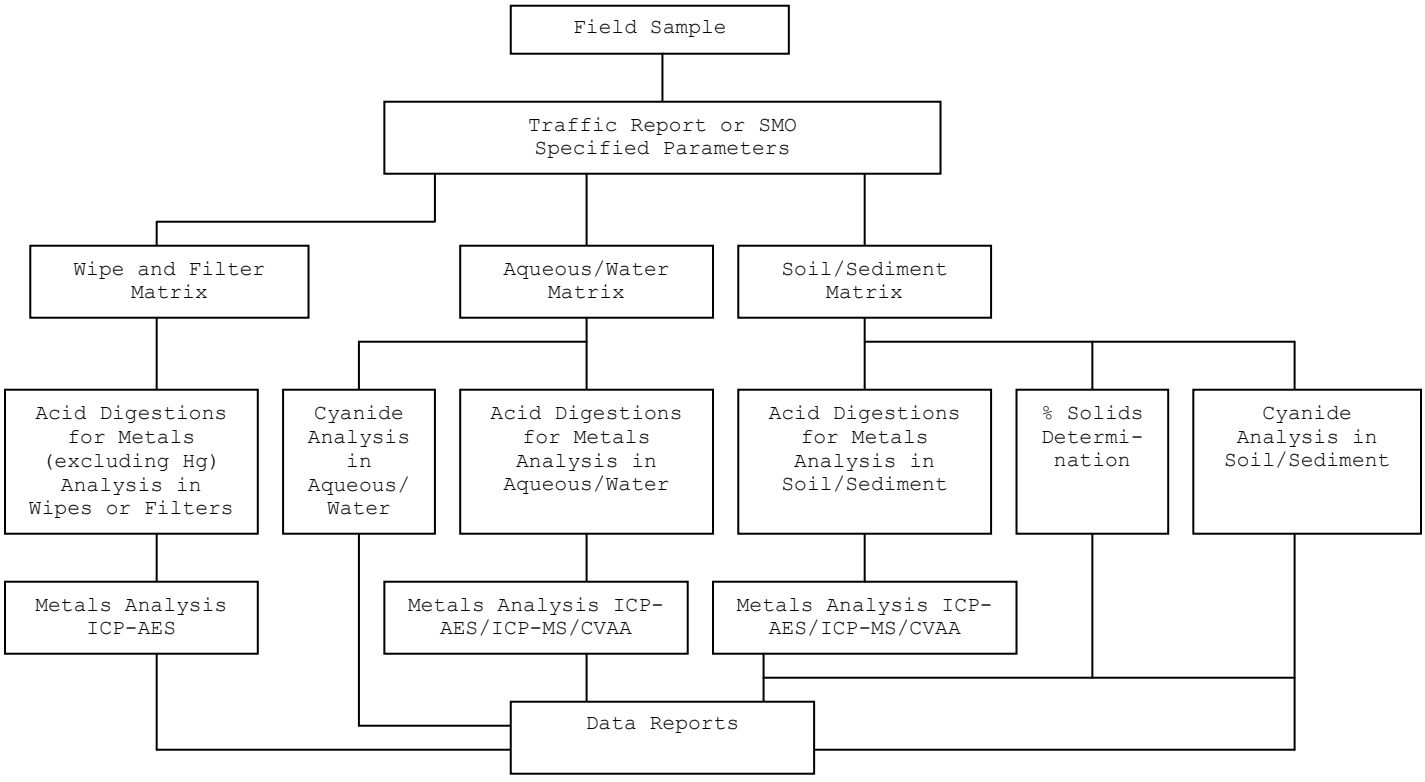
The inorganic analytical service provides a contractual framework for laboratories. This framework applies U.S. Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) analytical methods for the isolation, detection, and quantitative measurement of 23 metals (including mercury) and cyanide in aqueous/water, soil/sediment, and 22 metals (excluding mercury) in surface wipe and air filter samples.

The analytical methods that follow are designed to analyze aqueous/water, soil/sediment, surface wipe, and air filter samples from hazardous waste sites for the presence of inorganic analytes contained on the Inorganic Target Analyte List (TAL) (see Exhibit C). The inorganic methods include alternative analysis procedures for some analytes, multiple preparation procedures, and Quality Control (QC) requirements. A default preparation method is provided for each matrix, with alternative methods available for USEPA Regional use. Analytical techniques in the inorganic methodologies include Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP-AES), Inductively Coupled Plasma - Mass Spectrometry (ICP-MS), Cold Vapor Atomic Absorption Spectroscopy (CVAA), and Spectrophotometry.

1.1 Inorganic Methods Flow Chart

Figure 1 outlines the general analytical scheme the Contractor shall follow in performing standard trace metals and cyanide analyses under this contract.

1.2 Figure 1 – Inorganic Methods Flow Chart



1.3 Glassware Cleaning

Lab glassware to be used within the metals analysis must be acid cleaned according to USEPA's manual, Methods for Chemical Analysis of Water and Wastes (EPA Manual 600479020) or an equivalent procedure. Equivalent procedures are those which meet the Preparation Blank requirements in the Statement of Work (SOW). An electronic version of this manual can be found via USEPA's National Environmental Publications Internet Site (NEPIS) at http://nepis.epa.gov/EPA/html/Pubs/pubtitleORD.htm (search on EPA Manual 600479020).

1.4 Standard Stock Solutions

Stock solutions to be used for preparing instrument or method standards may be purchased or prepared as described in the individual methods of Exhibit D, Section 7 (Reagents and Standards).

1.5 Verification of Aqueous/Water Sample Preservation

1.5.1 At the time of sample receipt, the Contractor shall check the pH of the sample and note in a sample receipt log if the pH is less than or equal to 2 for metals. In addition, it should be noted if the pH is greater than or equal to 12 for a cyanide sample. If a metals sample has not been properly preserved, the Contractor may adjust the pH of a sample for metals, allow time for the sample to equilibrate prior to digestion, and note this in the Sample Delivery Group (SDG) Narrative. The Contractor shall not adjust the pH of a sample for cyanide. If the pH of a cyanide sample is <12, contact the Sample Management Office (SMO) for further instructions before proceeding with the preparation and analysis. The determination of pH for soil/sediment samples is not required.

1.5.2 Before preparation is initiated for an aqueous/water cyanide sample, the Contractor shall test for the presence of sulfides and oxidizing agents (e.g., residual chlorine). The test for sulfides shall be performed by placing a drop of the sample on a strip of lead acetate paper. If the test strip turns black, the Contractor shall treat the total volume of sample with powdered cadmium carbonate. Yellow cadmium sulfide precipitates when the sample contains sulfide. This operation shall be repeated until a drop of the treated sample solution does not darken the lead acetate test paper. The solution shall be filtered through a dry filter paper into a dry beaker, and the volume of sample to be used for analysis shall be measured from the filtrate. It is recommended that the Contractor avoid a large excess of cadmium carbonate and a long contact time in order to minimize a loss by complexation or occlusion of cyanide on the precipitated material. The test for oxidizing agents shall be performed by placing a drop of the sample on a strip of potassium iodide - starch test paper (KI - starch paper). If the test strip turns blue, the Contractor shall contact SMO for further instructions from the Region before proceeding with sample preparation and analysis. The Contractor shall document the presence of sulfides or oxidizing agents in the SDG Narrative.

1.6 Percent Solids Determination Procedure

1.6.1 Immediately following the weighing of the sample to be processed for analysis, add 5-10 g of sample to a tared disposable weigh boat. Weigh and record the weight to the nearest 0.01 g.

1.6.2 Place weigh boat plus sample, with the cover tipped to allow for moisture escape, in a drying oven maintained at 105°C (±5°C). Sample handling and drying should be conducted in a well-ventilated area.

1.6.3 Dry the sample overnight (12-24 hours) but no longer than 24 hours. If dried less than 12 hours, it must be documented that constant weight was attained.[1] Remove the sample from the oven and cool in a desiccator with the weigh boat cover in place before weighing. Weigh and record weight to nearest 0.01 g. Do not analyze the dried sample. Calculate percent solids by the formula below. The value thus obtained will be reported on the appropriate Forms IA-IN and IB-IN and, where applicable, Forms VA-IN and VI-IN. This value will be used for calculating analytical concentration on a dry weight basis.

EQ. 1 Percent Solids

$$\% \text{ Solids} = \frac{\text{Sample Dry Weight}}{\text{Sample Wet Weight}} \times 100$$

1.6.4 If the sample contains less than 50% solids, the Contractor shall notify SMO immediately of the samples impacted. After notification to SMO, the Contractor shall proceed with sample analysis and document the issue in the SDG Narrative except as noted below.

1.6.5 For 14- and 21-day turnaround samples without Preliminary Results, the Contractor is required to perform the percent solids determination prior to sample preparation and analysis. Samples containing percent solids less than or equal to 30% are required to be prepared at higher sample weights to yield a dry weight equivalent to the weight range specified in the preparation method. Calculate the required sample weight by dividing the minimal method weight by the percent solids expressed as a decimal. This requirement does not apply to 7-day turnaround or Preliminary Results samples.

EQ. 2 Required Sample Weight

$$\text{Req. Wt} = \frac{\text{Minimal Method Wt}}{\%\text{Solids}/100}$$

1.7 Insufficient Sample Volume

If insufficient sample volume (less than the required amount) is received to perform the analysis, the Contractor shall contact SMO

[1] Drying time is defined as the elapsed time in the oven; thus raw data must record the time in and out of the oven to document the 12-hour drying time minimum. In the event it is necessary to demonstrate the attainment of constant weight, data must be recorded for a minimum of two repetitive weigh/dry/desiccate/weigh cycles with a minimum of 1-hour drying time in each cycle. Constant weight would be defined as a loss in weight of no greater than 0.01 g between the start weight and final weight of the last cycle.

to apprise them of the problem. SMO will contract the USEPA Region for instructions. The Region will either approve that no sample analysis be performed or will require that a reduced volume be used for the sample analysis. No other changes in the analysis will be permitted. SMO will notify the Contractor of the Region's decision. The Contractor shall document the Region's decision in the SDG Narrative.

1.8 Sample Mixing

Unless instructed otherwise by the USEPA Regional CLP Project Officer (CLP PO), all samples shall be mixed thoroughly prior to aliquoting for digestion. There is no specific procedure provided herein for homogenization of soil/sediment samples; however, an effort should be made to obtain a representative aliquot. Coarse stones, twigs, or debris that are not representative of the soil/sediment should be excluded from the aliquot. For multi-phase samples, see Exhibit D, Section 10.1.

1.9 Undiluted Analysis

1.9.1 Unless the dilution-adjusted detection limits for all analytes are below the Contract Required Quantitation Limits (CRQLs), all samples for multi-analyte analysis shall be run undiluted. When an analyte concentration exceeds the calibrated range, appropriate dilution (but not below the CRQL) and re-analysis is required. The Contractor shall use the least dilution necessary to bring the analyte(s) instrument reading within the upper 75% of the calibrated range and report the highest valid value for each analyte as measured from the undiluted and diluted analyses. Unless the Contractor can submit proof that dilution was required to obtain valid results, or to avoid damage to ICP-MS instruments, both diluted and undiluted sample measurements must be contained in the raw data.

1.9.2 For single analyte analysis, a diluted sample analysis may be the only sample analysis performed if the analyte's instrument result is in the upper 75% of the calibrated range. An undiluted sample analysis does not have to be performed in this case. The sample and its associated matrix spike and duplicate shall initially be run at the same dilution.

1.9.3 All sample dilutions shall be made with reagent water appropriately acidified (except for cyanide) to maintain constant acid strength.

1.10 Dissolved Metals

For samples filtered in the field, the Contractor shall digest the samples designated as dissolved metals. If dissolved metals are requested by USEPA Regional Offices, the Contractor shall digest the field-filtered samples designated as dissolved metals. Only if requested as a Modified Analysis shall the Contractor filter samples prior to digestion or perform direct analysis.

1.11 Replicate Integrations/Exposures

If the Contractor analyzes samples using multiple integrations/exposures, the Contractor must use the data obtained from all integrations/exposures to calculate the final sample result even if more than the minimum number of integrations/exposures are taken.

1.12 Raw Data Requirements

The Contractor is reminded and cautioned that the collection and provision of raw data may or may not be referred to within the individual methods of Exhibit D or the Quality Assurance (QA) protocol of Exhibit E. The raw data deliverable requirements are specified in Exhibit B, Section 2.5.2.3. Raw data collected and provided in association with the performance of analyses under this contract shall conform to the appropriate provisions of Exhibit B.

1.13 Quality Control Samples

If the Sampler designated two (or more) samples as QC for the same matrix, and the QC samples are not specifically labeled with the analysis they are to be used for (dissolved metals and total metals), then the Contractor is to contact SMO to report the issue. SMO shall then contact the USEPA Region and notify the Contractor of the Regional decision. If the Sampler did not designate QC samples, then the Contractor is to select a sample for QC and to contact SMO to report the issue.

1.14 Safety

The toxicity or carcinogenicity of each reagent used in this SOW has not been precisely defined; however, each chemical compound should be treated as a potential health hazard. From this viewpoint, exposure to these chemicals must be reduced to the lowest possible level by whatever means available. The laboratory is responsible for maintaining a current awareness file of Occupational Safety and Health Administration (OSHA) regulations regarding the safe handling of chemicals specified in this method. A reference file of material handling data sheets should also be made available to all personnel involved in the chemical analysis.

1.15 Pollution Prevention

Pollution prevention encompasses any technique that reduces or eliminates the quantity or toxicity of waste at the point of generation. Numerous opportunities for pollution prevention exist in laboratory operation. USEPA has established a preferred hierarchy of environmental management techniques that places pollution prevention as the management option of first choice. Whenever feasible, laboratory personnel should use pollution prevention techniques to address their waste generation. When wastes cannot be feasibly reduced at the source, USEPA recommends recycling as the next best option.

1.16 Waste Management

USEPA requires that laboratory waste management practices be conducted consistent with all applicable rules and regulations. USEPA urges laboratories to protect the air, water, and land by minimizing and controlling all releases from hoods and bench operations, complying with the letter and spirit of any sewer discharge permits and regulations, and by complying with all solid and hazardous waste regulations, particularly the hazardous waste identification rules and land disposal restrictions.

EXHIBIT D - PART A

ANALYTICAL METHODS
FOR
INDUCTIVELY COUPLED PLASMA -
ATOMIC EMISSION SPECTROSCOPY

Exhibit D – Analytical Methods for ICP-AES

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1.0 SCOPE AND APPLICATION

This method provides procedures for the use of Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP-AES) to determine the concentrations of total recoverable and dissolved elements in aqueous/water, soil/sediment, surface wipe, and air filter samples taken from hazardous waste sites. All metals (except mercury) contained in the Inorganic Target Analyte List (TAL) in Exhibit C are quantitated by this method.

2.0 SUMMARY OF METHOD

2.1 General Method Overview

This method describes the multi-element determination of trace metals by Inductively Coupled Plasma – Atomic Emission Spectroscopy (ICP-AES). Aqueous/water, soil/sediment, wipe, and air filter samples are treated with acids and heat to solubilize the metals present. These digestates are then analyzed for trace metals by an atomic emission optical spectroscopic technique. Samples are nebulized and the aerosol that is produced is transported to a plasma torch where excitation occurs. Characteristic atomic-line emission spectra are produced by a radio-frequency inductively coupled plasma. The spectra are dispersed and the intensities of the lines are monitored by a photosensitive device. The signals from the photosensitive device are processed by a computer. A background correction technique is required to compensate for variable background contribution to the spectra of trace elements. Background must be measured adjacent to analyte lines on samples during analysis. The position selected for the background intensity measurement, on either or both sides of the analytical line, will be determined by the complexity of the spectrum adjacent to the analyte line. The position used must be free of spectral interference and reflect the same change in background intensity as occurs at the analyte wavelength measured. Background correction is not required in cases of line broadening where a background correction measurement would actually degrade the analytical result.

2.2 Summary of Digestion Procedures

2.2.1 Hotplate Acid Digestion of Aqueous/Water Samples (based on USEPA 200.7)

2.2.2 Hotplate Acid Digestion of Soil/Sediment Samples (based on USEPA 3050B)

2.2.3 Hotplate Acid Digestion of Wipe Samples (based on USEPA 3050B)

2.2.4 Hotplate Acid Digestion of Filter Samples (based on a modified version of NIOSH 7300)

2.2.5 Alternative digestion procedures are included in Section 18 of this Exhibit.

3.0 DEFINITIONS

See Exhibit G - Glossary of Terms for a complete list of definitions.

4.0 INTERFERENCES

Several types of interference effects may contribute to inaccuracies in the determination of trace elements in aqueous/water and soil/sediments. To prevent this, appropriate steps must be taken in all analyses to ensure that potential interferences are taken into account. This is especially true when dissolved solids exceed 1500 mg/L and when total elements are determined after the appropriate digestion procedures are performed. Several types of interferences are given in Sections 4.1 through 4.3 below.

4.1 Spectral Interferences

Spectral interferences can be categorized as: (1) overlap of a spectral line from another element; (2) unresolved overlap of molecular band spectra; (3) background contribution from continuous or recombination phenomena; (4) and/or background contribution from stray light from the line emission of high concentration elements. The first of these effects can be compensated by utilizing a computer correction of the raw data. This would require the monitoring and measurement of the interfering element. The second effect may require selection of an alternate wavelength. The third and fourth effects can usually be compensated by a background correction adjacent to the analyte line. In addition, users of simultaneous multi-element instrumentation must assume the responsibility of verifying the absence of spectral interference from an element that could occur in a sample but for which there is no channel in the instrument array.

4.2 Physical Interferences

Physical interferences are generally considered to be effects associated with the sample nebulization and transport processes. Such properties as change in viscosity and surface tension can cause significant inaccuracies, especially in samples which may contain high dissolved solids and/or acid concentrations. The use of a peristaltic pump may minimize these interferences. If these types of interferences are present, they must be reduced by dilution of the sample.

Another problem which can occur from high dissolved solids is salt buildup at the tip of the nebulizer. This affects aerosol flow rate causing instrumental drift. Wetting the argon prior to nebulization, the use of a tip washer, or sample dilution has been used to control this problem. Also, it has been reported that better control of the argon flow rate improves instrument performance. This is accomplished with the use of mass flow controllers.

Internal standardization may be effectively used to compensate for many physical interference effects.

4.3 Chemical Interferences

Chemical interferences are characterized by molecular compound formation, ionization effects, and solute vaporization effects. Normally these effects are not pronounced with the Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP-AES) technique, however, if observed they can be minimized by careful selection of operating conditions (that is, incident power, observation position, and so forth), by buffering of the sample, and by matrix matching. These types of interferences can be highly dependent on matrix type and the specific element.

5.0 SAFETY

See Section 1.14 in Exhibit D - Introduction to Analytical Methods.

6.0 EQUIPMENT AND SUPPLIES

Brand names, suppliers, and part numbers are for illustrative purposes only. No endorsement is implied. Equivalent performance may be achieved using equipment and supplies other than those specified here; however, a demonstration of equivalent performance meeting the requirements of this Statement of Work (SOW) is the responsibility of the Contractor. The Contractor shall document any use of alternate equipment or supplies in the Sample Delivery Group (SDG) Narrative.

6.1 Glassware/Labware

6.1.1 250 mL beaker or other appropriate digestion vessel (glass or plastic)

6.1.2 Watch glasses (glass or plastic)

6.1.3 Funnels

6.1.4 Graduated cylinders

6.1.5 Various volumetric flasks and pipets (Class A)

6.1.6 Thermometer that covers a range of 0-200°C

6.1.7 Whatman No. 41 filter paper (or equivalent)

6.1.8 Hotplate, block digester, or other heating source capable of maintaining 95°C (±3°C).

6.1.9 Balances – Top loader balance, 300 gram (g) capacity, and a minimum sensitivity of ±1.0 milligram (mg)

6.2 Equipment and Supplies for Microwave Digestion

The equipment and supplies listed in this section are used if one of the alternate microwave sample preparation procedures was approved for use by the USEPA Region.

6.2.1 Whatman No. 41 filter paper (or equivalent)

6.2.2 Disposable polypropylene filter funnel

6.2.3 Polyethylene bottles, 125 mL, with caps

6.2.4 Microwave oven with programmable power settings up to at least 600 watts.

6.2.5 The system must use polytetrafluoroethylene perfluoroalkoxy (PTFE PFA) digestion vessels (120 mL capacity) capable of withstanding pressure of up to 110 (±10) psi [7.5 (±0.7) atm]. These vessels are capable of controlled pressure relief at pressures exceeding 110 psi.

6.2.6 A rotating turntable must be used to ensure homogeneous distribution of microwave radiation within the oven. The speed of the turntable must be a minimum of 3 revolutions per minute (rpm).

6.3 Inductively Coupled Plasma - Atomic Emission Spectrometer (ICP-AES)

Consisting of a computer-controlled atomic emission spectrometer with background correction, a radio-frequency generator, and a supply of Argon gas, welding grade or better.

7.0 REAGENTS AND STANDARDS

7.1 Reagents

7.1.1 Reagent water - The purity of this water must be equivalent to ASTM Type II water (ASTM D1193-06). Use this water for all reagents, standards, and dilutions.

7.1.2 Hydrochloric acid - Concentrated (specific gravity 1.19).

7.1.3 Hydrochloric acid, (50% v/v) - Add 500 mL conc. hydrochloric acid (specific gravity 1.19) to 400 mL reagent water and dilute to 1 L.

7.1.4 Nitric acid - Concentrated (specific gravity 1.41).

7.1.5 Nitric acid, (50% v/v) - Add 500 mL conc. nitric acid (specific gravity 1.41) to 400 mL reagent water and dilute to 1 L.

7.1.6 Hydrogen peroxide (30%)

7.1.7 Nitric acid, (5% v/v) - Add 50 mL conc. nitric acid (specific gravity 1.41) to 500 mL reagent water and dilute to 1 L.

7.2 Standards

7.2.1 Introduction

The Contractor must provide all standards, except as noted, to be used with this contract. These standards may be used only after they have been certified according to the procedure in Exhibit E, Section 8.0. The Contractor must be able to verify that the standards are certified. Manufacturer's certificates of analysis must be retained by the Contractor and presented upon request.

7.2.2 Stock Standard Solutions

7.2.2.1 Stock standard solutions may be purchased from a reputable source or prepared from reagent grade chemicals or metals (at least 99.99% pure). All salts must be dried for 1 hour at 105°C unless otherwise specified.

(CAUTION: Many metal salts are extremely toxic and may be fatal if swallowed. Wash hands thoroughly after handling.)

7.2.3 Secondary Dilution Standards

7.2.3.1 Mixed Secondary Dilution Standards

Prepare mixed secondary dilution standard solutions by diluting the appropriate volumes of stock standards with 2% (v/v) nitric acid, or as recommended by the manufacturer, to obtain the final volume. Mixed secondary dilution standard solutions may be purchased. The purchased standards shall meet the requirements in Section 7.2.1.

7.2.4 Working Standards

7.2.4.1 Interference Check Sample (ICS) Solution

The ICS consists of two solutions: Solution A (ICSA) and Solution AB (ICSAB). ICSA consists of the interferents and ICSAB consists of the analytes mixed with the interferents. The ICS standards (ICSA for the interferents only and ICSB for the analytes only) are normally supplied by USEPA.

7.2.4.2 Mixed Calibration Standard Solutions

7.2.4.2.1 Prepare mixed calibration standard solutions by combining appropriate volumes of the stock solutions in volumetric flasks. Add 2 mL of nitric acid and dilute to 100 mL with reagent water or these standards can be matrix matched to the digested samples. The analyte concentrations in the calibration standards should be sufficient to produce good measurement precision and to accurately define the slope of the response curve. Prior to preparing the mixed standards, each stock solution should be analyzed separately to determine possible spectral interference or the presence of impurities. Care should be taken when preparing the mixed standards that the analytes are compatible and stable. Transfer the mixed standard solutions to fluorinated ethylene propylene (FEP) fluorocarbon or unused polyethylene bottles for storage. Fresh mixed standards should be prepared as needed with the realization that concentration can change with aging.

7.2.4.2.2 Protect all standards from light. Samples, sample digestates, and standards must be stored separately.

8.0 SAMPLE COLLECTION, PRESERVATION, AND STORAGE

8.1 Sample Collection and Preservation

All aqueous/water and soil/sediment samples must be collected in glass or polyethylene containers. Aqueous/water samples must be preserved with nitric acid to pH less than or equal to 2 immediately after collection. All aqueous/water and soil/sediment samples must be iced or refrigerated at 4°C (±2°C) from the time of collection until digestion. Wipes and air filter samples shall remain in their original bags or cassettes until preparation and may be stored at room temperature within the laboratory.

8.1.1 Dissolved Metals

For the determination of dissolved metals, the sample must be filtered through a 0.45 micrometer (µm) pore diameter membrane filter at the time of collection or as soon as possible. Use a portion of the sample to rinse the filter flask, discard this portion, and collect the required volume of filtrate. Preserve the filtrate with nitric acid to pH less than or equal to 2 immediately after filtration.

8.2 Procedures for Sample Storage and Disposal

Following digestion, the remaining unused portion of aqueous/water and soil sediment samples may be stored at room temperature within the laboratory until 60 days after delivery of a complete, reconciled data package to USEPA. After 60 days, the samples may be disposed of in a manner that complies with all applicable regulations.

8.3 Procedure for Sample Digestate Storage

Sample digestates must be stored until 6 months after delivery of a complete, reconciled data package to USEPA.

8.4 Contract Required Holding Time

The maximum holding time for metals is 180 days from Validated Time of Sample Receipt (VTSR).

9.0 CALIBRATION AND STANDARDIZATION

9.1 Instrument Operating Parameters

Because of the differences between various makes and models of satisfactory instruments, no detailed operating instructions can be provided. Instead, the analyst should follow the instructions provided by the manufacturer of the particular instrument. The Method Detection Limit (MDL), precision, and interference effects must be investigated and established for each individual analyte line on that particular instrument. All measurements used to determine interelement corrections must be within the instrument operating range. It is the responsibility of the analyst to verify the instrument configuration and operating conditions used satisfy the analytical requirements and to maintain Quality Control (QC) data confirming instrument performance and analytical results.

9.2 Inductively Coupled Plasma - Atomic Emission Spectrometer (ICP-AES) Instrument Calibration Procedure

9.2.1 Instruments shall be calibrated each time the instrument is turned on, set up, or after Initial Calibration Verification (ICV) or Continuing Calibration Verification (CCV) failure. The instrument standardization date and time shall be included in the raw data.

9.2.2 The calibration standards shall be prepared as in Section 7.2.4.2.

9.2.3 Calibrate the ICP-AES instruments according to instrument manufacturer's recommended procedures. At least six standards shall be used for ICP-AES calibration. One of the standards shall be a blank standard and one shall be at or below the Contract Required Quantitation Limit (CRQL). The rest of the standards shall be uniformly spread out in graduated amounts over the appropriate calibration range for each metal. A minimum of three replicate integrations are required for data acquisition. Use the average of all the integrations for instrument calibration and data reporting. The calibration curve shall be calculated using linear regression by plotting the concentration of the standard (in µg/L) on the X-axis versus the corrected instrument response on the Y-axis. The corrected instrument response are those corrections (e.g., such as correction for background, internal standards, Interelement Corrections (IECs), calibration blank) that may be applied to the raw uncorrected instrument response prior to determining the calibration curve. A standard linear regression, a weighted linear regression (e.g., 1/concentration or 1/concentration^2), or a linear regression with zero force calibration model can be used as appropriate. No other types of equations (e.g., quadratic) are to be used. The acceptance criteria for the calibration curve is a correlation coefficient greater than or equal to 0.995. Sample analysis shall not begin until this criteria and the criteria described in Sections 9.2.4 and 9.2.5 have been met.

9.2.4 The calibration equation must be checked to establish the representativeness of the data that were used to produce the calibration equation. This check involves the re-fitting of the non-blank calibration data back to the calibration equation or the comparison of the calculated concentration of each of the standards against the expected concentration of the associated standard. This difference is related to the actual residual. For this calculation, the Percent Difference shall be used where the above difference is

further divided by the expected amount or concentration of the respective standard. If these Percent Differences for each of the standards do not fall within ±30%, then the calibration equation is not acceptable and must be corrected. If a standard is analyzed for a particular analyte at a concentration that is below the CRQL and the above criteria is not met, that value can be excluded from the calibration equation as long as the lowest non-zero standard for each of the remaining standards for each analyte is still analyzed at or below the CRQL and all standards included in the calibration equation are continuous and consecutive.

9.2.5 The y-intercept from the linear regression initial calibration equation shall also be evaluated. If the y-intercept is not below the CRQL for each of the analyte initial calibration curves, the calibration is not acceptable and must be corrected. Samples are not to be analyzed until the y-intercept for each analyte's initial calibration curve meets the acceptance criteria.

9.2.6 Any changes or corrections to the analytical system shall be followed by recalibration.

9.3 Initial Calibration Verification (ICV)

9.3.1 Immediately after each instrument has been calibrated, the accuracy of the initial calibration shall be verified and documented for every analyte by the analysis of the ICV solution(s) at each wavelength used to report final results. The percent Relative Standard Deviation (%RSD) shall also be calculated from all replicate integrations and reported for each wavelength used to report final results.

9.3.2 The ICV solution(s) is (are) obtained from USEPA. If the solution(s) is (are) not available, then the ICV solution can be prepared by the laboratory using a certified solution for each analyte from an independent source. Analyses shall be conducted at a concentration other than that used for instrument calibration, but near the middle of the calibration range. An independent source is defined as a standard composed of the analytes from a different source than those used in the standards for the instrument calibration.

9.3.3 The ICV solution(s) shall be run at each wavelength used for reporting final results.

9.4 Continuing Calibration Verification (CCV)

To ensure calibration accuracy during each analytical run sequence, a CCV shall be analyzed and reported for every wavelength used for reporting final results for each analyte, at a frequency not to exceed every 2 hours during an analytical run sequence. The standard shall be analyzed and reported for every wavelength used for reporting final results for each analyte at the beginning of the analytical run sequence and after the last analytical sample. The %RSD shall be calculated from all integrations and reported for each wavelength used to report final results. See the example analytical run sequence in Section 12.11. This analytical run sequence can continue indefinitely as long as samples are being continuously analyzed without the instrument being turned off and successive CCVs and their associated %RSDs meet the stated criteria. This CCV standard(s) shall be prepared from the same source and at or near the same mid-level concentration as used during the initial calibration.

The same CCV standard shall be used throughout the analytical run sequences for a Sample Delivery Group (SDG) of samples received.

9.4.1 Each CCV analyzed shall reflect the conditions of analysis of all associated analytical samples (the preceding analytical samples up to the previous CCV as applicable and the analytical samples following this CCV up to the next CCV as applicable).

9.5 Initial and Continuing Calibration Blank (ICB/CCB)

An ICB or CCB shall be analyzed at each wavelength used for reporting final results for each analyte immediately after every ICV and CCV.

10.0 PROCEDURE

10.1 Sample Preparation

10.1.1 If insufficient sample amount (less than 90% of the required amount) is received to perform the analyses, the Contractor shall contact the Sample Management Office (SMO) to inform them of the problem. SMO will contact the USEPA Region for instructions. The USEPA Region will either require that no sample analyses be performed or will require that a reduced volume be used for the sample analysis. No other changes in the analyses will be permitted. The Contractor shall document the USEPA Region's decision in the Sample Delivery Group (SDG) Narrative.

10.1.2 If multiphase samples (e.g., two-phase liquid sample, oily sludge/sandy soil/sediment sample) are received by the Contractor, the Contractor shall contact SMO to apprise them of the type of sample received. SMO will contact the USEPA Region. If all phases of the sample are amenable to analysis, the USEPA Region may require the Contractor to do any of the following:

- Mix the sample and analyze an aliquot from the homogenized sample.
- Separate the phases of the sample and analyze one or more of the phases, separately. SMO will provide EPA sample numbers for the additional phases, if required.
- Do not analyze the sample.

10.1.2.1 If all of the phases are not amenable to analysis (i.e., outside scope), the USEPA Region may require the Contractor to do any of the following:

- Separate the phases and analyze the phase(s) that is (are) amenable to analysis. SMO will provide EPA sample numbers for the additional phases, if required.
- Do not analyze the sample.

10.1.2.2 No other changes in the analyses will be permitted. The Contractor shall document the USEPA Region's decision in the SDG Narrative.

10.1.3 The primary sample preparation procedures to be used for this method are described in the following Sections (10.1.4, 10.1.5, 10.1.6, and 10.1.7). These methods are to be used without deviation. Alternative sample preparation procedures are listed in Section 18 of this method and may be requested by the USEPA Region. No other changes in the analyses will be permitted.

10.1.4 Aqueous/Water Sample Preparation

10.1.4.1 Preparation Method 200.7 - Total Recoverable Analytes [based on USEPA NERL Method 200.7, Revision 4.4 (1994)]

10.1.4.1.1 For the determination of total recoverable analytes in aqueous/water samples, transfer a 100 mL (±1 mL) aliquot from a well mixed, acid preserved sample to an appropriately sized (approximately 250 mL) beaker or other comparable digestion vessel. The sample shall not be diluted prior to digestion.

10.1.4.1.2 Add 2 mL 50% (v/v) nitric acid and 1 mL 50% (v/v) hydrochloric acid to the beaker containing the measured volume of sample. Place the beaker on a hotplate, or other comparable heating device, for solution evaporation. The hotplate should be located in a fume hood and previously adjusted to provide evaporation at a temperature of 95°C (±3°C), when covered. The beaker should be covered with an elevated watch glass or other necessary steps should be taken to prevent sample contamination from the fume hood environment.

10.1.4.1.3 Reduce the volume of the sample aliquot to about 20 mL by gently heating at 95°C (±3°C). **DO NOT BOIL.** This step takes about 2 hours for a 100 mL aliquot with the rate of evaporation rapidly increasing as the sample volume approaches 20 mL. (A spare beaker containing 20 mL of water can be used as a gauge.)

10.1.4.1.4 Cover the beaker with a watch glass to reduce additional evaporation and gently reflux the sample for 30 minutes. (Slight boiling may occur, but vigorous boiling must be avoided to prevent loss of the HCl-H_2O azeotrope.)

10.1.4.1.5 Allow the beaker to cool. Quantitatively transfer the sample solution to a 100 mL volumetric flask, make to volume with reagent water, stopper, and mix.

10.1.4.1.6 Allow any undissolved material to settle overnight, or centrifuge or filter a portion of the prepared sample until clear to avoid plugging the nebulizer with solid particles. The sample is now ready for analysis. Because the effects of various matrices on the stability of the samples cannot be characterized, all analyses should be performed as soon as possible after the completed preparation.

10.1.4.1.7 The concentrations as determined by this method shall be reported as "Total". A reduced sample volume of 50 mL can be used. If this reduced volume is used, then all other reagents and volumes shall be reduced appropriately. The digested sample can be diluted if high levels of interferences are noted or if any of the analytes exceed the upper limit of their respective calibration curves.

10.1.5 Soil/Sediment Sample Preparation

10.1.5.1 Preparation Method 3050B (based on USEPA OSW Method 3050B, Revision 2, December 1996)

10.1.5.1.1 Mix the sample thoroughly to achieve homogeneity (see Exhibit D - Introduction to Analytical Methods, Section 1.8). For each digestion procedure, weigh to the nearest 0.01 g and transfer 1.00 – 1.50 g sample (wet weight) to an appropriately sized digestion vessel (e.g., a beaker or hot block digestion tube).

10.1.5.1.2 Add 10 mL of 50% (v/v) nitric acid, mix the slurry, and cover with a watch glass or vapor recovery device. Heat the sample to 95°C (± 3°C) and reflux for 10 to 15 minutes without boiling. Allow the sample to cool, add 5 mL of concentrated nitric acid, replace the cover, and reflux for 30 minutes. If brown fumes are generated, indicating oxidation of the sample by the nitric acid, repeat this step (addition of 5 mL of concentrated nitric acid) over and over until no brown fumes are given off by the sample indicating the complete reaction with nitric acid. Using a ribbed watch glass or vapor recovery system, either allow the solution to evaporate to approximately 5 mL without boiling or heat at 95°C (± 3°C) without boiling for 2 hours. Maintain a covering of solution over the bottom of the vessel at all times.

10.1.5.1.3 After the sample has cooled, add 2 mL of reagent water and 3 mL of 30% hydrogen peroxide. Cover the vessel with a watch glass or vapor recovery device and return the covered vessel to the heat source for warming and to start the peroxide reaction. Care must be taken to ensure that losses do not occur due to excessively vigorous effervescence. Heat until the effervescence subsides and cool the vessel. Continue to add 30% hydrogen peroxide in 1-mL amounts with warming until the effervescence is minimal or until the general sample appearance is unchanged. (NOTE: Do not add more than a total of 10 mL of 30% hydrogen peroxide.) Cover the sample with a ribbed watch glass or vapor recovery device and continue heating the acid-peroxide digestate until the volume has been reduced to approximately 5 mL or heat at 95°C (± 3°C) without boiling for 2 hours. Maintain a covering of solution over the bottom of the vessel at all times.

10.1.5.1.4 After the sample has cooled, add 10 mL of concentrated hydrochloric acid to the sample digestate and cover with a watch glass or vapor recovery device. Place the sample on/in the heating source and reflux at 95°C (±3°C) for 15 minutes. Let the sample digestate cool.

10.1.5.1.5 Filter the sample digestate through Whatman No. 41 filter paper (or equivalent) and collect the filtrate in a 100-mL volumetric flask. Rinse the filter paper with a small amount of reagent water to complete the quantitative transfer of the analytes and collect the liquid in the same 100-mL volumetric flask. The solution being analyzed must be clear to avoid plugging the nebulizer with solid particles. Make to volume with reagent water, stopper, and mix. The sample is now ready for analysis.

10.1.5.1.6 The digested sample can be diluted if high levels of interferences are noted or if any of the analytes exceed the upper limit of their respective calibration curves.

10.1.6 Wipe Sample Preparation

10.1.6.1 Preparation Method 3050B [based on USEPA OSW Method 3050B, Revision 2 (December 1996)]

10.1.6.1.1 Transfer the wipe to an appropriately sized digestion vessel (e.g., a beaker or hot block digestion tube). If material remains in the original sample container, use a small (5 mL) portion of reagent water to rinse the material into the digestion vessel.

10.1.6.1.2 Follow the procedure as described in Sections 10.1.5.1.2 through 10.1.5.1.6.

10.1.7 Filter Sample Preparation

10.1.7.1 Preparation Method 7300 (based on a modified version of NIOSH method 7300 from the Fourth Edition of the NIOSH Manual of Analytical Methods, Issue 3, dated 15 March 2003). This procedure is for small (e.g., 37 mm MCEF) filters. The method is not suitable for high-volume filters.

10.1.7.1.1 The method was modified by removing the use of all perchloric acid during the sample preparation due to safety issues. If the Contractor has the necessary equipment to safely work with and perform perchloric acid digestions, then the Contractor should contact SMO. SMO will then contact the USEPA Region and decide if this modified method or the original method should be used for the samples within this specific SDG.

10.1.7.1.2 Remove the filter from the cassette and transfer to a 50 mL beaker.

10.1.7.1.3 Add 3 mL of concentrated nitric acid and 1 mL of 30% of hydrogen peroxide and cover with a watch glass. Heat the sample to 95°C (±3°C) on a hotplate, block digester, or equivalent heat source and reflux until the volume has been reduced to approximately 0.5 mL.

10.1.7.1.4 Rinse the watch glass and the sides of the beaker with 3 mL of 5% (v/v) nitric acid and heat until the sample volume has been reduced to approximately 0.5 mL.

10.1.7.1.5 Add 1 mL of concentrated hydrochloric acid and heat for 10 minutes at 95°C (±3°C). Allow the sample to cool.

10.1.7.1.6 Adjust the final volume to 10.0 mL (±0.1 mL) with reagent water. The sample may be filtered to remove solid particles. The sample is now ready for analysis.

10.2 Sample Analysis

10.2.1 For every new or unusual matrix, it is recommended that a semi-quantitative analysis be conducted to screen for high element concentrations that may be beyond the calibration range of the instrument or high levels of interferences.

10.2.2 Set up the instrument with proper operating parameters established in Section 9.1. The instrument must be allowed to become thermally stable before beginning. This usually requires at least 30 minutes of operation prior to calibration.

10.2.3 Initiate appropriate operating configuration of the computer.

10.2.4 Profile and calibrate the instrument according to instrument manufacturer's recommended procedures. The initial calibration curve shall be established using mixed calibration standard solutions such as those described in Section 7.2.4.2.

10.2.5 For all sample analyses, a minimum of three replicate integrations are required for data acquisition. Use the average of all the integrations for data reporting.

10.2.6 The rinse blank should be used to flush the system between samples. Allow sufficient time to remove traces of the previous sample. Samples should be aspirated for a sufficient period of time to obtain a stable response prior to collection of data.

10.2.7 Sample digestates having high levels of interferences or concentrations higher than the established calibrated range as determined by the expected concentration of the highest calibration standard shall be diluted into range and reanalyzed.

11.0 DATA ANALYSIS AND CALCULATIONS

11.1 Aqueous/Water Sample Calculation

EQ. 1 Aqueous/Water Sample Concentration

$$\text{Concentration}(\mu g/L) = C \times \frac{V_f}{V} \times DF$$

WHERE,
- C = Instrument value in µg/L (The average of all replicate exposures)
- V_f = Final digestion volume (mL)
- V = Initial aliquot amount (mL)
- DF = Dilution Factor

11.2 Soil/Sediment Sample Calculation

The concentrations determined in the digestate are to be reported on the basis of the dry weight of the sample, in units of mg/kg:

EQ. 2 Soil/Sediment Sample Concentration

$$\text{Concentration (dry wt.)}(mg/kg) = C \times \frac{V_f}{W \times S} \times DF / 1000$$

WHERE,
- C = Instrument value in µg/L (The average of all replicate exposures)
- V_f = Final digestion volume (mL)
- W = Initial aliquot amount (g)
- S = % Solids/100 (see Exhibit D - Introduction to Analytical Methods, Section 1.6)
- DF = Dilution Factor

11.3 Adjusted Method Detection Limit (MDL)/Adjusted Contract Required Quantitation Limit (CRQL) Calculation

To calculate the adjusted MDL or adjusted CRQL for aqueous/water samples, multiply the value of the MDL or CRQL (µg/L) by the sample dilution factor and the V_f/V term as noted in Equation 1.

Calculate the adjusted MDL or adjusted CRQL for soil/sediment samples as follows:

EQ. 3 Adjusted Soil/Sediment MDL or CRQL Concentration

$$\text{Adjusted Concentration (mg/kg)} = C \times \frac{W_M}{W \times S} \times \frac{V_f}{V_M} \times DF$$

WHERE,
- C = MDL or CRQL Concentration (mg/kg)
- W_M = Minimum method required aliquot amount (g) (1.00 g or 0.50 g)
- W = Initial aliquot amount (g)
- V_M = Method required final sample digestion volume (mL) (100 mL or 50 mL)
- V_f = Final digestion volume (mL)
- S = % Solids/100 (see Exhibit D - Introduction to Analytical Methods, Section 1.6)
- DF = Dilution Factor

11.4 Wipe/Filter Mass

EQ. 4 Wipe/Filter Mass

$$\text{Mass}(\mu g) = C \times V_f \times DF/1000$$

WHERE,
- C = Instrument value in µg/L (The average of all replicate exposures).
- V_f = Final digestion volume (mL)
- DF = Dilution Factor

12.0 QUALITY CONTROL (QC)

12.1 Initial Calibration Verification (ICV)

The ICV standard shall be prepared in the same acid matrix as the calibration standards and in accordance with the instructions provided by the supplier. If measurements exceed the control limits of 90% Recovery (low) or 110% Recovery (high), or if the percent Relative Standard Deviation (%RSD) as calculated from all replicate exposures exceeds 5.0%, the analysis shall be terminated, the problem corrected, the instrument recalibrated, and the calibration reverified. The results of the ICV analysis shall be reported.

12.2 Continuing Calibration Verification (CCV)

The CCV standard shall be prepared in the same acid matrix as the calibration standards by combining compatible analytes at a concentration equivalent to the mid-levels of their respective calibration curves. If the measurements exceed the control limits specified of 90% Recovery (low) or 110% Recovery (high), or if the %RSD as calculated from all replicate exposures exceeds 5.0%, the analysis shall be stopped, the problem corrected, the instrument recalibrated, the calibration verified, and reanalysis of all analytical samples analyzed since the last compliant calibration verification shall be performed for the analytes affected. The results of all CCV analyses shall be reported.

12.3 Blank Analyses

There are two different types of blanks required by this method. The calibration blank is used in establishing the analytical curve. The Initial and Continuing Calibration Blanks (ICB/CCB) are identical in composition to the calibration blank and are analyzed immediately after the ICV/CCV to monitor for potential carryover of analytes. The Preparation Blank is used to monitor for possible contamination throughout the entire sample preparation and analysis process.

12.3.1 Initial and Continuing Calibration Blank (ICB/CCB)

The ICB and CCB are identical in composition to the Calibration Blank as used to establish the initial calibration curve. If the absolute value of the calibration blank (ICB/CCB) result exceeds the Contract Required Quantitation Limit (CRQL) (see Exhibit C), the analysis shall be terminated, the problem corrected, the instrument recalibrated, the calibration verified, and reanalysis of all analytical samples analyzed since the last compliant calibration blank shall be performed for the analytes affected. The results of the ICB and CCB analyses shall be reported.

12.3.2 Preparation Blank

12.3.2.1 The Preparation Blank shall contain all the reagents and in the same volumes as used in processing the samples. The Preparation Blank shall be carried through the complete procedure and contain the same acid concentration in the final solution as the sample solution used for analysis.

12.3.2.2 At least one Preparation Blank, consisting of reagent water, a clean wipe, or a clean air filter, processed through each sample preparation and analysis procedure (see Section 10), shall be prepared and analyzed with every Sample Delivery Group (SDG), or with each batch[1] of samples digested, whichever is more frequent. For wipes and filters, the sampler should provide clean wipes or filters. In the event that they are not provided by the sampler, the Contractor shall use reagent water and note this in the SDG Narrative.

12.3.2.3 The first batch of samples in an SDG is to be assigned to Preparation Blank one, the second batch to Preparation Blank two, etc. Each Complete SDG File (CSF) shall contain the results of all Preparation Blank analyses associated with the samples in that SDG.

12.3.2.4 The Preparation Blank(s) is (are) to be reported for each SDG and used in all analyses to ascertain whether sample concentrations reflect contamination in the following manner:

12.3.2.4.1 If the absolute value of the concentration of the blank is less than or equal to the CRQL (see Exhibit C), no further action is required.

12.3.2.4.2 For aqueous/water and soil/sediment samples, if any analyte concentration in the blank is above the CRQL, the lowest concentration of that analyte in the associated samples (except those identified as field blanks) shall be greater than or equal to 10 times the blank concentration. Otherwise, all samples (except those identified as field blanks) associated with the blank, with the analyte concentration less

[1] A group of samples prepared at the same time.

than 10 times the blank concentration and above the CRQL, shall be redigested and reanalyzed with appropriate new Quality Control (QC) for that analyte. The sample concentration is not to be corrected for the blank value.

12.3.2.4.3 For aqueous/water and soil/sediment samples, if the concentration of the blank is below the negative CRQL, then all samples reported below 10 times the CRQL associated with the blank shall be redigested and reanalyzed with appropriate new QC.

12.3.2.4.4 The results for the Preparation Blank shall be reported.

12.4 Interference Check Sample (ICS)

12.4.1 The ICS solutions shall be obtained from USEPA. If not available, then the ICS can be prepared by the analyst.

12.4.2 To verify interelement and background correction factors, the Contractor shall analyze and report the results for the ICS for all elements on the Target Analyte List (TAL) and for all interferents (target and non-target) immediately after the initial calibration sequence, but not before the ICV/ICB. The analysis of the ICS shall be immediately followed by the analysis of a CCV/CCB pair. The ICS solutions shall be obtained from USEPA, if available, and analyzed according to the instructions supplied with the ICS. The Contractor shall always initially run the ICS undiluted. Dilution of the ICS (for the highest concentration elements) may be necessary to meet the calibrated range values of the instrument.

12.4.3 The ICS consists of two solutions: Solution A and Solution AB. Solution A consists of the interferents; Solution AB consists of the analytes mixed with the interferents. Even though no analytes have been added to Solution A, low levels of some of the analytes may be present due to the purity of the materials used. An ICS analysis consists of analyzing both solutions consecutively, starting with Solution A.

12.4.4 The analytical results of ICS Solution A (ICSA) shall fall within the control limit of ±20% of the analyte's true value or ±1 times the CRQL of the analyte's true value, whichever is greater. If the true value for a given analyte is not listed in the certified values for the solution, then the true value shall be assumed to be zero and the ±1 times the CRQL control limits shall apply. For example, for Chromium (CRQL = 10 µg/L, ICSA true value = 43 µg/L) the correct control window to use would be the greater of ±20% of the true value (0.20 x 43 µg/L = ±8.6 µg/L) or ±1 times the CRQL (±10 µg/L). Therefore, the control window for the found value for Chromium in the ICSA is 43±10, or 33 to 53 µg/L. If the analytical results of the ICSA do not fall within the control limits, the analysis shall be terminated, the problem corrected, and the instrument recalibrated. New Interelement Corrections (IECs) may also need to be determined for the failed analyte(s). For analytes with CRQLs less than 1000 µg/L, the ICSA results shall be reported from an undiluted sample analysis.

12.4.5 Results for the ICS Solution AB (ICSAB) during the analytical runs shall fall within the control limit of ±20% of the true value or ±1 times the CRQL of the true value, whichever is greater, for the analytes included in the ICSAB. If the analytical results of the ICSAB do not fall within the control limits, the analysis shall be

terminated, the problem corrected, and the instrument recalibrated. New IEC's may also need to be determined for the failed analyte(s). For analytes with CRQLs less than 1000 µg/L, the ICSAB shall be reported from an undiluted sample analysis.

NOTE: The control limits and concentrations for the ICSAB are being monitored. These may be adjusted to provide greater control of interferences.

12.4.6 If true values for analytes contained in the ICS are not supplied with the solutions, the mean shall be determined by initially analyzing the ICS at least five times repetitively for the particular analytes. This mean determination shall be made during an analytical run where the results for the previously supplied ICS met all contract specifications. Additionally, the results of this initial mean determination shall be used as the true value for the lifetime of that solution (i.e., until the solution is exhausted). Only if the ICS solutions are not available from USEPA, independent Check Samples shall be prepared with interferent and analyte concentrations at the levels specified in Table 1 - Interferent and Analyte Elemental Concentrations Used for ICP-AES Interference Check Sample (ICS). The mean value and standard deviation shall be established by initially analyzing the Check Samples at least five times repetitively for each parameter. Results shall fall within the control limit of ±20% of the established mean value or ±1 times the analyte's CRQL of the established mean value, whichever is greater. The mean and standard deviation shall be reported in the raw data.

12.4.7 The results of ICS analyses shall be reported.

12.5 Spike Sample Analysis

12.5.1 The spike sample analysis is designed to provide information about the effect of the sample matrix on the digestion and/or measurement methodology. The spike is added before the digestion (i.e., prior to the addition of other reagents). At least one spike sample analysis (matrix spike) shall be performed on each group of samples of a similar matrix type (i.e., aqueous/water, soil/sediment) or for each SDG, whichever is more frequent.[2] Spike sample analysis is not required for wipe samples or air filter samples.

12.5.2 If the spike analysis is performed on the same sample that is chosen for the duplicate sample analysis, spike calculations shall be performed using the results of the sample designated as the "original sample" (see Section 12.6). The average of the duplicate results cannot be used for the purpose of determining percent recovery. Samples identified as field blanks and Performance Evaluation (PE) samples shall not be used for spiked sample analysis. USEPA may require that a specific sample be used for the spike sample analysis.

12.5.3 The analyte spike shall be added in the amount given in Table 2 - Spiking Levels for Spike Sample Analysis, for each element analyzed. This is the level of spike present in the final digestate.

NOTE: See Table 2 footnotes for concentration levels and applications.

[2] USEPA may require additional spike sample analyses, upon USEPA Regional CLP Project Officer (CLP PO) request.

12.5.4 If the spike recovery is not at or within the limits of 75-125%, the data for all samples received and associated with that spike sample shall be flagged with the letter "N". An exception to this rule is granted when the sample concentration exceeds the Spike Added (SA) concentration by a factor of four or more. In such an event, the data shall be reported unflagged even if the percent recovery does not meet the 75-125% recovery criteria.

12.5.5 When the matrix spike recovery falls outside the control limits and the sample result does not exceed four times the spike added, a post-digestion spike shall be performed for those analytes that do not meet the specified criteria (exception: Ag). Note that if a post-digestion spike analysis is required for an analyte, the same EPA sample that was used for the matrix spike analysis shall be used for the post-digestion spike analysis. Spike the unspiked aliquot of the undiluted digestate at two times the indigenous level or two times the CRQL, whichever is greater.

12.5.6 In the instance where there is more than one spike sample per matrix per SDG, if one spike sample recovery is not within contract criteria, then flag all the samples of the same matrix and method in the SDG. Individual component percent recoveries are calculated as follows:

EQ. 5 Matrix Spike and Post-Digestion Spike Percent Recovery

$$\%\text{Recovery} = \frac{SSR - SR}{SA} \times 100$$

WHERE, SSR = Spiked Sample Result (µg/L or mg/kg) from EQ. 1 or EQ. 2
SR = Sample Result (µg/L or mg/kg) from EQ. 1 or EQ. 2
SA = Spike Added Theoretical Result (µg/L or mg/kg). This is calculated by substituting the spiking amount used for the 'V_f' term and substituting the spiking standard concentration used for the 'C' term from EQ. 1 or EQ. 2.

12.5.7 When sample concentration is less than the Method Detection Limit (MDL), use SR = 0 only for purposes of calculating the percent recovery. The Spike Sample Results (SSRs), Sample Results (SRs), Spike Added Theoretical Results (SA), and percent recovery (positive or negative) shall be reported.

12.5.8 The units used for reporting Spiked Sample Results (SSRs) will be identical to those used for reporting Sample Results (SRs).

12.6 Duplicate Sample Analysis

12.6.1 One duplicate sample shall be analyzed from each group of samples of a similar matrix type (i.e., aqueous/water, soil/sediment) or for each SDG, whichever is more frequent.[3] Duplicates cannot be averaged for reporting. Duplicate samples are not required for wipe samples or air filter samples.

[3] USEPA may require additional duplicate sample analyses, upon USEPA Regional CLP PO request.

12.6.2 Duplicate sample analyses are not required for percent solids. Samples identified as field blanks and PE samples shall not be used for duplicate sample analysis. USEPA may require that a specific sample be used for duplicate sample analysis. The Relative Percent Difference (RPD) for each analyte is calculated as follows:

EQ. 6 Duplicate Sample Relative Percent Difference

$$RPD = \frac{|S - D|}{(S+D)/2} \times 100$$

WHERE, RPD = Relative Percent Difference
S = Sample Result (original) (µg/L or mg/kg) from EQ. 1 or EQ. 2
D = Duplicate Sample Result (µg/L or mg/kg) from EQ. 1 or EQ. 2

12.6.3 The results of the duplicate sample analyses shall be reported. A control limit of 20 for RPD shall be used for original and duplicate sample values greater than or equal to five times the CRQL (see Exhibit C). A control limit equal to the CRQL shall be entered in the "Control Limit" column if either the sample or duplicate value is less than five times the CRQL. If the sample and duplicate values are greater than or equal to five times the CRQL, or if the sample and duplicate values are less than the CRQL, the "Control Limit" field is left empty.

12.6.4 If one result is above five times the CRQL level and the other is below, use the CRQL criteria to determine if the duplicate analysis is in control. If both sample and duplicate values are less than the CRQL, the RPD is not calculated. For soil/sediment sample or soil/sediment duplicate results less than five times the CRQL, enter the value of the CRQL, corrected for sample weight and percent solids (i.e., original, not duplicate sample weight), in the "Control Limit" column. If the duplicate sample results are outside the control limits, flag all the data for samples received associated with that duplicate sample with an "*". In the instance where there is more than one duplicate sample per SDG, if one duplicate result is not within contract criteria, flag all samples of the same matrix in the SDG. The percent difference data will be used by USEPA to evaluate the long-term precision of the methods for each analyte. Specific control limits for each analyte will be added at a later date based on these precision results.

12.7 Laboratory Control Sample (LCS) Analysis

12.7.1 Aqueous/water, soil/sediment, wipe, and filter LCSs shall be analyzed for each analyte using the same sample preparations, analytical methods, and Quality Assurance/Quality Control (QA/QC) procedures employed for the EPA samples received.

12.7.1.1 The LCS for aqueous/water and soil/sediment samples shall be prepared by spiking an aliquot of reagent water (50-100 mL for aqueous/water, 1 mL for soil/sediment) such that the final digestate shall contain each analyte at two times the CRQL for the associated matrix. One LCS shall be prepared for each prepared batch of aqueous/water or soil/sediment samples in an SDG.

12.7.1.2 The LCS for the wipe samples shall be prepared by spiking a clean wipe provided by the sampler such that the final digestate shall contain each analyte at two times the CRQL. One wipe LCS shall be prepared and analyzed for every group of wipe samples in an SDG, or for each batch of wipe samples digested, whichever is more frequent. If a clean wipe is not provided by the sampler, prepare the LCS using reagent water and note this in the SDG Narrative.

12.7.1.3 The LCS for the air filter samples shall be prepared by spiking a clean air filter provided by the sampler such that the final digestate shall contain each analyte at two times the CRQL. One filter LCS shall be prepared and analyzed for every group of filter samples in an SDG, or for each batch of filter samples digested, whichever is more frequent. If a clean filter is not provided by the sampler, prepare the LCS using reagent water and note this in the SDG Narrative.

12.7.2 All LCS and percent recovery results shall be reported. If the percent recovery for the LCS for aqueous/water or soil/sediment samples falls outside the control limits of 70-130% (exception: Ag and Sb, control limits 50-150%), the analyses shall be terminated, the problem corrected, and the samples associated with that LCS redigested and reanalyzed with appropriate new QC.

12.7.3 If the results for the LCS for wipes or filters fall outside the control limits of 70-130%, the Contractor shall note this in the SDG Narrative, since wipe and filter samples are fully consumed by initial analysis and cannot be reprepared and reanalyzed.

12.8 ICP-AES Serial Dilution Analysis

12.8.1 Prior to reporting concentration data for the analytes, the Contractor shall analyze and report the results of the ICP-AES serial dilution analysis. The ICP-AES serial dilution analysis shall be performed on a sample from each group of samples of a similar matrix type (i.e., aqueous/water, soil/sediment, wipe, filter) or for each SDG, whichever is more frequent. Samples identified as field blanks and PE samples shall not be used for serial dilution analysis.

12.8.2 If the analyte concentration is sufficiently high (minimally a factor of 50 above the MDL in the original sample), the serial dilution (a five-fold dilution) shall then agree within 10% of the original determination after correction for dilution. If the dilution analysis for one or more analytes is not within a control limit of 10%, a chemical or physical interference effect must be suspected, and the data for all affected analytes in the samples received and associated with that serial dilution must be flagged with an "E".

12.8.3 The percent differences for each component are calculated as follows:

EQ. 7 Serial Dilution Percent Differences

$$\%\text{Difference} = \frac{\left| SR - SDSR \right|}{SR} \times 100$$

WHERE, SR = Sample Result (µg/L or mg/kg) from EQ. 1 or EQ. 2
SDSR = Serial Dilution Sample Result (µg/L or mg/kg) from EQ. 1 or EQ. 2

12.8.4 In the instance where there is more than one serial dilution per SDG, if one serial dilution result is not within contract criteria, flag all the samples of the same matrix in the SDG. Serial dilution results and "E" flags shall be reported.

12.9 MDL Determination

12.9.1 Before any field samples are analyzed under this contract, the MDLs shall be determined for each digestion procedure and instrument used prior to the start of contract analyses and annually thereafter. The MDLs shall meet the levels specified in Exhibit C. An MDL study shall also be performed after major instrument maintenance, or changes in instrumentation or instrumental conditions, to verify the current sensitivity of the analysis.

12.9.1.1 To determine the MDLs, the Contractor shall run MDL studies following the procedures given in 40 CFR, Part 136. The Contractor shall prepare the MDL samples by each digestion procedure used and shall analyze these samples on each instrument used.

12.9.1.2 The determined concentration of the MDL shall be less than half the concentration of the CRQL listed in Exhibit C.

12.9.1.3 The results of the MDL determination studies shall be forwarded to the USEPA Regional CLP PO, Sample Management Office (SMO), and Quality Assurance Technical Support (QATS).

12.9.1.4 The MDL results shall be reported on Form IX-IN.

12.10 Interelement Corrections

12.10.1 Before any field samples are analyzed under this contract, the interelement correction factors shall be determined prior to the start of contract analyses and at least annually thereafter. Correction factors for spectral interference due to Al, Ca, Fe, and Mg shall be determined for all ICP-AES instruments at all wavelengths used for each analyte reported by ICP-AES. Interelement correction factors shall also be reported for any other elements (including those on the TAL) that have been determined to interfere with the requested target analyte(s).

NOTE: Depending on sample matrix and interferences, it may be necessary to analyze interelement correction factors at a frequency greater than annually and/or at multiple concentrations comparable to the sample interferent levels.

If the instrument was adjusted in any way that may affect the ICP-AES interelement correction factors, the factors shall be redetermined and the results submitted for use. In addition, all data used for the determination of the interelement correction factors shall be available to the USEPA during an on-site laboratory evaluation. Results from the interelement correction factors determination shall be reported for all ICP-AES analytes.

12.11 Example Analytical Sequence for ICP-AES Including the Initial Calibration

S0
S
S
S
S
S
ICV
ICB
ICSA
ICSAB
CCV
CCB
samples
CCV
CCB
samples
CCV
CCB, etc.

12.12 Summary of QC Operations

The QC operations performed for ICP-AES analysis are summarized in the table below.

QC Operation	**Frequency**
Instrument Calibration	Each time instrument is turned on or set up, after ICV or CCV failure, and after major instrument adjustment.
Initial Calibration Verification	Following each instrument calibration for each wavelength or mass used.
Initial Calibration Blank	Following each instrument calibration, immediately after the ICV.
Continuing Calibration Verification	For each wavelength or mass used, at a frequency of every 2 hours of a run, at the beginning of each day, and at the beginning and end of each run.
Continuing Calibration Blank	Every 2 hours of a run, at the beginning of each day, and at the beginning and end of each run. Performed immediately after the last CCV.
Interference Check Sample	At the beginning of each run.
Serial Dilution for ICP	For each matrix type or for each SDG, whichever is more frequent.
Preparation Blank	For each SDG or each sample preparation and analysis procedure per batch of prepared samples, whichever is more frequent.

QC Operation	Frequency
Laboratory Control Sample	For each SDG or each sample preparation and analysis procedure per batch of prepared samples, whichever is more frequent.
Spike Sample	For each matrix type or for each SDG, whichever is more frequent.
Post-Digestion/Distillation Spike	Each time Spike Sample Recovery is outside QC limits.
Duplicate Sample Analysis	For each matrix type or for each SDG, whichever is more frequent.
Determination of Method Detection Limits	Prior to contract award, annually thereafter, and after major instrument adjustment.
Interelement Corrections	Prior to contract award, annually thereafter, and after major instrument adjustment.

13.0 METHOD PERFORMANCE

Not applicable.

14.0 POLLUTION PREVENTION

See Section 1.15 in Exhibit D - Introduction to Analytical Methods.

15.0 WASTE MANAGEMENT

See Section 1.16 in Exhibit D - Introduction to Analytical Methods.

16.0 REFERENCES

16.1 US Environmental Protection Agency. Methods for Chemical Analysis of Water and Wastes. Draft Method 200.7, Revision 5 (2001).

16.2 US Environmental Protection Agency. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846). Method 3050B, Revision 2. Third Edition, Update III. December 1996.

16.3 US Environmental Protection Agency. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846). Method 3015A, Revision 1, Update IVa. January 1998.

16.4 US Environmental Protection Agency. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846). Method 3051A, Revision 1, Update IVa. January 1998.

16.5 National Institute for Occupational Safety and Health (NIOSH). NIOSH Manual of Analytical Methods, Fourth Edition. Method 7300, Issue 3, March 2003.

16.6 US Government Printing Office. 40 Code of Federal Regulations, Part 136. Section 1. Appendix B.

16.7 US Environmental Protection Agency. Test Methods for Evaluating Solid Waste, Physical/Chemical methods (SW-846). Test Method 6010C, Revision 3, February 2007.

17.0 TABLES/DIAGRAMS/FLOWCHARTS

TABLE 1: Interferent and Analyte Elemental Concentrations Used for ICP-AES Interference Check Sample (ICS)

Analytes	(µg/L)	Interferents	(µg/L)
Ag	200	Al	250000
As	100	Ca	250000
Ba	500	Fe	100000
Be	500	Mg	250000
Cd	1000		
Co	500		
Cr	500		
Cu	500		
Mn	500		
Ni	1000		
Pb	50		
Sb	600		
Se	50		
Tl	100		
V	500		
Zn	1000		

NOTE: ICS Solution A (ICSA) contains the interferents at the indicated concentrations. The ICSA may be analyzed at twice the concentration indicated when interferences are present at higher concentrations in the sample. ICS Solution AB (ICSAB) contains all of the analytes and interferents listed above at the indicated concentrations. The ICS solutions are normally provided by USEPA along with the established concentrations for each of the analytes and interferents.

TABLE 2: Spiking Levels for Spike Sample Analysis

Analyte	Water (µg/L)	Soil[(1)] (mg/kg)	Analyte	Water (µg/L)	Soil[(1)] (mg/kg)
Aluminum	2000	*	Magnesium	*	*
Antimony	100	20	Manganese	500	100
Arsenic	40	8	Nickel	500	100
Barium	2000	400	Potassium	*	*
Beryllium	50	10	Selenium	50	10
Cadmium	50	10	Silver	50	10
Calcium	*	*	Sodium	*	*
Chromium	200	40	Thallium	50	10
Cobalt	500	100	Vanadium	500	100
Copper	250	50	Zinc	500	100
Iron	1000	*			
Lead	20	4			

[*] No spike required. NOTE: Analytes without spike levels, and not designated with an asterisk, shall be spiked at appropriate levels.

[1] The levels shown indicate concentrations in the spike sample when the dry weight of 1 gram of sample is taken for analysis. Adjustment shall be made to maintain these spiking levels when the weight of sample taken deviates by more than 10% of these values. Appropriate adjustments shall be made for the alternative microwave digestion procedures where 0.5 grams of sample or 50 mL (45 mL of sample plus 5 mL of acid) of aqueous/water sample are required for analysis.

EQ. 8 Spiking Level Adjustment

$$\text{mg/kg} = \text{µg/L} \times \frac{\text{final volume (L)}}{\text{sample weight (g)}}$$

18.0 ALTERNATIVE SAMPLE PREPARATION PROCEDURES

18.1 Regionally-Selected Alternative Sample Preparation Procedures

Due to the variability of the matrices received and the interferences encountered, the sample preparation procedures described in Sections 10.1.4 through 10.1.7 may not always produce valid and/or reliable results. Sample preparation procedures are given in this section that describe alternative procedures that can be used if interferences or other issues are noted with the primary procedures. If the Contractor feels that one of these alternative sample preparation procedures would provide better results than the primary methods, then the Contractor shall contact the Sample Management Office (SMO). SMO will contact the USEPA Region for instructions. The Contractor shall document the USEPA Region's decision in the Sample Delivery Group (SDG) Narrative along with populating the Forms and the electronic data deliverable with the valid values that described the actual sample preparation procedures used by the Contractor.

18.2 Alternative Aqueous/Water Sample Preparation Procedures

18.2.1 Preparation Method 3015A – Nitric Acid Digestion (based on USEPA OSW Method 3015A, Revision 1, January 1998)

18.2.1.1 This method describes a sample preparation procedure for the determination of total analytes in various aqueous/water matrices using a microwave technique with a nitric acid only digestion.

18.2.1.2 Measure a 45.0 mL (±0.1 mL) aliquot of a well-shaken, homogenized sample using an appropriate volumetric delivery device, and quantitatively transfer the aliquot to an appropriate vessel equipped with a controlled pressure relief mechanism. The sample shall not be diluted prior to digestion.

18.2.1.3 Add 5.0 mL (±0.1 mL) of concentrated nitric acid to the digestion vessel.

18.2.1.4 Seal the digestion vessel according to the manufacturer's directions. Properly place the digestion vessels in the microwave system according to the manufacturer's recommended specifications and, when applicable, connect appropriate temperature and pressure monitoring equipment to the digestion vessels according to the manufacturer's specifications.

18.2.1.5 The Preparation Blank must have 45.0 mL of reagent water and the same amount (5.0 mL) of acid that was added to the samples.

18.2.1.6 The microwave program is then started. The temperature of each sample should rise to 170°C (±5°C) in approximately 10 minutes and remain at 170°C (±5°C) for 10 minutes, or for the remainder of the 20-minute digestion period. When using temperature feedback control, the number of samples that may be simultaneously digested may vary, from one sample up to the maximum number of digestion vessels that can be heated by the magnetron of the microwave unit. Whenever fewer than the recommended number of samples are to be digested, the remaining digestion vessels should be filled with 45.0 mL of water and 5.0 mL of acid so that the full complement of vessels is achieved. This provides an energy balance, since the microwave power absorbed is proportional to the total absorbing mass in the cavity.

18.2.1.7 At the end of the microwave program, allow the digestion vessels to cool for a minimum of 5 minutes before removing them from the microwave system. When the vessels have cooled to near room temperature, determine if the digestion vessels have maintained their seal throughout the digestion. For vessels that are sealed as discrete separate entities, the digestion vessel weight may be taken before and after digestion to evaluate seal integrity. If the weight loss of the sample exceeds 1% of the weight of the sample and reagents, then the sample is considered compromised and the sample must be redigested. For digestion vessels with burst disks, a careful visual inspection of the disk, in addition to weighing, may identify compromised digestion vessels.

18.2.1.8 Complete the preparation of the sample by carefully uncapping and venting each digestion vessel in a fume hood. Quantitatively transfer the sample to an acid-cleaned bottle. If the digested sample contains particulates which may clog nebulizers or interfere with the injection of the sample into the instrument, the sample may be centrifuged, allowed to settle, or filtered through Whatman No. 41 (or equivalent) filter paper.

18.2.1.9 The final solution typically requires nitric acid to maintain appropriate sample solution acidity and stability of the elements. Commonly, a 2% (v/v) nitric acid concentration is desirable.

18.2.1.10 Transfer or decant the digested sample into a 50 mL volumetric flask and dilute to volume. The samples are now ready for analysis. Concentrations so determined shall be reported as "Total".

18.2.1.11 The digested sample can be diluted if high levels of interferences are noted or if any of the analytes exceed the upper limit of their respective calibration curves.

18.2.2 Preparation Method 3015A – Nitric Acid and Hydrochloric Acid Digestion (based on USEPA OSW Method 3015A, Revision 1, January 1998)

18.2.2.1 This method describes a sample preparation procedure for the determination of total analytes in various aqueous/water matrices using a microwave technique with a nitric acid and hydrochloric acid digestion. The addition of the concentrated hydrochloric acid to the nitric acid is appropriate for the stabilization of certain analytes (such as silver, barium, and antimony) and high concentrations of iron and aluminum in solution. The addition of hydrochloric acid may, however, limit the detection techniques or increase the difficulties of analysis for some detection systems.

18.2.2.2 Measure a 45.0 mL (±0.1 mL) aliquot of a well-shaken, homogenized sample using an appropriate volumetric measurement device, and quantitatively transfer the aliquot to an appropriate vessel equipped with a controlled pressure relief mechanism. The sample shall not be diluted prior to digestion.

18.2.2.3 Add 4.0 mL (±0.1 mL) of concentrated nitric acid and 1.0 mL (±0.1 mL) of concentrated hydrochloric acid to the digestion vessel.

18.2.2.4 The analyst should be aware of the potential for a vigorous reaction, especially with samples containing suspended solids composed of volatile or easily oxidized organic species. When digesting a matrix of this type, if a vigorous reaction occurs upon the addition of reagent(s), this sample represents a safety

hazard. Do not leach the sample as described in this method due to the high potential for unsafe and uncontrollable reactions.

18.2.2.5 Follow the procedure as described in Sections 18.2.1.4 through 18.2.1.11.

18.3 Alternative Soil/Sediment Sample Preparation Procedures

18.3.1 Preparation Method 3050B – Optional Procedure (based on USEPA OSW Method 3050B, Revision 2, December 1996)

18.3.1.1 This method describes an optional sample preparation procedure that may be used to improve the solubilities and recoveries of antimony, barium, lead, and silver when necessary. This procedure should not be required on a routine basis.

18.3.1.2 Mix the sample thoroughly to achieve homogeneity (See Exhibit D - Introduction to Analytical Methods, Section 1.8). For each digestion procedure, weigh to the nearest 0.01 g and transfer 1.0 – 1.5 g sample (wet weight) to an appropriately sized digestion vessel (e.g., a beaker or hot block digestion tube).

18.3.1.3 Add 2.5 mL of concentrated nitric acid and 10 mL of concentrated hydrochloric acid and cover with a watch glass or vapor recovery device. Heat the sample to 95°C (±3°C) and reflux for 15 minutes without boiling.

18.3.1.4 Filter the digestate through Whatman No. 41 filter paper (or equivalent) and collect the filtrate in a 100-mL volumetric flask. Wash the filter paper, while still in the funnel, with no more than 5 mL of hot (approximately 95°C) concentrated hydrochloric acid, and then with 20 mL of hot (approximately 95°C) reagent water. Collect the washings in the same 100-mL volumetric flask.

18.3.1.5 Remove the filter and residue from the funnel and place them back in the digestion vessel. Add 5 mL of concentrated hydrochloric acid, place the digestion vessel back on the heating source, and heat at 95°C (±3°C) until the filter paper dissolves. Remove the digestion vessel from the heating source and wash the cover and sides with reagent water. Filter the residue and collect the filtrate in the same 100 mL volumetric flask. Allow the filtrate to cool and then dilute to volume. NOTE: High concentrations of metal salts with temperature-sensitive solubilities can result in the formation of precipitates upon cooling of primary and/or secondary filtrates. If precipitation occurs in the flask upon cooling, do not dilute to volume.

18.3.1.6 If a precipitate forms on the bottom of the flask, add up to 10 mL of concentrated hydrochloric acid to dissolve the precipitate. After the precipitate is dissolved, dilute to volume with reagent water, stopper, and mix. The sample is now ready for analysis.

18.3.1.7 The digested sample can be diluted if high levels of interferences are noted or if any of the analytes exceed the upper limit of their respective calibration curves.

18.3.2 Preparation Method 3051A – Nitric Acid Digestion (based on USEPA OSW Method 3051A, Revision 1, January 1998)

18.3.2.1 This method describes a sample preparation procedure for the determination of total recoverable analytes in various soil/sediment matrices using a microwave technique with a nitric acid only digestion.

18.3.2.2 Mix the sample thoroughly to achieve homogeneity (See Exhibit D - Introduction to Analytical Methods, Section 1.8). For each digestion procedure, weigh to the nearest 0.001 g and transfer a 0.50 g sample (wet weight) to an appropriate digestion vessel equipped with a controlled pressure relief mechanism.

18.3.2.3 Add 10 mL (±0.1 mL) of concentrated nitric acid to the digestion vessel in a fume hood.

18.3.2.4 The analyst should be aware of the potential for a vigorous reaction especially with samples containing volatile or easily oxidized organic species. When digesting a matrix of this type, initially use no more than 0.10 g (±0.001 g) of sample. If a vigorous reaction occurs upon the addition of the acid(s), allow the sample to predigest in the uncapped digestion vessel until the reaction ceases. Heat may be added in this step for safety considerations (e.g., the rapid release of carbon dioxide from carbonates, easily oxidized organic matter, etc.). Once the initial reaction has ceased, the sample may continue through the digestion procedure.

18.3.2.5 Seal the digestion vessel according to the manufacturer's directions. Properly place the digestion vessels in the microwave system according to the manufacturer's recommended specifications and, when applicable, connect appropriate temperature and pressure monitoring equipment to the digestion vessels according to the manufacturer's specifications.

18.3.2.6 The Preparation Blank must have 0.50 g (±0.001 g) of reagent water and the same amount of acid(s) that was added to the samples.

18.3.2.7 The microwave program is then started. The temperature of each sample should rise to 175°C (±5°C) in approximately 5.5 (±0.25) minutes and remain at 175°C (±5°C) for 4.5 minutes, or for the remainder of the 10-minute digestion period. When using temperature feedback control, the number of samples that may be simultaneously digested may vary, from one sample up to the maximum number of digestion vessels that can be heated by the magnetron of the microwave unit. Whenever fewer than the recommended number of samples are to be digested, the remaining digestion vessels should be filled with 0.50 g of water and the same amount of acid(s) so that the full complement of vessels is achieved. This provides an energy balance, since the microwave power absorbed is proportional to the total absorbing mass in the cavity.

18.3.2.8 At the end of the microwave program, allow the digestion vessels to cool for a minimum of 5 minutes before removing them from the microwave system. When the vessels have cooled to near room temperature, determine if the digestion vessels have maintained their seal throughout the digestion. For vessels that are sealed as discrete separate entities, the digestion vessel weight may be taken before and after digestion to evaluate seal integrity. If the weight loss of the sample exceeds 1% of the weight of the sample and reagents, then the sample is considered compromised and the sample must be redigested. For digestion vessels with burst disks, a careful visual inspection of the disk, in addition to weighing, may identify compromised digestion vessels.

18.3.2.9 Complete the preparation of the sample by carefully uncapping and venting each digestion vessel in a fume hood. Quantitatively transfer the sample to an acid-cleaned bottle. Filter the digested sample through Whatman No. 41 (or equivalent) filter paper to remove particulates which may clog nebulizers or otherwise interfere with the injection of the digested sample into the instrument.

18.3.2.10 The final solution typically requires nitric acid to maintain appropriate sample solution acidity and stability of the elements. Commonly, a 2% (v/v) nitric acid concentration is desirable.

18.3.2.11 Transfer or decant the digested sample into a 50 mL volumetric flask and dilute to volume. The samples are now ready for analysis.

18.3.2.12 The digested sample can be diluted if high levels of interferences are noted or if any of the analytes exceed the upper limit of their respective calibration curves.

18.3.3 Preparation Method 3051A – Nitric Acid and Hydrochloric Acid Digestion (based on USEPA OSW Method 3051A, Revision 1, January 1998)

18.3.3.1 This method describes a sample preparation procedure for the determination of total recoverable analytes in various soil/sediment matrices using a microwave technique with a nitric acid and hydrochloric acid digestion. The addition of the concentrated hydrochloric acid to the nitric acid is appropriate for the stabilization of certain analytes (such as silver, barium, and antimony) and high concentrations of iron and aluminum in solution. Improvements are also noted with the recoveries of antimony, iron, and silver. The addition of hydrochloric acid may, however, limit the detection techniques or increase the difficulties of analysis for some detection systems.

18.3.3.2 Mix the sample thoroughly to achieve homogeneity (See Exhibit D - Introduction to Analytical Methods, Section 1.8). For each digestion procedure, weigh to the nearest 0.001 g and transfer a 0.50 g sample (wet weight) to an appropriate digestion vessel equipped with a controlled pressure relief mechanism.

18.3.3.3 Add 9 mL (±0.1 mL) of concentrated nitric acid and 3 mL (±0.1 mL) of concentrated hydrochloric acid to the digestion vessel in a fume hood.

18.3.3.4 Follow the procedure as described in Sections 18.3.2.4 through 18.3.2.12.

18.4 Microwave Calibration Procedure

18.4.1 The calibration procedure is a critical step prior to the use of any microwave unit. The microwave unit must be calibrated every 6 months. The data for each calibration must be available for review during on-site audits. In order that absolute power settings may be interchanged from one microwave unit to another, the actual delivered power must be determined.

18.4.2 Calibration of a laboratory microwave unit depends on the type of electronic system used by the manufacturer. If the unit has a precise and accurate linear relationship between the output power and the scale used in controlling the microwave unit, then the calibration can be a two-point calibration at maximum and 40% power. If the unit is not accurate or precise for some portion of the controlling scale, then a multiple-point calibration is necessary. If the unit power calibration needs a multiple-point calibration, then the point where linearity begins must be identified. For example: a calibration at 100, 99, 98, 97, 95, 90, 80, 70, 60, 50, and 40% power settings can be applied and the data plotted. The non-linear portion of the calibration curve can be excluded or restricted in use. Each percent is equivalent to approximately 5.5-6 watts and becomes the smallest unit of power that can be controlled. If 20-40 watts are contained from 99-100%, that portion of the microwave calibration is not controllable by 3-7 times that of the linear portion of the control scale and will prevent duplication of precise power conditions specified in that portion of the power scale.

18.4.3 The power available for heating is evaluated so that the absolute power setting (watts) may be compared from one microwave to another. This is accomplished by measuring the temperature rise in 1 kilogram (kg) of water exposed to microwave radiation for a fixed period of time. The water is placed in a polytetrafluoroethylene (PTFE) beaker (or a beaker that is made of some other material that does not absorb microwave energy) and stirred before measuring the temperature. Glass beakers absorb microwave energy and may not be used. The initial temperature of the water must be between 19°C and 25°C. The beaker is circulated continuously through the field for at least 2 minutes at full power. The beaker is removed from the microwave, the water is stirred vigorously, and the final temperature is recorded. The final reading is the maximum temperature reading after each energy exposure. These measurements must be accurate to ±0.1°C and made within 30 seconds of the end of heating. If more measurements are needed, do not use the same water until it has cooled down to room temperature. Otherwise, use a fresh water sample.

The absorbed power is determined by the following formula:

EQ. 9 Absorbed Power

$$P = \frac{(K)(C_p)(m)(DT)}{t}$$

WHERE,
- P = The apparent power absorbed by the sample in watts (joules per second)
- K = The conversion factor for thermochemical calories per second to watts (4.184)
- C_p = The heat capacity, thermal capacity, or specific heat (cal. $g^{-1}\,°C^{-1}$) of water (1.0)
- m = The mass of the sample in grams (g)
- DT = The final temperature minus the initial temperature (°C)
- t = The time in seconds (s)

Using 2 minutes and 1 kg of reagent water, the calibration equation simplifies to:

$$P = (DT)(34.87)$$

The microwave user can now relate power in watts to the percent power setting of the microwave.

18.5 Microwave Digestion Cleaning Procedure

18.5.1 Initial Cleaning of the Polytetrafluoroethylene Perfluoroalkoxy (PTFE PFA) Digestion Vessels

18.5.1.1 Prior to first use - new vessels must be annealed before they are used. A pretreatment/cleaning procedure must be followed. This procedure calls for heating the vessels for 96 hours at 200°C. The vessels must be disassembled during annealing and the sealing surfaces (the top of the vessel or its rim) must not be used to support the vessel during annealing.

18.5.1.2 Rinse in reagent water.

18.5.1.3 Immerse in 50% (v/v) hydrochloric acid for a minimum of 3 hours after the cleaning bath has reached a temperature just below boiling.

18.5.1.4 Rinse in reagent water.

18.5.1.5 Immerse in 50% (v/v) nitric acid for a minimum of 3 hours after the cleaning bath has reached a temperature just below boiling.

18.5.1.6 The vessels are then rinsed with copious amounts of reagent water prior to use for any analyses under this contract.

18.5.2 Cleaning Procedure between Sample Digestions

18.5.2.1 Wash entire vessel in hot water using laboratory-grade non-phosphate detergent.

18.5.2.2 Rinse with 50% (v/v) nitric acid.

18.5.2.3 Rinse 3 times with reagent water.

EXHIBIT D - PART B

ANALYTICAL METHODS FOR INDUCTIVELY COUPLED PLASMA - MASS SPECTROMETRY

Exhibit D – Analytical Methods for ICP-MS

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1.0 SCOPE AND APPLICATION

This method provides procedures for the use of Inductively Coupled Plasma - Mass Spectrometry (ICP-MS) to determine the concentration of total recoverable and dissolved elements in aqueous/water and soil/sediment samples taken from hazardous waste sites. This method is applicable to all metals in the Target Analyte List (TAL) for ICP-MS in Exhibit C - Inorganic Target Analyte List with Contract Required Quantitation Limits.

2.0 SUMMARY OF METHOD

2.1 General Method Overview

This method describes the multi-element determination of trace elements by Inductively Coupled Plasma - Mass Spectrometry (ICP-MS). Sample material in solution is introduced by nebulization into a radio-frequency plasma where energy transfer processes cause desolvation, atomization, and ionization. The ions are extracted from the plasma through a differentially pumped vacuum interface and separated on the basis of their mass-to-charge ratio. The separated ions are detected and the ion information processed by a data handling system. Interferences related to the technique must be recognized and corrected. Such corrections may include compensation for isobaric elemental interferences and interferences from polyatomic ions derived from plasma gas, reagents, or sample matrix. Instrumental drift, as well as suppressions or enhancements of instrument response, must be corrected for with the use of internal standards.

2.2 Summary of Digestion Procedures

2.2.1 Hotplate Acid Digestion of Aqueous/Water Samples (based on USEPA 200.8)

2.2.2 Hotplate Acid Digestion of Soil/Sediment Samples (based on USEPA 3050B)

2.2.3 Alternative digestion procedures are included in Section 18 of this Exhibit.

3.0 DEFINITIONS

See Exhibit G - Glossary of Terms for a complete list of definitions.

4.0 INTERFERENCES

Several types of interferences may cause inaccuracies in the determination of trace elements by Inductively Coupled Plasma - Mass Spectrometry (ICP-MS). To prevent this, appropriate steps must be taken in all analyses to ensure that potential interferences are taken into account. Possible interferences are given in Sections 4.1 through 4.5.

4.1 Isobaric Elemental Interferences

Isobaric elemental interferences are caused by isotopes of different elements which form singly or doubly charged ions of the same nominal mass-to-charge ratio, and which cannot be resolved by the mass spectrometer. All elements determined by this method have, at minimum, one isotope free of isobaric elemental interference. Of the analytical isotopes recommended for use with this method, only selenium-82 has an isobaric elemental interference (krypton-82). If alternative analytical isotopes having higher natural abundances are selected, in order to achieve greater sensitivity, an isobaric interference may occur. All data obtained under such conditions must be corrected by measuring the signal from another isotope of the interfering element and subtracting the appropriate signal ratio from the isotope of interest. A record of this correction process shall be included with the data. It should be noted that such corrections will only be as accurate as the accuracy of the isotope ratio used in the elemental equation for data calculations. Relevant isotope ratios should be established prior to the application of any corrections.

4.2 Abundance Sensitivity

Abundance sensitivity is a property defining the degree to which the wings of a mass peak contribute to adjacent masses. Abundance sensitivity is affected by ion energy and mass filter operating pressure. Wing overlap interferences may result when a small ion peak is being measured adjacent to a large one. The potential for these interferences should be recognized and the spectrometer resolution should be adjusted to minimize them.

4.3 Isobaric Polyatomic Ion Interferences

Isobaric polyatomic ion interferences are caused by ions consisting of more than one atom which have the same nominal mass-to-charge ratio as the isotope of interest, and which cannot be resolved by the mass spectrometer. These ions are commonly formed in the plasma or interface system from support gases or sample components. Most of the common interferences have been identified and are listed in Table 2 - Isobaric Molecular-Ion Interferences, with the target analytes affected. Such interferences must be recognized, and when they cannot be avoided by the selection of alternative analytical isotopes, appropriate corrections must be made to the data. Equations for the correction of data should be established at the time of the analytical run sequence, since polyatomic ion interferences will be highly dependent on the sample matrix and chosen instrument conditions.

4.4 Physical Interferences

Physical interferences are associated with the physical processes which govern the transport of the sample into the plasma, sample conversion processes in the plasma, and the transmission of ions through the plasma-mass spectrometer interface. These interferences may result in differences between instrument responses for the sample and the calibration standards. Physical interferences may occur in the transfer of solution to the nebulizer (e.g., viscosity effects), at the point of aerosol formation and transport to the plasma (e.g., surface tension), or during the excitation and ionization processes within the plasma itself. High levels of dissolved solids in the sample may contribute to deposits of material on the extraction and/or skimmer cones. Deposits can reduce the effective diameter of the orifices and therefore ion transmission. Dissolved solid levels not exceeding 0.2% (w/v) have been recommended to reduce such effects. Internal standardization may be effectively used to compensate for many physical interference effects. Internal standards ideally should have similar analytical behavior to the elements being determined.

4.5 Memory Interferences

Memory interferences result when isotopes of elements in a previous sample contribute to the signals measured in a new sample. Memory effects, or carryover, can result from sample deposition on the sampler and skimmer cones, as well as from the buildup of sample material in the plasma torch and spray chamber. The site where these effects occur is dependent on the element and can be minimized by flushing the system with a rinse blank between samples (see Section 7.3.3). The possibility of memory interferences should be recognized within an analytical run and suitable rinse times or monitoring should be used to reduce them. Memory interferences may also be assessed within an analytical run by using a minimum of three replicate integrations for data acquisition. If the integrated signal values drop consecutively, the analyst should be alerted to the possibility of a memory effect, and should examine the analyte concentration in the previous sample to identify if it was high. If a memory interference is suspected, the sample should be reanalyzed after a rinse period.

5.0 SAFETY

See Section 1.14 in Exhibit D - Introduction to Analytical Methods.

6.0 EQUIPMENT AND SUPPLIES

Brand names, suppliers, and part numbers are for illustrative purposes only. No endorsement is implied. Equivalent performance may be achieved using equipment and supplies other than those specified here; however, a demonstration of equivalent performance meeting the requirements of this Statement of Work (SOW) is the responsibility of the Contractor. The Contractor shall document any use of alternate equipment or supplies in the Sample Delivery Group (SDG) Narrative.

6.1 Glassware/Labware

6.1.1 250 mL beaker or other appropriate vessel (glass or plastic)

6.1.2 Watch glasses (glass or plastic)

6.1.3 Funnels

6.1.4 Graduated cylinders

6.1.5 Various volumetric flasks and pipets (Class A)

6.1.6 Thermometer that covers range of 0-200°C

6.1.7 Whatman No. 41 filter paper (or equivalent)

6.1.8 Hotplate, block digester, or other heating source capable of maintaining 95°C (±3°C).

6.1.9 Balances – Top loader balance, 300 gram (g) capacity, and a minimum sensitivity of ±1.0 milligram (mg)

6.2 Equipment and Supplies for Microwave Digestion

The equipment and supplies listed in this section are used if one of the alternate microwave sample preparation procedures was approved for use by the USEPA Region.

6.2.1 Whatman No. 41 filter paper (or equivalent)

6.2.2 Disposable polypropylene filter funnel

6.2.3 Polyethylene bottles, 125 mL, with caps

6.2.4 Microwave oven with programmable power settings up to at least 600 watts.

6.2.5 The system must use polytetrafluoroethylene perfluoroalkoxy (PTFE PFA) digestion vessels (120 mL capacity) capable of withstanding pressure of up to 110 (±10) psi [7.5 (±0.7) atm]. These vessels are capable of controlled pressure relief at pressures exceeding 110 psi.

6.2.6 A rotating turntable must be used to ensure homogeneous distribution of microwave radiation within the oven. The speed of the turntable must be a minimum of 3 revolutions per minute (rpm).

6.3 Inductively Coupled Plasma-Mass Spectrometer (ICP-MS)

6.3.1 The ICP-MS consists of:

- An instrument capable of scanning the mass range 5-250 atomic mass units (amu) with a minimum resolution capability of 1 amu peak width at 5% peak height and either a conventional or extended dynamic range detector.
- A radio-frequency generator compliant with Federal Communications Commission (FCC) regulations.
- A high purity (99.99%) argon gas supply.
- A variable speed peristaltic pump to deliver sample solution to the nebulizer.
- A mass-flow controller on the nebulizer gas supply is required.

7.0 REAGENTS AND STANDARDS

7.1 Reagents

Reagents may contain elemental impurities that might affect the integrity of analytical data. Owing to the high sensitivity of Inductively Coupled Plasma - Mass Spectrometry (ICP-MS), high-purity reagents should be used whenever possible. Suitable acids are available from a number of manufacturers or may be prepared by sub-boiling distillation. Nitric acid is preferred for ICP-MS in order to minimize polyatomic ion interferences. Several polyatomic ion interferences result when hydrochloric acid is used; however, it should be noted that hydrochloric acid is required to maintain stability in solutions containing antimony and silver. When hydrochloric acid is used, corrections for the chloride polyatomic ion interferences must be applied to all data.

7.1.1 Reagent water - The purity of this water must be equivalent to ASTM Type II water (ASTM D1193-06). Use this water for all reagents, standards, and dilutions.

7.1.2 Nitric acid - Concentrated (specific gravity 1.41).

7.1.3 Nitric acid (50% v/v) - Add 500 mL conc. nitric acid (specific gravity 1.41) to 400 mL of reagent water and dilute to 1 L.

7.1.4 Nitric acid (10% v/v) - Add 100 mL conc. nitric acid (specific gravity 1.41) to 400 mL of reagent water and dilute to 1 L.

7.1.5 Nitric acid (2% v/v) – Add 20 mL conc. nitric acid (specific gravity 1.41) to 400 mL of reagent water and dilute to 1 L.

7.1.6 Nitric acid (1% v/v) – Add 10 ml conc. nitric acid (specific gravity 1.41) to 400 mL of reagent water and dilute to 1 L.

7.1.7 Hydrochloric acid - Concentrated (specific gravity 1.19).

7.1.8 Hydrochloric acid (50% v/v) - Add 500 mL conc. hydrochloric acid (specific gravity 1.19) to 400 mL of reagent water and dilute to 1 L.

7.1.9 Hydrochloric acid (HCl) (20% v/v) - Add 200 mL conc. hydrochloric acid (specific gravity 1.19) to 400 mL reagent water and dilute to 1 L.

7.2 Standards

7.2.1 Introduction

The Contractor must provide all standards, except as noted, to be used with this contract. These standards may be used only after they have been certified according to the procedure in Exhibit E, Section 8.0. The Contractor must be able to verify that the standards are certified. Manufacturer's certificates of analysis must be retained by the Contractor and presented upon request.

7.2.2 Stock Standard Solutions

7.2.2.1 Stock standard solutions may be purchased from a reputable source or prepared from reagent grade chemicals or metals (at least 99.99% pure). All salts must be dried for 1 hour at 105°C unless otherwise specified. Stock solutions should be stored in Fluorinated Ethylene Propylene (FEP) fluorocarbon bottles. Note that some metals, particularly those which form surface oxides, require cleaning prior to being weighed. This may be achieved by pickling the surface of the metal in acid. An amount in excess of the desired weight should be pickled repeatedly, rinsed with reagent water, dried, and weighed until the desired weight is achieved.

7.2.3 Secondary Dilution Standards

Prepare mixed secondary dilution standard solutions by diluting the appropriate volumes of stock standards with 1% (v/v) nitric acid, or as recommended by the manufacturer, to obtain the final volume. Originating stock standards should be checked for the presence of impurities which might influence the accuracy of the standard. Freshly prepared standards should be transferred to acid-cleaned, not previously used, FEP fluorocarbon bottles for storage and monitored periodically for stability. Mixed secondary dilution standard solutions may be purchased. The purchased standards shall meet the requirements in Section 7.2.1.

7.2.4 Working Standards

7.2.4.1 Mixed Calibration Standard Solutions

Care must be taken in the preparation of mixed calibration standards to ensure that the analytes are compatible and stable. Fresh calibration standards should be prepared from mixed standard solutions every 2 weeks or less. Prepare the mixed standards to levels appropriate to the operating range of the instrument using 1% (v/v) nitric acid or to match the matrix of the digested samples. The analyte concentrations in the calibration standards should be sufficient to produce good measurement precision and to accurately define the slope of the response curve. Protect all standards from light. Samples, sample digestates, and standards must be stored separately.

7.2.4.2 Internal Standard Solution

The internal standard solution is to be added to all digested samples, blanks, and standards by the analyst prior to analysis, or it can be added automatically by the instrument during analysis of all digested samples, blanks, and standards. Prepare the mixed internal standard solution by following the manufacturer's guidelines.

7.2.4.3 Tuning Solution

This solution is used for instrument tuning and mass calibration prior to analysis. Prepare a mixed standard by diluting beryllium, magnesium, cobalt, indium, and lead stock standards to 100 µg/L with 1% (v/v) nitric acid. The concentration of this solution can be reduced based on recommendations from the instrument manufacturer.

7.2.4.4 Interference Check Sample (ICS) Solution

The ICS consists of two solutions: Solution A (ICSA) and Solution AB (ICSAB). ICSA consists of the interferents and ICSAB consists of the analytes mixed with the interferents. The ICS standards (ICSA for the interferents only and ICSB for the analytes only) are normally supplied by USEPA.

7.3 Blanks

Three types of blanks are required for this method. A Calibration Blank is used to establish the analytical calibration curve, the Preparation Blank (see Section 12.4.2) is used to assess possible contamination from the sample preparation procedure and to assess spectral background, and the Rinse Blank is used to flush the instrument between samples to reduce memory interferences.

7.3.1 Calibration Blank - Consists of 1% (v/v) nitric acid in reagent water or matrix matched to the digested samples. The Initial Calibration Blank (ICB) and Continuing Calibration Blank (CCB) are identical in composition to the Calibration Blank and are used to monitor for analyte carryover.

7.3.2 Preparation Blank - Must contain all the reagents in the same volumes as used in preparing the samples. The Preparation Blank must be carried through the complete procedure and contain the same acid concentration in the final solution as the sample solution used for analysis. Soil/sediment blanks shall use 1.00 g (±0.01 g) of reagent water.

7.3.3 Rinse Blank – Must contain sufficient nitric acid to allow the instrument to return to baseline between the analysis of digested samples, blanks, and standards. The Rinse Blank would typically consist of 2% (v/v) nitric acid in reagent water.

8.0 SAMPLE COLLECTION, PRESERVATION, AND STORAGE

8.1 Sample Collection and Preservation

All aqueous/water and soil/sediment samples must be collected in glass or polyethylene containers. Aqueous/water samples must be preserved with nitric acid to pH less than or equal to 2 immediately after collection. All samples must be iced or refrigerated at 4°C (±2°C) from the time of collection until digestion. If aqueous/water samples are received in glass containers, please note this in the Sample Delivery Group (SDG) Narrative.

8.1.1 Dissolved Metals

For the determination of dissolved metals, the sample must be filtered through a 0.45 micrometer (µm) pore diameter membrane filter at the time of collection or as soon as possible. Use a portion of the sample to rinse the filter flask, discard this portion, and collect the required volume of filtrate. Preserve the filtrate with nitric acid to pH less than or equal to 2 immediately after filtration.

8.2 Procedures for Sample Storage and Disposal

Following digestion, the remaining unused portion of aqueous/water and soil/sediment samples may be stored at room temperature within the laboratory until 60 days after delivery of a complete, reconciled data package to USEPA. After 60 days, the samples may be disposed of in a manner that complies with all applicable regulations.

8.3 Procedure for Sample Digestate Storage

Sample digestates must be stored until 6 months after delivery of a complete, reconciled data package to USEPA.

8.4 Contract Required Holding Time

The maximum holding time for metals is 180 days from Validated Time of Sample Receipt (VTSR).

9.0 CALIBRATION AND STANDARDIZATION

9.1 Instrument Operating Parameters

Because of the differences between various makes and models of satisfactory instruments, no detailed operating instructions can be provided. Instead, the analyst should follow the instructions provided by the manufacturer of the particular instrument. The Method Detection Limit (MDL), precision, and interference effects must be investigated and established for each individual analyte on that particular instrument. All measurements must be within the operational range of the instrument where corrections are valid. It is the responsibility of the analyst to verify the instrument configuration and operating conditions used to satisfy the analytical requirements and to maintain Quality Control (QC) data confirming instrument performance and analytical results.

9.2 Inductively Coupled Plasma - Mass Spectrometry (ICP-MS) Instrument Calibration Procedure

9.2.1 Precalibration routine - The following precalibration routine must be completed prior to calibrating the instrument.

Set up the instrument with proper operating parameters established in Section 9.1. The instrument must be allowed to become stable prior to calibration. Conduct any necessary mass calibration and resolution routines to bring peak width within the manufacturer's specifications and adjust mass calibration to within 0.1 amu over the range of 6 to 210 amu.

Demonstrate instrument stability and precision by analyzing the tuning solution as a single analysis with at least five integrations. The percent relative standard deviation of the absolute signals for all the multiple integrations in the tuning solution, as calculated by the instrument, must be less than 5.0% for each analyte.

9.2.2 Internal Standardization

Internal standardization must be used in all analyses to correct the instrument drift and physical interferences. A list of acceptable internal standards is provided in Table 5 - Internal Standards. For full range mass scans, a minimum of five internal standards shall be used. The internal standards selected for a run must be consistent throughout the entire run. Internal standards shall be present in all samples, standards, and blanks (except the tuning solution) at identical levels. This may be achieved by directly adding an aliquot of the internal standard solution to each sample, standard, and blank, or by mixing with the sample solution prior to nebulization using a second channel of the peristaltic pump and mixing coil. The concentration of the internal standard should be sufficiently high for good precision and to minimize the possibility of correction errors if the internal standard is naturally present in the sample. Depending on the sensitivity of the instrument, a final concentration range of 20 µg/L to 200 µg/L of each internal standard in each digested sample, blank, and standard is recommended when the internal standards are added manually by the analyst. If dilutions are performed on the digested samples, then the internal standards must be added after the dilution. If the internal standards are added automatically by the instrument prior to analysis, then the manufacturer's guidelines for the appropriate concentration ranges should be followed.

9.2.3 Calibration

Instruments shall be calibrated each time the instrument is set up, or after Initial Calibration Verification (ICV) or Continuing Calibration Verification (CCV) failure. The instrument standardization date and time shall be included in the raw data. Calibration standards shall be prepared as in Section 7.2.4.1. Calibrate the instrument with at least six standards, one of which shall be a blank standard and one shall be at or below the Contract Required Quantitation Limit (CRQL). The rest of the standards shall be uniformly spread out in graduated amounts over the appropriate calibration range for each metal. A minimum of three replicate integrations are required for data acquisition. Use the average of all the integrations for instrument calibration and data reporting. The calibration curve shall be calculated using linear regression by plotting the concentration of the standard (in µg/L) on the X-axis

versus the corrected instrument response on the Y-axis. The corrected instrument response are those corrections (e.g., such as correction for background, internal standards, Interelement Corrections (IECs), calibration blank) that may be applied to the raw uncorrected instrument response prior to determining the calibration curve. A standard linear regression, a weighted linear regression (e.g., 1/concentration or 1/concentration^2), or a linear regression with zero force calibration model can be used as appropriate. No other types of equations (e.g., quadratic) are to be used. The acceptance criteria for the calibration curve is a correlation coefficient greater than or equal to 0.995. Sample analysis shall not begin until this criteria and the criteria described in Sections 9.2.4 and 9.2.5 have been met.

9.2.4 The calibration equation must be checked to establish the representativeness of the data that were used to produce the calibration equation. This check involves the re-fitting of the non-blank calibration data back to the calibration equation or the comparison of the calculated concentration of each of the standards against the expected concentration of the associated standard. This difference is related to the actual residual. For this calculation, the Percent Difference shall be used where the above difference is further divided by the expected amount or concentration of the respective standard. If these Percent Differences for each of the standards do not fall within ±30%, then the calibration equation is not acceptable and must be corrected. If a standard is analyzed for a particular analyte at a concentration that is below the CRQL and the above criteria is not met, that value can be excluded from the calibration curve as long as the lowest non-zero standard for each analyte is still analyzed at or below the CRQL and all standards included in the calibration curve are continuous and consecutive.

9.2.5 The y-intercept from the linear regression initial calibration equation shall also be evaluated. If the y-intercept is not below the CRQL for each of the analyte initial calibration curves, the calibration is not acceptable and must be corrected. Samples are not to be analyzed until the y-intercept for each analyte’s initial calibration curve meets the acceptance criteria.

9.2.6 Any changes or corrections to the analytical system shall be followed by recalibration.

9.3 Initial Calibration Verification (ICV)

9.3.1 Immediately after each instrument has been calibrated, the accuracy of the initial calibration shall be verified and documented for every analyte by the analysis of the ICV solution(s) for each mass used to report final results. The percent Relative Standard Deviation (%RSD) shall also be calculated from all replicate integrations and reported for each mass used to report final results.

9.3.2 The ICV solution(s) is (are) obtained from USEPA. If the solution(s) is (are) not available, then the ICV solution can be prepared by the laboratory using a certified solution for each analyte from an independent source. Analyses shall be conducted at a concentration other than that used for instrument calibration, but near the middle of the calibration range. An independent source is defined as a standard composed of the analytes from a different source other than those used in the standards for instrument calibration.

9.3.3 The ICV solution(s) shall be run at each mass used for reporting final results.

9.4 Continuing Calibration Verification (CCV)

9.4.1 To ensure calibration accuracy during each analytical run sequence, a CCV shall be analyzed and reported for each mass used for reporting final results for each analyte, at a frequency not to exceed every 2 hours during an analytical run sequence. The standard shall be analyzed and reported for each mass used for reporting final results for each analyte at the beginning of the analytical run sequence and after the last analytical sample. The %RSD shall be calculated from all integrations and reported for each mass used to report final results. See the example sample analysis sequence in Section 12.12. This analytical run sequence can continue indefinitely as long as samples are being continuously analyzed without the instrument being turned off and successive CCVs and their associated %RSDs meet the stated criteria.

This CCV standard(s) shall be prepared from the same source and at or near the mid-level concentration as used during the initial calibration.

The same CCV standard shall be used throughout the analytical run sequences for a Sample Delivery Group (SDG) of samples received.

9.4.2 Each CCV analyzed shall reflect the conditions of analysis of all associated analytical samples (the preceding analytical samples up to the previous CCV as applicable and the analytical samples following this CCV up to the next CCV as applicable).

9.5 Initial and Continuing Calibration Blank (ICB/CCB)

An ICB or CCB shall be analyzed for each mass used for reporting final results for each analyte immediately after every ICV and CCV.

10.0 PROCEDURE

10.1 Sample Preparation

10.1.1 If insufficient sample amount (less than 90% of the required amount) is received to perform the analyses, the Contractor shall contact the Sample Management Office (SMO) to inform them of the problem. SMO will contact the USEPA Region for instructions. The USEPA Region will either require that no sample analysis be performed or will require that a reduced volume be used for the sample analysis. No other changes in the analysis will be permitted. The Contractor shall document the USEPA Region's decision in the Sample Delivery Group (SDG) Narrative.

10.1.2 If multiphase samples (e.g., two-phase liquid sample, oily sludge/sandy soil/sediment sample) are received by the Contractor, the Contractor shall contact SMO to apprise them of the type of sample received. SMO will contact the USEPA Region. If all phases of the sample are amenable to analysis, the USEPA Region may require the Contractor to do any of the following:

- Mix the sample and analyze an aliquot from the homogenized sample.
- Separate the phases of the sample and analyze one or more of the phases, separately. SMO will provide EPA sample numbers for the additional phases, if required.

- Do not analyze the sample.

10.1.2.1 If all of the phases are not amenable to analysis (i.e., outside scope), the USEPA Region may require the Contractor to do any of the following:

- Separate the phases and analyze the phase(s) that is (are) amenable to analysis. SMO will provide EPA sample numbers for the additional phases, if required.
- Do not analyze the sample.

10.1.2.2 No other changes in the analyses will be permitted. The Contractor shall document the USEPA Region's decision in the SDG Narrative.

10.1.3 The primary sample preparation procedures to be used for this method are described in the following Sections (10.1.4 and 10.1.5). These methods are to be used without deviation. Alternative sample preparation procedures are listed in Section 18 of this method and may be requested by the USEPA Region. No other changes in the analyses will be permitted.

10.1.4 Aqueous/Water Sample Preparation

10.1.4.1 Preparation Method 200.8 – Total Recoverable Analytes [based on USEPA NERL Method 200.8 Rev 5.5 (October 1999)]

10.1.4.1.1 For the determination of total recoverable analytes in aqueous/water samples, transfer a 100 mL (±1 mL) aliquot from a well mixed, acid preserved sample to an appropriately sized (approximately 250 mL) beaker or other comparable digestion vessel. The sample shall not be diluted prior to digestion.

10.1.4.1.2 Add 2 mL 50% (v/v) nitric acid and 1 mL 50% (v/v) hydrochloric acid to the beaker containing the measured volume of sample. Place the beaker on a hotplate, or other comparable heating device, for solution evaporation. The hotplate should be located in a fume hood and previously adjusted to provide evaporation at a temperature of 95°C (±3 °C), when covered. The beaker should be covered with an elevated watch glass or other necessary steps should be taken to prevent sample contamination from the fume hood environment.

10.1.4.1.3 Reduce the volume of the sample aliquot to about 20 mL by gently heating at 95°C (±3 °C). **DO NOT BOIL.** This step takes about 2 hours for a 100 mL aliquot with the rate of evaporation rapidly increasing as the sample volume approaches 20 mL. (A spare beaker containing 20 mL of water can be used as a gauge.)

10.1.4.1.4 Cover the beaker with a watch glass to reduce additional evaporation and gently reflux the sample for 30 minutes. (Slight boiling may occur, but vigorous boiling must be avoided to prevent loss of the HCl-H_2O azeotrope.)

10.1.4.1.5 Allow the beaker to cool. Quantitatively transfer the sample solution to a 100 mL volumetric flask, make to volume with reagent water, stopper, and mix.

10.1.4.1.6 Allow any undissolved material to settle overnight, or centrifuge or filter a portion of the prepared sample until clear to avoid plugging the nebulizer with solid particles.

10.1.4.1.7 Prior to analysis, if the chloride concentration interferes with the analysis, then the solution can be diluted to reduce the chloride concentration. The sample is now ready for analysis. Because the effects of various matrices on the stability of the samples cannot be characterized, all analyses should be performed as soon as possible after the completed preparation.

10.1.4.1.8 The concentrations as determined by this method shall be reported as "Total". A reduced sample volume of 50 mL can be used. If this reduced volume is used, then all other reagents and volumes shall be reduced appropriately. The digested sample can be further diluted if high levels of interferences are noted or if any of the analytes exceed the upper limit of their respective calibration curves.

10.1.5 Soil/Sediment Sample Preparation

10.1.5.1 Preparation Method 3050B (based on USEPA OSW Method 3050B, Revision 2, December 1996)

10.1.5.1.1 Mix the sample thoroughly to achieve homogeneity (see Exhibit D - Introduction to Analytical Methods, Section 1.8). For each digestion procedure, weigh to the nearest 0.01 g and transfer 1.0 – 1.5 g sample (wet weight) to an appropriately sized digestion vessel (e.g., a beaker or hot block digestion tube).

10.1.5.1.2 Add 10 mL of 50% (v/v) nitric acid, mix the slurry, and cover with a watch glass or vapor recovery device. Heat the sample to 95°C (±3°C) and reflux for 10 to 15 minutes without boiling. Allow the sample to cool, add 5 mL of concentrated nitric acid, replace the cover, and reflux for 30 minutes. If brown fumes are generated, indicating oxidation of the sample by the nitric acid, repeat this step (addition of 5 mL of concentrated nitric acid) over and over until no brown fumes are given off by the sample indicating the complete reaction with nitric acid. Using a ribbed watch glass or vapor recovery system, either allow the solution to evaporate to approximately 5 mL without boiling or heat at 95°C (±3°C) without boiling for 2 hours. Maintain a covering of solution over the bottom of the vessel at all times.

10.1.5.1.3 After the sample has cooled, add 2 mL of reagent water and 3 mL of 30% hydrogen peroxide. Cover the vessel with a watch glass or vapor recovery device and return the covered vessel to the heat source for warming and to start the peroxide reaction. Care must be taken to ensure that losses do not occur due to excessively vigorous effervescence. Heat until the effervescence subsides and cool the vessel. Continue to add 30% hydrogen peroxide in 1-mL amounts with warming until the effervescence is minimal or until the general sample appearance is unchanged. (NOTE: Do not add more than a total of 10 mL of 30% hydrogen peroxide.) Cover the sample with a ribbed watch glass or vapor recovery device and continue heating the acid-peroxide digestate until the volume has been reduced to approximately 5 mL or heat at 95°C (±3°C) without boiling for 2 hours. Maintain a covering of solution over the bottom of the vessel at all times.

10.1.5.1.4 After cooling, transfer the digestate to a 100 mL volumetric flask through Whatman No. 41 filter paper (or equivalent). Rinse the filter paper with a small amount of reagent water

to complete the quantitative transfer of the analytes and collect the liquid in the same 100-mL volumetric flask. The solution being analyzed must be clear to avoid plugging the nebulizer with solid particles. Dilute to volume with reagent water, stopper, and mix. The sample is now ready for analysis.

10.1.5.1.5 Prior to analysis, the digested sample can be diluted (e.g., 1:4 would be suggested) with 1% nitric acid if high levels of chloride are present which may cause problems with some instruments and interfere with the analysis. Dilution of the digestate may also be necessary if high levels of interferences are noted or if any of the analytes exceed the upper limit of their respective calibration curves.

10.2 Sample Analysis

10.2.1 For every new or unusual matrix, it is highly recommended that a semi-quantitative analysis be carried out to screen for high element concentrations. This screening procedure can be performed using ICP-AES or some other technique. Information gained from this may be used to prevent potential damage to the detector during sample analysis and to identify elements which may be higher than the calibrated range. Matrix screening may be carried out by diluting the sample by a factor of 500 and analyzing in semi-quantitative mode. The sample should also be screened for background levels of all elements chosen for use as internal standards in order to prevent bias in the calculation of analytical data. Undiluted sample results are not required if elements are present in the undiluted sample digestate at levels which could damage the detector.

10.2.2 Initiate instrument operating configuration. Tune and calibrate the instrument for the analytes of interest. Establish instrument software run procedures for quantitative analysis. For all sample analyses, a minimum of three replicate integrations are required for data acquisition. Use the average of all the integrations for data reporting.

10.2.3 The rinse blank should be used to flush the system between samples. Allow sufficient time to remove traces of the previous sample. Samples should be aspirated for a sufficient period of time to obtain a stable response prior to the collection of data.

10.2.4 Sample digestates having high levels of interferences or concentrations higher than the established calibrated range as determined by the expected concentration of the highest calibration standard shall be diluted into range and reanalyzed. The sample digestate should first be analyzed for the trace elements, protecting the detector from the high concentration elements, if necessary, by the selection of appropriate scanning windows. The sample digestate should then be diluted for the determination of the remaining elements.

10.2.5 All masses which might affect data quality must be monitored during the analytical run. At a minimum, those masses identified in Table 3 - Recommended Isotopes and Masses for Selected Elements, must be monitored in the same scan that is used for the collection of the data. This information should be used to correct the data for identified interferences.

11.0 DATA ANALYSIS AND CALCULATIONS

11.1 Recommended Elemental Equations

Elemental expressions recommended for sample data calculations are listed in Table 4 - Recommended Elemental Expressions for Isobaric Interferences. Do not report element concentrations below the Method Detection Limit (MDL).

11.2 Data Value Corrections

Data values as produced by the instrument should be corrected for instrument drift or sample matrix induced interferences by the application of internal standardization. Corrections for characterized spectral interferences should be applied to the data. Chloride interference corrections should be made on all samples, regardless of the addition of hydrochloric acid, as the chloride ion is a common constituent of environmental samples.

11.3 Multiple Monitored Isotopes

If an element has more than one monitored isotope, examination of the concentration calculated for each isotope or the isotope ratios will provide useful information in detecting a possible spectral interference. Consideration should therefore be given to both primary and secondary isotopes in the evaluation of sample concentration. In some cases, secondary isotopes may be less sensitive or more prone to interferences than the primary recommended isotopes; therefore, differences between the results do not necessarily indicate a problem with data calculated for the primary isotopes.

11.4 Aqueous/Water Sample Calculation

EQ. 1 Aqueous/Water Sample Concentration

$$\text{Concentration } (\mu g/L) = C \times \frac{V_f}{V} \times DF$$

WHERE,
- C = Instrument value in µg/L (The average of all replicate integrations)
- V_f = Final digestion volume (mL)
- V = Initial Aliquot Amount (mL)
- DF = Dilution Factor

11.5 Adjusted MDL/Adjusted Contract Required Quantitation Limit (CRQL) Calculation for Aqueous/Water Samples

To calculate the adjusted MDL or adjusted CRQL for aqueous/water samples, multiply the value of the MDL or CRQL(µg/L) by the sample dilution factor and the V_f/V term as noted in Equation 1.

11.6 Soil/Sediment Sample Calculation

The concentrations determined in the digestate are to be reported on the basis of the dry weight of the sample, in units of mg/kg:

EQ. 2 Soil/Sediment Sample Concentration

$$\text{Concentration (dry wt.)(mg/kg)} = C \times \frac{V_f}{W \times S} \times DF \; / \; 1000$$

WHERE,
- C = Instrument value in µg/L (The average of all replicate integrations)
- V_f = Final digestion volume (mL)
- W = Initial aliquot amount (g)
- S = % Solids/100 (see Exhibit D - Introduction to Analytical Methods, Section 1.6)
- DF = Dilution Factor

11.7 Adjusted MDL/Adjusted CRQL Calculation for Soil/Sediment Samples

Calculate the adjusted MDL or adjusted CRQL for soil/sediment samples as follows:

EQ. 3 Adjusted Soil/Sediment MDL or CRQL Concentration

$$\text{Adjusted Concentration(mg/kg)} = C \times \frac{W_M}{W \times S} \times \frac{V_f}{V_M} \times DF$$

WHERE,
- C = MDL or CRQL (mg/kg)
- W_M = Minimum method required aliquot amount (g) (1.00g or 0.50g)
- W = Initial aliquot amount (g)
- V_M = Method required final sample digestion volume (mL) (100 mL)
- V_f = Final digestion volume (mL)
- S = % Solids/100 (see Exhibit D - Introduction to Analytical Methods, Section 1.6)
- DF = Dilution Factor

12.0 QUALITY CONTROL (QC)

12.1 Tune Standard

The Tune Standard shall be prepared in the same acid matrix as the calibration standards and analyzed as a single analysis with at least five integrations. If the mass calibration is not within 0.1 amu over the range of 6 to 210 amu, or the percent Relative Standard Deviation (%RSD) of all the integrations of the absolute signals of the analytes exceeds 5.0%, the analysis shall be terminated, the problem corrected, and the instrument re-tuned. In addition, the laboratory must also monitor the resolution by measuring and reporting the full peak width (in amu) and the percentage of the peak height this full peak width was measured at for each of the analyte masses in the tune solution. All sample results reported must be associated with an instrument tune that meets these requirements.

12.2 Initial Calibration Verification (ICV)

The ICV Standard shall be prepared in the same acid matrix as the calibration standards and in accordance with the instructions provided by the supplier. If the measurements exceed the control limits of 90% Recovery (low) or 110% Recovery (high), or if the %RSD as calculated from all replicate integrations exceeds 5.0%, the analysis shall be terminated, the problem corrected, the instrument recalibrated, and the calibration reverified. The results of the ICV analysis shall be reported.

12.3 Continuing Calibration Verification (CCV)

The CCV standard shall be prepared in the same acid matrix as the calibration standards by combining compatible analytes at a concentration equivalent to the mid-levels of their respective calibration curves. If the deviation of the CCV is greater than the specified control limits of 90% Recovery (low) or 110% Recovery (high), or if the %RSD as calculated from all replicate integrations exceeds 5.0%, the analysis shall be stopped, the problem corrected, the instrument recalibrated, the calibration verified, and reanalysis of all analytical samples analyzed since the last compliant calibration verification shall be performed for the analytes affected. The results of all CCV analyses shall be reported.

12.4 Blank Analyses

There are two different types of blanks required by this method. The calibration blank is used in establishing the analytical curve. The Initial and Continuing Calibration Blanks (ICB/CCB) are identical in composition to the calibration blank and are analyzed immediately after the ICV/CCV to monitor for potential carryover of analytes. The preparation blank is used to monitor for possible contamination throughout the entire sample preparation and analysis process.

12.4.1 Initial and Continuing Calibration Blank (ICB/CCB)

The ICB and CCB are identical in composition to the Calibration Blank as used to establish the initial calibration curve. If the absolute value of the calibration blank (ICB/CCB) result exceeds the Contract Required Quantitation Limit (CRQL) (see Exhibit C), the analysis shall be terminated, the problem corrected, the instrument

recalibrated, the calibration verified, and reanalysis of all analytical samples analyzed since the last compliant calibration blank shall be performed for the analytes affected. The results of the ICB and CCB analyses shall be reported.

12.4.2 Preparation Blank

12.4.2.1 The Preparation Blank shall contain all the reagents and in the same volumes as used in processing the samples. The Preparation Blank shall be carried through the complete procedure and contain the same acid concentration in the final solution as the sample solution used for analysis.

12.4.2.2 At least one Preparation Blank, consisting of reagent water processed through each sample preparation and analysis procedure (see Section 10), shall be prepared and analyzed with every Sample Delivery Group (SDG), or with each batch[1] of samples digested, whichever is more frequent.

12.4.2.3 The first batch of samples in an SDG is to be assigned to Preparation Blank one, the second batch to Preparation Blank two, etc. Each Complete SDG File (CSF) shall contain the results of all Preparation Blank analyses associated with the samples in that SDG.

12.4.2.4 The Preparation Blank(s) is (are) to be reported for each SDG and used in all analyses to ascertain whether sample concentrations reflect contamination in the following manner:

12.4.2.4.1 If the absolute value of the concentration of the blank is less than or equal to the CRQL (see Exhibit C), no further action is required.

12.4.2.4.2 If the analyte concentration in the blank is above the CRQL, the lowest concentration of that analyte in the associated samples (except those identified as field blanks) shall be greater than or equal to 10 times the blank concentration. Otherwise, all samples (except those identified as field blanks) associated with the blank, with the analyte concentration less than 10 times the blank concentration and above the CRQL, shall be redigested and reanalyzed with appropriate new Quality Control (QC) for that analyte. The sample concentration is not to be corrected for the blank value.

12.4.2.4.3 If the concentration of the blank is below the negative CRQL, then all samples reported below 10 times the CRQL associated with the blank shall be redigested and reanalyzed with appropriate new QC.

12.4.2.4.4 The results for the Preparation blank shall be reported.

12.5 Interference Check Sample (ICS)

12.5.1 The ICS is obtained from USEPA. If not available, then the ICS can be prepared by the analyst.

12.5.2 To verify corrections for elemental and polyatomic isobaric interferences, the Contractor shall analyze and report the results for the ICS for all elements on the Target Analyte List (TAL) and

[1] A group of samples prepared at the same time.

monitor for all interferents, immediately after the initial calibration sequence, but not before the ICV/ICB. The analysis of the ICS shall be immediately followed by the analysis of a CCV/CCB pair. The ICS solutions shall be obtained from USEPA, if available, and analyzed according to instructions supplied with the ICS. The Contractor shall always initially run the ICS undiluted. Dilution of the ICS (for the higher concentration elements) may be necessary to meet the calibrated range values of the instrument.

12.5.3 The ICS consists of two solutions: Solution A and Solution AB. Solution A consists of the interferents; Solution AB consists of the analytes mixed with the interferents. Even though no analytes have been added to Solution A, low levels of some of the analytes may be present due to the purity of the materials used. An ICS analysis consists of analyzing both solutions consecutively, starting with Solution A.

12.5.4 The analytical results of ICS Solution A (ICSA) shall fall within the control limit ±20% of the analyte's true value or ±2 times the CRQL of the analyte's true value, whichever is greater. If the true value for a given analyte is not listed in the certified values for the solution, then the true value shall be assumed to be zero and the ±2 times the CRQL control limits shall apply. For example, for Copper (CRQL = 2 µg/L, ICSA true value = 8 µg/L) the correct control window to use would be the greater of ±20% of the true value (0.20 x 8 µg/L = ±1.6 µg/L) or ±2 times the CRQL (±4 µg/L). Therefore, the control window for the found value for Chromium in the ICSA is 8±4, or 4 to 12 µg/L. If the analytical results of the ICSA do not fall within the control limits, the analysis shall be terminated, the problem corrected, and the instrument recalibrated.

12.5.5 Results for the ICS Solution AB (ICSAB) shall fall within the control limit of ±20% of the true value or ±2 times the CRQL of the true value, whichever is greater. If the analytical results of the ICSAB do not fall within the control limits, the analysis shall be terminated, the problem corrected, and the instrument recalibrated.

NOTE: The control limits and concentrations for the ICSAB are being monitored. These may be adjusted to provide greater control of interferences.

12.5.6 If true values for analytes contained in the ICS are not supplied with the solutions, the mean shall be determined by initially analyzing the ICS at least five times repetitively for the particular analytes. This mean determination shall be made during an analytical run where the results for a previously supplied ICS met all contract specifications. Additionally, the results of this initial mean determination shall be used as the true value for the lifetime of that solution (i.e., until the solution is exhausted). Only if the ICS solutions are not available from USEPA, independent Check Samples shall be prepared with interferent and analyte concentrations at the levels specified in Table 1 – Interferent and Analyte Elemental Concentrations Used for ICP-MS Interference Check Sample (ICS). The mean value and standard deviation shall be established by initially analyzing the Check Samples at least five times repetitively for each analyte listed. Results shall fall within the control limit of ±20% of the established mean value or ±2 times the analyte's CRQL of the established mean value, whichever is greater. The mean and standard deviation shall be reported in the raw data. Results from the ICS analyses shall be reported for all ICP-MS target analytes.

12.5.7 The results of the ICS analysis shall be reported.

12.6 Spike Sample Analysis

12.6.1 The spike sample analysis is designed to provide information about the effect of sample matrix on the digestion and/or measurement methodology. The spike is added before the digestion (i.e., prior to the addition of other reagents). At least one spike sample analysis (matrix spike) shall be performed on each group of samples of a similar matrix type (i.e., aqueous/water, soil/sediment) or for each SDG, whichever is more frequent.[2]

12.6.2 If the spike analysis is performed on the same sample that is chosen for the duplicate sample analysis, spike calculations shall be performed using the results of the sample designated as the "original sample" (see Section 12.7). The average of the duplicate results cannot be used for the purpose of determining percent recovery. Samples identified as field blanks and Performance Evaluation (PE) samples shall not be used for spiked sample analysis. USEPA may require that a specific sample be used for the spike sample analysis.

12.6.3 The analyte spike shall be added in the amount given in Table 6 - Spiking Levels for Spike Sample Analysis, for each element analyzed. This is the level of spike present in the final digestate.

12.6.4 If the spike recovery is not at or within the limits of 75-125%, the data for all samples received and associated with that spike sample shall be flagged with the letter "N". An exception to this rule is granted when the sample concentration exceeds the Spike Added (SA) concentration by a factor of four or more. In such an event, the data shall be reported unflagged even if the percent recovery does not meet the 75-125% recovery criteria.

12.6.5 When the matrix spike recovery falls outside the control limits and the sample result does not exceed four times the spike added, a post-digestion spike shall be performed for those analytes that do not meet the specified criteria. Note that if a post-digestion spike analysis is required for an analyte, the same EPA sample that was used for the matrix spike analysis shall be used for the post-digestion spike analysis. Spike the unspiked aliquot of the undiluted digestate at two times the indigenous level or two times the CRQL, whichever is greater.

12.6.6 In the instance where there is more than one spike sample per matrix per SDG, if one spike sample recovery is not within contract criteria, then flag all the samples of the same matrix and method in the SDG. Individual component percent recoveries are calculated as follows:

[2] USEPA may require additional spike sample analyses, upon USEPA Regional CLP Project Officer (CLP PO) request.

EQ. 4 Matrix Spike and Post-Digestion Spike Percent Recovery

$$\%\text{Recovery} = \frac{SSR - SR}{SA} \times 100$$

WHERE, SSR = Spike Sample Result (µg/L or mg/kg) from EQ. 1 or EQ. 2
SR = Sample Result (µg/L or mg/kg) from EQ. 1 or EQ. 2
SA = Spike Added Theoretical Result (µg/L or mg/kg). This is calculated by substituting the spiking amount used for the 'V_f' term and substituting the spiking standard concentration used for the 'C' term from EQ. 1 or EQ. 2.

12.6.7 When sample concentration is less than the Method Detection Limit (MDL), use SR = 0 only for purposes of calculating the percent recovery. The Spike Sample Results (SSRs), Sample Results (SRs), Spike Added Theoretical Results (SA), and Percent Recovery (positive or negative) shall be reported.

12.6.8 The units used for reporting Spiked Sample Results (SSRs) will be identical to those used for reporting Sample Results (SRs).

12.7 Duplicate Sample Analysis

12.7.1 One duplicate sample shall be analyzed for each group of samples of a similar matrix type (i.e., aqueous/water, soil/sediment) or for each SDG, whichever is more frequent.[3] Duplicates cannot be averaged for reporting.

12.7.2 Duplicate sample analyses are not required for percent solids. Samples identified as field blanks and PE samples shall not be used for duplicate sample analysis. USEPA may require that a specific sample be used for duplicate sample analysis. The Relative Percent Difference (RPD) for each analyte is calculated as follows:

EQ. 5 Duplicate Sample Relative Percent Difference

$$RPD = \frac{|S - D|}{(S + D)/2} \times 100$$

WHERE, RPD = Relative Percent Difference
S = Sample Result (original) (µg/L or mg/kg) from EQ.1 or EQ. 2
D = Duplicate Sample Result (µg/L or mg/kg) from EQ.1 or EQ. 2

12.7.3 The results of the duplicate sample analyses shall be reported. A control limit of 20 for RPD shall be used for original and duplicate sample values greater than or equal to five times the CRQL (see Exhibit C). A control limit equal to the CRQL shall be entered in the "Control Limit" column if either the sample or duplicate value is less than five times the CRQL. If the sample and duplicate values are greater than or equal to five times the CRQL, or if the sample and duplicate values are less than the CRQL, the "Control Limit" field is left empty.

12.7.4 If one result is above five times the CRQL level and the other is below, use the CRQL criteria to determine if the duplicate analysis is in control. If both sample and duplicate values are less than

[3] USEPA may require additional duplicate sample analyses, upon USEPA Regional CLP PO request.

the CRQL, the RPD is not calculated. For soil/sediment sample or soil/sediment duplicate results less than five times the CRQL, enter the value of the CRQL, corrected for sample weight and percent solids (i.e., original, not duplicate sample weight), in the "Control Limit" column. If the duplicate sample results are outside the control limits, flag all the data for samples received associated with that duplicate sample with an "*". In the instance where there is more than one duplicate sample per SDG, if one duplicate result is not within contract criteria, flag all samples of the same matrix in the SDG. The percent difference data will be used by USEPA to evaluate the long-term precision of the methods for each analyte. Specific control limits for each analyte may be added at a later date based on these precision results.

12.8 Laboratory Control Sample (LCS) Analysis

12.8.1 The LCS for aqueous/water and soil/sediment samples shall be prepared by spiking an aliquot of reagent water (50-100 mL for aqueous/water, 1 mL for soil/sediment) such that the final digestate shall contain each analyte at two times the CRQL for the associated matrix. One LCS shall be prepared for each prepared batch of aqueous/water or soil/sediment samples in an SDG.

12.8.2 All LCS and percent recovery results shall be reported. If the percent recovery for the LCS falls outside the control limits of 70-130%, the analyses shall be terminated, the problem corrected, and the samples associated with that LCS redigested and reanalyzed with appropriate new QC.

12.9 ICP-MS Serial Dilution Analysis

12.9.1 Prior to reporting concentration data for the analytes, the Contractor shall analyze and report the results of the ICP-MS serial dilution analysis. The ICP-MS serial dilution analysis shall be performed on a sample from each group of samples of a similar matrix type (i.e., aqueous/water, soil/sediment) or for each SDG, whichever is more frequent. Samples identified as field blanks and PE samples shall not be used for serial dilution analysis.

12.9.2 If the analyte concentration is sufficiently high (minimally a factor of 50 above the MDL in the original sample), the serial dilution (a five-fold dilution) shall then agree within 10% of the original determination after correction for dilution. If the dilution analysis for one or more analytes is not within a control limit of 10%, and the internal standards in the original sample met the contract criteria, an interference effect must be suspected, and the data for all affected analytes in the samples received and associated with that serial dilution must be flagged with an "E".

12.9.3 The percent differences for each component are calculated as follows:

EQ. 6 Serial Dilution Percent Difference

$$\%\text{Difference} = \frac{\left| SR - SDSR \right|}{SR} \times 100$$

WHERE, SR = Sample Result (µg/L or mg/kg) from EQ.1 or EQ. 2
SDSR = Serial Dilution Sample Result (µg/L or mg/kg) from EQ.1 or EQ.2

12.9.4 In the instance where there is more than one serial dilution per SDG, if one serial dilution result is not within the contract criteria, flag all samples of the same matrix in the SDG. Serial dilution results and "E" flags shall be reported.

12.9.5 If the internal standard responses for the field sample chosen for serial dilution analysis are not within the limits and the appropriate corrective action (two-fold dilution and reanalysis) is taken, the following shall apply to the serial dilution analysis: if the internal standard responses of the field sample reanalysis are within the limits, the serial dilution results are to be reported from a five-fold dilution of the reanalyzed sample. If the internal standard responses of the field sample reanalysis are not within the limits, the serial dilution results are to be reported from a five-fold dilution of the original sample.

12.10 Internal Standards

The analyst shall monitor the responses from the internal standards throughout the sample set being analyzed. Ratios of the raw uncorrected internal standard responses between isotopes should also be routinely monitored. This information may be used to correct potential problems caused by mass dependent drift, errors incurred in adding the internal standards, or increases in the concentrations of individual internal standards caused by background contributions from the sample. The absolute response of any one internal standard must not deviate more than 60-125% from the original response in the calibration blank.

Calculate the Percent Relative Intensity as follows:

EQ. 7 Percent Relative Intensity

$$\%RI = \frac{I_n}{I_0} \times 100$$

WHERE, I_n = Raw Uncorrected Intensity of the internal standard in the sample
I_0 = Raw Uncorrected Intensity of the internal standard in the calibration blank (S0)

If deviations greater than these are observed in field samples, matrix spikes, or duplicate samples, the original sample shall be diluted by a factor of two, internal standards added (if not automatically added by the instrument), and the sample reanalyzed for the analyte(s) associated with the non-compliant internal standard(s). If the internal standard responses for the diluted sample analysis are within the limits, report the results of this analysis on the appropriate Summary Form. If the internal standard responses for the diluted sample analysis are not within the limits, note this in the SDG Narrative and report the results of the undiluted original sample analysis on the appropriate Summary Form.

Target analyte(s) concentration(s) must be within the calibrated range before assessing internal standard response for those internal standard(s) associated with the analyte(s).

12.11 MDL Determination

12.11.1 Before any field samples are analyzed under this contract, the MDLs shall be determined for each digestion procedure and instrument used prior to the start of contract analyses and annually thereafter. The MDLs shall meet the levels specified in Exhibit C. An MDL study shall be performed after major instrument maintenance, or changes in instrumentation or instrumental conditions, to verify the current sensitivity of the analysis.

12.11.1.1 To determine the MDLs, the Contractor shall run MDL studies following the procedures given in 40 CFR, Part 136. The Contractor shall prepare the MDL samples by each digestion procedure used and shall analyze these samples on each instrument used.

12.11.1.2 The determined concentration of the MDL shall be less than half the concentration of the CRQL listed in Exhibit C.

12.11.1.3 The results of the MDL determination studies shall be forwarded to the USEPA Regional CLP PO, Sample Management Office (SMO), and Quality Assurance Technical Support (QATS).

12.11.1.4 The MDL results shall be reported on Form IX-IN.

12.12 Example Analytical Sequence for ICP-MS Including the Initial Calibration

Tune
S0
S
S
S
S
S
ICV
ICB
ICSA
ICSAB
CCV
CCB
samples
CCV
CCB
samples
CCV
CCB, etc.

12.13 Summary of QC Operations

The QC operations performed for ICP-MS analysis are summarized in the table below.

QC Operation	Frequency
Instrument Calibration	Each time instrument is turned on or set up, after ICV or CCV failure, and after major instrument adjustment.
Initial Calibration Verification	Following each instrument calibration for each wavelength or mass used.
Initial Calibration Blank	Following each instrument calibration, immediately after the ICV.
Continuing Calibration Verification	For each wavelength or mass used, at a frequency of every 2 hours of a run, at the beginning of each day, and at the beginning and end of each run.
Continuing Calibration Blank	Every 2 hours of a run, at the beginning of each day, and at the beginning and end of each run. Performed immediately after the last CCV.
Interference Check Sample	At the beginning of the run after the ICB but before the CCV.
Serial Dilution for ICP	For each matrix type or for each SDG, whichever is more frequent.
Preparation Blank	For each SDG or each sample preparation and analysis procedure per batch of prepared samples, whichever is more frequent.
Laboratory Control Sample	For each SDG or each sample preparation and analysis procedure per batch of prepared samples, whichever is more frequent.
Spike Sample	For each matrix type or for each SDG, whichever is more frequent.
Post-Digestion/Distillation Spike	Each time Spike Sample Recovery is outside QC limits.
Duplicate Sample Analysis	For each matrix type or for each SDG, whichever is more frequent.
ICP-MS Tune	Prior to calibration.
Determination of Method Detection Limits	Prior to contract award, annually thereafter, and after major instrument adjustment.

13.0 METHOD PERFORMANCE

Not applicable.

14.0 POLLUTION PREVENTION

See Section 1.15 in Exhibit D - Introduction to Analytical Methods.

15.0 WASTE MANAGEMENT

See Section 1.16 in Exhibit D - Introduction to Analytical Methods.

16.0 REFERENCES

16.1 US Environmental Protection Agency. Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma - Mass Spectrometry. Method 200.8. Revision 5.5. October 1999.

16.2 US Environmental Protection Agency. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846). Method 6020A. Third Edition, 1986, Update IV-A. 1998.

16.3 US Environmental Protection Agency. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846). Method 3050B, Revision 2. Third Edition, Update III. December 1996.

16.4 US Environmental Protection Agency. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846). Method 3015A, Revision 1, Update IVa. January 1998.

16.5 US Environmental Protection Agency. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846). Method 3051A, Revision 1, Update IVa. January 1998.

16.6 US Government Printing Office. 40 Code of Federal Regulations, Part 136. Section 1. Appendix B.

17.0 TABLES/DIAGRAMS/FLOWCHARTS

TABLE 1: Interferent and Analyte Elemental Concentrations Used for ICP-MS Interference Check Sample (ICS)

Analytes	**(µg/L)**	**Interferents**	**(µg/L)**
Ag	20	Al	100000
As	20	Ca	100000
Ba	20	Fe	100000
Be	20	Mg	100000
Cd	20	K	100000
Co	20	Na	100000
Cr	40	P (as orthophosphate)	100000
Cu	25	S (as sulfate)	100000
Mn	30	C (as citrate)	200000
Ni	25	Cl	1000000
Pb	25	Mo	2000
Sb	20	Ti	2000
Se	20		
Tl	20		
V	20		
Zn	30		

NOTE: ICS Solution A (ICSA) contains the interferents at the indicated concentrations. The ICSA may be analyzed at twice the concentration indicated when interferences are present at higher concentrations in the sample. ICS Solution AB (ICSAB) contains all of the analytes and interferents listed above at the indicated concentrations. The ICS solutions are normally provided by USEPA along with the established concentrations of each of the analytes and interferents.

TABLE 2: Isobaric Molecular-Ion Interferences

Analyte	Oxygen	Hydroxyl	Nitrogen	Chlorine	Sulfur	Carbon	Other
^{121}Sb	PdO		AgN			AgC	
^{123}Sb	AgO		AgN	SrCl	ZrS	CdC	
^{75}As	CoO	NiOH	NiN	ArCl	CaS	CuC	
^{138}Ba	SnO	SbOH					
^{137}Ba	SbO	SnOH		MoCl			
^{136}Ba	SnO	SnOH				SnC	
^{135}Ba	SnO	SnOH		MoCl			
^{134}Ba	SnO	SnOH	SnN	MoCl		SnC	
^{132}Ba	SnO, CdO	InOH	SnN	MoCl	MoS	SnC	
^{130}Ba	CdO	CdOH	SnN, CdN	MoCl	MoS	SnC	
^{9}Be							
^{114}Cd	MoO	MoOH	MoN	SeCl	SeS		
^{112}Cd	MoO, ZrO	MoOH	MoN	SeCl, AsCl	SeS	MoC	
^{111}Cd	MoO	MoOH	MoN	GeCl			
^{110}Cd	MoO, ZrO		MoN, ZrN	GeCl, AsCl;	SeS	MoC	
^{113}Cd	MoO	MoOH		SeCl, AsCl			
^{116}Cd	MoO						
^{106}Cd	ZrO		MoN, ZrN		GeS	MoC, ZrC	
^{108}Cd	MoO, ZrO	ZrOH	MoN, ZrN	GeC1	SeS, GeS	MoC, ZrC	
^{52}Cr	ArO	C1OH				ArC	
^{53}Cr	ClO	ArOH	KN	NCl, OCl		KC	
^{50}Cr	SO		ArN		SO	ArC	Mo^{++}
^{54}Cr		C1OH	Arn, CaN			CaC	
^{59}Co	CaO	CaOH	ScN	MgCl	AlS	TiC	Sn^{++}
^{63}Cu	TiO, PO_2	TiOH	TiN	SiCl, MgCl	PS	VC	ArNa
^{65}Cu	TiO	TiOH	VN	SiCl	S_2, SO_2H	CrC	
^{208}Pb							
^{206}Pb							
^{207}Pb							
^{204}Pb							
^{55}Mn	KO	ArOH	KN		NaS	CaC	Cd^{++}
^{202}Hg	WO						
^{200}Hg	WO	WOH	WN				
^{199}Hg	WO	WOH					
^{201}Hg		WOH					
^{198}Hg	WO	TaOH	WN			WC	
^{204}Hg							
^{196}Hg			WN			WC	

Analyte	Oxygen	Hydroxyl	Nitrogen	Chlorine	Sulfur	Carbon	Other
^{58}Ni	CaO	KOH	CaN	NaCl	MgS	TiC	Cd^{++}, Sn^{++}
^{60}Ni	CaO	CaOH	TiN	MgCl, NaCl	SiS	TiC	Sn^{++}
^{62}Ni	TiO	ScOH	TiN	AlCl, MgCl	SiS	TiC, CrC	Sn^{++}
^{61}Ni	ScO	CaOH	TiN	MgCl	SiS	TiC	Sn^{++}
^{64}Ni	TiO	TiOH	TiN, CrN	SiCl, AlCl	S_2	CrC	
^{80}Se	ZnO	CuOH	ZnN	ScCl, CaCl	TiS	ZnC	
^{78}Se	NiO	NiOH	ZnN	CaCl,KCl	TiS	ZnC	
^{82}Se	ZnO	CuOH	ZnN	TiCl, ScCl	TiS, CrS		
^{76}Se	NiO	CoOH	NiN	KCl	CaS	ZnC	
^{77}Se	NiO	NiOH	CuN	CaCl, ArCl	ScS	CuC	
^{74}Se	NiO	FeOH	NiN	Cl_2, KCl	CaS	NiC	
^{107}Ag	ZrO	ZrOH		GeCl	AsS	MoC	
^{109}Ag		MoOH	MoN	GeCl	SeS	MoC	
$^{205}T1$							
$^{203}T1$		WOH					
^{51}V	C1O	SOH	C1N	ClO, ClN	FS	KC	
^{50}V	SO		ArN			ArC	Mo^{++}
^{64}Zn	TiO	TiOH	TiN, CrN	SiCl, AlCl	S_2	CrC	
^{66}Zn	TiO	TiOH	CrN	PCl, SiCl	S_2	FeC	
^{68}Zn	CrO	VOH	FeN	PCl	ArS	FeC	Ba^{++}
^{67}Zn	VO	TiOH	CrN	SCl	ClS	MnC	Ba^{++}
^{70}Zn	FeO	CrOH	GeN	$C1_2$	ArS	NiC	

NOTE: The information provided in this table does not indicate that all of the described interferences need to be tested. However, this table can be consulted if unusual samples are encountered.

TABLE 3: Recommended Isotopes and Masses for Selected Elements

Element of Interest	**Analyte Masses - Choose One, or More - Calibrated**	**Masses to be Monitored**
Aluminum	27	
Antimony	121	
Arsenic	75	77, 82 (Isobaric Equation Required)
Barium	135, 137	
Beryllium	9	
Cadmium	111	106, 108 (Isobaric Equation Required)
Calcium	44	
Chromium	52	
Cobalt	59	
Copper	63, 65	
Iron	54, 56, 57	
Lead	206, 207, 208	
Magnesium	24, 25, 26	
Manganese	55	
Nickel	60	
Potassium	39	
Selenium	78, 82	
Silver	107, 109	
Sodium	23	
Thallium	203, 205	
Vanadium	51	52, 53 (Isobaric Equation Required)
Zinc	66	
Potential Interferent		
Titanium (TiO on 63Cu)		47 (No Isobaric Equation Required)
Krypton (Kr on 82Se)		83 (No Isobaric Equation Required)
Molybdenum		94, 95, 96, 97, 98
Tin (Sn on 115In)		118 (Isobaric Equation Required)

NOTE: Where possible, alternative isotopes are indicated. At least one of the listed masses shall be used as a quantitation ion. Those isotopes not listed shall not be used as a primary isotope for measurement, although they may be monitored for interference corrections if necessary.

TABLE 4: Recommended Elemental Expressions for Isobaric Interferences

Element	Isobaric Correction	Expression Proportional to Elemental Concentration
As	ArCl, Se	$(1.0000)(^{75}C) - (3.127)[(^{77}C) - (0.815)(^{82}C)]$
Cd	MoO, Pd	$(1.000)(^{111}C) - (1.073)[(^{108}C) - (0.712)(^{106}C)]$
V	ClO, Cr	$(1.0000)(^{51}C) - (3.127)[(^{53}C) - (0.113)(^{52}C)]$
In	Sn	$(1.0000)(^{115}C) - (0.0140)(^{118}C)$

C - Calibration blank subtracted counts at specified mass

The coefficients in correction equations were calculated using natural isotopic abundances, and assuming zero instrumental fractionation. For each particular instrument, these coefficients must be determined experimentally using the procedures or coefficients provided by the instrument manufacturer.

The correction equations shall not be applied if appropriate interference check sample measurement demonstrates absence of interference above the Contract Required Quantitation Limit (CRQL).

TABLE 5: Internal Standards (must use at least five)

Internal Standard	Mass	CAS Number
Lithium	6	7439-93-2
Scandium	45	7440-20-2
Yttrium	89	7440-65-5
Rhodium	103	7440-16-6
Terbium	159	7440-27-9
Holmium	165	7440-60-0
Lutetium	175	7439-94-3
Bismuth	209	7440-69-9

NOTE: Use of Li^6 requires enriched standard.

TABLE 6: Spiking Levels for Spike Sample Analysis

Analyte	Spike (µg/L)*	Spike (mg/kg)*
Sb	100	10
As	40	4
Ba	2000	200
Be	50	5
Cd	50	5
Cr	200	20
Co	500	50
Cu	250	25
Pb	20	2
Mn	500	50
Ni	500	50
Se	10	1
Ag	50	5
Tl	50	5
V	500	50
Zn	500	50

*Level in the final prepared sample

18.0 ALTERNATIVE SAMPLE PREPARATION PROCEDURES

18.1 Regionally-Selected Alternative Sample Preparation Procedure

Due to the variability of the matrices received and the interferences encountered, the sample preparation procedures described in Sections 10.1.4 and 10.1.5 may not always produce valid and/or reliable results. Sample preparation procedures are given in this section that describe alternative procedures that can be used if interferences or other issues are noted with the primary procedures. If the Contractor feels that one of these alternative sample preparation procedures would provide better results than the primary methods, then the Contractor shall contact the Sample Management Office (SMO). SMO will contact the USEPA Region for instructions. The Contractor shall document the USEPA Region's decision in the Sample Delivery Group (SDG) Narrative along with populating the Forms and the electronic data deliverable with the valid values that described the actual sample preparation procedures used by the Contractor.

18.2 Alternative Aqueous/Water Sample Preparation Procedures

18.2.1 Preparation Method 3015A – Nitric Acid Digestion (based on USEPA OSW Method 3015A, Revision 1, January 1998)

18.2.1.1 This method describes a sample preparation procedure for the determination of total analytes in various aqueous/water matrices using a microwave technique with a nitric acid only digestion.

18.2.1.2 Measure a 45.0 mL (±0.1 mL) aliquot of a well-shaken, homogenized sample using an appropriate volumetric delivery device, and quantitatively transfer the aliquot to an appropriate vessel equipped with a controlled pressure relief mechanism. The sample shall not be diluted prior to digestion.

18.2.1.3 Add 5.0 mL (±0.1 mL) of concentrated nitric acid to the digestion vessel.

18.2.1.4 Seal the digestion vessel according to the manufacturer's directions. Properly place the digestion vessels in the microwave system according to the manufacturer's recommended specifications and, when applicable, connect appropriate temperature and pressure monitoring equipment to the digestion vessels according to the manufacturer's specifications.

18.2.1.5 The Preparation Blank must have 45.0 mL of reagent water and the same amount (5.0 mL) of acid that was added to the samples.

18.2.1.6 The microwave program is then started. The temperature of each sample should rise to 170°C (±5°C) in approximately 10 minutes and remain at 170°C (±5°C) for 10 minutes, or for the remainder of the 20-minute digestion period. When using temperature feedback control, the number of samples that may be simultaneously digested may vary, from one sample up to the maximum number of digestion vessels that can be heated by the magnetron of the microwave unit. Whenever fewer than the recommended number of samples are to be digested, the remaining digestion vessels should be filled with 45.0 mL of water and 5.0 mL of acid so that the full complement of vessels is achieved. This provides an energy balance, since the microwave power absorbed is proportional to the total absorbing mass in the cavity.

18.2.1.7 At the end of the microwave program, allow the digestion vessels to cool for a minimum of 5 minutes before removing them from the microwave system. When the vessels have cooled to near room temperature, determine if the digestion vessels have maintained their seal throughout the digestion. For vessels that are sealed as discrete separate entities, the digestion vessel weight may be taken before and after digestion to evaluate seal integrity. If the weight loss of the sample exceeds 1% of the weight of the sample and reagents, then the sample is considered compromised and the sample must be redigested. For digestion vessels with burst disks, a careful visual inspection of the disk, in addition to weighing, may identify compromised digestion vessels.

18.2.1.8 Complete the preparation of the sample by carefully uncapping and venting each digestion vessel in a fume hood. Quantitatively transfer the sample to an acid-cleaned bottle. If the digested sample contains particulates which may clog nebulizers or interfere with the injection of the sample into the instrument, the sample may be centrifuged, allowed to settle, or filtered through Whatman No. 41 (or equivalent) filter paper.

18.2.1.9 The final solution typically requires nitric acid to maintain appropriate sample solution acidity and stability of the elements. Commonly, a 2% (v/v) nitric acid concentration is desirable.

18.2.1.10 Transfer or decant the digested sample into a 50 mL volumetric flask and dilute to volume. The samples are now ready for analysis. Concentrations so determined shall be reported as "Total".

18.2.1.11 The digested sample can be diluted if high levels of interferences are noted or if any of the analytes exceed the upper limit of their respective calibration curves.

18.3 Alternative Soil/Sediment Sample Preparation Procedures

18.3.1 Preparation Method 3051A – Nitric Acid Digestion (based on USEPA OSW Method 3051A, Revision 1, January 1998)

18.3.1.1 This method describes a sample preparation procedure for the determination of total recoverable analytes in various soil/sediment matrices using a microwave technique with a nitric acid only digestion.

18.3.1.2 Mix the sample thoroughly to achieve homogeneity (See Exhibit D - Introduction to Analytical Methods, Section 1.8). For each digestion procedure, weigh to the nearest 0.001 g and transfer a 0.50 g sample (wet weight) to an appropriate digestion vessel equipped with a controlled pressure relief mechanism.

18.3.1.3 Add 10 mL (±0.1 mL) of concentrated nitric acid to the digestion vessel in a fume hood.

18.3.1.4 The analyst should be aware of the potential for a vigorous reaction especially with samples containing volatile or easily oxidized organic species. When digesting a matrix of this type, initially use no more than 0.10 g (±0.001 g) of sample. If a vigorous reaction occurs upon the addition of the acid(s), allow the sample to predigest in the uncapped digestion vessel until

the reaction ceases. Heat may be added in this step for safety considerations (e.g., the rapid release of carbon dioxide from carbonates, easily oxidized organic matter, etc.). Once the initial reaction has ceased, the sample may continue through the digestion procedure.

18.3.1.5 Seal the digestion vessel according to the manufacturer's directions. Properly place the digestion vessels in the microwave system according to the manufacturer's recommended specifications and, when applicable, connect appropriate temperature and pressure monitoring equipment to the digestion vessels according to the manufacturer's specifications.

18.3.1.6 The Preparation Blank must have 0.50 g (±0.001 g) of reagent water and the same amount of acid(s) that was added to the samples.

18.3.1.7 The microwave program is then started. The temperature of each sample should rise to 175°C (±5°C) in approximately 5.5 (±0.25) minutes and remain at 175°C (±5°C) for 4.5 minutes, or for the remainder of the 10-minute digestion period. When using temperature feedback control, the number of samples that may be simultaneously digested may vary, from one sample up to the maximum number of digestion vessels that can be heated by the magnetron of the microwave unit. Whenever fewer than the recommended number of samples are to be digested, the remaining digestion vessels should be filled with 0.50 g of water and the same amount of acid(s) so that the full complement of vessels is achieved. This provides an energy balance, since the microwave power absorbed is proportional to the total absorbing mass in the cavity.

18.3.1.8 At the end of the microwave program, allow the digestion vessels to cool for a minimum of 5 minutes before removing them from the microwave system. When the vessels have cooled to near room temperature, determine if the digestion vessels have maintained their seal throughout the digestion. For vessels that are sealed as discrete separate entities, the digestion vessel weight may be taken before and after digestion to evaluate seal integrity. If the weight loss of the sample exceeds 1% of the weight of the sample and reagents, then the sample is considered compromised and the sample must be redigested. For digestion vessels with burst disks, a careful visual inspection of the disk, in addition to weighing, may identify compromised digestion vessels.

18.3.1.9 Complete the preparation of the sample by carefully uncapping and venting each digestion vessel in a fume hood. Quantitatively transfer the sample to an acid-cleaned bottle. Filter the digested sample through Whatman No. 41 (or equivalent) filter paper to remove particulates which would clog the nebulizer or otherwise interfere with the injection of the digested sample into the instrument.

18.3.1.10 The final solution typically requires nitric acid to maintain appropriate sample solution acidity and stability of the elements. Commonly, a 2% (v/v) nitric acid concentration is desirable.

18.3.1.11 Transfer or decant the digested sample into a 50 mL volumetric flask and dilute to volume. The samples are now ready for analysis.

18.3.1.12 The digested sample can be diluted if high levels of interferences are noted or if any of the analytes exceed the upper limit of their respective calibration curves.

18.4 Microwave Calibration Procedure

18.4.1 The calibration procedure is a critical step prior to the use of any microwave unit. The microwave unit must be calibrated every six months. The data for each calibration must be available for review during on-site audits. In order that absolute power settings may be interchanged from one microwave unit to another, the actual delivered power must be determined.

18.4.2 Calibration of a laboratory microwave unit depends on the type of electronic system used by the manufacturer. If the unit has a precise and accurate linear relationship between the output power and the scale used in controlling the microwave unit, then the calibration can be a two-point calibration at maximum and 40% power. If the unit is not accurate or precise for some portion of the controlling scale, then a multiple-point calibration is necessary. If the unit power calibration needs a multiple-point calibration, then the point where linearity begins must be identified. For example: a calibration at 100, 99, 98, 97, 95, 90, 80, 70, 60, 50, and 40% power settings can be applied and the data plotted. The non-linear portion of the calibration curve can be excluded or restricted in use. Each percent is equivalent to approximately 5.5-6 watts and becomes the smallest unit of power that can be controlled. If 20-40 watts are contained from 99-100%, that portion of the microwave calibration is not controllable by 3-7 times that of the linear portion of the control scale and will prevent duplication of precise power conditions specified in that portion of the power scale.

18.4.3 The power available for heating is evaluated so that the absolute power setting (watts) may be compared from one microwave to another. This is accomplished by measuring the temperature rise in 1 kilogram (kg) of reagent water exposed to microwave radiation for a fixed period of time. The reagent water is placed in a polytetrafluoroethylene (PTFE) beaker (or a beaker that is made of some other material that does not absorb microwave energy) and stirred before measuring the temperature. Glass beakers absorb microwave energy and may not be used. The initial temperature of the reagent water must be between 19°C and 25°C. The beaker is circulated continuously through the field for at least 2 minutes at full power. The beaker is removed from the microwave, the reagent water is stirred vigorously, and the final temperature is recorded. The final reading is the maximum temperature reading after each energy exposure. These measurements must be accurate to ±0.1°C and made within 30 seconds of the end of heating. If more measurements are needed, do not use the same reagent water until it has cooled down to room temperature. Otherwise, use a fresh reagent water sample.

The absorbed power is determined by the following formula:

EQ. 8 Absorbed Power

$$P = \frac{(K)(C_p)(m)(DT)}{t}$$

WHERE,
- P = The apparent power absorbed by the sample in watts (joules per second)
- K = The conversion factor for thermochemical calories per second to watts (4.184)
- C_p = The heat capacity, thermal capacity, or specific heat (cal. $g^{-1}\,°C^{-1}$) of reagent water (1.0)
- m = The mass of the sample in grams (g)
- DT = The final temperature minus the initial temperature (°C)
- t = The time in seconds (s)

Using 2 minutes and 1 kg of reagent water, the calibration equation simplifies to:

$$P = (DT)(34.87)$$

The microwave user can now relate power in watts to the percent power setting of the microwave.

18.5 Microwave Digestion Cleaning Procedure

18.5.1 Initial Cleaning of the Polytetrafluoroethylene Perfluoroalkoxy (PTFE PFA) Digestion Vessels

18.5.1.1 Prior to first use - new vessels must be annealed before they are used. A pretreatment/cleaning procedure must be followed. This procedure calls for heating the vessels for 96 hours at 200°C. The vessels must be disassembled during annealing and the sealing surfaces (the top of the vessel or its rim) must not be used to support the vessel during annealing.

18.5.1.2 Rinse in reagent water.

18.5.1.3 Immerse in 50% (v/v) hydrochloric acid for a minimum of 3 hours after the cleaning bath has reached a temperature just below boiling.

18.5.1.4 Rinse in reagent water.

18.5.1.5 Immerse in 50% (v/v) nitric acid for a minimum of 3 hours after the cleaning bath has reached a temperature just below boiling.

18.5.1.6 The vessels are then rinsed with copious amounts of reagent water prior to use for any analyses under this contract.

18.5.2 Cleaning Procedure between Sample Digestions

18.5.2.1 Wash entire vessel in hot water using laboratory-grade non-phosphate detergent.

18.5.2.2 Rinse with 50% (v/v) nitric acid.

18.5.2.3 Rinse 3 times with reagent water.

EXHIBIT D - PART C

ANALYTICAL METHODS
FOR
COLD VAPOR MERCURY ANALYSIS

Exhibit D – Analytical Methods for Cold Vapor Mercury Analysis

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1.0 SCOPE AND APPLICATION

The analytical method that follows is designed to analyze aqueous/water, soil/sediment, and sludge samples taken from hazardous waste sites using a cold vapor technique with Atomic Absorption (AA) for total mercury.

In addition to inorganic forms of mercury, organic mercury may also be present. These organo-mercury compounds will not respond to the cold vapor AA technique unless they are first broken down and converted to mercuric ions. Potassium permanganate oxidizes many of these compounds, but studies have shown that a number of organo-mercury compounds, including phenyl mercuric acetate and methyl mercuric chloride, are only partially oxidized by this reagent. Potassium persulfate has been found to give approximately 100% recovery when used as the oxidant with these compounds. Therefore, a persulfate oxidation step following the addition of the permanganate has been included in most preparation procedures to ensure that organo-mercury compounds, if present, will be oxidized to the mercuric ion before measurement. A heat step is required for methyl mercuric chloride when present in, or spiked to, a natural system.

2.0 SUMMARY OF METHOD

2.1 General Method Overview

This method is based on the absorption of radiation at 253.7 nanometers (nm) by mercury vapor. Inorganic and some organic forms of mercury are chemically reduced to the free atomic state by reacting the sample with a strong reducing agent like stannous chloride or stannous sulfate in a closed reaction vessel. The volatile free mercury is then driven from the reaction flask by bubbling air through the solution. Mercury atoms are carried in the air stream through tubing connected to an absorption cell, which is placed in the light path of the Atomic Absorption (AA) spectrophotometer. Sometimes the cell is heated slightly to avoid water condensation. As the mercury atoms pass into the sampling cell, measured absorbance rises indicating the increasing concentration of mercury atoms in the light path. Some systems allow the mercury vapor to pass from the absorption tube to waste, in which case the absorption peaks and then falls as the mercury is depleted. The highest absorbance observed during the measurement or the associated peak area are usually taken as the analytical signal.

2.2 Summary of Preparation and Analysis Procedures

2.2.1 Heated Acid Digestion and Analysis of Aqueous/Water Samples (based on USEPA 7470A) – Manual Preparation Method Followed by an Automated Analysis Method

2.2.2 Heated Acid Digestion and Analysis of Soil/Sediment Samples (based on USEPA 7471B) – Manual Preparation Method Followed by an Automated Analysis Method

2.2.3 Alternative digestion procedures are included in Section 18 of this Exhibit.

3.0 DEFINITIONS

See Exhibit G - Glossary of Terms for a complete list of definitions.

4.0 INTERFERENCES

4.1 Aqueous/Water

4.1.1 Some sea waters and wastewaters high in chlorides have shown a positive interference, and require additional permanganate [as much as 25 milliliters (mL)]. During the oxidation step, chlorides are converted to free chlorine which will also absorb radiation at 253.7 nanometers (nm). Care must be taken to assure that free chlorine is absent before the mercury is reduced and swept into the cell. This may be accomplished by using an excess of hydroxylamine sulfate reagent (25 mL). Both inorganic and organic mercury spikes have been quantitatively recovered from the sea water using this technique.

4.1.2 Possible interference from sulfide is eliminated by the addition of potassium permanganate. Concentrations as high as 20 mg/L of sulfide as sodium sulfide do not interfere with the recovery of added inorganic mercury from reagent water.

4.1.3 Copper has also been reported to interfere; however, copper concentrations as high as 10 mg/L have no effect on recovery of mercury from spiked samples.

4.1.4 Samples containing high concentrations of oxidizable organic materials, as evidenced by high chemical oxygen demand values, may not be completely oxidized by this procedure. When this occurs, the recovery of organic mercury will be low. The problem can be eliminated by reducing the amount of the original sample or by increasing the amount of potassium persulfate (and consequently stannous chloride) used in the digestion.

4.2 Soil/Sediment

4.2.1 The same types of interferences that may occur in aqueous/water samples are also possible with soil/sediment samples (i.e., sulfides, high copper, high chlorides, etc.).

5.0 SAFETY

See Section 1.14 in Exhibit D - Introduction to Analytical Methods.

6.0 EQUIPMENT AND SUPPLIES

Brand names, suppliers, and part numbers are for illustrative purposes only. No endorsement is implied. Equivalent performance may be achieved using equipment and supplies other than those specified here; however, a demonstration of equivalent performance meeting the requirements of this Statement of Work (SOW) is the responsibility of the Contractor. The Contractor shall document any use of alternate equipment or supplies in the Sample Delivery Group (SDG) Narrative.

6.1 Glassware/Labware

6.1.1 Graduated cylinders

6.1.2 Various volumetric flasks and pipets (Class A)

6.1.3 Suitable digestion vessels (300 mL BOD bottles, hot block digestion tubes, etc.), along with a suitable heating source/water bath for heating of the samples to about 95°C

6.1.4 Balances – Top loader balance, 300 gram (g) capacity, and a minimum sensitivity of ±1.0 milligram (mg)

6.2 General Instrumentation Information for the Automated Analysis of Previously Digested Aqueous/Water and Soil/Sediment Samples

6.2.1 Sampler for the uptake of the previously digested samples

6.2.2 Manifold/Pump system for the addition and mixing of reagents with the previously digested samples

6.2.3 Liquid-Vapor separator

6.2.4 Vapor dryer

6.2.5 Suitable absorption cell

6.2.6 Atomic Absorption (AA) Spectrophotometer – Any AA unit having an open sample presentation area in which to mount the absorption cell would be suitable. AA unit must also be equipped with a Mercury Hollow Cathode Lamp or other suitable light source. Instrument settings recommended by the particular manufacturer should be followed. The instrument must be capable of meeting the specified Contract Required Quantitation Limits (CRQLs) for mercury.

6.2.7 Suitable computer system for data processing

7.0 REAGENTS AND STANDARDS

7.1 Reagents for the Manual Digestion of Aqueous/Water and Soil/Sediment Samples

7.1.1 Aqueous/Water and Soil/Sediment by Manual Digestion Technique

7.1.1.1 Reagent water - The purity of this water must be equivalent to ASTM Type II water (ASTM D1193-06). Use this preparation for all reagents, standards, and dilutions of solutions.

7.1.1.2 Sulfuric acid, concentrated - Reagent grade.

7.1.1.2.1 Sulfuric acid, 0.5N - Dilute 14.0 mL of concentrated sulfuric acid to 1 L.

7.1.1.3 Nitric acid, concentrated - Reagent grade of low mercury content. If a high Preparation Blank is obtained, it may be necessary to distill the nitric acid.

7.1.1.4 Sodium chloride-hydroxylamine sulfate solution, 12% solution (w/v) - Add 12 g of sodium chloride and 12 g of hydroxylamine sulfate in reagent water and dilute to 100 mL.

NOTE: Hydroxylamine hydrochloride may be used in place of hydroxylamine sulfate.

7.1.1.5 Potassium permanganate ($KMnO_4$) - 5% solution (w/v). Dissolve 5 g of potassium permanganate in 100 mL of reagent water.

7.1.1.6 Potassium persulfate - 5% solution (w/v). Dissolve 5 g of potassium persulfate in 100 mL of reagent water.

7.1.1.7 Aqua regia - Prepare immediately prior to use by carefully adding three volumes of concentrated hydrochloric acid to one volume of concentrated nitric acid.

7.1.2 Reagents for the Automated Analysis of Aqueous/Water and Soil/Sediment Digested Samples

7.1.2.1 Stannous sulfate - Add 25 g stannous sulfate to 250 mL of 0.5N sulfuric acid. This mixture is a suspension and should be stirred continuously during use.

NOTE: Stannous chloride may be used in place of stannous sulfate.

7.1.2.2 Additional reagents may be needed according to the manufacturer's instructions (e.g., for rinsing out sample and reagent lines).

7.2 Standards

7.2.1 Introduction

The Contractor must provide all standards, except as noted, to be used with this contract. These standards may be used only after they have been certified according to the procedure in Exhibit E, Section 8.0. The Contractor must be able to verify that the standards are certified. Manufacturer's certificates of analysis must be retained by the Contractor and presented upon request.

7.2.1.1 Stock standard solutions may be purchased from a reputable source or prepared from reagent grade chemicals or metals. (CAUTION: Many metal salts are extremely toxic and may be fatal if swallowed. Wash hands thoroughly after handling.)

7.2.1.2 Stock mercury solution - Dissolve 0.1354 g of mercuric chloride in 75 mL of reagent water. Add 10 mL of concentrated nitric acid and adjust the volume to 100.0 mL [1.0 mL = 1.0 milligram (mg) Hg].

7.2.1.3 Working mercury solution - Make successive dilutions of the stock mercury solution (see Section 7.2.1.2) to obtain a working standard containing 0.1 µg/mL. This working standard and the dilutions of the stock mercury solution shall be prepared fresh daily. Acidity of the working standard should be maintained at 0.15% nitric acid. This acid should be added to the flask as needed before the addition of the aliquot. From this solution, prepare standards.

8.0 SAMPLE COLLECTION, PRESERVATION, AND STORAGE

8.1 Sample Collection and Preservation

All aqueous/water and soil/sediment samples must be collected in glass or polyethylene containers. Aqueous/water samples must be preserved with nitric acid to pH less than or equal to 2 immediately after collection. All samples must be iced or refrigerated at 4°C (±2°C) from the time of collection until digestion.

8.1.1 Dissolved Metals

For the determination of dissolved metals, the sample must be filtered through a 0.45 micrometer (um) pore diameter membrane filter at the time of collection or as soon as possible. Use a portion of the sample to rinse the filter flask, discard this portion, and collect the required volume of filtrate. Preserve the filtrate with nitric acid to pH less than or equal to 2 immediately after filtration.

8.2 Procedure for Sample Storage and Disposal

Following digestion, the remaining unused portion of aqueous/water and soil sediment samples may be stored at room temperature within the laboratory until 60 days after delivery of a complete, reconciled data package to USEPA. After 60 days, the samples may be disposed of in a manner that complies with all applicable regulations.

8.3 Contract Required Holding Time

The maximum holding time for mercury is 26 days from Validated Time of Sample Receipt (VTSR).

9.0 CALIBRATION AND STANDARDIZATION

9.1 Instrument Operating Parameters

Because of the differences between various makes and models of satisfactory instruments, no detailed operating instructions can be provided. Instead, the analyst should follow the instructions provided by the manufacturer of that particular instrument. The Method Detection Limit (MDL) and precision must be investigated and established for mercury on that particular instrument. All measurements must be within the operational range of the instrument. It is the responsibility of the analyst to verify the instrument configuration and operating conditions used satisfy the analytical requirements and to maintain Quality Control (QC) data confirming instrument performance and analytical results.

9.2 Cold Vapor Atomic Absorption (AA) Instrument Calibration Procedure

9.2.1 Instruments shall be calibrated daily or once every 24 hours, each time the instrument is set up, or after Initial Calibration Verification (ICV) or Continuing Calibration Verification (CCV) failure. The instrument standardization date and time shall be included in the instrument output.

9.2.2 The date and time of preparation and analysis shall be given in the laboratory logs (preparation) and instrument output (analysis).

9.2.3 Calibration standards shall be prepared fresh with each calibration performed. Calibrate the instrument with at least six standards, one of which must be a blank standard and one shall be at or below the Contract Required Quantitation Limit (CRQL), in graduated amounts in the appropriate range (Typical range is 0.20 to 10.0 µg/L). Standards and samples must be prepared in the same way on the same day.

9.2.4 The calibration curve shall be calculated using linear regression by plotting the concentration of mercury in the standard (in µg/L) on the X-axis versus the instrument response on the Y-axis. The instrument response is typically the measured Absorbance (displayed as peak area or peak height) for each standard. A standard linear regression, a weighted linear regression (e.g., 1/concentration or $1/concentration^2$), or a linear regression with zero force calibration model can be used as appropriate. No other types of equations (e.g., quadratic) are to be used. The acceptance criteria for the initial calibration curve is a correlation coefficient greater than or equal to 0.995. Sample analysis shall not begin until this criteria and the criteria described in Sections 9.2.5 and 9.2.6 have been met.

9.2.5 The calibration equation must be checked to establish the representativeness of the data that were used to produce the calibration equation. This check involves the re-fitting of the non-blank calibration data back to the calibration equation or the comparison of the calculated concentration of each of the standards against the expected concentration of the associated standard. This difference is related to the actual residual. For this calculation, the Percent Difference shall be used where the above difference is further divided by the expected amount or concentration of the respective standard. If these Percent Differences for each of the standards do not fall within ±30%, then the calibration equation is not acceptable and must be corrected. If a standard is analyzed at

a concentration that is below the CRQL and the above criteria is not met, that value can be excluded from the calibration curve as long as the lowest non-zero standard is still analyzed at or below the CRQL and all standards included in the calibration curve are continuous and consecutive.

9.2.6 The y-intercept from the linear regression initial calibration equation shall also be evaluated. If the y-intercept is not below the CRQL for the initial calibration curve, the calibration is not acceptable and must be corrected. Samples are not to be analyzed until the y-intercept for the initial calibration curve meets the acceptance criteria.

9.2.7 Any changes or corrections to the analytical system shall be followed by recalibration.

9.3 Initial Calibration Verification (ICV)

9.3.1 Immediately after the AA system has been calibrated, the accuracy of the initial calibration shall be verified and documented for mercury by the analysis of the ICV solution at the wavelength used for analysis.

9.3.2 The ICV solution is obtained from USEPA. If the ICV solution is not available, then the ICV solution can be prepared by the laboratory using a certified solution of the analyte from an independent source. Analyses shall be conducted at a concentration other than that used for instrument calibration, but near the middle of the calibration range. An independent source is defined as a standard composed of the analyte from a different source than that used in the standards for instrument calibration. The ICV shall be prepared and analyzed in the same manner as the other samples and standards.

9.3.3 The ICV solution shall be run at the wavelength used for reporting final results.

9.4 Continuing Calibration Verification (CCV)

9.4.1 To ensure calibration accuracy during each analytical run sequence, a CCV shall be analyzed and reported at a frequency not to exceed every 1 hour during an analytical run sequence. The standard shall be analyzed and reported at the beginning of the analytical run sequence and after the last analytical sample. See the example sample analytical run sequence in Section 12.7. This CCV standard shall be prepared from the same source and at the same mid-level concentration as used during the initial calibration.

The same CCV standard shall be used throughout the analytical run sequences for a Sample Delivery Group (SDG) of samples received.

9.4.2 Each CCV analyzed shall reflect the conditions of analysis of all associated analytical samples (the preceding analytical samples up to the previous CCV as applicable and the analytical samples following this CCV up to the next CCV as applicable).

9.5 Initial and Continuing Calibration Blank (ICB/CCB)

An ICB or CCB shall be analyzed at the wavelength used for reporting final results for mercury immediately after every ICV and CCV. The ICB and CCB(s) shall be prepared and analyzed in the same manner as the other samples and standards.

NOTE: The results for the ICB and CCBs shall be reported.

10.0 PROCEDURE

10.1 Sample Preparation and Analysis Procedures

10.1.1 If insufficient sample amount (less than 90% of the required amount) is received to perform the analyses, the Contractor shall contact the Sample Management Office (SMO) to inform them of the problem. SMO will contact the USEPA Region for instructions. The USEPA Region will either require that no sample analyses be performed or will require that a reduced volume be used for the sample analysis. No other changes in the analyses will be permitted. The Contractor shall document the USEPA Region's decision in the Sample Delivery Group (SDG) Narrative.

10.1.2 If multiphase samples (e.g., two-phase liquid sample, oily sludge/sandy soil/sediment sample) are received by the Contractor, the Contractor shall contact SMO to apprise them of the type of sample received. SMO will contact the USEPA Region. If all phases of the sample are amenable to analysis, the USEPA Region may require the Contractor to do any of the following:

- Mix the sample and analyze an aliquot from the homogenized sample.
- Separate the phases of the sample, and analyze one or more of the phases separately. SMO will provide EPA sample numbers for the additional phases, if required.
- Do not analyze the sample.

10.1.2.1 If all of the phases are not amenable to analysis (i.e., outside the scope), the USEPA Region may require the Contractor to do any of the following:

- Separate the phases and analyze the phase(s) that is (are) amenable to analysis. SMO will provide EPA sample numbers for the additional phases, if required.
- Do not analyze the sample.

10.1.2.2 No other changes in the analyses will be permitted. The Contractor shall document the USEPA Region's decision in the SDG Narrative.

10.1.3 The primary sample preparation procedures to be used for this method are described in the following Sections (10.1.4 and 10.1.5). These methods are to be used without deviation. Alternative sample preparation procedures are listed in Section 18 of this method and may be requested by the USEPA Region. No other changes in the analyses will be permitted.

10.1.4 Aqueous/Water Preparation and Analysis of Standards and Samples (For the Manual Preparation Method Followed by an Automated Analysis Method - based on USEPA OSW Method 7470A, Revision 1, September 1994)

10.1.4.1 Manual Technique for the Preparation of Standards and Samples

10.1.4.1.1 For preparation of the standards, transfer aliquots of the working mercury solution (see Section 7.2.1.3) to a series of suitable digestion vessels. Add enough reagent water to each digestion vessel to make a total volume of 100 mL (±1.0 mL) and mix thoroughly. The working standard and the dilutions prepared

from this working standard should be prepared fresh daily. The acidity of all of the standards should be maintained at 0.15% nitric acid. This acid should be added to the digestion vessel as needed prior to the dilution of the working standard.

10.1.4.1.2 For preparation of the samples, shake the sample until well mixed and transfer an aliquot of 100 mL (±1.0 mL), containing not more than 1.0 µg of mercury, to a suitable digestion vessel.

10.1.4.1.3 Add 5 mL of concentrated sulfuric acid and 2.5 mL of concentrated nitric acid to each of the digestion vessels, mixing after each addition. Add 15 mL of 5% potassium permanganate solution to each digestion vessel. Some samples (e.g., sewage samples) may require additional potassium permanganate. Shake and add additional portions of potassium permanganate solution, if necessary, until the purple color persists for at least 15 minutes. Ensure that equal amounts of potassium permanganate solution are added to all standards, blanks, and samples. Add 8 mL of 5% potassium persulfate solution to each digestion vessel and heat for 2 hours in a water bath or block digester maintained at 95°C (±3°C). Cool and add 6 mL of 12% sodium chloride-hydroxylamine sulfate solution to reduce the excess potassium permanganate. All standards and samples must be at the same final volume. Reagent water can be used to make any necessary final volume adjustments.

10.1.4.1.4 At this point, the digested standards and samples can be allowed to stand at room temperature for up to 48 hours prior to analysis. However, it is recommended that the digested standards and samples be analyzed as soon as possible. Proceed to Section 10.1.4.2 for analysis.

10.1.4.1.5 A reduced volume of 50 mL can be used for all standards, blanks and samples for this digestion procedure. All standards and reagents used in the digestion process shall be scaled back by half of their original required amounts when this reduced volume is used. However, it is the responsibility of the laboratory to confirm that the resultant data meets the CRQL requirements for mercury.

10.1.4.2 Automated Technique for the Analysis of the Digested Standards and Samples

10.1.4.2.1 Set up the automated analyzer using the recommendations as provided by the manufacturer. Set up the manifold and fill the reagent reservoir with the 10% (w/v) stannous sulfate solution (prepared in 0.5 N sulfuric acid). All reagent and sample lines should be cleaned according to the manufacturer's recommendations.

Transfer appropriate aliquots of the digested standards and samples to the autosampler in the order as suggested by the manufacturer. Complete the analysis of all of the digested standards and samples and construct the calibration curve. The calibration curve shall be constructed based on the concentration of mercury (in µg/L) in the undigested standards, ignoring the volume of reagents added during the digestion process.

10.1.4.2.2 If a sample's response exceeds the calibrated range of the instrument, the laboratory shall dilute the sample and reanalyze. Dilute a portion of the previously digested sample, which has not been treated with stannous sulfate, using a solution which maintains the same acid and other reagent concentrations as are present in the calibration standards (e.g., one of the calibration blanks). The laboratory shall then promptly analyze the diluted sample.

10.1.4.2.3 After the analysis is complete, clean out the system and all of the reagent and sample lines according to the manufacturer's recommendations.

10.1.5 Soil/Sediment Preparation and Analysis of Standards and Samples (For the Manual Preparation Method Followed by an Automated Analysis Method - Based on USEPA OSW Method 7471B, Revision 2, January 1998)

10.1.5.1 Manual Technique for the Preparation of Standards and Samples

10.1.5.1.1 For preparation of the standards, transfer aliquots of the working mercury solution (see Section 7.2.1.3) to a series of suitable digestion vessels. Add enough reagent water to each digestion vessel to make a total volume of 10 mL (±0.1 mL) and mix thoroughly. This working standard and the dilutions prepared from this working standard shall be prepared fresh daily. The acidity of all of the standards should be maintained at 0.15% nitric acid. This acid should be added to the digestion vessel as needed prior to the dilution of the working standard.

10.1.5.1.2 For preparation of the samples, mix the sample thoroughly to achieve homogeneity (See Exhibit D - Introduction to Analytical Methods, Section 1.8). For each digestion procedure, weigh (to the nearest 0.01 g) an aliquot amount of 0.50-0.60 g and place in the bottom of a suitable digestion vessel. Add 5 mL of reagent water to each sample.

10.1.5.1.3 Add 5 mL of aqua regia to each of the digestion vessels and heat for 2 minutes at 95°C (±3°C) in a water bath or block digester. Allow the contents of each digestion vessel to cool and add 50 mL of reagent water and 15 mL of 5% potassium permanganate solution. Mix thoroughly and heat again for 30 minutes at 95°C (±3°C) in a water bath or block digester. Cool and add 6 mL of 12% sodium chloride-hydroxylamine solution to each digestion vessel to reduce the excess potassium permanganate. CAUTION: This addition should be performed under a hood, as chlorine could be evolved. Add 55 mL of reagent water to each sample or 50 mL of reagent water to each standard. All standards and samples must be at the same final volume. Reagent water can be used to make any final volume adjustments, if necessary.

10.1.5.1.4 At this point, the digested standards and samples can be allowed to stand at room temperature for up to 48 hours prior to analysis. However, it is recommended that the digested standards and samples be analyzed as soon as possible. Refer to Section 10.1.4.2 for analysis.

11.0 DATA ANALYSIS AND CALCULATIONS

11.1 Aqueous/Water Sample Calculation

11.1.1 Prepare a standard curve by plotting the instrument response (e.g., peak area or peak height) of the processed standards against their true concentrations (in µg/L) using linear regression as discussed in Section 9.2.4. Determine the instrument response (e.g., peak area or peak height) of the processed field and Quality Control (QC) samples and determine the concentration of mercury (in µg/L) from the standard curve.

11.1.2 Calculate the mercury concentration in the sample by the following formula:

EQ. 1 Aqueous/Water Sample Concentration

$$\text{Hg Concentration } (\mu g/L) = C \times DF$$

WHERE,
- C = Instrument value in µg/L from the calibration curve
- DF = Dilution Factor of the original sample

11.2 Soil/Sediment Sample Calculation

11.2.1 Prepare a standard curve by plotting the instrument response (e.g., peak area or peak height) of the processed standards against their true concentrations (in µg/L) using linear regression as discussed in Section 9.2.4. Determine the instrument response (e.g., peak area or peak height) of the processed field and Quality Control (QC) samples and determine the concentration of mercury (in µg/L) from the standard curve.

11.2.2 Calculate the mercury concentration in the sample by the formula:

EQ. 2 Soil/Sediment Sample Concentration

$$\text{Hg Concentration (mg/kg)} = C \times \frac{1}{W \times S} \times DF \times 0.1$$

WHERE,
- C = Instrument value in µg/L from the calibration curve
- W = Initial aliquot amount (g)
- S = % Solids/100 (see Exhibit D - Introduction to Analytical Methods, Section 1.6)
- DF = Dilution Factor

11.3 Adjusted Method Detection Limit (MDL)/Adjusted Contract Required Quantitation Limit (CRQL) Calculation

To calculate the adjusted MDL or adjusted CRQL for aqueous/water samples, multiply the value of the MDL or CRQL (µg/L) by the Dilution Factor.

Calculate the adjusted MDL or CRQL for soil/sediment samples as follows:

EQ. 3 Adjusted Soil/Sediment MDL or CRQL Concentration

$$\text{Adjusted Concentration (mg/kg)} = C \times \frac{W_m}{W \times S} \times DF$$

WHERE,

C = MDL or CRQL (mg/kg)
W_m = Method required minimum sample weight (g) (0.50 g)
W = Initial aliquot amount (g)
S = % Solids/100 (see Exhibit D - Introduction to Analytical Methods, Section 1.6)
DF = Dilution Factor

12.0 QUALITY CONTROL (QC)

12.1 Initial Calibration Verification (ICV)

The ICV standard shall be prepared in accordance with the instructions provided by the supplier, and carried through the entire preparation and analysis procedure. If measurements exceed the control limits of 85% Recovery (low) or 115% Recovery (high), the analysis shall be terminated, the problem corrected, the instrument recalibrated, and the calibration reverified. The results of the ICV analysis shall be reported.

12.2 Continuing Calibration Verification (CCV)

The CCV Standard shall be prepared in the same acid matrix as the calibration standards and at a concentration equivalent to the mid-level of the calibration curve using the same standards that were used to prepare the initial calibration curve and carried through the entire preparation and analysis procedure. If the measurements exceed the control limits of 85% Recovery (low) or 115% Recovery (high), the analysis shall be stopped, the problem corrected, the instrument recalibrated, the calibration verified, and reanalysis of all analytical samples analyzed since the last compliant calibration verification shall be performed. The results of the CCV analyses shall be reported.

12.3 Blank Analyses

There are two different types of blanks required by this method. The calibration blank is used in establishing the analytical curve. The Initial and Continuing Calibration Blanks (ICB/CCB) are identical in composition to the calibration blank and are analyzed immediately after the ICV/CCV to monitor for potential carryover. The Preparation Blank is used to monitor for possible contamination throughout the entire sample preparation and analysis process.

12.3.1 Initial and Continuing Calibration Blank (ICB/CCB)

The ICB and CCB are prepared with acids and reagent water, and are identical in composition to the Calibration Blank as used to establish the initial calibration curve and carried through the entire preparation and analysis procedure. If the absolute value of the ICB/CCB exceeds the Contract Required Quantitation Limit (CRQL) (see Exhibit C), the analysis shall be terminated, the problem corrected, the instrument recalibrated, the calibration verified, and reanalysis of all analytical samples analyzed since the last compliant calibration blank shall be performed. The results of the ICB and CCB analyses shall be reported.

12.3.2 Preparation Blank

12.3.2.1 The Preparation Blank shall contain all the reagents and in the same volumes as used in processing the samples. The Preparation Blank shall be carried through the complete procedure and contain the same acid concentration in the final solution as the sample solution used for analysis.

12.3.2.2 At least one Preparation Blank, consisting of reagent water processed through each sample preparation and analysis procedure (see Section 10), shall be prepared and analyzed with every Sample Delivery Group (SDG), or with each batch[1] of samples digested, whichever is more frequent.

12.3.2.3 The first batch of samples in an SDG is to be assigned to Preparation Blank one, the second batch to Preparation Blank two, etc. Each Complete SDG File (CSF) shall contain the results of all Preparation Blank analyses associated with the samples in that SDG.

12.3.2.4 The Preparation Blank(s) is (are) to be reported for each SDG and used in all analyses to ascertain whether sample concentrations reflect contamination in the following manner:

12.3.2.4.1 If the absolute value of the concentration of the blank is less than or equal to the CRQL (see Exhibit C), no further action is required.

12.3.2.4.2 If the analyte concentration in the blank is above the CRQL, the lowest concentration of the analyte in the associated samples (except those identified as field blanks) shall be greater than or equal to 10 times the blank concentration. Otherwise, all samples (except those identified as field blanks) associated with that blank, with the analyte concentration less than 10 times the blank concentration and above the CRQL, shall be redigested and reanalyzed with appropriate new Quality Control (QC). The sample concentration is not to be corrected for the blank value.

12.3.2.4.3 If the concentration of the blank is below the negative CRQL, then all samples reported below 10 times the CRQL associated with the blank shall be redigested and reanalyzed with appropriate new QC.

12.3.2.4.4 The results for the Preparation Blank shall be reported.

12.4 Spike Sample Analysis

12.4.1 The spike sample analysis is designed to provide information about the effect of the sample matrix on the digestion and/or measurement methodology. The spike is added before the digestion (i.e., prior to the addition of other reagents) and prior to any sample dilutions. At least one spike sample analysis (matrix spike) shall be performed on each group of samples of a similar matrix type (i.e., aqueous/water, soil/sediment) or for each SDG, whichever is more frequent.[2] The sample and its associated spike sample shall initially be run at the same dilution.

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[1] A group of samples prepared at the same time.

[2] USEPA may require additional spike sample analyses, upon USEPA Regional CLP Project Officer (CLP PO) request.

12.4.2 If the spike analysis is performed on the same sample that is chosen for the duplicate sample analysis, spike calculations shall be performed using the results of the sample designated as the "original sample" (see Section 12.5). The average of the duplicate results cannot be used for the purpose of determining percent recovery. Samples identified as field blanks and Performance Evaluation (PE) samples shall not be used for spiked sample analysis. USEPA may require that a specific sample be used for the spike sample analysis.

12.4.3 The analyte spike shall be added at 1 µg/L (aqueous/water) or 0.5 mg/kg (soil/sediment). Adjustment shall be made to maintain these spiking levels when the weight of sample taken deviates by more than 10% of these values.

12.4.4 If the spike recovery falls outside the control limits, the data of all samples received and associated with that spike sample shall be flagged with the letter "N". An exception to this rule is granted when the sample concentration exceeds the spike added (SA) concentration by a factor of four or more. In such an event, the data shall be reported unflagged even if the percent recovery does not meet the 75-125% recovery criteria.

12.4.5 In the instance where there is more than one spike sample per matrix, per method, per SDG, if one spike sample recovery is not within contract criteria, then flag all the samples of the same matrix and method in the SDG. Individual component percent recoveries (%R) are calculated as follows:

EQ. 4 Matrix Spike Percent Recovery

$$\%\text{Recovery} = \frac{SSR - SR}{SA} \times 100$$

WHERE, SSR = Spiked Sample Result (in µg/L or mg/kg) from EQ. 1 or EQ. 2
SR = Sample Result (in µg/L or mg/kg) from EQ. 1 or EQ. 2
SA = Spike Added Theoretical Result (in µg/L or mg/kg)

12.4.6 When sample concentration is less than the Method Detection Limit (MDL), use SR = 0 only for purposes of calculating the percent recovery. The Spike Sample Results (SSRs), Sample Results (SRs), Spike Added Theoretical Results (SA), and Percent Recovery (positive or negative) shall be reported.

12.4.7 The units used for reporting Spiked Sample Results (SSRs) will be identical to those used for reporting Sample Results (SRs).

12.5 Duplicate Sample Analysis

12.5.1 One duplicate sample shall be analyzed from each group of samples of a similar matrix type (i.e., aqueous/water, soil/sediment) or for each SDG, whichever is more frequent.[3] Duplicates cannot be averaged for reporting.

[3] USEPA may require additional duplicate sample analyses, upon USEPA Regional CLP PO request.

12.5.2 Duplicate sample analyses are not required for percent solids. Samples identified as field blanks and PE samples shall not be used for duplicate sample analysis. USEPA may require that a specific sample be used for duplicate sample analysis. The Relative Percent Difference (RPD) is calculated as follows:

EQ. 5 Duplicate Sample Relative Percent Difference

$$RPD = \frac{|S - D|}{(S + D)/2} \times 100$$

WHERE, RPD = Relative Percent Difference
S = Sample Result (original) (in µg/L or mg/kg) from EQ. 1 or EQ. 2
D = Duplicate Sample Result (in µg/L or mg/kg) from EQ. 1 or EQ. 2

12.5.3 The results of the duplicate sample analyses shall be reported. A control limit of 20 for RPD shall be used for original and duplicate sample values greater than or equal to five times the CRQL (see Exhibit C). A control limit equal to the CRQL shall be entered in the "Control Limit" column if either the sample or duplicate value is less than five times the CRQL. If the sample and duplicate values are greater than or equal to five times the CRQL, or if the sample and duplicate values are less than the CRQL, the "Control Limit" field is left empty.

12.5.4 If one result is above five times the CRQL level and the other is below, use the CRQL criteria to determine if the duplicate analysis is in control. If both sample and duplicate values are less than the CRQL, the RPD is not calculated. For soil/sediment sample or soil/sediment duplicate results less than five times the CRQL, enter the value of the CRQL, corrected for sample weight and percent solids (i.e., original, not duplicate sample weight), in the "Control Limit" column. If the duplicate sample results are outside the control limits, flag all the data for samples received associated with that duplicate sample with an "*". In the instance where there is more than one duplicate sample per SDG, if one duplicate result is not within contract criteria, flag all samples of the same matrix in the SDG. The percent difference data will be used by USEPA to evaluate the long-term precision of the method. Specific control limits for the analyte will be added at a later date based on these precision results.

12.6 MDL Determination

12.6.1 Before any field samples are analyzed under this contract, the MDLs shall be determined for each digestion procedure and instrument used, prior to the start of contract analyses and annually thereafter. The MDLs shall meet the levels specified in Exhibit C. An MDL study shall be performed after major instrument maintenance, or changes in instrumentation or instrumental conditions, to verify the current sensitivity of the analysis.

12.6.1.1 To determine the MDLs, the Contractor shall run MDL studies following the procedures given in 40 CFR, Part 136. The Contractor shall prepare the MDL samples by each digestion procedure used and shall analyze these samples on each instrument used.

12.6.1.2 The determined concentration of the MDL shall be less than half the concentration of the CRQL listed in Exhibit C.

12.6.1.3 The results of the MDL determination studies shall be forwarded to the USEPA Regional CLP PO, Sample Management Office (SMO), and Quality Assurance Technical Support (QATS).

12.6.1.4 The MDL results shall be reported on Form IX-IN.

12.7 Example Analytical Sequence for Mercury

S0
S0.20
S1.0
S2.0
S5.0
S10.0
ICV
ICB
CCV
CCB
samples
CCV
CCB
samples
CCV
CCB, etc.

12.8 Summary of QC Operations

The QC operations performed for mercury analysis are summarized in the table below.

QC Operation	Frequency
Instrument Calibration	Daily or each time instrument is turned on or set up, after ICV or CCV failure, and after major instrument adjustment
Initial Calibration Verification	Following each instrument calibration.
Initial Calibration Blank	Following each instrument calibration, immediately after the ICV.
Continuing Calibration Verification	At a frequency of every hour of a run, and at the beginning and end of each run.
Continuing Calibration Blank	Every hour of a run, and at the beginning and end of each run. Performed immediately after the last CCV.
Preparation Blank	For each SDG or each sample preparation and analysis procedure per batch of prepared samples, whichever is more frequent.
Spike Sample	For each matrix type or for each SDG, whichever is more frequent.
Duplicate Sample Analysis	For each matrix type or for each SDG, whichever is more frequent.
Determination of Method Detection Limits	Prior to contract award, annually thereafter, and after major instrument adjustment.

13.0 METHOD PERFORMANCE

Not applicable.

14.0 POLLUTION PREVENTION

See Section 1.15 in Exhibit D - Introduction to Analytical Methods.

15.0 WASTE MANAGEMENT

See Section 1.16 in Exhibit D - Introduction to Analytical Methods.

16.0 REFERENCES

16.1 US Environmental Protection Agency. Methods for Chemical Analysis of Water and Wastes. Method 245.1. 1974.

16.2 US Environmental Protection Agency. Methods for Chemical Analysis of Water and Wastes. Method 245.2. 1974.

16.3 US Environmental Protection Agency. Methods for Chemical Analysis of Water and Wastes. Method 245.5. 1974.

16.4 US Environmental Protection Agency. Test Methods for Evaluating Solid Waste (SW-846), Method 7470A, Revision 1, September 1994.

16.5 US Environmental Protection Agency. Test Methods for Evaluating Solid Waste (SW-846), Method 7471B, Revision 2, January 1998.

16.6 US Government Printing Office. 40 Code of Federal Regulations, Part 136. Section 1. Appendix B.

17.0 TABLES/DIAGRAMS/FLOWCHARTS

Not applicable.

18.0 ALTERNATIVE SAMPLE PREPARATION PROCEDURES

18.1 Regionally-Selected Alternative Sample Preparation Procedures

Due to the variability of the matrices received and the interferences encountered, the sample preparation and analysis procedures described in Sections 10.1.4 and 10.1.5 may not always produce valid and/or reliable results. Sample preparation procedures are given in this section that describe alternative procedures that can be used if interferences or other issues are noted with the primary procedures. If the Contractor feels that one of these alternative sample preparation procedures would provide better results than the primary methods, then the Contractor shall contact the Sample Management Office (SMO). SMO will contact the USEPA Region for instructions. The Contractor shall document the USEPA Region's decision in the Sample Delivery Group (SDG) Narrative along with populating the Forms and the electronic data deliverable with the valid values that described the actual sample preparation procedures used by the Contractor.

18.2 Soil/Sediment Preparation and Analysis of Standards and Samples (Manual Technique - Based on modified version of USEPA OSW Method 7471B, Revision 2, January 1998)

18.2.1 This method was modified by using sulfuric acid in combination with nitric acid rather than using aqua regia, which is a combination of hydrochloric acid and nitric acid, as the digestion acid. This method is consistent with how soil/sediment standards and samples were digested in the previous Statements of Work and may provide better consistency of results for certain project samples that were prepared by the older method.

18.2.2 Manual Technique for the Preparation of Standards and Samples

18.2.2.1 For preparation of the standards, transfer aliquots of the working mercury solution (see Section 7.2.1.3) to a series of suitable digestion vessels. Add enough reagent water to each digestion vessel to make a total volume of 10 mL (±0.1 mL) and mix thoroughly. This working standard and the dilutions prepared from this working standard shall be prepared fresh daily. The acidity of all the standards should be maintained at 0.15% nitric acid. This acid should be added to the digestion vessel as needed prior to the dilution of the working standard.

18.2.2.2 For preparation of the samples, mix the samples thoroughly to achieve homogeneity (see Exhibit D - Introduction to Analytical Methods, Section 1.8). For each digestion procedure, weigh (to the nearest 0.01 g) an aliquot of 0.50-0.60 g and place in the bottom of a suitable digestion vessel. Add 5 mL of reagent water to each sample.

18.2.2.3 Add 5 mL of concentrated sulfuric acid and 2.5 mL of concentrated nitric acid and heat for 2 minutes at 95°C (±3°C) in a water bath or block digester. Cool, then add 50 mL reagent water, 15 mL potassium permanganate solution, and 8 mL of potassium persulfate solution to each sample. Mix thoroughly, then heat for an additional 30 minutes at 95°C (±3°C) in a water bath or block digester. Cool and add 6 mL of sodium chloride- hydroxylamine sulfate to each digestion vessel to reduce the excess potassium permanganate. CAUTION: Do this addition under a hood, as chlorine could be evolved. Add 55 mL of reagent water to each

sample or 50 mL of reagent water to each standard. All standards and samples must be at the same final volume. Reagent water can be used to make any final volume adjustments, if necessary.

18.2.2.4 At this point, the digested standards and samples can be allowed to stand for up to 48 hours prior to analysis. However, it is recommended that the digested standards and samples be analyzed as soon as possible. Refer to Section 10.1.4.2 for analysis.

EXHIBIT D - PART D

ANALYTICAL METHODS
FOR
TOTAL CYANIDE ANALYSIS

Exhibit D – Analytical Methods For Total Cyanide Analysis

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1.0 SCOPE AND APPLICATION

The method is designed to determine the concentration of total cyanide in aqueous/water and soil/sediment samples taken from hazardous waste sites.

2.0 SUMMARY OF METHOD

2.1 Aqueous/Water and Soil/Sediment

2.1.1 The cyanide as hydrocyanic acid (HCN) is released from cyanide complexes by means of a reflux-distillation, using either a midi- or micro-distillation process, and absorbed in a scrubber containing sodium hydroxide solution. The cyanide ion in the absorbing solution is then determined spectrophotometrically.

2.1.2 In the semiautomated spectrophotometric measurement, the cyanide is converted to cyanogen chloride (CNCl), by reaction with chloramine-T at a pH less than 8 without hydrolyzing to the cyanate. After the reaction is complete, color is formed on the addition of pyridine-barbituric acid reagent. The absorbance is read between 570 and 580 nanometers (nm). To obtain colors of comparable intensity, it is essential to have the same salt content in both the sample and the standards.

3.0 DEFINITIONS

See Exhibit G - Glossary of Terms for a complete list of definitions.

4.0 INTERFERENCES

Several interferences are encountered with this method. Some of the known interferences are aldehydes, nitrate-nitrite, oxidizing agents such as chlorine, thiocyanate, thiosulfate and sulfide. Some interferences are eliminated or reduced by using the distillation procedure. Some specific interferences that are commonly encountered are further discussed in Sections 4.1 through 4.4.

4.1 Sulfides

Sulfides adversely affect the spectrophotometric procedure. The sample should be tested in the field for the presence of sulfides as described in Section 8.1.1.

4.2 Surfactants

The presence of surfactants may cause the sample to foam during refluxing. If this occurs, the addition of an agent such as Dow Corning 544 antifoam agent, or equivalent, will prevent the foam from collecting in the condenser.

4.3 Oxidizing Agents

Oxidizing agents such as chlorine decompose most of the cyanides. The sample should be tested in the field for the presence of oxidizing agents as described in Section 8.1.1.

4.4 Nitrates-Nitrites

High results may be obtained for samples that contain nitrate and/or nitrite. During the distillation, nitrate and nitrite will form nitrous acid that will react with some organic compounds to form oximes. These oximes will decompose under test conditions to generate HCN. The interference of nitrate and nitrite is eliminated by pretreatment with sulfamic acid prior to the distillation process.

5.0 SAFETY

See Section 1.14 in Exhibit D - Introduction to Analytical Methods.

6.0 EQUIPMENT AND SUPPLIES

Brand names, suppliers, and part numbers are for illustrative purposes only. No endorsement is implied. Equivalent performance may be achieved using equipment and supplies other than those specified here; however, a demonstration of equivalent performance meeting the requirements of this Statement of Work (SOW) is the responsibility of the Contractor. The Contractor shall document any use of alternate equipment or supplies in the Sample Delivery Group (SDG) Narrative.

6.1 Midi-Distillation of Aqueous/Water and Soil/Sediment Samples

6.1.1 Midi-reflux distillation apparatus

6.1.2 Heating block - Capable of maintaining 125°C (±5°C)

6.1.3 Auto analyzer system with accessories:

6.1.3.1 Sampler

6.1.3.2 Pump

6.1.3.3 Cyanide cartridge

6.1.3.4 Spectrophotometer with 50 mm flow cells and 580 nm filter

6.1.3.5 Chart recorder or data system

6.1.4 Assorted volumetric glassware, pipets, and micropipets (Class A)

6.1.5 Top loader balance, 300 g capacity, and a minimum sensitivity of ±1.0 mg

6.2 Micro-Distillation of Aqueous/Water and Soil/Sediment Samples

6.2.1 Micro-distillation apparatus

6.2.1.1 Heating block - capable of maintaining 120°C (±5°C)

6.2.1.2 Micro-distillation tubes - Sample tubes and Collector tubes, either pre-filled or user-filled with trapping solution

6.2.1.3 Tube press

6.2.2 Flow Injection Analyzer with accessories

6.2.2.1 Spectrophotometer with 580 nm filters

6.2.3 Assorted volumetric glassware, pipets, and micropipets (Class A)

6.2.4 Top loader balance, 300 g capacity and sensitivity of ±1.0 mg

7.0 REAGENTS AND STANDARDS

7.1 Reagents

7.1.1 Reagent water - The purity of this water must be equivalent to ASTM Type II water (ASTM D1193-06). Use this preparation for all reagents, standards, and dilutions of solutions.

7.1.2 Lead acetate Test Paper.

7.1.3 Cadmium carbonate (Powdered).

7.1.4 Potassium Iodide – Starch Test Paper.

7.1.5 Ascorbic acid (Crystals).

7.1.6 Midi-Distillation and Preparation Reagents for Aqueous/Water and Soil/Sediment Samples

7.1.6.1 Sodium hydroxide absorbing solution and sample wash solution, 0.25N - Dissolve 10.0 g sodium hydroxide in reagent water and dilute to 1 L.

7.1.6.2 Sodium hydroxide solution, 1.25N - Dissolve 50.0 g sodium hydroxide in reagent water and dilute to 1 L.

7.1.6.3 Sulfuric acid, 50% (v/v) - Carefully add a portion of concentrated sulfuric acid to an equal portion of reagent water.

7.1.6.4 Magnesium chloride solution (2.5M) – Weigh 510 g of $MgCl_2 \cdot 6H_2O$ into a 1000 milliliter (mL) flask, dissolve, and dilute to 1 L with reagent water.

7.1.6.5 Sulfamic acid (Powdered).

7.1.7 Micro-Distillation and Preparation Reagents for Aqueous/Water and Soil/Sediment Samples

7.1.7.1 Sodium hydroxide absorbing solution and sample wash solution, 0.25N – Dissolve 10.0 g sodium hydroxide in reagent water and dilute to 1 L.

7.1.7.2 Sodium hydroxide solution, 1.25N - Dissolve 50.0 g sodium hydroxide in reagent water and dilute to 1 L.

7.1.7.3 Sulfuric Acid/Magnesium Chloride solution (7.11 M sulfuric acid/0.79 M magnesium chloride) - In a fume hood, weigh 32.2 g $MgCl_2 \cdot 6H_20$ into a tared 500 mL beaker and add 110.8 g reagent water. Add 139 g concentrated sulfuric acid in 40 g portions with stirring. Allow the solution to cool.

7.1.7.4 Sulfamic acid (Powdered).

7.1.8 Spectrophotometric Reagents for Midi- and Micro-Distillation of Aqueous/Water and Soil/Sediment Samples

7.1.8.1 Chloramine-T solution (0.014M) - Dissolve 0.40 g of chloramine-T in reagent water and dilute to 100 mL. Prepare fresh daily.

7.1.8.2 Acetate Buffer - Dissolve 410 g of $NaC_2H_3O_2 \cdot 3H_2O$ in 500 mL of reagent water. Add sufficient glacial acetic acid to adjust pH to 4.5 (approximately 500 mL). An equivalent phosphate buffer may be substituted for the acetate buffer.

7.1.8.3 Pyridine-barbituric acid solution - Transfer 15 g of barbituric acid into a 1 Liter volumetric flask. Add about 100 mL of reagent water and swirl the flask. Add 75 mL of pyridine and mix. Add 15 mL of concentrated hydrochloric acid and mix.

Dilute to about 900 mL with reagent water and mix until the barbituric acid is dissolved. Dilute to 1 L with reagent water. Store at 4°C (±2°C).

7.2 Standards

7.2.1 Introduction

The Contractor must provide all standards, except as noted, to be used with this contract. These standards may be used only after they have been certified according to the procedure in Exhibit E, Section 8.0. The Contractor must be able to verify that the standards are certified. Manufacturer's certificates of analysis must be retained by the Contractor and presented upon request.

7.2.2 Stock Standard Solutions

7.2.2.1 Stock cyanide solution, 1000 mg/L CN - Dissolve 2.51 g of potassium cyanide and 2.0 g potassium hydroxide in reagent water and dilute 1 L. Standardize with 0.0192N silver nitrate. Standardization is not necessary if this standard is purchased as a certified solution.

7.2.2.2 Intermediate cyanide standard solution, 10 mg/L CN - Dilute 1.0 mL of stock cyanide solution plus 20 mL of 1.25N sodium hydroxide solution to 100 mL with reagent water. Prepare this solution at time of analysis.

7.2.3 Secondary Dilution Standards

7.2.3.1 Secondary Dilution Standards

Prepare secondary dilution standard solutions by diluting the appropriate volumes of the intermediate cyanide standard solution with 0.25N sodium hydroxide. The final concentration of sodium hydroxide in all standards should be 0.25N.

8.0 SAMPLE COLLECTION, PRESERVATION, AND STORAGE

8.1 Sample Collection and Preservation

8.1.1 Aqueous/Water Sample Preservation

Collection of total cyanide must be in polyethylene or glass containers. The sample must be tested for sulfides and oxidizing agents, and preserved by the sampler immediately upon sample collection. Place a drop of the sample on lead acetate test paper to detect the presence of sulfides. If sulfides are present (test strip turns black), the sample volume required for the cyanide determination should be increased by 25 milliliters (mL). The total volume of sample should then be treated with powdered cadmium carbonate. Yellow cadmium sulfide precipitates if the sample contains sulfide. Repeat this operation until a drop of the treated sample solution does not darken the lead acetate test paper. Filter the solution through dry filter paper into a dry beaker, and from the filtrate measure the sample to be used for analysis. Avoid a large excess of cadmium carbonate and a long contact time in order to minimize a loss by complexation or occlusion of cyanide on the precipitated material. If no sulfides are present, test for the presence of oxidizing agents by placing a drop of the sample on a strip of potassium iodide - starch test paper (KI - starch paper); a blue color indicates the need for treatment. Add ascorbic acid, a few crystals at a time, until a drop of sample produces no color on

the indicator paper. Then add an additional 0.6 g of ascorbic acid for each liter of sample volume. Preserve the sample with sodium hydroxide to pH greater than or equal to 12 and maintain at 4°C (±2°C) until distillation.

8.1.2 Soil/Sediment Sample Preservation

Samples shall be kept at 4°C (±2°C) from the time of collection until distillation.

8.2 Procedure for Sample Storage and Disposal

8.2.1 Aqueous/water samples must be protected from light and refrigerated at 4°C (±2°C) from the time of receipt until 60 days after delivery of a complete, reconciled data package to the U.S. Environmental Protection Agency (USEPA). After distillation, soil/sediment samples may be stored at room temperature within the laboratory until 60 days after delivery of a complete, reconciled data package to USEPA. After 60 days, the samples may be disposed of in a manner that complies with all applicable regulations.

8.2.2 The samples must be stored in an atmosphere demonstrated to be free of all potential contaminants.

8.2.3 Samples, sample distillates, and standards must be stored separately.

8.3 Contract Required Holding Time

The maximum sample holding time for cyanide is 12 days from Validated Time of Sample Receipt (VTSR).

9.0 CALIBRATION AND STANDARDIZATION

9.1 Instrument Operating Parameters

Because of the difference between various makes and models of satisfactory instruments, no detailed operating instructions can be provided. Instead, the analyst should follow the instructions provided by the manufacturer of the particular instrument. The Method Detection Limit (MDL) and precision must be investigated and established for cyanide on that particular instrument. All measurements must be within the operational range of the instrument. It is the responsibility of the analyst to verify the instrument configuration and operating conditions used satisfy the analytical requirements and to maintain Quality Control (QC) data confirming instrument performance and analytical results.

9.2 General Procedure

The following general procedure applies to most semi-automated spectrophotometers. Set up the manifold and complete system per manufacturer's instructions. Allow the spectrophotometer and recorder to warm up for at least 30 minutes prior to use. Establish a steady reagent baseline, feeding reagent water through the sample line and appropriate reagents (see Section 7.1.8) through reagent lines. Adjust the baseline using the appropriate control on the spectrophotometer. Prepare a standard curve by plotting the instrument response (e.g., absorbance) of standard on the Y-axis vs. concentration of the standard (in µg/L) on the X-axis.

9.3 Spectrophotometric Instrument Calibration Procedure

9.3.1 Instruments shall be calibrated daily or once every 24 hours, each time the instrument is set up, or after Initial Calibration Verification (ICV) or Continuing Calibration Verification (CCV) failure. The instrument standardization date and time shall be included in the instrument output.

9.3.2 The date and time of preparation and analysis shall be given in the laboratory logs (preparation) or instrument output (analysis).

9.3.3 Calibration standards shall be prepared fresh with each calibration performed. Calibrate the instrument with at least six standards, one of which must be a blank standard and one shall be at or below the Contract Required Quantitation Limit (CRQL), in graduated amounts in the appropriate range. The calibration curve shall be calculated using linear regression by plotting the concentration of cyanide in the standard (in µg/L) on the X-axis versus the instrument response (e.g., Absorbance) on the Y-axis. A standard linear regression, a weighted linear regression (e.g., $1/\text{concentration}$ or $1/\text{concentration}^2$), or a linear regression with zero force calibration model can be used as appropriate. No other types of equations (e.g., quadratic) are to be used. The acceptance criteria for the calibration curve is a correlation coefficient greater than or equal to 0.995. Sample analysis shall not begin until this criteria and the criteria in Sections 9.3.4 and 9.3.5 have been met.

9.3.4 The calibration equation must be checked to establish the representativeness of the data that were used to produce the calibration equation. This check involves the re-fitting of the non-blank calibration data back to the calibration equation or the comparison of the calculated concentration of each of the standards against the expected concentration of the associated standard. This difference is related to the actual residual. For this calculation the Percent Difference shall be used where the above difference is further divided by the expected amount or concentration of the respective standard. If these Percent Differences for each of the standards do not fall within ±30%, then the calibration equation is not acceptable and must be corrected. If a standard is analyzed at a concentration that is below the CRQL and the above criteria is not met, that value can be excluded from the calibration curve as long as the lowest non-zero standard is still analyzed at or below the CRQL and all standards included in the calibration curve are continuous and consecutive.

9.3.5 The y-intercept from the linear regression initial calibration equation shall also be evaluated. If the y-intercept is not below the CRQL for the initial calibration curve, the calibration is not acceptable and must be corrected. Samples are not to be analyzed until the y-intercept for the initial calibration curve meets the acceptance criteria.

9.3.6 Any changes or corrections to the analytical system shall be followed by recalibration.

9.4 Initial Calibration Verification (ICV)

9.4.1 Immediately after each cyanide system has been calibrated, the accuracy of the initial calibration shall be verified and documented for cyanide by the analysis of the ICV Solution at the wavelength used for analysis.

9.4.2 The ICV Solution is obtained from USEPA. If the solution is not available, the ICV solution can be prepared by the laboratory using a certified solution of the analyte from an independent source. Analyses shall be conducted at a concentration other than that used for instrument calibration, but near the middle of the calibration range. An independent source is defined as a standard composed of the analyte from a different source than those used in the standards for the instrument calibration.

9.4.3 The ICV shall be processed in the same manner as the standards used for the initial calibration for the method used.

9.5 Continuing Calibration Verification (CCV)

9.5.1 To ensure calibration accuracy during each analytical run sequence, a CCV shall be analyzed and reported at a frequency not to exceed every 1 hour during an analytical run sequence. The standard shall also be analyzed and reported at the beginning of the analytical run sequence and after the last analytical sample. See the example sample analytical run sequence in Section 12.7. This CCV standard shall be prepared from the same source and at the same mid-level concentration as the standards used during the initial calibration.

The same CCV standard shall be used throughout the analytical run sequences for a Sample Delivery Group (SDG) of samples received.

9.5.2 Each CCV analyzed shall be processed in the same manner as the standards used for the initial calibration for the method used.

10.0 PROCEDURE

10.1 Sample Preparation

10.1.1 If insufficient sample amount (less than 90% of the required amount) is received to perform the analyses, the Contractor shall contact the Sample Management Office (SMO) to inform them of the problem. SMO will contact the USEPA Region for instructions. The USEPA Region will either require that no sample analyses be performed or will require that a reduced volume be used for the sample analysis. No other changes in the analyses will be permitted. The Contractor shall document the USEPA Region's decision in the Sample Delivery Group (SDG) Narrative.

10.1.2 If multi-phase samples (e.g., two-phase liquid sample, oily sludge/sandy soil/sediment sample) are received by the Contractor, the Contractor shall contact SMO to apprise them of the type of sample received. SMO will contact the USEPA Region. If all phases of the sample are amenable to analysis, the USEPA Region may require the Contractor to do any of the following:

- Mix the sample and analyze an aliquot from the homogenized sample.
- Separate the phases of the sample, and analyze one or more of the phases separately. SMO will provide EPA sample numbers for the additional phases, if required.
- Do not analyze the sample.

10.1.2.1 If all of the phases are not amenable to analysis (i.e., outside scope), the USEPA Region may require the Contractor to do any of the following:

- Separate the phases and analyze the phase(s) that is (are) amenable to analysis. SMO will provide EPA sample numbers for the additional phases, if required.
- Do not analyze the sample.

10.1.2.2 No other changes in the analyses will be permitted. The Contractor shall document the USEPA Region's decision in the SDG Narrative.

10.1.3 Before preparation is initiated for an aqueous/water sample, the Contractor shall test for the presence of sulfides and oxidizing agents (e.g., residual chlorine). The test for sulfides shall be performed by placing a drop of the sample on a strip of lead acetate paper. If the test strip turns black, the Contractor shall treat the total volume of sample with powdered cadmium carbonate. Yellow cadmium sulfide precipitates when the sample contains sulfide.

This operation shall be repeated until a drop of the treated sample solution does not darken the lead acetate test paper. The solution shall be filtered through dry filter paper into a dry beaker, and the volume of sample to be used for analysis shall be measured from the filtrate. It is recommended that the Contractor avoid a large excess of cadmium carbonate and a long contact time in order to minimize a loss by complexation or occlusion of cyanide on the precipitated material. The test for oxidizing agents shall be performed by placing a drop of the sample on a strip of potassium iodide - starch test paper (KI - starch paper). If the test strip turns blue, the Contractor shall contact SMO for further instructions from the USEPA Region before proceeding with sample preparation and analysis. The Contractor shall document the presence of sulfides or oxidizing agents in the SDG Narrative. The Contractor shall document the results (positive or negative) of the tests for sulfides and oxidizing agents in the distillation log.

10.2 Aqueous/Water and Soil/Sediment Preparation of Standards and Samples

10.2.1 Standards Preparation

10.2.1.1 All standards for the midi-distillation and micro-distillation semi-automated spectrophotometric analysis shall be distilled in the same manner as the samples.

10.2.1.2 Standards for Midi-Distillation Preparation and Semi-Automated Spectrophotometric Analysis of Aqueous/Water and Soil/Sediment Samples

Calibration standards - Prepare a minimum of five standards and a calibration blank over the range of the analysis. These standards shall be prepared by pipetting suitable volumes of the secondary dilution standard solution (see Section 7.2.3.1) into volumetric flasks and diluting to volume with 0.25N sodium hydroxide. Add 50 mL of each standard to a midi-distillation tube and then prepare and distill these standards and the calibration blank in the same manner as the samples.

NOTE: The concentration of one of the calibration standards shall be at or below the Contract Required Quantitation Limit (CRQL).

10.2.1.3 Standards for Micro-Distillation Preparation and Semi-Automated Spectrophotometric Analysis of Aqueous/Water and Soil/Sediment Samples

Calibration Standards - Prepare a minimum of five standards and a calibration blank over the range of the analysis. These standards shall be prepared by pipetting suitable volumes of the secondary dilution standard solution (see Section 7.2.3.1) into volumetric flasks and diluting to volume with 0.25N sodium hydroxide. Add 6 mL of each standard to a sample tube and then prepare and distill these standards and the calibration blank in the same manner as samples.

NOTE: The concentration of one of the calibration standards shall be at or below the CRQL.

10.2.2 Aqueous/Water Samples Preparation

10.2.2.1 Preparation Method for Aqueous/Water Samples by Midi-Distillation

10.2.2.1.1 The procedure described here utilizes a midi-distillation apparatus and requires a sample aliquot of 50 mL for aqueous/water samples. The sample shall not be diluted prior to distillation.

10.2.2.1.2 Pipet 50 mL (±1 mL) of sample into the distillation flask along with 2 or 3 boiling chips.

10.2.2.1.3 Add 50 mL (±1 mL) of 0.25N sodium hydroxide to the gas absorbing tube.

10.2.2.1.4 Connect the boiling flask, condenser, and absorber in the train. The excess cyanide trap contains 0.5N sodium hydroxide.

10.2.2.1.5 Turn on the vacuum and adjust the gang (Whitney) valves to give a flow of between 2 to 3 bubbles per second from the impingers in each reaction vessel.

10.2.2.1.6 If the samples contain nitrate and/or nitrite, add 0.2 g of sulfamic acid through the air inlet tube. Mix for 3 minutes prior to adding the sulfuric acid.

10.2.2.1.7 After 5 minutes of vacuum flow, inject 5 mL of 50% (v/v) sulfuric acid through the top air inlet tube of the distillation head into the reaction vessel. Allow the airflow to mix the reaction vessel contents for 5 minutes.

NOTE: The acid volume must be sufficient to bring the sample/solution pH to below 2.0.

10.2.2.1.8 Add 2 mL of the 2.5M magnesium chloride solution through the top air inlet tube of the distillation head into the reaction vessel. Excessive foaming from samples containing surfactants may be quelled by the addition of either another 2 mL of the 2.5M magnesium chloride solution or a few drops of a commercially available anti-foam agent. The Contractor shall document the addition of magnesium chloride solution or anti-foam agent in the SDG Narrative.

10.2.2.1.9 Turn on the heating block and set for 125°C (±3°C). Heat the solution to boiling, taking care to prevent solution backup by periodic adjustment of the vacuum flow.

10.2.2.1.10 After 1 1/2 hours of refluxing, turn off the heat and continue the vacuum for an additional 15 minutes. The flasks should be cool at this time.

10.2.2.1.11 After cooling, close off the vacuum at the gang valve and remove the absorber. Seal the receiving solutions and store them at 4°C until analyzed.

10.2.2.2 Preparation Method for Aqueous/Water Samples by Micro-Distillation

10.2.2.2.1 Preheat the heater block to 120°C (±3°C). Add 6 mL (±0.1 mL) of sample to the sample tube. The sample shall not be diluted prior to distillation. If the Contractor is not using the prefilled collector tubes, add 2 mL (±0.1 mL) of the 0.25N absorbing solution to each collector tube. Add 0.75 mL of the (7.11M/0.79M) sulfuric acid/magnesium chloride solution to each sample tube and immediately cap with a collector tube and press to seal.

10.2.2.2.2 Place the assembled tubes into the heater block and heat for 30 minutes. After 30 minutes, remove each tube from the block and immediately pull off the sample tube.

10.2.2.2.3 Invert each collector tube and allow to cool. Mix the distillate and detach the upper portion. Dilute the distillate to 6 mL (±0.1 mL) with absorbing solution and mix. The distillate is now ready for analysis. Seal the distillate and store at 4°C until analyzed.

10.2.3 Soil/Sediment Samples Preparation

10.2.3.1 Preparation Method for Soil/Sediment Samples by Midi-Distillation

10.2.3.1.1 The procedure described here utilizes a midi-distillation apparatus and requires a sample aliquot of at least 1 g for soil/sediment.

10.2.3.1.2 Mix the sample thoroughly to achieve homogeneity (see Exhibit D - Introduction to Analytical Methods, Section 1.8). For each digestion procedure, weigh to the nearest 0.01 g and transfer 1.00 - 1.50 g of sample (wet weight) into the reaction vessel and add 50 mL of reagent water. Add 2 or 3 boiling chips.

10.2.3.1.3 Add 50 mL (±1 mL) of 0.25N sodium hydroxide to the gas absorbing impinger.

10.2.3.1.4 Connect the reaction vessel, condenser, and absorber in the train. The excess cyanide trap contains 0.5N sodium hydroxide.

10.2.3.1.5 Turn on the vacuum and adjust the gang (Whitney) valves to give a flow of between 2 to 3 bubbles per second from the impingers in each reaction vessel.

10.2.3.1.6 After 5 minutes of vacuum flow, inject 5 mL of 50% (v/v) sulfuric acid through the top air inlet tube of the distillation head into the reaction vessel. Allow to mix for 5 minutes.

NOTE: The acid volume must be sufficient to bring the sample/solution pH to below 2.0.

10.2.3.1.7 Add 2 mL of the 2.5M magnesium chloride solution through the top air inlet tube of the distillation head into the reaction vessel. Excessive foaming from samples containing surfactants may be quelled by the addition of either another 2 mL of the 2.5M magnesium chloride solution or a few drops of a

commercially available anti-foam agent. The Contractor shall document the addition of the 2.5M magnesium chloride solution or anti-foam agent in the SDG Narrative.

10.2.3.1.8 Turn on the heating block and set for 125°C (±3°C). Heat the solution to boiling, taking care to prevent solution backup by periodic adjustment of the vacuum flow.

10.2.3.1.9 After 1 1/2 hours of refluxing, turn off the heat and continue the vacuum for an additional 15 minutes. The flasks should be cool at this time.

10.2.3.1.10 After cooling, close off the vacuum at the gang valve and remove the absorber. Seal the receiving solutions and store them at 4°C until analyzed.

10.2.3.2 Preparation Method for Soil/Sediment Samples by Micro-Distillation

10.2.3.2.1 Preheat the heater block to 120°C (±3°C). Add 0.50-1.00 g (±0.01 g) of sample (wet weight) and 5 mL of reagent water to the sample tube. If the Contractor is not using the prefilled collector tubes, add 2 mL (±0.1 mL) of the 0.25N absorbing solution to the collector tube. Add 0.75 mL of the (7.11M/0.79M) sulfuric acid/magnesium chloride solution to each sample tube and immediately cap with collector tube and press to seal.

10.2.3.2.2 Place the assembled tubes into the heater block and heat for 30 minutes. After 30 minutes, remove each tube from the block and immediately pull off the sample tube.

10.2.3.2.3 Invert each collector tube and allow to cool. Mix the distillate and detach the upper portion. Dilute the distillate to 6 mL (±0.1 mL) with absorbing solution and mix. The distillate is now ready for analysis. Seal the distillate and store at 4°C until analyzed.

10.3 Sample Analysis

10.3.1 Semi-Automated Spectrophotometric Determination of Distillates

10.3.1.1 Set up the manifold. Pump the reagents through the system until a steady baseline is obtained.

10.3.1.2 Place the distilled calibration standards, blanks, and control standards in the sampler tray, followed by the distilled samples, duplicates, standards, spikes, and blanks. Allow all standards and samples to come to ambient room temperature prior to analysis.

10.3.1.3 When a steady reagent baseline is obtained and before starting the sampler, adjust the baseline using the appropriate knob on the spectrophotometer. Aspirate the distilled blank calibration standard and adjust the spectrophotometer until the desired signal is obtained. Establish the baseline and proceed to analyze the remainder of the distilled standards and distilled samples.

10.3.1.4 Sample distillates having concentrations higher than the established calibration range as determined by the expected concentration of the highest calibration standard shall be diluted into range with the absorbing solution and reanalyzed.

11.0 DATA ANALYSIS AND CALCULATIONS

11.1 Calculations for Midi- and Micro-Distillation of Aqueous/Water and Soil/Sediment Samples

11.1.1 Calculations for Semi-automated Spectrophotometric Determination

11.1.1.1 Prepare a standard curve by plotting the instrument response of the standards against their true concentrations in µg/L using linear regression as discussed in Section 9.3.3. This standard curve is then used to determine the concentration of cyanide in the field and Quality Control (QC) samples.

11.1.1.2 Calculate the cyanide concentration in aqueous/water samples by the formula:

EQ. 1 Aqueous/Water Sample Concentration

$$\text{CN Concentration (ug/L)} = C \times \frac{V_f}{V} \times DF$$

WHERE,
- C = Instrument response in µg/L CN from the calibration curve
- V_f = Final prepared (absorbing solution) volume (mL)
- V = Initial aliquot amount (mL)
- DF = Dilution Factor

11.1.1.3 Calculate the cyanide concentration in soil/sediment samples by the formula:

EQ. 2 Soil/Sediment Sample Concentration

$$\text{CN Concentration (mg/kg)} = C \times \frac{V_f}{W \times S} \times (1/1000) \times DF$$

WHERE,
- C = Instrument response in µg/L CN from the calibration curve
- V_f = Final prepared (absorbing solution) volume (mL)
- W = Initial aliquot amount (g)
- S = % Solids/100 (see Exhibit D - Introduction to Analytical Methods, Section 1.6)
- DF = Dilution Factor

11.1.1.4 Adjusted Method Detection Limit (MDL)/Adjusted Contract Required Quantitation Limit (CRQL) Calculation

To calculate the adjusted aqueous/water MDL or CRQL for the midi and micro methods, multiply the MDL or CRQL (µg/L) by the sample Dilution Factor.

The adjusted soil/sediment MDL or CRQL for the midi- and micro-distillation methods shall be calculated as follows:

EQ. 3 Adjusted Soil/Sediment MDL or CRQL

$$\text{Adjusted Concentration (mg/kg)} = C \times \frac{W_M}{W \times S} \times DF$$

WHERE,
- C = MDL or CRQL (mg/kg)
- W_M = Minimum method required aliquot amount (1.00 g for midi or 0.50 g for micro)
- W = Initial aliquot amount (g)
- S = % Solids/100 (see Exhibit D - Introduction to Analytical Methods, Section 1.6)
- DF = Dilution Factor

12.0 QUALITY CONTROL (QC)

12.1 Initial Calibration Verification (ICV)

The ICV standard shall be prepared in the same matrix as the calibration standards and in accordance with the instructions provided by the supplier. The ICV standard shall be processed in the same manner as the standards used for the initial calibration for the method used. If measurements exceed the control limits of 85% Recovery (low) or 115% Recovery (high), the analysis shall be terminated, the problem corrected, the instrument recalibrated, and the calibration reverified. The results of the ICV analysis shall be reported.

12.2 Continuing Calibration Verification (CCV)

The CCV standard shall be prepared in the same matrix as the calibration standards by the analyst at a concentration equivalent to the mid-point of the calibration curve using the same standards that were used to prepare the initial calibration curve. The CCV standard shall be processed in the same manner as the standards used for the initial calibration for the method used. If the measurement exceeds the control limits of 85% Recovery (low) or 115% Recovery (high), the analysis shall be stopped, the problem corrected, the instrument recalibrated, the calibration verified, and reanalysis of all analytical samples analyzed since the last compliant calibration verification shall be performed. The results of all CCV analyses shall be reported.

12.3 Blank Analyses

There are two different types of blanks required by this method. The calibration blank is used in establishing the analytical curve. The Initial and Continuing Calibration Blanks (ICB/CCB) are identical in composition to the calibration blank and are analyzed immediately after the ICV/CCV to monitor for potential carryover of the analyte. The Preparation Blank is used to monitor for possible contamination throughout the entire sample preparation and analysis process.

12.3.1 Initial and Continuing Calibration Blank (ICB/CCB)

The ICB and CCB are identical in composition to the Calibration Blank as used to establish the initial calibration curve. The ICB/CCB shall be processed in the same manner as the standards used for the initial calibration for the method used. If the absolute value of the calibration blank (ICB/CCB) result exceeds the Contract Required Quantitation Limit (CRQL) (see Exhibit C), the analysis shall be terminated, the problem corrected, the instrument recalibrated, the calibration verified, and reanalysis of all analytical samples analyzed since the last compliant calibration blank shall be performed. Results of the ICB and CCB analyses shall be reported.

12.3.2 Preparation Blank

12.3.2.1 The Preparation Blank shall contain all the reagents and in the same volumes as used in processing the samples. The Preparation Blank shall be carried through the complete preparation, distillation, and analysis method process.

12.3.2.2 At least one Preparation Blank, consisting of reagent water processed through each sample preparation and analysis procedure (see Section 10), shall be prepared and analyzed with every Sample Delivery Group (SDG), or with each batch[1] of samples distilled, whichever is more frequent.

12.3.2.3 The first batch of samples in an SDG is to be assigned to Preparation Blank one, the second batch of samples to Preparation Blank two, etc. Each Complete SDG File (CSF) shall contain the results of all the Preparation Blank analyses associated with the samples in that SDG.

12.3.2.4 The Preparation Blank(s) is (are) to be reported for each SDG and used in all analyses to ascertain whether sample concentrations reflect contamination in the following manner:

12.3.2.4.1 If the absolute value of the concentration of the blank is less than or equal to the CRQL (see Exhibit C), no further action is required.

12.3.2.4.2 If the analyte concentration in the blank is above the CRQL, the lowest concentration of the analyte in the associated samples (except those identified as field blanks) shall be greater than or equal to 10 times the blank concentration. Otherwise, all samples (except those identified as field blanks) associated with the blank, with the analyte concentration less than 10 times the blank concentration and above the CRQL, shall be redistilled and reanalyzed with appropriate new QC. The sample concentration is not to be corrected for the blank value.

12.3.2.4.3 If the concentration of the blank is below the negative CRQL, then all samples associated with the blank and reported below 10 times CRQL shall be reprepared and reanalyzed with appropriate new QC.

12.3.2.4.4 The results for the Preparation Blank shall be reported.

12.4 Spike Sample Analysis

12.4.1 The spike sample analysis is designed to provide information about the effect of the sample matrix on the distillation and/or measurement methodology. The spike is added before the distillation step and prior to the addition of other reagents. At least one spike sample analysis (matrix spike) shall be performed on each group of samples of a similar matrix type (i.e., aqueous/water, soil/sediment) or for each SDG, whichever is more frequent.[2] The sample and its associated spike sample shall initially be run at the same dilution.

12.4.2 If the spike analysis is performed on the same sample that is chosen for the duplicate sample analysis, spike calculations shall be performed using the results of the sample designated as the "original sample" (see Section 12.5). The average of the duplicate results cannot be used for the purpose of determining percent recovery. Samples identified as field blanks and Performance Evaluation (PE) samples shall not be used for spiked sample

[1] A group of samples prepared at the same time.

[2] USEPA may require additional spike sample analyses, upon USEPA Regional CLP Project Officer (CLP PO) request.

analysis. USEPA may require that a specific sample be used for the spike sample analysis.

12.4.3 The analyte spike shall be added to achieve a concentration of 100 µg/L in the final sample solution prepared for analysis (i.e., post-distillation). For example, the midi-distillation procedure would require the addition of 5 µg of cyanide to the sample prior to distillation (based on the final distillate volume of 50 mL). For a typical 50 mL aqueous/water sample, this would be equivalent to a concentration of 100 µg/L in the original sample. For a typical 1.00 g soil/sediment sample, this would be equivalent to a concentration of 5 mg/kg in the original dry sample. Adjustments shall be made to maintain these spiking levels when the weight of the sample taken deviates by more than 10% of these values.

12.4.4 If the spike recovery is not at or within the limits of 75-125%, the data for all samples received and associated with that spike sample and determined by the same analytical method shall be flagged with the letter "N". An exception to this rule is granted when the sample concentration exceeds the Spike Added (SA) concentration by a factor of four or more. In such an event, the data shall be reported unflagged even if the percent recovery does not meet the 75-125% recovery criteria.

12.4.5 When the matrix spike recovery falls outside the control limits and the sample result does not exceed four times the spike added, a post-distillation spike shall be performed. Note that if a post-distillation spike analysis is required, the same USEPA sample that was used for the matrix spike analysis shall be used for the post-digestion spike analysis. Spike the unspiked aliquot of the undiluted distillate at two times the indigenous level or two times the CRQL, whichever is greater.

12.4.6 In the instance where there is more than one spike sample per matrix, per method, per SDG, if one spike sample recovery is not within contract criteria, flag all the samples of the same matrix and method in the SDG. Individual component percent recoveries are calculated as follows:

EQ. 4 Matrix Spike and Post-Digestion Spike Percent Recovery

$$\% \text{ Recovery} = \frac{SSR - SR}{SA} \times 100$$

WHERE,
SSR = Spiked Sample Result (µg/L or mg/kg) from EQ. 1 or EQ. 2
SR = Sample Result (µg/L or mg/kg) from EQ. 1 or EQ. 2
SA = Spike Added Theoretical Result (µg/L or mg/kg). This is calculated by substituting the spiking amount used for the 'V_f' term and substituting the spiking standard concentration used for the 'C' term from EQ. 1 or EQ.2.

12.4.7 When the sample concentration is less than the Method Detection Limit (MDL), use SR = 0 only for purposes of calculating the percent recovery. The Spike Sample Results (SSRs), Sample Results (SRs), Spike Added (SA), and percent recovery (positive or negative) shall be reported.

12.4.8 The units used for reporting Spike Sample Results (SSRs) will be identical to those used for reporting Sample Results (SRs).

12.5 Duplicate Sample Analysis

12.5.1 One duplicate sample shall be analyzed from each group of samples of a similar matrix type (i.e., aqueous/water, soil/sediment) or for each SDG, whichever is more frequent.[3] Duplicates cannot be averaged for reporting.

12.5.2 Duplicate sample analyses are not required for percent solids. Samples identified as field blanks and PE samples shall not be used for duplicate sample analysis. USEPA may require that a specific sample be used for duplicate sample analysis. The Relative Percent Difference (RPD) is calculated as follows:

EQ. 5 Duplicate Sample Relative Percent Difference

$$RPD = \frac{|S - D|}{(S + D)/2} \times 100$$

WHERE, RPD = Relative Percent Difference
S = Sample Result (original) (µg/L or mg/kg) from EQ. 1 or EQ. 2
D = Duplicate Sample Result (µg/L or mg/kg) from EQ. 1 or EQ. 2

12.5.3 The results of the duplicate sample analyses shall be reported. A control limit of 20 for RPD shall be used for original and duplicate sample values greater than or equal to five times the CRQL (see Exhibit C). A control limit equal to the CRQL value shall be entered in the "Control Limit" column if either the sample or duplicate value is less than five times the CRQL. If the sample and duplicate values are greater than or equal to five times the CRQL, or if the sample and duplicate values are less than the CRQL, the "Control Limit" field is left empty.

12.5.4 If one result is above five times the CRQL level and the other is below, use the CRQL criteria to determine if the duplicate analysis is in control. If both sample and duplicate values are less than the CRQL, the RPD is not calculated. For soil/sediment sample or soil/sediment duplicate results less than five times the CRQL, enter the value of the CRQL, corrected for sample weight and percent solids, (i.e., original, not duplicate sample weight), in the "Control Limit" column. If the duplicate sample results are outside the control limits, flag all the data for samples received and associated with that duplicate sample with an "*". In the instance where there is more than one duplicate sample per SDG, if one duplicate result is not within contract criteria, flag all samples of the same matrix and method in the SDG. The percent difference data will be used by USEPA to evaluate the long-term precision of the method. Specific control limits for this analyte will be added at a later date based on the precision results.

[3] USEPA may require additional duplicate sample analyses, upon USEPA Regional CLP PO request.

12.6 MDL Determination

12.6.1 Before any field samples are analyzed under this contract, the MDLs shall be determined for each distillation procedure and instrument used, prior to the start of contract analyses, and annually thereafter. The MDLs shall meet the levels specified in Exhibit C. An MDL study shall be performed after major instrument maintenance, or changes in instrumentation or instrumental conditions, to verify the current sensitivity of the analysis.

12.6.1.1 To determine the MDLs, the Contractor shall run MDL studies following the procedures given in 40 CFR, Part 136. The Contractor shall prepare the MDL samples by each digestion procedure used and shall analyze these samples on each instrument used.

12.6.1.2 The determined concentration of the MDL shall be less than half the concentration of the CRQL listed in Exhibit C.

12.6.1.3 The results of the MDL determination studies shall be forwarded to the USEPA Regional CLP PO, Sample Management Office (SMO), and Quality Assurance Technical Support (QATS).

12.6.1.4 The MDL results shall be reported on Form IX-IN.

12.7 Example Analytical Sequence for Cyanide

S0
S10
S50
S100
S200
S400
ICV
ICB
CCV
CCB
samples
CCV
CCB
samples
CCV
CCB, etc.

12.8 Summary of QC Operations

The QC operations performed for cyanide analysis are summarized in the table below.

QC Operation	Frequency
Instrument Calibration	Daily or each time instrument is turned on or set up, after ICV or CCV failure, and after major instrument adjustment.
Initial Calibration Verification	Following each instrument calibration.
Initial Calibration Blank	Following each instrument calibration, immediately after the ICV.

QC Operation	Frequency
Continuing Calibration Blank	Every hour of a run, and at the beginning and end of each run. Performed immediately after the last CCV.
Continuing Calibration Verification	At a frequency of every hour of a run, and at the beginning and end of each run.
Preparation Blank	For each SDG or each sample preparation and analysis procedure per batch of prepared samples, whichever is more frequent.
Spike Sample	For each matrix type or for each SDG, whichever is more frequent.
Post-Digestion/Distillation Spike	Each time Spike Sample Recovery is outside QC limits.
Duplicate Sample Analysis	For each matrix type or for each SDG, whichever is more frequent.
Determination of Method Detection Limits	Prior to contract award, annually thereafter, and after major instrument adjustment.

13.0 METHOD PERFORMANCE

Not applicable.

14.0 POLLUTION PREVENTION

See Section 1.15 in Exhibit D - Introduction to Analytical Methods.

15.0 WASTE MANAGEMENT

See Section 1.16 in Exhibit D - Introduction to Analytical Methods.

16.0 REFERENCES

16.1 US Environmental Protection Agency. Methods for Chemical Analysis of Water and Wastes. Method 335.4, Revision 1.0, August 1993.

16.2 American Water Works Association/American Public Health Association/Water Environment Federation. Standard Methods for the Examination of Water and Wastewater. Method 4500. 18th Edition.

16.3 US Government Printing Office. 40 Code of Federal Regulations, Part 136. Section 1. Appendix B.

17.0 TABLES/DIAGRAMS/FLOWCHARTS

Not applicable.

EXHIBIT E

CONTRACT LABORATORY PROGRAM QUALITY ASSURANCE MONITORING PLAN

Exhibit E – Contract Laboratory Program Quality Assurance Monitoring Plan

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1.0 OVERVIEW

Quality Assurance (QA) and Quality Control (QC) are integral parts of the U.S. Environmental Protection Agency's (USEPA's) Contract Laboratory Program (CLP). The QA process consists of management review and oversight at the planning, implementation, and completion stages of the environmental data collection activity, and ensures that data provided are of the quality required. The QC process includes those activities required during data collection to produce the data quality desired and to document the quality of the collected data.

1.1 Quality Assurance/Quality Control (QA/QC) Activities

During the planning of an environmental data collection program, QA activities focus on defining data quality criteria and designing a QC system to measure the quality of data being generated. During the implementation of the data collection effort, QA activities ensure that the QC system is functioning effectively, and that the deficiencies uncovered by the QC system are corrected. After environmental data are collected, QA activities focus on assessing the quality of data obtained to determine its suitability to support enforcement or remedial decisions.

1.1.1

This Exhibit describes the overall QA/QC operations and the processes by which the CLP meets the QA/QC objectives defined above. This contract requires a variety of QA/QC activities. These contract requirements are the minimum QC operations necessary to satisfy the analytical requirements associated with the determination of the different method analytes. These QC operations are designed to facilitate laboratory comparison by providing USEPA with comparable data from all Contractors. These requirements do not release the analytical Contractor from maintaining their own QC checks on method and instrument performance.

1.2 Performance

Samples are distributed routinely to Contractors based on the quality of work performed, as measured by the Performance Scheduling Algorithm (PSA) (see Section G of the contract for details). A Contractor that consistently meets the contract performance requirements as highlighted below will earn a higher PSA score, thereby increasing the likelihood of receiving samples for analyses.

Contract Performance Requirements:

- high quality, technically sound data as stipulated by the ISM01.2 contract;
- on-time or early delivery of the Sample Delivery Group (SDG) Cover Sheet;
- above average Quarterly Blind (QB) Performance Evaluation (PE) sample scores;
- electronic deliverables that pass the initial Contract Compliance Screening (CCS) acceptance criteria; and
- SDGs delivered on-time.

If the Contractor fails to meet the requirements set forth in this Statement of Work (SOW) or elsewhere in the contract, USEPA may take,

but is not limited to, the following actions (see Section E of the contract for details): reduction in the number of samples sent under the contract; suspension of sample shipments; data package audit(s); Remedial QB Audit; electronic data audit(s); on-site laboratory evaluation(s); and/or remedial PE sample(s).

2.0 INTRODUCTION

Appropriate use of data generated under the large range of analytical conditions encountered in environmental analyses requires reliance on the Quality Control (QC) procedures and criteria incorporated into the ISM01.2 Statement of Work (SOW).

The data acquired from QC procedures are used to estimate and evaluate the information content of analytical results and to determine the necessity for, or the effect of, corrective action procedures. The parameters used to estimate information content include precision, accuracy, detection limit, and other quantitative and qualitative indicators. In addition, QC procedures give an overview of the activities required in an integrated program to generate data of known and documented quality required to meet defined objectives.

2.1 Quality Assurance/Quality Control (QA/QC) Program Components

2.1.1 The Contractor's QA/QC program shall include (1) internal QC criteria that demonstrate compliant levels of performance, as determined by QA review, as well as (2) external review of data and procedures accomplished by the monitoring activities of the USEPA Office of Superfund Remediation and Technology Innovation (OSRTI) Analytical Services Branch (ASB), Regional Data Users, Sample Management Office (SMO), and the Quality Assurance Technical Support (QATS). Each external review accomplishes a different purpose. These reviews are described in specific sections of this Exhibit. Laboratory evaluation samples, electronic data audits, and data packages provide an external QA reference for the program. A Contractor on-site evaluation system is also part of the external QA monitoring. A feedback loop provides the results of the various review functions to the Contractors through direct communications with the USEPA Regional Contract Laboratory Program Project Officer (CLP PO) and the USEPA OSRTI ASB Inorganic Program Manager (ASB PM).

2.1.2 This Exhibit does not provide specific instructions for constructing QA Management Plans, QC systems, or a QA organization. It is, however, an explanation of the QA/QC requirements of CLP. It outlines minimum standards for QA/QC programs. It also includes specific items that are required in a Quality Assurance Plan (QAP) and by the QA/QC documentation detailed in this contract. Delivery of this documentation provides USEPA with a complete data package which will stand alone, and limits the need for contact with the Contractor or with an analyst, at a later date, if some aspect of the analysis is questioned.

2.1.3 In order to assure that the product delivered by the Contractor meets the requirements of the contract, and to improve interlaboratory data comparison, the Contractor shall:

- Prepare, and adhere to, a written approved QAP, as defined in Exhibit E, Section 5;
- Prepare, and adhere to, Standard Operating Procedures (SOPs) as described in Exhibit E, Section 6;

- Adhere to the analytical methods in Exhibit D and associated QC requirements specified within Exhibit E;
- Verify and document analytical standards and retain documentation of the purity of neat materials, as well as the purity and accuracy of solutions obtained from private chemical supply houses;
- Submit all requested raw data and required documentation for USEPA Regional review;
- Submit results of all analyzed laboratory evaluation samples and adhere to corrective action procedures;
- Submit, upon request, electronic instrument data and applicable documentation for tape audits, including a copy of the Complete Sample Delivery Group (SDG) File (CSF);
- Submit to on-site laboratory evaluations and adhere to corrective action procedures; and
- Submit all original documentation generated during sample analyses for USEPA review.

3.0 GENERAL QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) REQUIREMENTS

The Contractor shall adhere to USEPA's Good Laboratory Practices for laboratory cleanliness with regard to glassware and apparatus. The Contractor shall also adhere to good laboratory practices with regard to reagents, solvents, and gases. For additional guidelines regarding these general laboratory procedures, see the Handbook for Analytical Quality Control in Water and Wastewater Laboratories USEPA-600/4-79-019, USEPA Environmental Monitoring Systems Laboratory, Cincinnati, Ohio, September 1982.

4.0 SPECIFIC QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) MONITORING PROCEDURES

4.1 Purpose

4.1.1 The purpose of this document is to provide (1) a uniform set of procedures for the analysis of inorganic constituents of samples; (2) documentation of methods and their performance; and (3) verification of the sample data generated. Although it is impossible to address every analytical situation in one document, this Exhibit defines the minimum requirements for each major step relevant to any inorganic analysis.

4.1.2 The primary function of the Contract Laboratory Program (CLP) QA/QC program is the definition of procedures for the evaluation and documentation of analytical methodologies and the reduction and reporting of data. The location and summary of the QA/QC performance-based contracting methods can be found in Exhibit E, Section 15, Table 1 - Contract Laboratory Program Quality Assurance Monitoring Plan. The objective is to provide a uniform basis for sample handling, instrument and methods maintenance, performance evaluation, and analytical data gathering and reporting. In many instances where methodologies are available, specific QC procedures are incorporated into the method documentation (see Exhibit D).

4.1.3 The QA/QC procedures defined herein shall be used by the Contractor when performing the methods specified in Exhibit D. When QA/QC procedures are specified in Exhibit D, the Contractor shall follow those procedures, in addition to procedures specified here.

4.2 Laboratory Audit and Intercomparison Study Program

The Contractor is required to participate in the Laboratory Audit and Intercomparison Study Program run by USEPA. The Contractor shall be required to analyze at least one Quarterly Blind (QB) sample per calendar quarter during the contract period for inorganics.

4.3 Annual Determination of Method Detection Limit (MDL)

The Contractor shall update and report the annual determination of MDLs by the method specified in Exhibit D, by type, matrix, and model for each instrument used on this contract, to the Sample Management Office (SMO), Quality Assurance Technical Support (QATS), and the USEPA Regional Contract Laboratory Program Project Officer (CLP PO) as specified in Exhibit B. All MDLs shall meet the requirements specified in Exhibit C.

4.4 Annual Verification of Interelement Correction Factors

For Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP-AES) methods, the Contractor shall report, as specified in Exhibit B, all interelement correction factors.

4.5 Quality Assurance/Quality Control Measurements

4.5.1 In this Exhibit, as well as other places within this Statement of Work (SOW), the term "analytical sample" discusses the required frequency or placement of certain QA/QC measurements. The term "analytical sample" is defined in the glossary, Exhibit G.

4.5.2 In order for the QA/QC information to reflect the status of the samples analyzed, all samples and their associated QA/QC analysis shall be analyzed under the same operating and procedural conditions.

4.5.3 If any QC measurement fails to meet contract criteria, the analytical measurement must not be repeated prior to taking the appropriate corrective action as specified in Exhibit D.

4.5.4 The Contractor shall report all QC data in the exact format specified in Exhibits B and H.

4.5.5 MDLs, precision, and interference effects shall be established for each analyte on a particular instrument. All reported measurements shall be within the instrumental calibrated ranges. The Contractor shall maintain QC data confirming instrument performance and analytical results.

5.0 QUALITY ASSURANCE PLAN (QAP)

5.1 Introduction

The Contractor shall establish a Quality Assurance (QA) program with the objective of providing sound analytical chemical measurements. This program shall incorporate the Quality Control (QC) procedures, any necessary corrective action, all documentation required during data collection, and the quality assessment measures performed by management to ensure acceptable data production. The Contractor shall follow the USEPA EPA Requirements for Quality Management Plans (EPA QA/R-2). An electronic version can be found at http://www.epa.gov/quality/qs-docs/r2-final.pdf.

5.1.1 The Contractor shall prepare a written QAP which describes the procedures that are implemented to achieve the following:

- Maintain data integrity, validity, and usability;
- Ensure that analytical measurement systems are maintained in an acceptable state of stability and reproducibility;
- Detect problems through data assessment and establish corrective action procedures which keep the analytical process reliable; and
- Document all aspects of the measurement process in order to provide data which are technically sound and legally defensible.

5.1.2 The QAP must present, in specific terms, the policies, organization, objectives, functional guidelines, and specific QA/QC activities designed to achieve the data quality requirements in this contract. Standard Operating Procedures (SOPs) pertaining to each element shall be included or referenced as part of the QAP. The QAP shall be paginated consecutively in ascending order. The QAP shall be available during on-site laboratory evaluations and shall be submitted to the designee within 7 days of written request by the USEPA Regional Contract Laboratory Program Project Officer (CLP PO) or the USEPA Office of Superfund Remediation and Technology Innovation (OSRTI) Analytical Services Branch (ASB) Inorganic Program Manager (ASB PM). Additional information relevant to the preparation of a QAP can be found in USEPA and ASTM publications.

5.2 Required Elements of a Quality Assurance Plan

The required elements of a laboratory's QAP are outlined in this Section. This outline shall be used as a framework for developing the QAP.

A. Organization and Personnel

1. QA Policy and Objectives (the mission and quality policy of the organization)
2. QA Management (the specific roles, authorities, and responsibilities of management and staff with respect to QA and QC activities)
   a. Organization
   b. Assignment of QA/QC Responsibilities
   c. Reporting Relationships (the means by which effective communications with personnel actually performing the work are assured)

d. QA Document Control Procedures

e. QA Program Assessment Procedures (the process used to plan, implement, and assess the work performed)

3. Personnel

a. Resumes

b. Education and Experience Pertinent to this Contract

c. Training Records and Progress

B. Facilities and Equipment

1. Instrumentation and Backup Alternatives

2. Maintenance Activities and Schedules

C. Document Control

1. Laboratory Notebook Policy

2. Sample Tracking/Custody Procedures

3. Logbook Maintenance and Archiving Procedures

4. Sample Delivery Group (SDG) File Organization, Preparation, and Review Procedures

5. Procedures for Preparation, Approval, Review, Revision, and Distribution of SOPs

6. Process for Revision of Technical or Documentation Procedures

D. Analytical Methodology

1. Calibration Procedures and Frequency

2. Sample Preparation Procedures

3. Sample Analysis Procedures

4. Standards Preparation Procedures

5. Decision Processes, Procedures, and Responsibility for Initiation of Corrective Action

E. Data Generation

1. Data Collection Procedures

2. Data Reduction Procedures

3. Data Validation Procedures

4. Data Reporting and Authorization Procedures

F. Quality Assurance (the process which measures the effectiveness of QA will be established and how frequently effectiveness will be measured)

1. Data Quality Assurance

2. Systems/Internal Audits

3. Performance/External Audits

4. Corrective Action Procedures (the continual improvement based on lessons learned from previous experience)

5. QA Reporting Procedures

6. Responsibility Designation

G. Quality Control

1. Solvent, Reagent, and Adsorbent Check Analysis
2. Reference Material Analysis
3. Internal QC Checks
4. Corrective Action and Determination of QC Limit Procedures
5. Responsibility Designation

5.3 Updating and Submitting the Quality Assurance Plan

5.3.1 The revised QAP will become the official QAP under the contract and may be used during legal proceedings. The Contractor shall maintain the QAP on file at the Contractor's facility for the term of the contract. Both the initial submission and the revised QAP shall be paginated consecutively in ascending order. The revised QAP shall include:

- Changes resulting from (1) the Contractor's internal review of their organization, personnel, facility, equipment, policy and procedures; and (2) the Contractor's implementation of the requirements of the contract, and
- Changes resulting from USEPA's review of the laboratory evaluation sample data, bidder supplied documentation, and recommendations made during the pre-award on-site laboratory evaluation.

5.3.1.1 The Contractor shall send a copy of the latest version of the QAP within 7 days of a request from a USEPA Regional CLP PO or the USEPA OSRTI ASB PM. The request will designate the recipients.

5.3.2 Subsequent Updates and Submissions. During the term of the contract, the Contractor shall amend the QAP when the following circumstances occur:

- USEPA modifies the technical requirements of the Statement of Work (SOW) or contract;
- USEPA notifies the Contractor of deficiencies in the QAP document;
- USEPA notifies the Contractor of deficiencies resulting from USEPA's review of the Contractor's performance;
- The Contractor's organization, personnel, facility, equipment, policy, or procedures change; or
- The Contractor identifies deficiencies resulting from the internal review of their organization, personnel, facility, equipment, policy, or procedures changes.

5.3.2.1 The Contractor shall amend the QAP within 14 days of when the circumstances listed in Exhibit E, Section 5.3, result in a discrepancy between what was previously described in the QAP and what is presently occurring at the Contractor's facility. When the QAP is amended, all changes in the QAP shall be clearly marked (e.g., a bar in the margin indicating where the change is found in the document, highlighting the change by underlining the change, bold printing the change, or using a different print font) and a copy is sent to the USEPA Regional CLP PO and Quality

Assurance Technical Support (QATS). The amended section pages shall have the date on which the changes were implemented. The Contractor shall incorporate all amendments to the latest version of the QAP document. The Contractor shall archive all amendments to the QAP document for future reference by USEPA.

5.4 Performance

The Contractor shall amend the QAP as specified within this Section. The QAP describes the policies and procedures for ensuring that work processes, products, or services satisfy expectations or specifications in ISM01.2. Failure to comply with the requirements of this Section may result in disincentives as described in the contract.

6.0 STANDARD OPERATING PROCEDURES (SOPS)

6.1 Introduction

In order to obtain reliable results, adherence to prescribed analytical methodology is imperative. In any operation that is performed on a repetitive basis, reproducibility is best accomplished through the use of Standard Operating Procedures (SOPs). As defined by USEPA, an SOP is a written document which provides directions for the step-by-step execution of an operation, analysis, or action which is commonly accepted as the method for performing certain routine or repetitive tasks. The Contractor shall follow the USEPA Guidance for the Preparation of Standard Operating Procedures (SOPs) for Quality-Related Documents (EPA QA/G-6). An electronic version can be found at http://www.epa.gov/quality1/qs-docs/g6-final.pdf.

6.1.1 SOPs prepared by the Contractor shall be functional (i.e., clear, comprehensive, up-to-date, and sufficiently detailed to permit duplication of results by qualified analysts). The SOPs shall be paginated consecutively in ascending order.

6.1.2 All SOPs shall reflect Contractor activities as they are currently performed in the laboratory. In addition, all SOPs shall be:

- Consistent with current USEPA regulations, guidelines, and the Contract Laboratory Program (CLP) ISM01.2 contract requirements.
- Consistent with instrument(s) manufacturer’s specific instruction manuals.
- Available to USEPA during an on-site laboratory evaluation. A complete set of SOPs shall be bound together and available for inspection at such evaluations. During on-site laboratory evaluations, laboratory personnel shall demonstrate the application of the SOPs if requested.
- Available to the designated recipients within 7 days, upon request by the USEPA Regional CLP Project Officer (CLP PO) or the USEPA Office of Superfund Remediation and Technology Innovation (OSRTI) Analytical Services Branch Inorganic Program Manager (ASB PM).
- Capable of providing for the development of documentation that is sufficiently complete to record the performance of all tasks required by the protocol.

- Capable of demonstrating the validity of data reported by the Contractor and explaining the cause of missing or inconsistent results.
- Capable of describing the corrective measures and feedback mechanism utilized when analytical results do not meet protocol requirements.
- Reviewed regularly and updated as necessary when contract, facility, or Contractor procedural modifications are made.
- Archived for future reference in usability or evidentiary situations.
- Available at specific work stations as appropriate.
- Subject to a document control procedure which precludes the use of outdated or inappropriate SOPs.
- Reviewed and signed by all Contractor personnel performing actions identified in the SOP.

6.2 Format

The format for SOPs may vary depending upon the type of activity for which they are prepared; however, at a minimum, the following sections shall be included:

- Title page;
- Document Control;
- Scope and Applicability;
- Summary of Method;
- Definitions (acronyms, abbreviations, and specialized forms used in the SOP);
- Health & Safety;
- Personnel Qualifications;
- Interferences;
- Apparatus & Materials (list or specify; note also designated locations where found);
- Handling & Preservation;
- Instrument or Method Calibration;
- Sample Preparation and Analysis;
- Data Calculations;
- Quality Control (QC) limits;
- Corrective action procedures, including procedures for secondary review of information being generated;
- Data Management and Records Management;
- Miscellaneous notes and precautions; and
- References.

6.3 Required SOPs

The Contractor shall maintain the following SOPs:

6.3.1 Evidentiary SOPs for required chain-of-custody and document control are discussed in Exhibit F.

6.3.2 Sample Receipt and Storage

- Sample receipt and identification logbooks,
- Refrigerator temperature logbooks, and
- Security precautions.

6.3.3 Sample Preparation

6.3.3.1 Metals

6.3.3.2 Cyanide

6.3.4 Glassware Cleaning

6.3.5 Calibration (Balances, etc.)

- Procedures;
- Frequency requirements;
- Preventative maintenance schedule and procedures;
- Acceptance criteria and corrective actions; and
- Logbook maintenance authorization.

6.3.6 Analytical Procedures (for each analytical system)

- Instrument performance specifications;
- Instrument operating procedures;
- Data acquisition system operation;
- Procedures when automatic quantitation algorithms are overridden;
- QC required parameters;
- Analytical run/injection logbooks;
- Instrument error and editing flag descriptions and resulting corrective actions; and
- Method Detection Limit (MDL) determinations and Interelement Correction (IEC) determinations.

6.3.7 Maintenance Activities (for each analytical system)

- Preventative maintenance schedule and procedures;
- Corrective maintenance determinants and procedures; and
- Maintenance authorization.

6.3.8 Analytical Standards

- Standard coding/identification and inventory system;
- Standards preparation logbook(s);
- Standard preparation procedures;

- Procedures for equivalency/traceability analyses and documentation;
- Standard Certificate of Analysis;
- Purity logbook (primary standards and solvents);
- Storage, replacement, and labeling requirements; and
- QC and corrective action measures.

6.3.9 Data Reduction Procedures

- Data processing systems operation;
- Outlier identification methods;
- Identification of data requiring corrective action; and
- Procedures for format and/or forms for each operation.

6.3.10 Documentation Policy/Procedures

- Contractor/analyst's notebook policy, including review policy;
- Complete Sample Delivery Group (SDG) File (CSF) contents;
- Complete SDG File organization and assembly procedures, including review policy; and
- Document inventory procedures, including review policy.

6.3.11 Data Validation/Self-Inspection Procedures

- Data flow and chain-of-command for data review;
- Procedures for measuring precision and accuracy;
- Evaluation parameters for identifying systematic errors;
- Procedures to assure that hardcopy and electronic deliverables are complete and compliant with the requirements in the Statement of Work (SOW) Exhibits B and H;
- Procedures to assure that hardcopy deliverables are in agreement with their comparable electronic deliverables;
- Demonstration of internal Quality Assurance (QA) inspection procedure (demonstrated by supervisory sign-off on personal notebooks, internal laboratory evaluation samples, etc.);
- Frequency and type of internal audits (e.g., random, quarterly, spot checks, perceived trouble areas);
- Demonstration of problem identification, corrective actions, and resumption of analytical processing. Sequence resulting from internal audit (i.e., QA feedback); and
- Documentation of audit reports (internal and external), response, corrective action, etc.

6.3.12 Data Management and Handling

- Procedures for controlling and estimating data entry errors;
- Procedures for reviewing changes to data and deliverables and ensuring traceability of updates;

- Lifecycle management procedures for testing, modifying, and implementing changes to existing computing systems including hardware, software, and documentation or installing new systems;
- Database security, backup, and archival procedures including recovery from system failures;
- System maintenance procedures and response time;
- Individual(s) responsible for system operation, maintenance, data integrity, and security; and
- Specifications for staff training procedures.

6.4 Updating and Submitting SOP Requirements

6.4.1 The revised SOPs will become the official SOPs under the contract and may be used during legal proceedings. The Contractor shall maintain the complete set of SOPs on file at the Contractor's facility for the term of the contract. Both the initial submission and the revised SOPs shall be paginated consecutively in ascending order. The revised SOPs shall include:

- Changes resulting from (1) the Contractor's internal review of their procedures; and (2) the Contractor's implementation of the requirements of the contract, and
- Changes resulting from USEPA's review of the laboratory evaluation sample data, bidder supplied documentation, and recommendations made during the pre-award on-site laboratory evaluation.

6.4.1.1 The Contractor shall send a complete set of the latest version of SOPs or individually requested SOPs within 7 days of a request from an USEPA Regional CLP PO or the USEPA OSRTI ASB PM. The request will designate the recipients.

6.4.2 Subsequent Updates and Submissions. During the term of the contract, the Contractor shall amend the SOPs when the following circumstances occur:

- USEPA modifies the technical requirements of the SOW or contract;
- USEPA notifies the Contractor of deficiencies in the SOP documentation;
- USEPA notifies the Contractor of deficiencies resulting from USEPA's review of the Contractor's performance;
- The Contractor's procedures change;
- The Contractor identifies deficiencies resulting from the internal review of the SOP documentation; or
- The Contractor identifies deficiencies resulting from the internal review of their procedures.

6.4.2.1 Existing SOPs shall be amended or new SOPs shall be written within 14 days of when the circumstances listed in Exhibit E, Section 6.4, result in a discrepancy between what was previously described in the SOPs and what is presently occurring at the Contractor's facility. All changes in the SOPs shall be clearly marked (e.g., a bar in the margin indicating where the change is

in the document, highlighting the change by underlining the change, bold printing the change, or using a different print font) and a copy is sent to the USEPA Regional CLP PO and Quality Assurance Technical Support (QATS). The amended/new SOPs shall have the date on which the changes were implemented.

6.4.2.2 When existing SOPs are amended or new SOPs are written, the Contractor shall document the reasons for the changes and maintain the amended SOPs or new SOPs on file. Documentation of the reasons for the changes shall be maintained on file with the amended SOPs or new SOPs.

6.4.2.3 Documentation of the reason(s) for changes to the SOPs shall also be submitted along with the SOPs.

6.5 Performance

The Contractor shall amend SOPs as specified within this Section. The SOPs specify analytical procedures in greater detail than appear in Exhibit D. Adherence to these requirements will ensure that the procedure is conducted in a standard, reliable, and reproducible process described in ISM01.2. Failure to comply with the requirements specified herein may result in disincentives as described in the contract.

7.0 CONTRACT COMPLIANCE SCREENING (CCS) PERFORMANCE STANDARDS

7.1 Overview

7.1.1 CCS is one aspect of the Government's contractual right of inspection of analytical data. CCS examines the Contractor's adherence to the contract requirements based on the Complete Sample Delivery Group (SDG) File (CSF) delivered to USEPA.

7.1.2 CCS is performed by the Sample Management Office (SMO) under the direction of USEPA. To assure a uniform review, a set of standardized procedures has been developed to evaluate the CSF submitted by a Contractor against the technical and completeness requirements of the contract. USEPA reserves the right to add and/or delete individual checks.

7.2 CCS Results

CCS results are distributed to the Contractor and other data recipients. The Contractor has 6 business days to correct deficiencies and shall send all corrections to the USEPA Regional client and SMO. CCS results are used in conjunction with other information to measure overall Contractor performance and to take appropriate actions to correct deficiencies in performance.

7.3 CCS Trend Report

USEPA will periodically generate a CCS trend report which summarizes CCS results over a given period of time. USEPA will send the CCS trend report or discuss the CCS trend report during an on-site laboratory evaluation. In a detailed letter to the USEPA Regional Contract Laboratory Program Project Officer (CLP PO) and USEPA Contracting Officer, the Contractor shall address the deficiencies and the subsequent corrective action implemented by the Contractor to correct the deficiencies within 14 days of receipt of the report or the on-site laboratory evaluation.

7.4 Performance

7.4.1 The Contractor shall correct deficiencies and resubmit the data within 6 business days, as specified within this Section. Resubmission and correction of the data will ensure that the end user is reviewing contractually-compliant data described in ISM01.2. Correct resubmission of the data may also result in a reduction in overall disincentives. Specific details on disincentives can be found in the contract. If the Contractor fails to adhere to the requirements listed in this Section, the Contractor will be in noncompliance with the contract and may be subjected to disincentives as described in the contract.

7.4.2 If new Standard Operating Procedures (SOPs) are required to be written, or if existing SOPs are required to be rewritten or amended because of deficiencies and subsequent corrective action implemented by the Contractor, the Contractor shall write/amend the SOPs per the requirements listed in Exhibit E, Section 6.

8.0 ANALYTICAL PERFORMANCE STANDARDS REQUIREMENTS AND REAGENTS

8.1 Overview

USEPA will not supply analytical reference standards used to prepare calibration standards either for direct analytical measurements or for the purpose of traceability. All contract laboratories shall be required to prepare from materials or purchase from private chemical supply houses those standards necessary to successfully and accurately perform the analyses required in this protocol. At this time, USEPA will supply reference materials.

8.2 Preparation of Chemical Standards from the Neat High Purity Bulk Material

8.2.1 If the laboratory cannot obtain analytical reference standards, the laboratory may prepare their own chemical standards. Laboratories shall obtain the highest purity possible when purchasing chemical standards; standards purchased at less than 97% purity shall be documented as to why a higher purity could not be obtained.

8.2.2 The chemical standards shall be kept at manufacturer recommended conditions when not being used in the preparation of standard solutions. Proper storage of chemicals is essential in order to safeguard them from decomposition.

8.2.3 The Contractor shall be responsible for having analytical documentation proving the purity of each compound as stated. Purity confirmation, when performed, shall use appropriate techniques. Use of two or more independent methods is recommended. The correction factor for impurity when weighing neat materials in the preparation of solution standards is:

EQ. 1 Weight of Impure Compound

$$\text{weight of impure compound} = \frac{\text{weight of pure compound}}{(\text{percent purity}/100)}$$

WHERE, "weight of pure compound" is that required to prepare a specific volume of a solution standard of a specified concentration.

8.2.4 The Contractor is responsible for obtaining analytical documentation proving that all compounds used in the preparation of solution standards are correctly identified.

8.2.5 Logbooks shall be kept for all weighing and dilutions of standards and reagents. All subsequent dilutions from the primary standard and the calculations for determining their concentrations shall be recorded and verified by a second person. All solution standards shall be refrigerated, if required, when not in use. All solution standards shall be clearly labeled as to the identity of the analyte or analytes, the standard ID number of the solution, concentration, date prepared, solvent, expiration date of the solution, special storage requirements (if any), and initials of the preparer.

8.3 Purchase of Chemical Standards Already in Solution

Solutions of analytical reference standards can be purchased by Contractors provided the solutions meet the following criteria.

8.3.1 Reference standards shall be accompanied by documentation of the purity confirmation of the material to verify the integrity of the standard solutions.

8.3.2 The quality of reference standards purchased shall be demonstrated statistically and analytically by a method of the supplier's choice.

8.3.3 Solutions of analytical reference materials can be ordered from the USEPA Chemical Standards Repository, depending on availability. The Contractor may place an order for standards only after demonstrating that these standards are not available from commercial vendors, either in solution or as a neat material.

8.4 Documentation of the Verification and Preparation of Chemical Standards

It is the responsibility of the Contractor to maintain the necessary documentation to show that the chemical standards it has used in the performance of Contract Laboratory Program (CLP) analysis conform to the requirements previously listed.

8.4.1 Weighing logbooks, calculations, raw data, etc., whether produced by the Contractor or purchased from chemical supply houses, shall be maintained by the Contractor and may be subject to review during on-site inspection visits. In those cases where the documentation is supportive of the analytical results of data packages sent to USEPA, such documentation is to be kept on file by the Contractor for a period of one year.

8.4.2 Upon request by the USEPA Regional CLP Project Officer (CLP PO), the Contractor shall submit their most recent previous year's documentation (12 months) for the verification and preparation of chemical standards within 14 days of the receipt of request to the designated recipients.

8.4.3 USEPA will periodically generate a report discussing deficiencies in the Contractor's documentation for the verification and preparation of chemical standards. USEPA will send the report or discuss the deficiencies during an on-site laboratory evaluation. In a detailed letter to the USEPA Regional CLP PO and CLP Quality Assurance Coordinator, the Contractor shall address the deficiencies and the subsequent corrective action implemented by the Contractor to correct the deficiencies within 14 days of receipt of the report or the on-site laboratory evaluation.

8.4.4 If new Standard Operating Procedures (SOPs) are required to be written, or if existing SOPs are required to be rewritten or amended because of deficiencies and subsequent corrective action implemented by the Contractor, the Contractor shall write/amend the SOPs per the requirements listed in Exhibit E, Section 6.

8.5 Performance

The Contractor shall obtain the highest purity possible when purchasing chemical standards specified within this Section. The use of high purity standards will ensure a more accurate identification and quantitation of analytes described in the ISM01.2 Statement of Work (SOW). Failure to meet the requirements set forth in this Section may result in disincentives as described in the contract.

9.0 DATA PACKAGE MONITORING AUDITS

9.1 Overview

Data package audits are performed by USEPA for program overview and specific Regional concerns. Standardized procedures have been established to assure uniformity of the auditing process. Data packages are periodically selected from recently received Cases. They are evaluated for the technical quality of hardcopy raw data, Quality Assurance (QA), and adherence to contractual requirements. This function provides external monitoring of program Quality Control (QC) requirements. Data package audits are used to assess the technical quality of the data and evaluate overall laboratory performance. Audits provide USEPA with an in-depth inspection and evaluation of the Case data package with regard to achieving QA/QC acceptability. A thorough review of the raw data is completed, including all instrument readouts used for the sample results, instrument printouts, and other documentation for deviations from the contractual requirements; a check for transcription and calculation errors; a review of the qualifications of the laboratory personnel involved with the Case; and a review of the latest version of all Standard Operating Procedures (SOPs) on file.

9.2 Responding to the Data Package Audit Report

9.2.1 After completion of the data package audit, USEPA will send a copy of the data package audit report to the Contractor or discuss the data package audit report on an on-site laboratory evaluation. In a detailed letter to the USEPA Regional Contract Laboratory Program Project Officer (CLP PO) and the USEPA designated recipient, the Contractor shall discuss the corrective actions implemented to resolve the deficiencies listed in the data package audit report within 14 days of receipt of the report.

9.2.2 If new SOPs are required to be written, or if existing SOPs are required to be rewritten or amended because of deficiencies and subsequent corrective action implemented by the Contractor, the Contractor shall write/amend the SOPs per the requirements listed in Exhibit E, Section 6.

9.3 Performance

The Contractor shall discuss the corrective actions implemented to resolve the deficiencies listed in the data package audit report within

14 days of receipt of the comments from USEPA, as specified within this Section. The data package audits ensure that the policies and procedures identified in this Statement of Work (SOW) meet the requirements of this contract. Failure to meet the requirements set forth in this Section may result in disincentives as described in the contract.

10.0 REGIONAL DATA REVIEW MONITORING

10.1 Overview

Contractor data are generated to meet the specific needs of USEPA Regions. In order to verify the usability of data for the intended purpose, each Region reviews data from the perspective of the end user, based on functional guidelines for data review which have been developed jointly by the Regions and the USEPA Office of Superfund Remediation and Technology Innovation (OSRTI) Analytical Services Branch (ASB). Each Region uses these guidelines as the basis for data evaluation. Individual Regions may augment the basic guideline review process with additional review based on Region-specific or site-specific concerns. Regional reviews, like the sites under investigation, vary based on the nature of the problem under investigation and the Regional response appropriate to the specific circumstances.

10.1.1 Regional data reviews, relating usability of the data to a specific site, are part of the collective assessment process. They complement the review done at the Sample Management Office (SMO), which is designed to identify contractual discrepancies, and the review done by the USEPA OSRTI ASB, which is designed to evaluate Contractor and method performance.

11.0 QUALITY ASSURANCE (QA) PROFICIENCY MONITORING

As a means of measuring and evaluating both the Contractor's and the method's analytical performance, the Contractor shall participate in USEPA's Proficiency Testing Program. USEPA's Proficiency Testing Program involves the analysis of Case-specific Performance Evaluation (PE) samples and Quarterly Blind (QB) Audits. The Contractor's analytical PE samples and QB results will be used by USEPA to assess and verify the Contractor's continuing ability to produce acceptable analytical data in accordance with the contractual requirements. The Contractor shall receive a passing score of 75% to be in compliance with the contract.

11.1 Performance Evaluation (PE) Samples

11.1.1 PE sample(s) may be scheduled with the Contractor as frequently as on a Sample Delivery Group (SDG)-by-SDG basis. PE samples may be sent either by the USEPA Regional client or the USEPA Office of Superfund Remediation and Technology Innovation (OSRTI) Analytical Services Branch (ASB). PE samples assist USEPA in monitoring Contractor performance.

11.1.2 PE samples will be provided as either single-blinds (recognizable as a PE sample but of unknown composition), or as double-blinds (not recognizable as a PE sample and of unknown composition). The Contractor will not be informed of either the analytes/parameters or the concentrations in the PE samples.

11.1.3 The Contractor may receive the PE samples as either full volume samples or ampulated/bottled concentrates from USEPA or a designated USEPA Contractor. The PE samples shall come with instructions concerning the unique preparation procedures, if any, required to reconstitute the PE samples (i.e., the required dilution of the PE sample concentrate). PE samples are to be digested and analyzed with the rest of the routine samples in the SDG. The Contractor shall prepare and analyze the PE sample using the procedure described in the sample preparation and method analysis sections of Exhibit D. All contract required Quality Control (QC) shall be met. The PE sample results are to be submitted in the SDG deliverable package per normal reporting procedures detailed in Exhibit B.

11.1.4 In addition to PE sample preparation and analysis, the Contractor shall be responsible for correctly identifying and quantitating the analytes included in each PE sample. When PE sample results are received by USEPA, the PE sample results will be evaluated for correct analytical identification and quantitation. The PE sample evaluation will be provided to the Contractor via coded evaluation sheets, by analyte. USEPA will notify the Contractor of unacceptable performance.

11.2 Quarterly Blind (QB) Audits

11.2.1 A QB Audit is a unique analytical Case containing only PE samples (i.e., referred to as QB samples). The QB samples will be scheduled by the USEPA OSRTI ASB through the Sample Management Office (SMO). QB samples assist USEPA in monitoring Contractor performance.

11.2.2 QB samples will be provided as single-blinds (recognizable as a PE sample but of unknown composition). The Contractor will not be informed of either the analytes or the concentrations in the PE samples.

11.2.3 The Contractor may receive the QB samples as either full volume samples or ampulated/bottled concentrates from USEPA or a designated USEPA Contractor. The QB samples shall come with instructions concerning the unique preparation procedures, if any, required to reconstitute the QB samples (i.e., the required dilution of the QB sample concentrate). The Contractor shall prepare and analyze the QB samples using the procedure described in the sample preparation and method analysis sections of Exhibit D. All contract required QC shall be met, including spike and duplicate analyses. The QB sample results are to be submitted in the SDG deliverable package per normal reporting procedures detailed in Exhibit B.

11.2.4 In addition to QB sample preparation and analysis, the Contractor shall be responsible for correctly identifying and quantitating the analytes included in each QB sample. When QB sample results are received by USEPA, the QB sample results will be scored for correct analytical identification, quantitation, and timeliness. The QB sample scoring will be provided to the Contractor via coded evaluation sheets, by analyte. USEPA will notify the Contractor of unacceptable performance. The Contractor's QB sample performance will be assessed into one of the following three categories:

11.2.4.1 Acceptable, No Response Required: Score greater than or equal to 90%. The data meets most or all of the scoring criteria. No response is required.

11.2.4.2 Acceptable, Response Explaining Deficiencies Required: Score greater than or equal to 75%, but less than 90%. Deficiencies exist in the Contractor's performance. Corrective action response required.

11.2.4.3 Unacceptable Performance, Response Explaining Deficiencies Required: Score less than 75%. Corrective action response required.

11.2.5 In the case of Section 11.2.4.2 or 11.2.4.3, the Contractor shall describe the deficiency(ies) and the action(s) taken in a corrective action letter to the USEPA Contracting Officer, USEPA Regional Contract Laboratory Program Project Officer (CLP PO), the Analytical Services Branch Inorganic Program Manager (ASB PM), and the CLP Quality Assurance (QA) Coordinator within 14 days of receipt of notification from USEPA.

11.2.6 In the case of Section 11.2.4.2 or 11.2.4.3, if new Standard Operating Procedures (SOPs) are required to be written, or if existing SOPs are required to be rewritten or amended because of deficiencies and subsequent corrective action implemented by the Contractor, the Contractor shall write/amend the SOPs per the requirements listed in Exhibit E, Section 6.

11.2.7 A Remedial QB Audit is a unique analytical Case containing only QB samples. A Remedial QB Audit may be scheduled by the USEPA OSRTI ASB with the Contractor(s) for any of the following reasons: unacceptable PE sample performance, unacceptable QB sample performance, and/or major change in the laboratory (e.g., relocation, new owner, or high turnover of key personnel). The Contractor shall be on Contracting Officer (CO) Hold until the Remedial QB Audit package is submitted. Sections 11.2.2 through 11.2.7 apply to the Remedial QB Audit process.

11.2.8 The Contractor shall be notified by the USEPA Contracting Officer concerning agreement or disagreement with the proposed remedy for unacceptable performance.

11.3 Performance

The Contractor shall analyze PE and QB samples with acceptable analytical results in accordance with the contractual requirements as described in this Section. Failure to meet the requirements set forth in this Section may result in disincentives as described in the contract.

12.0 ON-SITE LABORATORY QUALITY ASSURANCE (QA) MONITORING EVALUATIONS

12.1 Overview

The USEPA Regional Contract Laboratory Program Project Officer (CLP PO), the USEPA Office of Superfund Remediation and Technology Innovation (OSRTI) Analytical Services Branch Inorganic Program Manager (ASB PM), or the USEPA Contracting Officer's authorized representative will conduct an on-site laboratory evaluation. On-site laboratory evaluations are carried out to monitor the Contractor's ability to meet selected terms and conditions specified in the contract. The evaluation process incorporates two separate categories: Quality Assurance (QA) Evaluation and Evidentiary Audit.

12.2 Quality Assurance On-Site Evaluation

QA evaluators inspect the Contractor's facilities to verify the adequacy and maintenance of instrumentation; the continuity, experience and education of personnel; and the acceptable performance of analytical and Quality Control (QC) procedures for adherence to the contract requirements.

12.2.1 The Contractor shall expect that items to be monitored will include, but are not limited to, the following:

- Size, cleanliness, and organization of the facility;
- Quantity, age, availability, scheduled maintenance, and performance of instrumentation;
- Availability, appropriateness, and utilization of the Quality Assurance Plan (QAP) and Standard Operating Procedures (SOPs);
- Staff qualifications, experience, and personnel training programs;
- Analysis of Performance Evaluation (PE) sample(s);
- Reagents, standards, and sample storage facilities;
- Standard preparation logbooks, pipette calibration logbooks, balance check logbooks, and raw data;
- Bench sheets and analytical logbook maintenance and review; and
- Review of the Contractor's sample analysis/data package inspection (hardcopy and electronic)/data management procedures.

12.2.2 Prior to an on-site evaluation, various documentation pertaining to performance of the specific Contractor is integrated into a profile package for discussion during the evaluation. Items that may be included are previous on-site reports; Quarterly Blind (QB) and/or

PE sample scores results; USEPA Regional review of data; Contractor performance information provided by the Region; data audit reports; results of Contract Compliance Screening (CCS); and data trend reports.

12.3 Evidentiary Audit

Evidence auditors conduct an on-site laboratory evaluation to determine if laboratory policies and procedures are in place to satisfy evidence handling requirements as stated in Exhibit F. The evidence audit comprises a procedural audit, an audit of written SOPs, and an audit of analytical project file documentation.

12.3.1 Procedural Audit. The Contractor shall perform analysis of PE sample(s) in the presence of the USEPA-designated team during the procedural audit. The procedural audit will be comprised of everything from sample receipt to data package assembly and completion. This includes the review and examination of actual SOPs and accompanying documentation for the following laboratory operations: sample receiving, sample storage, sample identification, sample security, sample tracking (from receipt to completion of analysis), analytical project file organization and assembly, and proper disposal of samples and cogenerated wastes.

12.3.2 Written SOPs Audit. The written SOPs audit consists of the review and examination of the written SOPs to determine if they are accurate and complete for the following laboratory operations: sample receiving, sample storage, sample identification, sample security, sample tracking (from receipt to completion of analysis), and analytical project file organization and assembly.

12.3.3 Analytical Project File Evidence Audit. The analytical project file evidence audit consists of the review and examination of the analytical project file documentation. The auditors review the files to determine:

- The accuracy of the document inventory;
- The completeness of the file;
- The adequacy and accuracy of the document numbering system;
- Traceability of sample activity;
- Identification of activity recorded on the documents; and
- Error correction methods.

12.4 Discussion of the On-Site Team's Findings

The QA and evidentiary auditors discuss their findings with the USEPA Regional CLP PO prior to debriefing the Contractor. During the debriefing, the auditors present their findings and recommendations for corrective actions necessary to the Contractor personnel. A report which discusses deficiencies found during the on-site audit will be sent to the Contractor to provide further clarification of findings. In a detailed letter to the USEPA Regional CLP PO and CLP Quality Assurance Coordinator, the Contractor shall discuss the deficiencies and the subsequent corrective actions implemented by the Contractor to resolve the deficiencies within 14 days of receipt of the report or the on-site laboratory evaluation.

12.4.1 If new SOPs are required to be written, or if existing SOPs are required to be rewritten or amended because of the deficiencies and the subsequent corrective action implemented by the Contractor, the Contractor shall write/amend the SOPs per the requirements listed in Exhibit E, Section 6.

12.5 Performance

The Contractor shall submit to on-site evaluations, as specified within this Section. The on-site evaluations ensure that the policies and procedures identified in this Statement of Work (SOW) meet the requirements of this contract. Failure to meet the requirements set forth in this Section may result in disincentives as described in the contract.

13.0 ELECTRONIC DATA QUALITY ASSURANCE (QA) MONITORING AUDITS

13.1 Overview

Periodically, USEPA requests the instrument electronic data from Contractors for a specific Case in order to accomplish electronic data audits. Generally, electronic data submissions and audits are requested for the following reasons:

- Program overview;
- Indication of data quality problems;
- Support for on-site audits; and
- Specific USEPA Regional requests.

13.1.1 Depending upon the reason for an audit, the instrument electronic data from a recent Case, a specific Case, or a laboratory evaluation sample may be requested. Electronic data audits provide a mechanism to assess adherence to contractual requirements and to ensure the consistency of data reported on the hardcopy/electronic deliverables with that generated on analytical instruments. This function provides external monitoring of Program Quality Control (QC) requirements and checks adherence of the Contractor to internal Quality Assurance (QA) procedures. In addition, electronic data audits enable USEPA to evaluate the utility, precision, and accuracy of the analytical methods.

13.1.2 The Contractor shall store all raw and processed electronic analytical data in the appropriate instrument manufacturer's format, uncompressed, and with no security codes. The data shall include all necessary data files for a complete reconstruction of the previously submitted hardcopy and electronic deliverable data package. All associated raw data files in the instrument manufacturer proprietary software format must be submitted if those files contain data or instrumental parameters regarding any analysis and or correction applied to an instrument or analytical result. This instrument electronic data shall include data for all samples and all QC samples, including but not limited to: blanks, matrix spikes, post-digestion spikes, analytical spikes, duplicates, serial dilutions, Laboratory Control Samples (LCSs), Interference Check Samples (ICSs), tunes, initial calibrations and verifications, and Continuing Calibration Verifications (CCVs). In addition, the Contractor shall supply raw data for the Method Detection Limit (MDL) studies which are used to set the MDL values for the year in which the Sample Delivery Group (SDG) was analyzed. The Contractor

shall maintain a reference logbook of data files of EPA sample number, calibration data, standards, blanks, spikes, and duplicates. The logbook shall include EPA sample numbers, identified by Case and SDG.

13.1.3 The Contractor is required to retain the instrument electronic data for 3 years after submission of the reconciled Complete SDG File (CSF). Electronic media shipped to the USEPA designated recipient must be fully usable by the recipient. Compact Discs (CDs) or DVDs may be used. Alternative means for delivery of electronic data may be utilized by the Contractor upon prior written approval by USEPA. When submitting electronic instrument data to USEPA, the following materials shall be delivered in response to the request:

13.1.3.1 All associated raw data files for all analytical samples and all QC samples. For example, files for ICP should include raw or background corrected intensities, and mercury and cyanide files should include raw absorbances or integrated areas.

13.1.3.2 All processed data files and quantitation output files associated with the raw data files described in Section 13.1.3.1.

13.1.3.3 All associated identification and calculation files used to generate the data submitted in the data package. This includes, but is not limited to, result files, acquisition files, calibration files, and method files.

13.1.3.4 All Contractor-generated Inductively Coupled Plasma - Atomic Emission Spectrometer (ICP-AES)/ICP - Mass Spectrometer (ICP-MS) interference correction files must be submitted.

13.1.3.5 A copy of the Contractor’s reference logbook relating data files to EPA sample number, calibration data, standards, blanks, spikes, and duplicates. The logbook shall include EPA sample numbers and laboratory file identifiers for all samples, blanks, and standards, identified by Case and SDG.

13.1.3.6 A printout of the directory of all files in each directory, including all subdirectories and the files contained therein.

13.1.3.7 A copy (hardcopy) of the completed CSF.

13.1.3.8 A statement attesting to the completeness of the electronic instrument data submission signed and dated by the Contractor’s laboratory manager. The Contractor shall also provide a statement attesting that the data reported have not been altered in any way. These statements shall be part of a Cover Sheet that includes the following information relevant to the data submission:

- Contractor name;
- Date of submission;
- Case number;
- SDG number;
- Instrument make and model number for each instrument;
- Instrument operating software name and version number;
- Data software name and version used for acquisition, re-quantitation, and hardcopy/report generation;
- Data system computer;

- System operating software;
- Data system network;
- Data backup software;
- Data backup hardware;
- Media type and volume of data (in MB) backed up; and
- Names and telephone numbers of two Contractor contacts for further information regarding the submission.

13.2 Submission of the Instrument Electronic Data

Upon request of the USEPA Regional Contract Laboratory Program Project Officer (CLP PO), the Contractor shall send the required instrument electronic data and all necessary documentation to the USEPA designated recipient [e.g., Quality Assurance Technical Support (QATS)] within 7 days of notification.

NOTE: The instrument electronic data shall be shipped according to the procedures in Exhibit F.

13.3 Responding to the Electronic Data Audit Report

After completion of the electronic data audit, USEPA will send a copy of the electronic data audit report to the Contractor or may discuss the electronic data audit report at an on-site laboratory evaluation. In a detailed letter to the USEPA Regional CLP PO, the Contractor shall discuss the corrective actions implemented to resolve the deficiencies listed in the electronic data audit report within 14 days of receipt of the report or the on-site laboratory evaluation.

13.3.1 If new Standard Operating Procedures (SOPs) are required to be written or SOPs are required to be amended because of the deficiencies and the subsequent corrective action implemented by the Contractor, the Contractor shall write/amend and submit the SOPs per the requirements listed in Exhibit E, Section 6.

13.4 Performance

The Contractor shall submit to electronic data audits and adhere to the requirements specified in this Section. Resubmission and correction of electronic data will ensure that the end user is reviewing contractually compliant data described in the ISM01.2 contract. Failure to meet the requirements set forth in this Section may result in disincentives as described in the contract.

14.0 DATA MANAGEMENT PERFORMANCE REQUIREMENTS

14.1 Overview

14.1.1 Data management procedures are defined as procedures specifying the acquisition or entry, update, correction, deletion, storage, and security of computer readable data and files. These procedures shall be in written form and contain a clear definition for all databases and files used to generate or resubmit deliverables. Key areas of concern include system organization (including personnel and security), documentation operations, traceability, and Quality Control (QC).

14.1.2 Data manually entered from hardcopy shall be subject to QC checks and the error rates estimated. Systems should prevent entry of incorrect or out-of-range data and alert data entry personnel of errors. In addition, data entry error rates shall be estimated and recorded on a monthly basis by re-entering a statistical sample of the data entered and calculating discrepancy rates by data element.

14.2 Documenting Data Changes

The record of changes in the form of corrections and updates to data originally generated, submitted, and/or resubmitted shall be documented to allow traceability of updates. Documentation shall include the following for each change:

- Justification or rationale for the change.
- Initials of the person making the change(s). Data changes shall be implemented and reviewed by a person or group independent of the source generating the deliverable.
- Documentation of changes shall be retained according to the schedule of the original deliverable.
- Resubmitted electronic data or other deliverables shall be re-inspected as a part of the laboratory's internal inspection process prior to resubmission. The entire deliverable, not just the changes, shall be inspected.
- The Laboratory Manager shall approve changes to originally submitted deliverables.
- Documentation of data changes may be requested by laboratory auditors.

14.3 Lifecycle Management Procedures

Lifecycle management procedures shall be applied to computer software systems developed by the Contractor to be used to generate and edit contract deliverables. Such systems shall be thoroughly tested and documented prior to utilization.

14.3.1 A software test and acceptance plan including test requirements, test results, and acceptance criteria shall be developed, followed, and available in written form.

14.3.2 System changes shall not be made directly to production systems generating deliverables. Changes shall be made first to a development system and tested prior to implementation.

14.3.3 Each version of the production system will be given an identification number, date of installation, and date of last operation and will be archived.

14.3.4 System and operations documentation shall be developed and maintained for each system. Documentation shall include a user's manual and an operations and maintenance manual.

14.3.5 This documentation shall be available for on-site review and/or upon written request by the USEPA Regional Contract Laboratory Program Project Officer (CLP PO) or the USEPA Office of Superfund Remediation and Technology Innovation (OSRTI) Analytical Services Branch (ASB) Inorganic Program Manager (ASB PM).

14.4 Personnel Responsibilities

Individual(s) responsible for the following functions shall be identified.

- System operation and maintenance including documentation and training.
- Database integrity, including data entry, data updating, and QC.
- Data and system security, backup, and archiving.

15.0 TABLES

TABLE 1. Contract Laboratory Program Quality Assurance Monitoring Plan

SOW Reference	Performance Requirements	Performance Standards	QA Monitoring Plan
Exhibit A: Summary of Requirements	Summary of Program Requirements	Performance standards are summarized in Exhibit A, Sections 1.0 through 4.0.	QA monitoring plan is outlined in Exhibit E.
Exhibit B: Reporting and Deliverables Requirements	Reporting and Deliverable Requirements	Performance standards are outlined in Exhibit B, Sections 1.0 through 4.0.	CCS in Exhibit E, Section 7.0, and SMO data review will be used to monitor reporting electronic deliverables.
Exhibit C: Inorganic Target Analyte List with Contract Required Quantitation Limits	Target Analyte List with Contract Required Quantitation Limits	Performance standards are outlined in Exhibit C, Section 1.0.	QA monitoring plan is outlined in Exhibit E.
Exhibit D: Analytical Methods	ICP-AES requirements are outlined in Exhibit D, Part A, Sections 1.0 through 8.0, 14.0, and 15.0.	Performance standards are outlined in Exhibit D, Part A, Sections 9.0 through 11.0.	QA monitoring plan is outlined in Exhibit D, Part A, Section 12.0, and Exhibit E.
	ICP-MS requirements are outlined in Exhibit D, Part B, Sections 1.0 through 8.0, 14.0, and 15.0.	Performance standards are outlined in Exhibit D, Part B, Sections 9.0 through 11.0.	QA monitoring plan is outlined in Exhibit D, Part B, Section 12.0, and Exhibit E.
	Mercury requirements are outlined in Exhibit D, Part C, Sections 1.0 through 8.0, 14.0 and 15.0.	Performance standards are outlined in Exhibit D, Part C, Sections 9.0 through 11.0.	QA monitoring plan is outlined in Exhibit D, Part C, Section 12.0, and Exhibit E.
	Cyanide requirements are outlined in Exhibit D, Part D, Sections 1.0 through 8.0, 14.0, and 15.0.	Performance standards are outlined in Exhibit D, Part D, Sections 9.0 through 11.0.	QA monitoring plan is outlined in Exhibit D, Part D, Section 12.0, and Exhibit E.

SOW Reference	Performance Requirements	Performance Standards	QA Monitoring Plan
Exhibit E: Contract Laboratory Program Quality Assurance Monitoring Plan	General QA/QC Requirements	As outlined in Exhibit D, Quality Control Sections.	QA Management Plan is outlined in Exhibit E, Section 5.0.
	Quality Assurance Plan (QAP)	As outlined in Exhibit E, Sections 5.1.1 and 5.1.2, a written QAP shall be used to ensure acceptable data production of known and documented quality.	USEPA will review and approve the QA Management Plan.
	Standard Operating Procedures	Performance standards are outlined in Exhibit E, Sections 6.0 through 6.4, and must be performed as stated.	SOPs will be reviewed by USEPA during Pre-Award, on-site audits, after modifications are made, and randomly, as deemed appropriate.
	Contract Compliance Screening	Performance standards are outlined in the contract and must be performed as stated.	The Complete Sample Delivery Group (SDG) File (CSF) will be evaluated against the technical and completeness requirements of the contract.
	Analytical Standards	Performance standards are outlined in Exhibit E, Sections 8.0 through 8.5, and must be performed as stated.	Randomly, USEPA will review analytical standards verification and preparation documentation, as deemed appropriate.
	Data Package Audits	Performance standards are outlined in Exhibit E, Sections 9.0 through 9.2.	Data package audits are performed by USEPA to evaluate technical quality of the hardcopy raw data, QA, and adherence to contractual requirements.
	Regional Data Review	Analytical data is reviewed by each Region from the perspective of the end user to determine the usability of the data, as outlined in Exhibit E, Section 10.0.	USEPA Regional validation and/or SMO data review reports are generated for all data packages.

SOW Reference	Performance Requirements	Performance Standards	QA Monitoring Plan
Exhibit E: Contract Laboratory Program Quality Assurance Monitoring Plan (Con't)	Proficiency Testing	Performance standards are outlined in Exhibit E, Sections 11.0 through 11.2, and must be performed as stated.	Acceptable QB scores will assist in monitoring contractor performance as defined in Exhibit E, Sections 11.2.4.1 through 11.2.4.3, and 11.2.8.
	On-Site Laboratory Evaluations	Performance standards are outlined in Exhibit E, Sections 12.0 through 12.4.	USEPA will evaluate the results from quality assurance and evidentiary on-site audits as defined in Exhibit E, Sections 12.2.1 through 12.3.3, to assist in monitoring the contractor.
	Electronic Data Audits	Performance standards are outlined in Exhibit E, Sections 13.0 through 13.3.	CCS in Exhibit E, Section 7.0, will be used to monitor electronic deliverables.
	Data Management	Performance standards are outlined in Exhibit E, Sections 14.0 through 14.4, and must be performed as stated.	USEPA will monitor data management practices during quality assurance and evidentiary on-site audits.
Exhibit F: Chain-of-Custody, Document Control, and Written Standard Operating Procedures	Standard Operating Procedures	Performance standards are outlined in Exhibit F, Sections 2.0 through 2.7.	SOPs will be reviewed by USEPA during Pre-Award, on-site audits, after modifications are made, and randomly as deemed appropriate.
	Written Standard Operating Procedures	Performance standards are outlined in Exhibit F, Sections 3.0 through 3.7.	SOPs will be reviewed by USEPA during Pre-Award, on-site audits, after modifications are made, and randomly as deemed appropriate.
Exhibit G: Glossary of Terms	Glossary of Terms	Contractors shall adhere to interpretation of SOW terms as defined within Exhibit G.	N/A
Exhibit H: Format for Electronic Data Deliverables	Data Dictionary and Format	Performance standards are outlined in Exhibit H.	CCS in Exhibit E, Section 7.0, will be used to monitor electronic deliverables.

EXHIBIT F

CHAIN-OF-CUSTODY, DOCUMENT CONTROL, AND WRITTEN STANDARD OPERATING PROCEDURES

Exhibit F – Chain-of-Custody, Document Control, and
Written Standard Operating Procedures

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1.0 INTRODUCTION

A sample is physical evidence collected from a facility or from the environment. Controlling evidence is an essential part of the hazardous waste investigation effort. To ensure that U.S. Environmental Protection Agency's (USEPA's) sample data and records supporting sample-related activities are admissible and have weight as evidence in future litigation, Contractors are required to maintain USEPA samples under chain-of-custody and to account for all samples and supporting records of sample handling, preparation, and analysis. Contractors shall maintain sample identity, sample custody, and all sample-related records according to the requirements in this Exhibit.

1.1 Purpose of Evidence Requirements

The purpose of the evidence requirements includes:

- Ensuring traceability of samples while in possession of the Contractor;
- Ensuring custody of samples while in possession of the Contractor;
- Ensuring the integrity of sample identity while in possession of the Contractor;
- Ensuring sample-related activities are recorded on documents or in other formats for USEPA sample receipt, storage, preparation, analysis, and disposal;
- Ensuring that all laboratory records for each specified Sample Delivery Group will be accounted for when the project is completed; and
- Ensuring that all laboratory records directly related to USEPA samples are assembled and delivered to USEPA or, prior to delivery, are available upon USEPA's request.

2.0 STANDARD OPERATING PROCEDURES

The Contractor shall implement the following Standard Operating Procedures (SOPs) for sample receiving, sample identification, sample security, sample storage, sample tracking and document control, computer-resident sample data control, and Complete Sample Delivery Group (SDG) File (CSF) organization and assembly to ensure accountability of USEPA sample chain-of-custody as well as control of all USEPA sample-related records.

2.1 Sample Receiving

2.1.1 The Contractor shall designate a sample custodian responsible for receiving USEPA samples.

2.1.2 The Contractor shall designate a representative to receive USEPA samples in the event that the sample custodian is not available.

2.1.3 Upon receipt, the condition of shipping containers and sample containers shall be inspected and recorded on Form DC-1 by the sample custodian or a designated representative.

2.1.4 Upon receipt, the condition of the custody seals (intact/broken) shall be inspected and recorded on Form DC-1 by the sample custodian or a designated representative.

2.1.5 The sample custodian or a designated representative shall verify and record on Form DC-1 the agreement or disagreement of information recorded on all documents received with samples and information recorded on sample containers.

2.1.6 The sample custodian or a designated representative shall verify and record the following information on Form DC-1 as samples are received and inspected:

- Presence or absence and condition of custody seals on shipping and/or sample containers;
- Custody seal numbers when present;
- Presence or absence of Traffic Reports/Chain of Custody Records or Packing Lists;
- Presence or absence of airbills or airbill stickers;
- Airbill or airbill sticker numbers;
- Presence or absence of sample tags;
- Sample tags listed/not listed on Traffic Reports/Chain of Custody Records;
- Condition of the sample bottles;
- Presence or absence of cooler temperature indicator bottle;
- Cooler temperature;
- Date of receipt;
- Time of receipt;
- EPA sample numbers;
- pH of all aqueous/water samples;
- Sample tag numbers;
- Assigned laboratory numbers;
- Remarks regarding condition of sample shipment, etc.;
- Samples delivered by hand; and
- Problems and discrepancies.

2.1.7 The sample custodian or a designated representative shall sign, date, and record the time on all accompanying forms, when applicable, at the time of sample receipt (e.g., Traffic Reports/Chain of Custody Records or packing lists, and airbills).

NOTE: Initials are not acceptable.

2.1.8 The Contractor shall contact the Sample Management Office (SMO) to: resolve problems and discrepancies including, but not limited to: absent documents; conflicting information; absent or broken custody seals; insufficient sample volume; unsatisfactory sample condition (e.g., leaking sample container); and samples not preserved to the proper pH.

2.1.9 The Contractor shall record the resolution of all problems and discrepancies communicated through SMO.

2.2 Sample Identification

2.2.1 The Contractor shall maintain the identity of USEPA samples and prepared samples (including extracted samples, digested samples, and distilled samples) throughout the laboratory.

2.2.2 Each sample and sample preparation container shall be labeled with the EPA sample number or a unique laboratory sample identification number.

2.3 Sample Security

2.3.1 The Contractor shall demonstrate that USEPA sample custody is maintained from receiving through retention or disposal. A sample is in custody if:

- It is in your possession; or
- It is in your view after being in your possession; or
- It is locked in a secure area after being in your possession; or
- It is in a designated secure area. (Secure areas shall be accessible only to authorized personnel.)

2.3.2 The Contractor shall demonstrate security of designated secure areas.

2.3.3 The Contractor shall demonstrate the capability to track sample location and transfers within the laboratory facility.

2.4 Sample Storage

The Contractor shall designate storage areas for USEPA samples and prepared samples.

2.5 Sample Tracking and Document Control

2.5.1 The Contractor shall record all activities performed on USEPA samples.

2.5.2 Titles which identify the activities recorded shall be printed on each page of all laboratory documents. (Activities include, but are not limited to: sample receipt; sample storage; sample preparation, and sample analysis.) When a document is a record of analysis, the instrument type and parameter group [e.g., Inductively Coupled Plasma-Atomic Emission Spectrometer (ICP-AES) (metals)] shall be included in the title.

2.5.3 Reviewers' signatures shall be identified on laboratory documents when reviews are conducted.

NOTE: Individuals recording review comments on computer-generated raw data are not required to be identified unless the written comments address data validity.

2.5.4 The laboratory name shall be identified on preprinted laboratory documents.

2.5.5 Each laboratory document entry shall be dated with the month/day/year (e.g., 01/01/2007) and signed by the individual(s) responsible for performing the recorded activity at the time the activity is recorded.

2.5.6 Notations on laboratory documents shall be recorded in ink.

2.5.7 Corrections to laboratory data reporting forms and raw data shall be made by drawing single lines through the errors and entering the correct information. Information shall not be obliterated or rendered unreadable. Corrections and additions to information shall be signed (or initialed) and dated.

2.5.8 Unused portions of laboratory documents shall be lined-out, signed (or initialed), and dated.

2.5.9 Pages in bound and unbound logbooks shall be sequentially numbered.

2.5.10 Instrument-specific run logs shall be maintained to enable the reconstruction of run sequences.

2.5.11 Logbook entries shall be in chronological order.

2.5.12 Logbook entries shall include only one SDG per page, except in the events where SDGs "share" Quality Control (QC) samples (e.g., instrument run logs and extraction logs).

2.5.13 Each page in bound and unbound logbooks shall be dated (month/day/year) and signed (no initials) at the bottom by the individual recording the activity (if a single entry is made on a page) or by the last individual recording information on the page (if multiple entries are on the same page).

2.5.14 Information inserted into laboratory documents shall be affixed permanently in place. The individual responsible for inserting information shall sign and date across the insert and logbook page at the time information is inserted.

2.5.15 The Contractor shall document disposal or retention of USEPA samples, remaining portions of samples, and prepared samples.

2.6 Computer-Resident Sample Data Control

2.6.1 Contractor personnel responsible for original data entry shall be identified at the time of data input.

2.6.2 The Contractor shall make changes to electronic data in a manner which ensures that the original data entry is preserved, the editor is identified, and the revision date is recorded.

2.6.3 The Contractor shall routinely verify the accuracy of manually entered data, electronically entered data, and data acquired from instruments.

2.6.4 The Contractor shall routinely verify documents produced by the electronic data collection system to ensure accuracy of the information reported.

2.6.5 The Contractor shall ensure that the electronic data collection system is secure.

2.6.5.1 The electronic data collection system shall be maintained in a secure location.

2.6.5.2 Access to the electronic data collection system functions shall be limited to authorized personnel through utilization of software security techniques (e.g., log-ons or restricted passwords).

2.6.5.3 Electronic data collection systems shall be protected from the introduction of external programs or software (e.g., viruses).

2.6.6 The Contractor shall designate archive storage areas for electronic data and the software required to access the data.

2.6.7 The Contractor shall designate an individual responsible for maintaining archives of electronic data including the software.

2.6.8 The Contractor shall maintain the archives of electronic data and necessary software in a secure location. (Secure areas shall be accessible only to authorized personnel.)

2.7 Complete SDG File (CSF) Organization and Assembly

2.7.1 The Contractor shall designate a document control officer responsible for the organization and assembly of the CSF.

2.7.2 The Contractor shall designate a representative responsible for the organization and assembly of the CSF in the event that the document control officer is not available.

2.7.3 The Contractor shall maintain documents relating to the CSF in a secure location.

2.7.4 All original laboratory forms and copies of SDG-related logbook pages shall be included in the CSF.

2.7.5 Copies of laboratory documents in the CSF shall be photocopied in a manner to provide complete and legible replicates.

2.7.6 Documents relevant to each SDG including, but not limited to, the following shall be included in the CSF for Stage 2b deliverables:

- logbook pages;
- bench sheets;
- receiving records;
- airbill receipts;
- sample condition at receipt (pH, temperature, physical);
- screening records;
- preparation records;
- repreparation records;
- sample storage;
- sample temperature;
- storage temperature records;
- analytical records;
- reanalysis records;
- records of failed or attempted analysis;
- custody records;
- sample tracking records;
- raw data summaries;
- computer printouts;
- correspondence;
- FAX originals;
- library search results; and
- other.

2.7.7 The document control officer or a designated representative shall ensure that sample tags are encased in clear plastic bags before placing them in the CSF.

2.7.8 CSF documents shall be organized and assembled on an SDG-specific basis.

2.7.9 Original documents which include information relating to more than one SDG (e.g., Traffic Reports/Chain of Custody Records, calibration logs) shall be filed in the CSF of the lowest SDG number, and copies of these originals shall be placed in the other CSF(s). The document control officer or a designated representative shall record the following statement on the copies in (indelible) dark ink:

COPY
ORIGINAL DOCUMENTS ARE INCLUDED IN CSF _____

_____
Signature

_____
Date

2.7.10 All CSFs shall be submitted with a completed Form DC-2. All resubmitted CSFs shall be submitted with a new or revised Form DC-2.

2.7.11 Each item in the CSF and resubmitted CSFs shall be inventoried and assembled in the order specified on Form DC-2. Each page of the CSF shall be stamped with a sequential number. Page number ranges shall be recorded in the columns provided on Form DC-2. Intentional gaps in the page numbering sequence shall be recorded in the "Comments" section on Form DC-2. When inserting new or inadvertently omitted documents, the Contractor shall identify them with unique accountable numbers. The unique accountable numbers and the locations of the documents shall be recorded in the "Other Records" section on Form DC-2.

2.7.12 Before shipping each CSF, the document control officer or a designated representative shall verify the agreement of information recorded on all documentation and ensure that the information is consistent and the CSF is complete.

2.7.13 The document control officer or a designated representative shall document the shipment of deliverable packages including what was sent, to whom, the date, and the carrier used.

2.7.14 Shipments of deliverable packages, including resubmittals, shall be sealed with custody seals by the document control officer or a designated representative in a manner such that opening the packages would break the seals.

2.7.15 Custody seals shall be signed and dated by the document control officer or a designated representative when sealing deliverable packages.

3.0 WRITTEN STANDARD OPERATING PROCEDURES

The Contractor shall develop and implement the following written Standard Operating Procedures (SOPs) for sample receiving, sample identification, sample security, sample storage, sample tracking and document control, computer-resident sample data control, and Complete Sample Delivery Group (SDG) File (CSF) organization and assembly to ensure accountability for USEPA sample chain-of-custody and control of all USEPA sample-related records.

3.1 Sample Receiving

3.1.1 The Contractor shall have written SOPs for sample receiving which accurately reflect the procedures used by the laboratory.

3.1.2 The written SOPs for sample receiving shall ensure that the procedures listed below are in use at the laboratory.

3.1.2.1 The condition of shipping containers and sample containers are inspected and recorded on Form DC-1 upon receipt by the sample custodian or a designated representative.

3.1.2.2 The condition of custody seals are inspected and recorded on Form DC-1 upon receipt by the sample custodian or a designated representative.

3.1.2.3 The presence or absence of the following documents/items accompanying the sample shipment is verified and recorded on Form DC-1 by the sample custodian or a designated representative:

- Custody seals;
- Traffic Reports/Chain of Custody Records or Packing Lists;
- Airbills or airbill stickers;
- Sample tags; and
- Cooler temperature indicator bottle.

3.1.2.4 The agreement or disagreement of information recorded on shipping documents with information recorded on sample containers is verified and recorded on Form DC-1 by the sample custodian or a designated representative.

3.1.2.5 The following information is recorded on Form DC-1 by the sample custodian or a designated representative as samples are received and inspected:

- Custody seal numbers, when present;
- Airbill or airbill sticker numbers;
- Sample tag numbers listed/not listed on Traffic Reports/Chain of Custody Records;
- Condition of sample bottles;
- Cooler temperature;
- Date of receipt;
- Time of receipt;
- EPA sample numbers;

- pH of all aqueous/water samples;
- Sample tag numbers;
- Assigned laboratory numbers;
- Remarks regarding condition of sample shipment, etc.;
- Samples delivered by hand; and
- Problems and discrepancies.

3.1.2.6 All accompanying forms are signed, dated, and the time is recorded, when applicable, at the time of sample receipt (e.g., Traffic Reports/Chain of Custody Records or packing lists, and airbills) by the sample custodian or a designated representative.

3.1.2.7 The Sample Management Office (SMO) is contacted to resolve problems and discrepancies including, but not limited to: absent documents; conflicting information; absent or broken custody seals; insufficient sample volume; unsatisfactory sample condition (e.g., leaking sample container); and samples not preserved to the proper pH.

3.1.2.8 The resolution of all problems and discrepancies communicated through SMO is recorded.

3.2 Sample Identification

3.2.1 The Contractor shall have written SOPs for sample identification which accurately reflect the procedures used by the laboratory.

3.2.2 The written SOPs for sample identification shall ensure that the procedures listed below are in use at the laboratory.

3.2.2.1 The identity of USEPA samples and prepared samples is maintained throughout the laboratory when:

- The Contractor assigns unique laboratory sample identification numbers, the written SOPs shall include a description of the procedure used to assign these numbers;
- The Contractor uses prefixes or suffixes in addition to laboratory sample identification numbers, the written SOPs shall include their definitions; and
- The Contractor uses methods to uniquely identify fractions/parameter groups and matrix type, the written SOPs shall include a description of these methods.

3.2.2.2 Each sample and sample preparation container is labeled with the EPA Sample Number, or a unique laboratory sample identification number.

3.3 Sample Security

3.3.1 The Contractor shall have written SOPs for sample security which accurately reflect the procedures used by the laboratory.

3.3.2 The written SOPs for sample security shall include the items listed below.

3.3.2.1 Procedures which ensure the following:

- Sample custody is maintained; and

- The security of designated secure areas is maintained.

3.3.2.2 A list of authorized personnel who have access to locked storage areas.

3.4 Sample Storage

3.4.1 The Contractor shall have written SOPs for sample storage which accurately reflect the procedures used by the laboratory.

3.4.2 The written SOPs for sample storage shall describe the locations, contents, and identities of all storage areas for USEPA samples and prepared samples in the laboratory.

3.5 Sample Tracking and Document Control

3.5.1 The Contractor shall have written SOPs for sample tracking and document control which accurately reflect the procedures used by the laboratory.

3.5.2 The written SOPs for sample tracking and document control shall include the items listed below.

3.5.2.1 Examples of all laboratory documents used during sample receiving, sample storage, sample transfer, sample analyses, CSF organization and assembly, and sample retention or disposal.

3.5.2.2 Procedures which ensure the following:

- All activities performed on USEPA samples are recorded;
- Titles which identify the activities recorded are printed on each page of all laboratory documents;
- Information recorded in columns is identified with column headings;
- Reviewers' signatures are identified on laboratory documents;
- The laboratory name is included on preprinted laboratory documents;
- Laboratory document entries are signed and dated with the month/day/year (e.g., 01/01/2007);
- Entries on all laboratory documents are recorded in ink;
- Corrections and additions to laboratory documents are made by drawing single lines through the errors, entering the correct information, and initialing and dating the new information;
- Unused portions of laboratory documents are lined-out, signed (or initialed), and dated;
- Pages in bound and unbound logbooks are sequentially numbered;
- Instrument-specific run logs are maintained to enable the reconstruction of run sequences;
- Logbook entries are recorded in chronological order;
- Entries are recorded for only one SDG on a page, except in the event where SDGs "share" Quality Control (QC) samples (e.g., instrument run logs and extraction logs);

- Each page in bound and unbound logbooks shall be dated (month/day/year) and signed (no initials) at the bottom by the individual recording the activity (if a single entry is made on a page) or by the last individual recording information on the page (if multiple entries are on the same page);
- Information inserted in laboratory documents is affixed permanently, signed, and dated across the insert; and
- The retention or disposal of USEPA samples, remaining portions of samples, and prepared samples is documented.

3.6 Computer-Resident Sample Data Control

3.6.1 The Contractor shall have written SOPs for computer-resident sample data control which accurately reflect the procedures used by the laboratory.

3.6.2 The written SOPs for computer-resident sample data control shall include the items listed below.

3.6.2.1 Procedures which ensure the following:

- Contractor personnel responsible for original data entry are identified;
- Changes to electronic data are made such that the original data entry is preserved, the editor is identified, and the revision date is recorded;
- The accuracy of manually entered data, electronically entered data, and data acquired from instruments is verified;
- Report documents produced by the electronic data collection system are routinely verified to ensure the accuracy of the information reported;
- Electronic data collection system security is maintained;
- Archives of electronic data and accompanying software are maintained in a secure location; and
- Off-site backup and storage of electronic data is maintained.

3.6.2.2 Descriptions of archive storage areas for the electronic data and the software required to access data archives.

3.6.2.3 A list of authorized personnel who have access to electronic data collection system functions and to archived data.

3.7 CSF Organization and Assembly

3.7.1 The Contractor shall have written SOPs for CSF organization and assembly which accurately reflect the procedures used by the laboratory.

3.7.2 The written SOPs for CSF organization and assembly shall ensure that the procedures listed below are in use at the laboratory.

- Documents relating to the CSF are maintained in a secure location.
- All original laboratory forms and copies of SDG-related logbook pages are included in the CSF.

- Laboratory documents are photocopied in a manner to provide complete and legible replicates.
- All documents relevant to each SDG are included in the CSF.
- Sample tags are encased in clear plastic bags by the document control officer or a designated representative before placing them in the CSF.
- The CSF is organized and assembled on an SDG-specific basis.
- Original documents which contain information relating to more than one SDG are filed in the CSF of the lowest SDG and copies are referenced to originals in the event that an original document contains information relating to more than one SDG.
- Each CSF is submitted with a completed Form DC-2, and resubmitted CSFs are submitted with a new or revised Form DC-2.
- Each page of the CSF is stamped with a sequential number and the page number ranges are recorded in the columns provided on Form DC-2. Intentional gaps in the page numbering sequence are recorded in the "Comments" section of Form DC-2. Inserted documents are recorded in the "Other Records" section of Form DC-2.
- Consistency and completeness of the CSF are verified by the document control officer or a designated representative.
- Shipments of deliverable packages are documented by the document control officer or a designated representative.
- Deliverable packages are shipped by the document control officer or a designated representative using custody seals in a manner such that opening the packages would break the seals.
- Custody seals are signed and dated by the document control officer or a designated representative before placing them on deliverable packages.

EXHIBIT G

GLOSSARY OF TERMS

ABSORBANCE - A measure of the decrease in incident light passing through a sample into a detector. It is defined mathematically as:

Absorbance

$$A = -\log \frac{I}{I_O}$$

WHERE, I = Radiation intensity of a sample.
I_o = Radiation intensity of a blank.

ALIQUOT - A measured portion of a field sample, standard, or solution taken for sample preparation and/or analysis.

ANALYSIS DATE/TIME - The date and military time (24-hour clock) of the introduction of the sample, standard, or blank into the analysis system.

ANALYTE - The element or ion an analysis seeks to determine; the element of interest.

ANALYTICAL REFERENCE STANDARD - Standards purchased from private chemical supply houses used to prepare calibration standards, and Continuing Calibration Verification (CCV) standards.

ANALYTICAL SAMPLE - Any solution or media introduced into an instrument on which an analysis is performed, excluding instrument calibration, Initial Calibration Verification (ICV), Initial Calibration Blank (ICB), Continuing Calibration Verification (CCV), Continuing Calibration Blank (CCB), and tunes. Note the following are all defined as analytical samples: undiluted and diluted samples [U.S. Environmental Protection Agency (USEPA) and non-USEPA], matrix spike samples, duplicate samples, serial dilution samples, analytical spike samples, post-digestion spike samples, Interference Check Samples (ICSs), Laboratory Control Samples (LCSs), Performance Evaluation (PE) samples, Preparation Blanks, and cyanide MIDRANGE samples.

ANALYTICAL SEQUENCE - The actual instrumental analysis of the samples from the time of instrument calibration through the analysis of the final Continuing Calibration Verification (CCV) and Continuing Calibration Blank (CCB). All sample analyses during the analytical sequence are subject to the Quality Control (QC) protocols set forth in Exhibits D and E of this contract unless otherwise specified in the individual methods.

ANALYTICAL SERVICES BRANCH (ASB) - The division of the USEPA Office of Superfund Remediation and Technology Innovation (OSRTI) responsible for the overall management of the Contract Laboratory Program (CLP).

ANALYTICAL SPIKE - A spike that is fortified just prior to analysis by adding a known quantity of the analyte to an aliquot of the prepared sample. (Also called post-digestion spike).

ASTM - ASTM International. A developer and provider of voluntary consensus standards.

AUTOZERO - Zeroing the instrument at the proper wavelength. It is equivalent to running a standard blank with the absorbance set at zero.

BACKGROUND CORRECTION - A technique to compensate for variable background contribution to the instrument signal in the determination of trace elements.

BATCH - A group of samples prepared at the same time in the same location using the same method.

BLANK - An analytical sample designed to assess specific sources of contamination. See the individual definitions for types of blanks.

CALIBRATED MASS - 1) A mass whose apparent mass has been adjusted from the uncalibrated mass by the instrumental mass calibration software routine. 2) An analyte mass whose intensity counts have been calibrated against standards of known analyte concentration.

CALIBRATION - The establishment of an analytical curve based on the absorbance, emission intensity, or other measured characteristic of known standards. The calibration standards must be prepared using the same type of reagents or concentration of acids as used in the sample preparation.

CALIBRATION BLANK - A blank solution containing all of the reagents and in the same concentration as those used in the analytical sample preparation. This blank is not subjected to the preparation method for Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES) and Inductively Coupled Plasma—Mass Spectrometry (ICP-MS), but is digested for mercury and cyanide.

CALIBRATION STANDARDS - A series of known standard solutions used by the analyst for calibration of the instrument (i.e., preparation of the analytical curve). The solutions may or may not be subjected to the preparation method but contain the same matrix (i.e., the same amount of reagents and/or preservatives) as the sample preparations to be analyzed.

CASE - A finite, usually predetermined number of samples collected over a given time period from a particular site. Case numbers are assigned by the Sample Management Office (SMO). A Case consists of one or more Sample Delivery Groups (SDGs).

CONCENTRATION LEVEL (low or medium) - For inorganics analysis, low or medium level is defined by the appropriate designation by the sampler on the Traffic Report/Chain of Custody Record.

CONTAMINATION - A component of a sample or an extract that is not representative of the environmental source of the sample. Contamination may stem from other samples, sampling equipment, while in transit, from laboratory reagents laboratory environment, or analytical instruments.

CONTINUING CALIBRATION VERIFICATION (CCV) - A single parameter or multi-parameter standard solution prepared by the analyst and used to verify the stability of the instrument calibration with time, and the instrument performance during the analysis of samples. The CCV can be one of the calibration standards. However, all parameters being measured by the particular system must be represented in this standard and the standard must have the same matrix (i.e., the same amount of reagents and/or preservatives) as the samples. The CCV should have a concentration in the middle of the calibration range and shall be run at the beginning of the day prior to the analysis of samples, and every 2 hours (1 hour for mercury and cyanide).

CONTRACT COMPLIANCE SCREENING (CCS) - A screening of electronic and hardcopy data deliverables for completeness and compliance with the contract. This screening is done under USEPA direction by the Sample Management Office (SMO) Contractor.

CONTRACT LABORATORY PROGRAM (CLP) - Supports USEPA's Superfund effort by providing a range of state-of-the-art chemical analytical services of known quality. This program is directed by the Analytical Services Branch (ASB) of the Office of Superfund Remediation and Technology Innovation (OSRTI) of USEPA.

CONTRACT REQUIRED QUANTITATION LIMIT (CRQL) - Minimum level of quantitation acceptable under the contract Statement of Work (SOW).

CONTROL LIMITS - A range within which specified measurement results must fall to be compliant. Control limits may be mandatory, requiring corrective action if exceeded, or advisory, requiring that noncompliant data be flagged.

CYANIDE (Total) - Cyanide ion and complex cyanides converted to hydrocyanic acid (HCN) by reaction in a reflux system of a mineral acid in the presence of magnesium ion.

DATE - The date format for all reporting forms is MM/DD/YYYY - Where MM = 01 for January, 02 for February, ... 12 for December; DD = 01 to 31; YYYY = 2007, 2008, 2009, etc.

DAY - Unless otherwise specified, day shall mean calendar day.

DIGESTION LOG - An official record of the sample preparation (digestion or distillation).

DIRECT ANALYSIS - Analysis of a sample, standard, or blank that has not been taken through a preparation procedure (digestion or distillation).

DISSOLVED METALS - Analyte elements in an aqueous/water sample which will pass through a 0.45 micrometer (μm) filter.

DRY WEIGHT - The weight of a sample based on percent solids. The weight after drying in an oven.

DUPLICATE - A second aliquot of a sample that is treated the same as the original sample in order to determine the precision of the method.

FIELD BLANK - This is any sample that is submitted from the field and is identified as a blank. This includes trip blanks, rinsates, equipment blanks, etc.

FIELD QC - Any Quality Control (QC) sample submitted from the field to the laboratory. Examples include, but are not limited to field blanks, field duplicates, and field spikes.

FIELD SAMPLE - A portion of material received to be analyzed that is contained in single or multiple containers and identified by a unique EPA Sample Number.

HOLDING TIME - Contractual holding time is the elapsed time expressed in days from the date of receipt of the sample by the Contractor until the date of its analysis.

Holding time = (sample analysis date - sample receipt date)

INDEPENDENT STANDARD - A Contractor-prepared standard solution that is composed of analytes from a different source than those used in the standards for the calibration.

INDUCTIVELY COUPLED PLASMA-ATOMIC EMISSION SPECTROSCOPY (ICP-AES) – A technique for the simultaneous or sequential multi-element determination of elements in solution. The basis of the method is the measurement of atomic emission by an optical spectroscopic technique. Characteristic atomic line emission spectra are produced by excitation of the sample in a radio-frequency inductively coupled plasma.

INDUCTIVELY COUPLED PLASMA-MASS SPECTROMETRY (ICP-MS) - A technique for the multi-element determination of elements in solution. The basis of the technique is the detection of atomic ions produced by an ICP and sorted by mass-to-charge (m/z) ratio.

IN-HOUSE - At the Contractor's facility.

INITIAL CALIBRATION - Analysis of analytical standards for a series of different specified concentrations; used to define the quantitative response, linearity, and dynamic range of the instrument to target analytes.

INITIAL CALIBRATION VERIFICATION (ICV) - Solution(s) prepared from stock standard solutions, metals, or salts obtained from a source separate from that utilized to prepare the calibration standards. The ICV is used to verify the concentration of the calibration standards and the adequacy of the instrument calibration. The ICV should be traceable to NIST or other certified standard sources when USEPA ICV solutions are not available.

INJECTION - Introduction of the analytical sample into the instrument excitation system to measure absorbance, emission, or concentration of an analyte. May also be referred to as exposure.

INSUFFICIENT QUANTITY - When there is not enough volume (aqueous/water sample) or weight (soil/sediment) to perform any of the required operations: sample analysis, percent solids, etc. Exhibit D provides guidance for addressing this problem.

INTERFERENCE CHECK SAMPLE (ICS) - A solution containing both interfering and analyte elements of known concentration that can be used to verify background and interelement correction factors.

INTERFERENTS - Substances which affect the analysis for the element of interest.

INTERNAL STANDARD - A non-target element added to a sample at a known concentration after preparation but prior to analysis. Instrument responses to internal standards are monitored as a means of assessing overall instrument performance.

LABORATORY - Synonymous with Contractor as used herein.

LABORATORY CONTROL SAMPLE (LCS) – A sample spiked at a known concentration. LCSs are analyzed using the same sample preparation, reagents, and analytical methods employed for the U.S. Environmental Protection Agency (USEPA) samples received.

LABORATORY RECEIPT DATE - The date on which a sample is received at the Contractor's facility, as recorded on the shipper's delivery receipt and Sample Traffic Report/Chain of Custody Record. Also referred to as VTSR (Validated Time of Sample Receipt).

MATRIX - The predominant material of which the sample to be analyzed is composed. For the purpose of this Statement of Work (SOW), a sample matrix is either aqueous/water, soil/sediment, wipe, or small (e.g., 37 mm) air filter. Matrix is not synonymous with phase (liquid or solid).

MATRIX EFFECT - In general, the effect of particular matrix constituents.

MATRIX SPIKE - Aliquot of a sample (aqueous/water or soil/sediment) fortified (spiked) with known quantities of specific compounds and subjected to the entire analytical procedure to indicate the appropriateness of the method for the matrix by measuring recovery.

METHOD DETECTION LIMIT (MDL) - The concentration of a target parameter that, when a sample is processed through the complete method, produces a signal with 99 percent probability that it is different from the blank. For 7 replicates of the sample, the mean value must be 3.14s above the blank, where "s" is the standard deviation of the 7 replicates.

MONITORED MASS - A mass that counts are collected from during analysis that may be subsequently used in isobaric correction equations or for the interpretation of possible interferences in analyte mass results.

PERCENT DIFFERENCE (%D) - As used in this Statement of Work (SOW) and elsewhere to compare two values. The difference between the two values divided by one of the values.

PERCENT SOLIDS (%S) - The proportion of solid in a soil/sediment sample determined by drying an aliquot of the sample.

PERFORMANCE EVALUATION (PE) SAMPLE - A sample of known composition provided by USEPA for Contractor analysis. Used by USEPA to evaluate Contractor performance.

PREPARATION BLANK - An analytical control that contains reagent water and reagents, which is carried through the entire preparation and analytical procedure.

PREPARATION LOG - An official record of the sample preparation (digestion or distillation).

QUALITY ASSURANCE TECHNICAL SUPPORT (QATS) LABORATORY - A Contractor-operated facility operated under the QATS contract, awarded and administered by USEPA.

REAGENT WATER - The purity of this water must be equivalent to ASTM Type II reagent water of Specification D1193-06, "Standard Specification for Reagent Water".

REFERENCE MATERIAL - Standards, typically provided by USEPA, used to verify method and instrument performance. Examples include Initial Calibration Verification (ICV) standards and Interference Check Solution (ICS) standards.

RELATIVE PERCENT DIFFERENCE (RPD) - As used in this Statement of Work (SOW) and elsewhere to compare two values, the relative percent difference is based on the mean of the two values, and is reported as an absolute value (i.e., always expressed as a positive number or zero).

REPRESENTATIVE - Alternate or designee who has the knowledge and authority to perform a specific task.

ROUNDING RULES - If the figure is greater than or equal to 5, round up, otherwise round down. As an example, 11.443 is rounded down to 11.44 and 11.455 is rounded up to 11.46. If a series of multiple operations is to be performed (i.e., add, subtract, divide, multiply), all figures are carried through the calculations. Then the final answer is rounded to the proper number of significant figures. See Forms Instructions (Exhibit B) for exceptions.

RUN - A continuous analytical sequence consisting of prepared samples and all associated Quality Assurance (QA) measurements as required by the contract Statement of Work (SOW). A run begins with the instrument calibration or tune.

SAMPLE - A portion of material to be analyzed that is contained in single or multiple containers and identified by a unique sample number.

SAMPLE DELIVERY GROUP (SDG) - A unit within a sample Case that is used to identify a group of samples for delivery. An SDG is defined by the following, whichever is most frequent:

- Each 20 field samples [excluding Performance Evaluation (PE) samples] within a Case, or each 7 calendar day period (3 calendar day period for 7-day turnaround) during which field samples in a Case are received (said period beginning with the receipt of the first sample in the SDG).
- All samples scheduled with the same level of deliverables.
- In addition, all samples and/or sample fractions assigned to an SDG must have been scheduled under the same contractual turnaround time. Preliminary Results have **no impact** on defining the SDG.

Samples may be assigned to SDGs by matrix (i.e., all soil/sediment samples in one SDG, all aqueous/water samples in another) at the discretion of the laboratory. Laboratories shall take all precautions to meet the 20 sample per SDG criteria.

SAMPLE MANAGEMENT OFFICE (SMO) - A Contractor-operated facility operated under the SMO contract, awarded and administered by USEPA.

SAMPLE NUMBER (EPA SAMPLE NUMBER) - A unique identification number designated by USEPA for each sample. The EPA Sample Number appears on the Sample Traffic Report/Chain of Custody Record which documents information on that sample.

SDG NARRATIVE - Portion of the data package which includes laboratory, contract, Case, sample number identification, and descriptive documentation of any problems encountered in processing the samples, along with corrective action taken and problem resolution. Complete SDG Narrative specifications are included in Exhibit B.

SENSITIVITY - The slope of the analytical curve (i.e., functional relationship between instrument response and concentration).

SERIAL DILUTION - The dilution of a sample by a factor of five. When corrected by the dilution factor, the diluted sample must agree with the original undiluted sample within specified limits. Serial dilution may reflect the influence of interferents.

SOIL - Synonymous with soil/sediment as used herein.

SOP - Standard Operating Procedure.

SOW - Statement of Work.

STANDARD ANALYSIS - An analytical determination made with known quantities of target analytes.

STOCK SOLUTION - A standard solution which can be diluted to derive other standards.

TARGET ANALYTE LIST (TAL) - A list of Inorganic Analytes (metals and cyanide) as designated in Exhibit C.

TIME - HH:mm:ss - When required to record time on any deliverable item, time shall be expressed as Military Time [i.e., a 24-hour clock (0000-2359)].

TRAFFIC REPORT/CHAIN OF CUSTODY RECORD (TR/COC) – A USEPA sample identification form filled out by the sampler, which accompanies the sample during shipment to the laboratory and is used for documenting sample identity, sample chain-of-custody, and sample receipt by the laboratory.

TUNE - Analysis of a solution containing a range of isotope masses to establish Inductively Coupled Plasma—Mass Spectrometry (ICP-MS) accuracy, resolution, and precision prior to calibration.

USEPA OSRTI ASB INORGANIC PROGRAM MANAGER (ASB PM) – The U.S. Environmental Protection Agency (USEPA), Office of Superfund Remediation and Technology Innovation (OSRTI) Analytical Services Branch (ASB) Official who manages the Contract Laboratory Program (CLP) Inorganic Program.

USEPA REGIONAL CLP PROJECT OFFICER (CLP PO) - The Regional U.S. Environmental Protection Agency (USEPA) official responsible for monitoring laboratory performance and/or requesting analytical data or services from a Contract Laboratory Program (CLP) laboratory.

VALIDATED TIME OF SAMPLE RECEIPT (VTSR) - The date on which a sample is received at the Contractor's facility, as recorded on the shipper's delivery receipt and Traffic Report/Chain of Custody Record.

WET WEIGHT - The weight of a sample aliquot including moisture (undried).

EXHIBIT H

FORMAT FOR ELECTRONIC DATA DELIVERABLES

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1.0 FORMAT CHARACTERISTICS

1.1 This constitutes an implementation of the Staged Electronic Data Deliverable (SEDD) based on analytical results and ancillary information required by the contract. Because this implementation is specific to the contract, not all data elements listed in the cross-program Document Type Definition (DTD) are required. This implementation is based on SEDD Specification 5.2 that can be found at:

http://www.epa.gov/superfund/programs/clp/sedd.htm

1.1.1 The SEDD deliverable consists of an eXtensible Markup Language (XML) file(s) compliant with the XML specification 1.0 of the World Wide Web Consortium (W3C). The deliverable must be well-formed based on the W3C XML specification and must be valid based on the DTD.

1.1.2 The Contractor shall create the deliverable using the UTF-8 (Unicode Transformation Format - 8 bit) character set.

1.1.3 The initial line of the deliverable shall be: <?xml version="1.0" encoding="UTF-8"?>.

1.1.4 The second line of the deliverable shall be a DOCTYPE line that contains the filename of the DTD. The DOCTYPE line shall be <!DOCTYPE Header SYSTEM "SEDD_5-2_GENERAL_2b_3.dtd"> or <!DOCTYPE Header SYSTEM "SEDD_5-2_GENERAL_2a_2.dtd"> where "Header" denotes the name of the root element, and "SEDD_5-2_GENERAL_2b_3.dtd" (for a Level 2b deliverable) or "SEDD_5-2_GENERAL_2a_2.dtd" (for a Level 2a deliverable) denotes the filename of the DTD.

1.1.5 The use of XML comment lines is permitted at any position in the file after the first two lines.

1.2 This implementation includes detailed specifications for the required format of the content of each data element for each fraction. The content of each data element is specified as either literal (contained in quotes) which must appear exactly as shown (without quotes), or as a variable for which descriptions and formats are listed. Exhibit H, Section 2.0 describes requirements for each data element.

1.2.1 For this implementation, numeric data elements may contain numeric digits, a decimal place, and a leading minus sign. Values without a leading minus sign are assumed to be positive. Values must be reported to the specified precision or significance.

1.2.2 The values reported by the Contractor are used for data assessment. The Contractor shall not use rounded intermediate values in calculating the final result, and no rounding shall be performed until reaching the final result.

1.2.3 The completeness of analytical data provided in the EDD will be verified against the analytical data requested on the Traffic Report/Chain of Custody (TR/COC). The laboratory code, Case number, contract number, Sample Delivery Group (SDG) number, sample number, and fraction shall be identical in the EDD and the TR/COC and the SDG coversheet submitted by the Contractor for the SDG.

1.2.4 The following variables must be present where required and correct: QC Type; instrument ID; correlation coefficient; intercept; analysis date and time; method ID; collected date; matrix; run batch; analysis batch; analysis group ID; client analysis ID; client analyte ID; preparation batch; percent recovery; Relative Percent Difference (RPD); Percent Difference (%D), Percent Relative Standard Deviation (%RSD).

2.0 DATA ELEMENTS

2.1 The Staged Electronic Data Deliverable (SEDD) consists of data elements arranged hierarchically by data nodes (parent elements). Figures 1 and 2 depict the data node hierarchy. Each data element consists of a start tag, content, and an end tag. An element may contain other elements (child elements).

NOTE: There shall be no more than one occurrence of each child element within a node, unless the child element also behaves as a parent element. For example, in each SamplePlusMethod node, there may be only one occurrence of the element ClientSampleID, but there may be more than one occurrence of the element Analysis.

The tags, nodes, and hierarchy are specified in the Document Type Definition against which the deliverable will be validated (see Exhibit H, Section 5.0). The frequency requirements for each of the data nodes applicable to this implementation are described below.

2.1.1 Header Node (Required for All Deliverable Levels)

One Header node must be reported for each fraction.

2.1.2 SamplePlusMethod Node (Required for All Deliverable Levels)

Each Header node must contain one SamplePlusMethod node for each field sample, field blank (including rinse, equipment, and trip blanks), Performance Evaluation sample, Matrix Spike sample, any required post-digestion spike sample, Duplicate sample, Serial Dilution sample, Preparation Blank, Laboratory Control Sample, and non-client sample analyzed.

2.1.3 ReportedResult Node (Required for All Deliverables Levels)

Each SamplePlusMethod node must contain a ReportedResult node for each target analyte.

2.1.4 ContactInformation Node (Required for All Deliverable Levels)

Each Header node must contain one ContactInformation node.

2.1.5 InstrumentQC Node (Required for Level 2b Deliverables Only)

Each Header node must contain one InstrumentQC node for each instrument performance check (ICP-MS Tune), initial calibration sequence, Initial Calibration Verification (ICV), Continuing Calibration Verification (CCV), Initial Calibration Blank (ICB), Continuing Calibration Blank (CCB), and Interference Check Sample (ICSA and ICSAB).

2.1.6 AnalysisGroup Node (Required for Level 2b Deliverables Only)

Each initial calibration InstrumentQC node for multi-point calibration must contain one AnalysisGroup node containing summary data for the initial calibration. Each AnalysisGroup node must contain one Analyte node for each target analyte.

2.1.7 Analysis Node (Required for All Deliverable Levels)

Each SamplePlusMethod node must contain at least one Analysis node and each InstrumentQC node (other than Initial Calibration) must contain one Analysis node.

2.1.8 Analyte Node (Required for All Deliverable Levels)

Each Analysis node under a SamplePlusMethod node must contain one Analyte node for each target analyte, monitored interferent, and internal standard. Each Analysis node under an InstrumentQC node must contain one Analyte node for each target compound, monitored interferent, and internal standard. Each Analysis node under an InstrumentQC node for tune must contain one Analyte node for each tune analyte. Each AnalysisGroup node must contain one Analyte node for each target analyte.

2.1.9 PreparationPlusCleanup Node (Required for All Deliverable Levels)

Each Analysis node under a SamplePlusMethod node must contain one PreparationPlusCleanup node with a PreparationPlusCleanupType equal to "Preparation". For Serial Dilution and Post-Digestion Spike samples, the associated PreparationPlusCleanup node shall contain data for the preparation of the original sample. For those methods requiring digested Quality Control (QC), each InstrumentQC node must contain one PreparationPlusCleanup node with a PreparationPlusCleanupType equal to "Preparation".

2.1.10 Peak Node (Required for Level 2b Deliverables Only)

Each Analyte node under InstrumentQC must contain at least one Peak node. Within a RunBatch, a peak must be consistently identified.

2.1.11 PeakComparison Node (Required for Level 2b Deliverables Only)

For Inductively Coupled Plasma-Mass Spectrometry (ICP-MS), each Peak node under an InstrumentQC must contain a PeakComparison node for each applicable internal standard.

2.1.12 Characteristic Node (Required for All Deliverable Levels)

Each SamplePlusMethod and PreparationPlusCleanup node may contain one or more Characteristic nodes, one for each sample characteristic that must be reported for a sample at time of receipt, or after preparation.

2.1.13 Handling and AnalyteGroup Nodes

These nodes are not required for this implementation.

2.2 Detailed instructions for the content of each data element are provided in Tables 1 and 2. The following is an explanation of the data fields contained in each table.

2.2.1 Node and Data Elements

This field reports each node in bold text, followed by its data elements. If an entire node is not required, then none of its data elements are listed.

2.2.2 Applicability

This field reports the samples, blanks, and standards for which each node and data element is required. An "X" in a column indicates that the node or element is required. Sample refers to field samples, field blanks, and Performance Evaluation samples unless otherwise noted. Abbreviations used in this field are defined in Table 3.

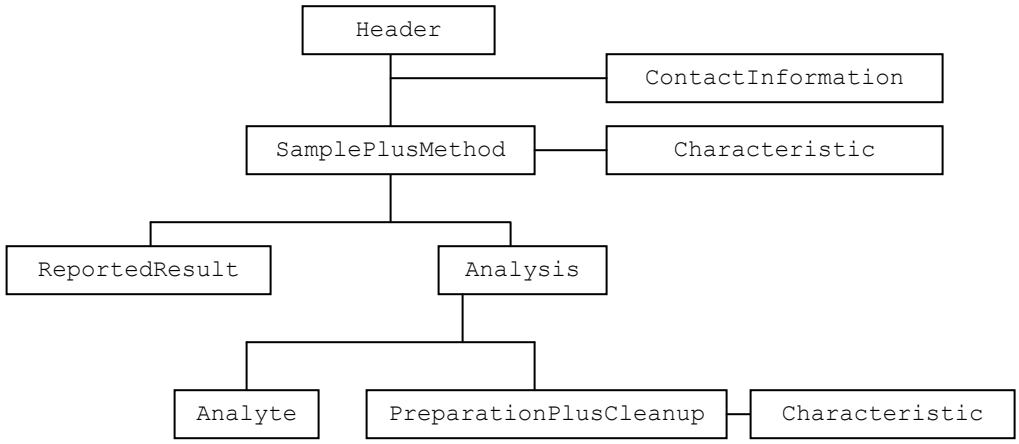

Figure 1: Data Node Hierarchy for
Level 2a Deliverable

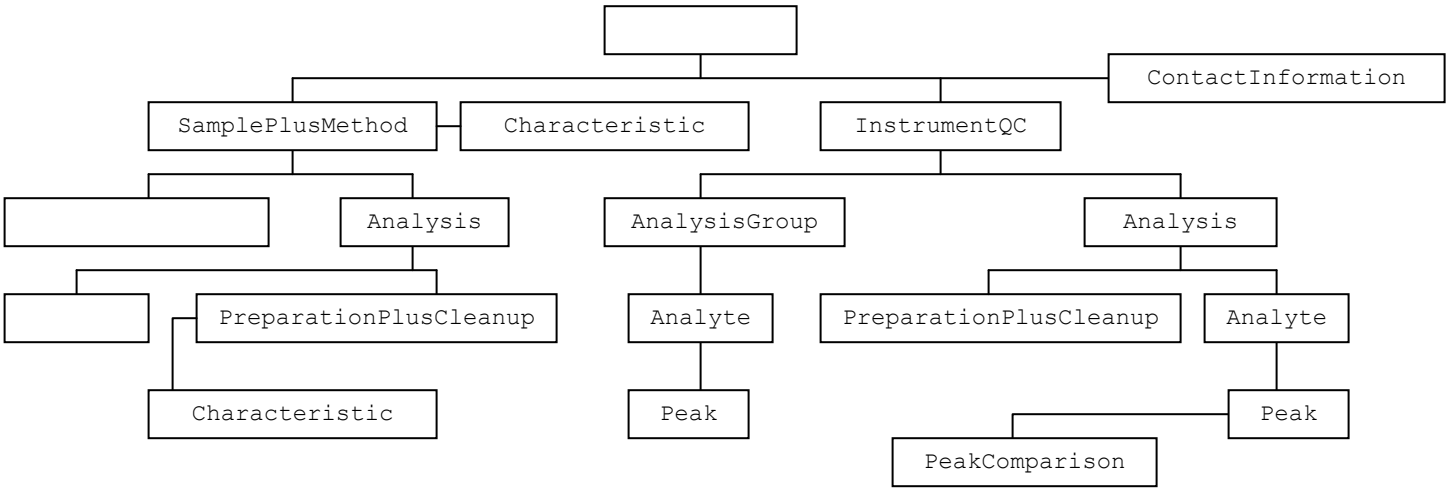

Figure 2: Data Node Hierarchy for
Level 2b Deliverable

2.2.3 Instructions

This field describes the required format and content of each data element. The content of each data element is specified as either literal (contained in quotes), or as a variable for which description and format is listed. Abbreviations used in this field are defined in Table 3.

3.0 BATCHES

3.1 This implementation requires the use of the following batches from the Staged Electronic Data Deliverable (SEDD) Specification: "LabReportingBatch"; "RunBatch"; "AnalysisBatch"; and "PreparationBatch".

3.1.1 The "LabReportingBatch" links all samples reported in the same Sample Delivery Group (SDG). Report the SDG Number.

3.1.2 The "RunBatch" links all analyses performed under the same initial calibration. All analyses performed under an initial calibration must have the same content for the "RunBatch" element as the initial calibration from which their results are calculated.

3.1.3 The "AnalysisBatch" and "AnalysisBatchEnd" link all analyses performed within the same analytical sequence [1- or 2-hour period and Quality Control (QC)]. All analyses performed within the same analytical sequence must have the same content for the "AnalysisBatch" element as the tune or standard(s) that began the analytical sequence, and the same content for the "AnalysisBatchEnd" as the standard(s) that ends the analytical sequence.

3.1.4 The "PreparationBatch" links all samples of the same matrix prepared at the same time by the same preparation method. All samples analyzed, including Preparation Blanks, Matrix Spikes, Duplicates, and Laboratory Control Samples (LCSs) that are prepared together must have the same content for the "PreparationBatch" element. For those methods using digested/distilled QC, all QC that are prepared together must have the same content for the "PreparationBatch" element.

4.0 DELIVERABLE

4.1 Each fraction in a Sample Delivery Group (SDG) shall be submitted as a separate compressed (zipped) file. For reporting requirements, the fractions are "ICP_AES"; "ICP_MS"; "Hg"; and "CN". All fractions within an SDG shall be submitted at the same time [i.e., the file for the second fraction in an SDG shall be submitted in a single file upload with the first fraction].

4.2 The laboratory will utilize a designated website (provided in their Laboratory Welcome Package) to electronically submit their Electronic Data Deliverable (EDD) to the Sample Management Office (SMO). The U.S. Environmental Protection Agency (USEPA) may approve alternative electronic means of file delivery. Written permission must be obtained from the USEPA Analytical Services Branch (ASB) prior to the use of any alternative means.

4.3 The laboratory must follow the delivery instructions in Exhibit B of this Statement of Work (SOW) and deliver their hardcopy and EDD to SMO concurrently. If one of these items is delivered on a later date, the Data Receipt Date (DRD) for the SDG will be the later of the two dates.

4.4 Information in the electronic deliverable must correspond to information submitted in the hardcopy raw data package and on Quality Control (QC) summary forms. If information in the raw data or on the forms is changed, the information in the electronic deliverable shall be changed accordingly. An electronic deliverable containing the changed information for the SDG shall be resubmitted along with the hardcopy at no additional cost to the USEPA.

4.5 The format for the file name shall be Case number_SDG number_contract number_submission number_DTD used_Fraction.zip. For example, the first submission of the ICP-AES fraction from SDG number MABC12, Case number 12345, contract 68-W-0000 would be named 12345_MABC12_68-W-0000_1_SEDD_5-2_GENERAL_2b_3_ICP_AES.zip.

5.0 DOCUMENT TYPE DEFINITION (DTD)

5.1 Introduction

The deliverable will be validated against DTD SEDD_5-2_GENERAL_2b_3 or DTD SEDD_5-2_GENERAL_2a_2. The deliverable must not contain any tags not included in the DTD and must conform to the hierarchical structure modeled in the DTD.

5.2 General Stage 2b DTD

```
<?xml version="1.0" encoding="UTF_8"?>
<!—SEDD_5-2_GENERAL_2b_3.dtd 10/22/2009 Based on SEDD Specification 5.2 -->
<!-- Acronym Description -->
<!-- Coeff - Coefficient -->
<!-- EDD   - Electronic Data Deliverable -->
<!-- ID    - Identity -->
<!-- Lab   - Laboratory -->
<!-- QC    - Quality Control -->
<!-- RPD   - Relative Percent Difference -->
<!-- RRF   - Relative Response Factor -->
<!-- RSD   - Relative Standard Deviation -->
<!ELEMENT Header (
                ClientID|
                ClientName|
                Comment|
                DateFormat|
                EDDID|
                EDDImplementationID|
                EDDImplementationVersion|
                EDDVersion|
                GeneratingSystemID|
                GeneratingSystemVersion|
                LabContract|
                LabContractModificationDescription|
                LabContractModificationID|
                LabDataPackageID|
                LabDataPackageName|
                LabDataPackageVersion|
                LabID|
                LabName|
                LabNarrative|
                LabQualifiersDefinition|
                LabReportedDate|
                ProjectID|
                ProjectName|
                SiteID|
                SiteName|
                ContactInformation|
                SamplePlusMethod|
                InstrumentQC
                        )*>
<!ELEMENT Analysis (
                AliquotAmount|
                AliquotAmountUnits|
                AnalysisBatch|
                AnalysisBatchEnd|
                AnalysisDuration|
```

```
                AnalysisDurationUnits|
                AnalysisGroupID|
                AnalysisType|
                Analyst|
                AnalyzedAmount|
                AnalyzedAmountUnits|
                AnalyzedDate|
                ClientAnalysisID|
                ClientMethodCode|
                ClientMethodID|
                ClientMethodModificationDescription|
                ClientMethodModificationID|
                ClientMethodName|
                ClientMethodSource|
                ClientMethodVersion|
                Column|
                ColumnInternalDiameter|
                ColumnInternalDiameterUnits|
                ColumnLength|
                ColumnLengthUnits|
                Comment|
                ConfirmationAnalysisID|
                Counts|
                CountsUncertainty|
                CountsUncertaintyConfidenceLevel|
                CountsUncertaintyDetermination|
                CountsUncertaintyIntervalType|
                CountsUncertaintyLimitHigh|
                CountsUncertaintyLimitLow|
                CountsUncertaintyType|
                CountsUnits|
                DetectorID|
                DetectorType|
                DilutionFactor|
                Efficiency|
                HeatedPurge|
                Inclusion|
                InjectionVolume|
                InjectionVolumeUnits|
                InstrumentID|
                LabAnalysisID|
                LabFileID|
                LabID|
                LabMethodID|
                LabMethodName|
                LabName|
                MethodCode|
                MethodID|
                MethodModificationDescription|
                MethodModificationID|
                MethodName|
                MethodSource|
                MethodVersion|
                PreparationBatch|
                ProcedureID|
                ProcedureName|
                ReferenceDate|
                ResultBasis|
                RunBatch|
```

```
                Temperature|
                TemperarureUnits|
                Wavelength|
                WavelengthUnits|
                Yield|
                PreparationPlusCleanup|
                Analyte|
                AnalyteGroup
                        )*>
<!ELEMENT AnalysisGroup (
                AnalysisGroupID|
                AnalysisType|
                Comment|
                Analyte|
                AnalyteGroup
                        )*>
<!ELEMENT Analyte (
                AnalyteGroupID|
                AnalyteName|
                AnalyteNameContext|
                AnalyteType|
                BiasErrorRatio|
                CalibrationBasis|
                CalibrationFactor|
                CalibrationFactorUnits|
                CalibrationType|
                CASRegistryNumber|
                ClientAnalyteID|
                ClientAnalyteName|
                Coeffa0|
                Coeffa1|
                Coeffa2|
                Coeffa3|
                CoeffOfDetermination|
                CoeffOfDeterminationLimitLow|
                CoeffOfDeterminationLimitType|
                Comment|
                CorrelationCoeff|
                CorrelationCoeffLimitLow|
                CorrelationCoeffLimitType|
                Counts|
                CountsUncertainty|
                CountsUncertaintyConfidenceLevel|
                CountsUncertaintyDetermination|
                CountsUncertaintyIntervalType|
                CountsUncertaintyLimitHigh|
                CountsUncertaintyLimitLow|
                CountsUncertaintyType|
                CountsUnits|
                DetectionLimit|
                DetectionLimitType|
                DetectionLimitUnits|
                DifferenceErrorRatio|
                Efficiency|
                ExpectedResult|
                ExpectedResultUncertainty|
                ExpectedResultUncertaintyConfidenceLevel|
                ExpectedResultUncertaintyDetermination|
                ExpectedResultUncertaintyIntervalType|
```

```
                ExpectedResultUncertaintyLimitHigh|
                ExpectedResultUncertaintyLimitLow|
                ExpectedResultUncertaintyType|
                ExpectedResultUncertaintyUnits|
                ExpectedResultUnits|
                Inclusion|
                LabAnalyteID|
                LabQualifiers|
                LotNumber|
                Mass|
                MassUnits|
                MeanCalibrationFactor|
                MeanCalibrationFactorUnits|
                MeanRRF|
                MeanRRFLimitLow|
                MeanRRFLimitType|
                PeakID|
                PercentBreakdown|
                PercentBreakdownLimitHigh|
                PercentBreakdownLimitType|
                PercentDifference|
                PercentDifferenceLimitHigh|
                PercentDifferenceLimitLow|
                PercentDifferenceLimitType|
                PercentRecovery|
                PercentRecoveryLimitHigh|
                PercentRecoveryLimitLow|
                PercentRecoveryLimitType|
                PercentRecoveryType|
                PercentRSD|
                PercentRSDLimitHigh|
                PercentRSDLimitLow|
                PercentRSDLimitType|
                QuantitationBasis|
                QuantitationLimit|
                QuantitationLimitType|
                QuantitationLimitUnits|
                ReportingLimit|
                ReportingLimitType|
                ReportingLimitUnits|
                Result|
                ResultLimitHigh|
                ResultLimitLow|
                ResultLimitType|
                ResultType|
                ResultUncertainty|
                ResultUncertaintyConfidenceLevel|
                ResultUncertaintyDetermination|
                ResultUncertaintyIntervalType|
                ResultUncertaintyLimitHigh|
                ResultUncertaintyLimitLow|
                ResultUncertaintyType|
                ResultUncertaintyUnits|
                ResultUnits|
                RPD|
                RPDLimitHigh|
                RPDLimitType|
                RPDType|
                RRF|
```

```
                RRFLimitLow|
                RRFLimitType|
                StandardSource|
                TailingFactor|
                TailingFactorLimitHigh|
                TailingFactorLimitType|
                Wavelength|
                WavelengthUnits|
                WeightingFactor|
                Peak
                        )*>
<!ELEMENT AnalyteGroup (
                AnalyteGroupID|
                AnalyteName|
                AnalyteNameContext|
                AnalyteType|
                CASRegistryNumber|
                ClientAnalyteID|
                ClientAnalyteName|
                Comment|
                LabAnalyteID|
                LabQualifiers|
                Result|
                ResultType|
                ResultUncertainty|
                ResultUnits
                        )*>
<!ELEMENT Characteristic (
                CharacteristicType|
                CharacteristicValue|
                CharacteristicUnits|
                Comment
                       )*>
<!ELEMENT ContactInformation (
                LabAddress1|
                LabAddress2|
                LabCity|
                LabCountry|
                LabID|
                LabName|
                LabPointOfContact|
                LabPointOfContactElectronicAddress|
                LabPointOfContactTitle|
                LabPointOfContactType|
                LabState|
                LabTelephoneNumber|
                LabType|
                LabZipCode
                        )*>
<!ELEMENT Handling (
                Analyst|
                ClientMethodCode|
                ClientMethodID|
                ClientMethodModificationDescription|
                ClientMethodModificationID|
                ClientMethodName|
                ClientMethodSource|
                ClientMethodVersion|
                Comment|
```

```
                HandledDate|
                HandlingBatch|
                HandlingType|
                InitialAmount|
                InitialAmountUnits|
                LabID|
                LabMethodID|
                LabMethodName|
                LabName|
                MethodCode|
                MethodID|
                MethodModificationDescription|
                MethodModificationID|
                MethodName|
                MethodSource|
                MethodVersion|
                ProcedureID|
                ProcedureName|
                SampleAmount|
                SampleAmountUnits|
                Characteristic
                        )*>
<!ELEMENT InstrumentQC (
                ClientInstrumentQCType|
                ClientMethodCode|
                ClientMethodID|
                ClientMethodModificationDescription|
                ClientMethodModificationID|
                ClientMethodName|
                ClientMethodSource|
                ClientMethodVersion|
                Comment|
                LabID|
                LabInstrumentQCID|
                LabMethodID|
                LabMethodName|
                LabName|
                MethodCode|
                MethodID|
                MethodModificationDescription|
                MethodModificationID|
                MethodName|
                MethodSource|
                MethodVersion|
                QCLinkage|
                QCType|
                AnalysisGroup|
                Analysis
                        )*>
<!ELEMENT Peak (
                CalibrationFactor|
                CalibrationFactorUnits|
                CalibrationType|
                Coeffa0|
                Coeffa1|
                Coeffa2|
                Coeffa3|
                CoeffOfDetermination|
                CoeffOfDeterminationLimitLow|
```

```
CoeffOfDeterminationLimitType|
Comment|
CorrelationCoeff|
CorrelationCoeffLimitLow|
CorrelationCoeffLimitType|
DifferenceErrorRatio|
Efficiency|
Inclusion|
LabQualifiers|
Mass|
MassLimitHigh|
MassLimitLow|
MassLimitType|
MassUnits|
MeanCalibrationFactor|
MeanCalibrationFactorUnits|
MeanRetentionTime|
MeanRetentionTimeLimitHigh|
MeanRetentionTimeLimitLow|
MeanRetentionTimeLimitType|
MeanRetentionTimeUnits|
MeanRRF|
MeanRRFLimitLow|
MeanRRFLimitType|
PeakID|
PercentDifference|
PercentDifferenceLimitHigh|
PercentDifferenceLimitLow|
PercentDifferenceLimitType|
PercentRecovery|
PercentRecoveryLimitHigh|
PercentRecoveryLimitLow|
PercentRecoveryLimitType|
PercentRecoveryType|
PercentRSD|
PercentRSDLimitHigh|
PercentRSDLimitLow|
PercentRSDLimitType|
Resolution|
ResolutionLimitHigh|
ResolutionLimitLow|
ResolutionLimitType|
ResolutionType|
ResolutionUnits|
Result|
ResultLimitHigh|
ResultLimitLow|
ResultLimitType|
ResultType|
ResultUncertainty|
ResultUnits|
RRF|
RRFLimitLow|
RRFLimitType|
TailingFactor|
TailingFactorLimitHigh|
TailingFactorLimitType|
Wavelength|
WavelengthUnits|
WeightingFactor|
```

```
                PeakComparison
                        )*>
<!ELEMENT PeakComparison (
                Comment|
                PeakID|
                PercentRatio|
                PercentRatioLimitHigh|
                PercentRatioLimitLow|
                PercentRatioLimitType
                        )*>
<!ELEMENT PreparationPlusCleanup (
                AliquotAmount|
                AliquotAmountUnits|
                Analyst|
                CleanedUpDate|
                CleanupBatch|
                CleanupType|
                ClientMethodCode|
                ClientMethodID|
                ClientMethodModificationDescription|
                ClientMethodModificationID|
                ClientMethodName|
                ClientMethodSource|
                ClientMethodVersion|
                Comment|
                FinalAmount|
                FinalAmountUnits|
                InitialAmount|
                InitialAmountUnits|
                LabID|
                LabMethodID|
                LabMethodName|
                LabName|
                LotNumber|
                MethodCode|
                MethodID|
                MethodModificationDescription|
                MethodModificationID|
                MethodName|
                MethodSource|
                MethodVersion|
                PreparationBatch|
                PreparationPlusCleanupType|
                PreparationType|
                PreparedDate|
                ProcedureID|
                ProcedureName|
                Solvent|
                Characterisitic
                        )*>
<!ELEMENT ReportedResult (
                AnalysisGroupID|
                AnalyteGroupID|
                AnalyteName|
                AnalyteNameContext|
                AnalyteType|
                BiasErrorRatio|
                CASRegistryNumber|
                ClientAnalyteID|
                ClientAnalyteName|
```

```
ClientDetectionLimit|
ClientDetectionLimitUnits|
ClientQuantitationLimit|
ClientQuantitationLimitUnits|
Comment|
DetectionLimit|
DetectionLimitType|
DetectionLimitUnits|
DifferenceErrorRatio|
ExpectedResult|
ExpectedResultUncertainty|
ExpectedResultUncertaintyConfidenceLevel|
ExpectedResultUncertaintyDetermination|
ExpectedResultUncertaintyIntervalType|
ExpectedResultUncertaintyLimitHigh|
ExpectedResultUncertaintyLimitLow|
ExpectedResultUncertaintyType
ExpectedResultUncertaintyUnits|
ExpectedResultUnits|
LabAnalysisID|
LabAnalyteID|
LabQualifiers|
LabResultStatus|
PeakID|
PercentDifference|
PercentDifferenceLimitHigh|
PercentDifferenceLimitLow|
PercentDifferenceLimitType|
PercentRecovery|
PercentRecoveryLimitHigh|
PercentRecoveryLimitLow|
PercentRecoveryLimitType|
PercentRecoveryType|
QuantitationLimit|
QuantitationLimitType|
QuantitationLimitUnits|
ReportingLimit|
ReportingLimitType|
ReportingLimitUnits|
Result|
ResultLimitHigh|
ResultLimitLow|
ResultLimitType|
ResultType|
ResultUncertainty|
ResultUncertaintyConfidenceLevel|
ResultUncertaintyDetermination|
ResultUncertaintyIntervalType|
ResultUncertaintyLimitHigh|
ResultUncertaintyLimitLow|
ResultUncertaintyType|
ResultUncertaintyUnits|
ResultUnits|
RetentionTime|
RetentionTimeUnits|
RPD|
RPDLimitHigh|
RPDLimitType|
RPDType
         )*>
```

```
<!ELEMENT SamplePlusMethod (
                ClientID|
                ClientMethodCategory|
                ClientMethodCode|
                ClientMethodID|
                ClientMethodModificationDescription|
                ClientMethodModificationID|
                ClientMethodName|
                ClientMethodSource|
                ClientMethodType|
                ClientMethodVersion|
                ClientName|
                ClientSampleID|
                CollectedDate|
                CollectedEndDate|
                Comment|
                Composite|
                CoolerID|
                CustodyID|
                EquipmentBatch|
                Filtered|
                LabContract|
                LabContractModificationDescription|
                LabContractModificationID|
                LabID|
                LabMethodID|
                LabMethodName|
                LabName|
                LabReceiptDate|
                LabReportingBatch|
                LabSampleID|
                LocationID|
                LocationName|
                MatrixID|
                MatrixMedium|
                MethodBatch|
                MethodCategory|
                MethodCode|
                MethodID|
                MethodLevel|
                MethodModificationDescription|
                MethodModificationID|
                MethodName|
                MethodSource|
                MethodType|
                MethodVersion|
                OriginalClientSampleID|
                OriginalLabSampleID|
                PhaseAnalyzed|
                Preservative|
                ProjectID|
                ProjectName|
                QCCategory|
                QCLinkage|
                QCType|
                Quarantine|
                SamplingBatch|
                ShippingBatch|
                SiteID|
```

```
                SiteName|
                StorageBatch|
                Analysis|
                Characteristic|
                ReportedResult|
                Handling|
                AnalysisGroup
                        )*>

<!ELEMENT AliquotAmount (#PCDATA)>
<!ELEMENT AliquotAmountUnits (#PCDATA)>
<!ELEMENT AnalysisBatch (#PCDATA)>
<!ELEMENT AnalysisBatchEnd (#PCDATA)>
<!ELEMENT AnalysisDuration (#PCDATA)>
<!ELEMENT AnalysisDurationUnits (#PCDATA)>
<!ELEMENT AnalysisGroupID (#PCDATA)>
<!ELEMENT AnalysisType (#PCDATA)>
<!ELEMENT Analyst (#PCDATA)>
<!ELEMENT AnalyteGroupID (#PCDATA)>
<!ELEMENT AnalyteName (#PCDATA)>
<!ELEMENT AnalyteNameContext (#PCDATA)>
<!ELEMENT AnalyteType (#PCDATA)>
<!ELEMENT AnalyzedAmount (#PCDATA)>
<!ELEMENT AnalyzedAmountUnits (#PCDATA)>
<!ELEMENT AnalyzedDate (#PCDATA)>
<!ELEMENT BiasErrorRatio (#PCDATA)>
<!ELEMENT CalibrationBasis (#PCDATA)>
<!ELEMENT CalibrationFactor (#PCDATA)>
<!ELEMENT CalibrationFactorUnits (#PCDATA)>
<!ELEMENT CalibrationType (#PCDATA)>
<!ELEMENT CASRegistryNumber (#PCDATA)>
<!ELEMENT CharacteristicType (#PCDATA)>
<!ELEMENT CharacteristicUnits (#PCDATA)>
<!ELEMENT CharacteristicValue (#PCDATA)>
<!ELEMENT CleanedUpDate (#PCDATA)>
<!ELEMENT CleanupBatch (#PCDATA)>
<!ELEMENT CleanupType (#PCDATA)>
<!ELEMENT ClientAnalysisID (#PCDATA)>
<!ELEMENT ClientAnalyteID (#PCDATA)>
<!ELEMENT ClientAnalyteName (#PCDATA)>
<!ELEMENT ClientDetectionLimit (#PCDATA)>
<!ELEMENT ClientDetectionLimitUnits (#PCDATA)>
<!ELEMENT ClientID (#PCDATA)>
<!ELEMENT ClientInstrumentQCType (#PCDATA)>
<!ELEMENT ClientMethodCategory (#PCDATA)>
<!ELEMENT ClientMethodCode (#PCDATA)>
<!ELEMENT ClientMethodID (#PCDATA)>
<!ELEMENT ClientMethodModificationDescription (#PCDATA)>
<!ELEMENT ClientMethodModificationID (#PCDATA)>
<!ELEMENT ClientMethodName (#PCDATA)>
<!ELEMENT ClientMethodSource (#PCDATA)>
<!ELEMENT ClientMethodType (#PCDATA)>
<!ELEMENT ClientMethodVersion (#PCDATA)>
<!ELEMENT ClientName (#PCDATA)>
<!ELEMENT ClientQuantitationLimit (#PCDATA)>
<!ELEMENT ClientQuantitationLimitUnits (#PCDATA)>
<!ELEMENT ClientSampleID (#PCDATA)>
<!ELEMENT Coeffa0 (#PCDATA)>
<!ELEMENT Coeffa1 (#PCDATA)>
```

```
<!ELEMENT Coeffa2 (#PCDATA)>
<!ELEMENT Coeffa3 (#PCDATA)>
<!ELEMENT CoeffOfDetermination (#PCDATA)>
<!ELEMENT CoeffOfDeterminationLimitLow (#PCDATA)>
<!ELEMENT CoeffOfDeterminationLimitType (#PCDATA)>
<!ELEMENT CollectedDate (#PCDATA)>
<!ELEMENT CollectedEndDate (#PCDATA)>
<!ELEMENT Column (#PCDATA)>
<!ELEMENT ColumnInternalDiameter (#PCDATA)>
<!ELEMENT ColumnInternalDiameterUnits (#PCDATA)>
<!ELEMENT ColumnLength (#PCDATA)>
<!ELEMENT ColumnLengthUnits (#PCDATA)>
<!ELEMENT Comment (#PCDATA)>
<!ELEMENT Composite (#PCDATA)>
<!ELEMENT ConfirmationAnalysisID (#PCDATA)>
<!ELEMENT CoolerID (#PCDATA)>
<!ELEMENT CorrelationCoeff (#PCDATA)>
<!ELEMENT CorrelationCoeffLimitLow (#PCDATA)>
<!ELEMENT CorrelationCoeffLimitType (#PCDATA)>
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5.3 General Stage 2a DTD

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<?xml version="1.0" encoding="UTF-8"?>
<!—SEDD_5-2_GENERAL_2a_2.dtd 07/21/2008 Based on SEDD Specification 5.2 -->
<!-- Acronym Description -->
<!-- EDD   - Electronic Data Deliverable -->
<!-- ID    - Identity -->
<!-- Lab   - Laboratory -->
<!-- QC    - Quality Control -->
<!-- RPD   - Relative Percent Difference -->
<!ELEMENT Header (
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               ClientName|
               Comment|
               DateFormat|
               EDDID|
               EDDImplementationID|
               EDDImplementationVersion|
               EDDVersion|
               GeneratingSystemID|
               GeneratingSystemVersion|
               LabContract|
               LabContractModificationDescription|
               LabContractModificationID|
               LabDataPackageID|
               LabDataPackageName|
               LabDataPackageVersion|
               LabID|
               LabName|
               LabNarrative|
               LabQualifiersDefinition|
               LabReportedDate|
               ProjectID|
               ProjectName|
               SiteID|
               SiteName|
               ContactInformation|
               SamplePlusMethod
                        )*>
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               Analyst|
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               AnalyzedAmountUnits|
               AnalyzedDate|
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               ClientMethodID|
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               ClientMethodName|
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               ClientMethodVersion|
               Column|
```

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                CountsUncertaintyDetermination|
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                CountsUncertaintyType|
                CountsUnits|
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                DetectorType|
                DilutionFactor|
                Efficiency|
                HeatedPurge|
                Inclusion|
                InjectionVolume|
                InjectionVolumeUnits|
                InstrumentID|
                LabAnalysisID|
                LabFileID|
                LabID|
                LabMethodID|
                LabMethodName|
                LabName|
                MethodCode|
                MethodID|
                MethodModificationDescription|
                MethodModificationID|
                MethodName|
                MethodSource|
                MethodVersion|
                PreparationBatch|
                ProcedureID|
                ProcedureName|
                ReferenceDate|
                ResultBasis|
                Temperature|
                TemperatureUnits|
                Wavelength|
                WavelengthUnits|
                Yield|
                PreparationPlusCleanup|
                Analyte|
                AnalyteGroup
                        )*>
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                AnalyteGroup
                        )*>
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```

```
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                ClientAnalyteID|
                ClientAnalyteName|
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                CountsUncertaintyDetermination|
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                CountsUncertaintyLimitLow|
                CountsUncertaintyType|
                CountsUnits|
                DetectionLimit|
                DetectionLimitType|
                DetectionLimitUnits|
                DifferenceErrorRatio|
                Efficiency|
                ExpectedResult|
                ExpectedResultUncertainty|
                ExpectedResultUncertaintyConfidenceLevel|
                ExpectedResultUncertaintyDetermination|
                ExpectedResultUncertaintyIntervalType|
                ExpectedResultUncertaintyLimitHigh|
                ExpectedResultUncertaintyLimitLow|
                ExpectedResultUncertaintyType|
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                ExpectedResultUnits|
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                QuantitationLimitType|
                QuantitationLimitUnits|
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                ReportingLimitType|
                ReportingLimitUnits|
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                ResultLimitType|
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                ResultUnits
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                LabTelephoneNumber|
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                HandledDate|
                HandlingBatch|
                HandlingType|
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```
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                ClientMethodModificationDescription|
                ClientMethodModificationID|
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                ClientMethodSource|
                ClientMethodVersion|
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                InitialAmountUnits|
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                LabMethodName|
                LabName|
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                MethodModificationDescription|
                MethodModificationID|
                MethodName|
                MethodSource|
                MethodVersion|
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                ProcedureName|
                Solvent|
                Characteristic
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CASRegistryNumber|
ClientAnalyteID|
ClientAnalyteName|
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ClientQuantitationLimit|
ClientQuantitationLimitUnits|
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DetectionLimitType|
DetectionLimitUnits|
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ExpectedResultUncertaintyDetermination|
ExpectedResultUncertaintyIntervalType|
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ExpectedResultUncertaintyType|
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LabResultStatus|
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QuantitationLimitType|
QuantitationLimitUnits|
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ReportingLimitType|
ReportingLimitUnits|
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ResultLimitLow|
ResultLimitType|
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ResultUncertaintyDetermination|
ResultUncertaintyIntervalType|
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ResultUncertaintyLimitLow|
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                ClientMethodType|
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                CustodyID|
                EquipmentBatch|
                Filtered|
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                LabContractModificationID|
                LabID|
                LabMethodID|
                LabMethodName|
                LabName|
                LabReceiptDate|
                LabReportingBatch|
                LabSampleID|
                LocationID|
                LocationName|
                MatrixID|
                MatrixMedium|
                MethodBatch|
                MethodCategory|
                MethodCode|
                MethodID|
                MethodLevel|
                MethodModificationDescription|
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                MethodSource|
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```

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                QCLinkage|
                QCType|
                Quarantine|
                SamplingBatch|
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```

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<!ELEMENT ReportingLimitUnits (#PCDATA)>
<!ELEMENT Result (#PCDATA)>
<!ELEMENT ResultBasis (#PCDATA)>
<!ELEMENT ResultLimitHigh (#PCDATA)>
<!ELEMENT ResultLimitLow (#PCDATA)>
<!ELEMENT ResultLimitType (#PCDATA)>
<!ELEMENT ResultType (#PCDATA)>
<!ELEMENT ResultUncertainty (#PCDATA)>
<!ELEMENT ResultUncertaintyConfidenceLevel (#PCDATA)>
<!ELEMENT ResultUncertaintyDetermination (#PCDATA)>
<!ELEMENT ResultUncertaintyIntervalType (#PCDATA)>
<!ELEMENT ResultUncertaintyLimitHigh (#PCDATA)>
<!ELEMENT ResultUncertaintyLimitLow (#PCDATA)>
<!ELEMENT ResultUncertaintyType (#PCDATA)>
<!ELEMENT ResultUncertaintyUnits (#PCDATA)>
<!ELEMENT ResultUnits (#PCDATA)>
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<!ELEMENT RetentionTimeUnits (#PCDATA)>
<!ELEMENT RPD (#PCDATA)>
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<!ELEMENT RPDLimitType (#PCDATA)>
<!ELEMENT RPDType (#PCDATA)>
<!ELEMENT SampleAmount (#PCDATA)>
<!ELEMENT SampleAmountUnits (#PCDATA)>
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<!ELEMENT ShippingBatch (#PCDATA)>
<!ELEMENT SiteID (#PCDATA)>
<!ELEMENT SiteName (#PCDATA)>
<!ELEMENT Solvent (#PCDATA)>
<!ELEMENT StandardSource (#PCDATA)>
<!ELEMENT StorageBatch (#PCDATA)>
<!ELEMENT Temperature (#PCDATA)>
<!ELEMENT TemperatureUnits (#PCDATA)>
<!ELEMENT Wavelength (#PCDATA)>
<!ELEMENT WavelengthUnits (#PCDATA)>
<!ELEMENT Yield (#PCDATA)>
```

6.0 DATA ELEMENT INSTRUCTION TABLES

6.1 Stage 2b

Table 1

Inorganics Data Element Instructions

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
Header	X	X	X	X	X	X	X	X	
ClientID	X	X	X	X	X	X	X	X	Report "1" for Region 1, "2" for Region 2, etc. For samples received from QATS, report "91".
ClientName									Not required.
Comment									Not Required.
DateFormat	X	X	X	X	X	X	X	X	Report MMDDYYYYThh:mm:ss. All dates and times reported in the EDD must follow this format. If any part of the time is unknown, report "00" for the unknown hours, minutes, and seconds.
EDDID	X	X	X	X	X	X	X	X	Report "SEDD".
EDDImplementationID	X	X	X	X	X	X	X	X	Report "SEDD_5-2_GENERAL_2b" (This is the DTD used).
EDDImplementationVersion	X	X	X	X	X	X	X	X	Report "3" (This is the version of the DTD used).
EDDVersion	X	X	X	X	X	X	X	X	Report "5.2".
GeneratingSystemID	X	X	X	X	X	X	X	X	Report name of generating software or vendor.
GeneratingSystemVersion	X	X	X	X	X	X	X	X	Report software version number.
LabContract	X	X	X	X	X	X	X	X	Report the Contract number.
LabContractModificationDescription									Not required.
LabContractModificationID									Not required.
LabDataPackageID	X	X	X	X	X	X	X	X	Report the Sample Delivery Group (SDG).
LabDataPackageName	X	X	X	X	X	X	X	X	Report "ICP_AES", "ICP_MS", "Hg", or "CN" as applicable.
LabDataPackageVersion	X	X	X	X	X	X	X	X	Report "1", then increment with each resubmission.
LabID	X	X	X	X	X	X	X	X	Report the Agency-assigned Lab Code.
LabName	X	X	X	X	X	X	X	X	Report the Lab Name.
LabNarrative									Not required.
LabQualifiersDefinition	X	X	X	X	X	X	X	X	Use the format 'Qualifier:Definition' to report each qualifier used. Use a ';' to separate the definitions of multiple qualifiers.
LabReportedDate	X	X	X	X	X	X	X	X	Report the date this data was reported to the client.
ProjectID	X	X	X	X	X	X	X	X	Report the Case Number.
ProjectName									Not required.
SiteID									Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
SiteName									Not required.
SamplePlusMethod	X	X	X	X	X	X	X	X	
ClientID	X	X	X						Report "1" for Region 1, "2" for Region 2, etc. For samples received from QATS, report "91".
ClientMethodCategory									Not required.
ClientMethodCode									Not required.
ClientMethodID	X	X	X	X	X	X	X	X	Report "ISM01.2".
ClientMethodModificationDescription									Not required.
ClientMethodModificationID	X	X	X	X	X	X	X		Report the Modified Analysis number, if applicable
ClientMethodName									Not required.
ClientMethodSource	X	X	X	X	X	X	X	X	Report "USEPA_CLP".
ClientMethodType	X	X	X	X	X	X	X	X	Report "ICP/AES", "ICP/MS", "CVAA", or "Spectrophotometry" as applicable.
ClientMethodVersion	X	X	X	X	X	X	X	X	Report month and year the SOW was issued.
ClientName									Not required.
ClientSampleID	X	X	X	X	X	X	X	X	Report the EPA Sample Number.
CollectedDate	X	X	X						Report the date and time the sample was collected.
CollectedEndDate									Not required.
Comment									Not required.
Composite									Not required.
CoolerID									Not required.
CustodyID	X								Report the Traffic Report/Chain of Custody Form number.
EquipmentBatch									Not required.
Filtered	X								Report "Yes" for dissolved metals, or "No" for total metals.
LabContract	X	X	X	X	X	X	X		Report the Contract number.
LabContractModificationDescription									Not required.
LabContractModificationID									Not required.
LabID	X	X	X	X	X	X	X	X	Report the Agency-assigned Lab Code.
LabMethodID									Not required.
LabMethodName									Not required.
LabName	X	X	X	X	X	X	X	X	Report the Lab Name.
LabReceiptDate	X	X	X						Report the date and time the sample was received.
LabReportingBatch	X	X	X	X	X	X	X	X	Links all samples analyzed to this deliverable. Report the SDG number.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
LabSampleID	X	X	X	X	X	X	X	X	Report the Lab Sample ID as assigned by the lab.
LocationID									Not required.
LocationName									Not required.
MatrixID	X	X	X	X	X	X	X	X	Report "Water", "Soil", "Wipe", or "Filter" as applicable.
MatrixMedium	X	X	X	X	X	X	X	X	Report "Aqueous" or "Solid" as applicable. Use "Solid" for wipes and filters.
MethodBatch									Not required.
MethodCategory									Not required.
MethodCode									Not required.
MethodID	X	X	X	X	X	X	X	X	Report "ISM01.2".
MethodLevel	X	X	X			X	X		Report "Low" or "Medium".
MethodModificationDescription									Not required.
MethodModificationID									Not required.
MethodName									Not required.
MethodSource	X	X	X	X	X	X	X	X	Report "USEPA_CLP".
MethodType	X	X	X	X	X	X	X	X	Report "ICP/AES", "ICP/MS", "CVAA", or "Spectrophotometry" as applicable.
MethodVersion	X	X	X	X	X	X	X	X	Report month and year the SOW was issued.
OriginalClientSampleID		X	X			X	X		Report the EPA Sample Number of the original sample this sample was derived from.
OriginalLabSampleID									Not required.
PhaseAnalyzed									Not required.
Preservative	X	X	X						Report any chemical or physical preservative used.
ProjectID	X	X	X	X	X	X	X		Report the Case Number.
ProjectName									Not required.
QCCategory		X	X	X	X	X	X		Report "Blank" for PB, "Spike" for MS and post-digestion spike, "Blank_Spike" for LCS, "Duplicate" for duplicate, or "Serial_Dilution" for SD.
QCLinkage		X	X	X	X	X	X		Report "LabReportingBatch" for MS, post-digestion spike, Dup, and SD; or "PreparationBatch" for PB and LCS.
QCType	X	X	X	X	X	X	X		Report "Field_Sample" for field samples; "Field_Blank" for field, equipment, rinse, or trip blanks; "PT_Sample" for Performance Evaluation Samples; "Method_Blank" for PB; "Matrix_Spike" for MS; "Duplicate" for dup; "Laboratory_Control_Sample" for LCS; "Post_Digestion_Spike" for post-digestion spikes; or "Serial_Dilution" for SD.
Quarantine	X								Report "Yes" or "No" based on sampling information.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
SamplingBatch									Not required.
ShippingBatch									Not required.
SiteID									Not required.
SiteName									Not required.
StorageBatch									Not required.
InstrumentQC									Not required.
Characteristic	X	X	X	X	X	X	X		
CharacteristicType	X	X	X	X	X	X	X		Report "Artifacts"; "Clarity"; "Color"; "Percent_Solids"; "pH"; "Temperature"; and "Texture" for each SamplePlusMethod. Report "Clarity" and "Color" for each PreparationPlusCleanup.
CharacteristicValue	X	X	X	X	X	X	X		Report any sample artifacts for "Artifact"; the clarity (at receipt and after preparation)for aqueous/water samples for "Clarity"; the color (at receipt and after preparation) for "Color"; the percent solids to two significant figures if less than 10 and three significant figures if greater than or equal to 10 for soil/sediment samples for "Percent_Solids"; the pH (at receipt) to the nearest whole unit for aqueous/water samples for "pH"; the temperature at receipt to the nearest degree for "Temperature"; and the texture for soil/sediment samples for "Texture".
CharacteristicUnits	X	X	X	X	X	X	X		Report "C" for "Temperature".
Comment									Not required.
ContactInformation	X	X	X	X	X	X	X	X	
LabAddress1	X	X	X	X	X	X	X	X	Report the street address of the laboratory.
LabAddress2	X	X	X	X	X	X	X	X	If applicable, report any additional address information (e.g., suite, maildrop). Otherwise leave blank.
LabCity	X	X	X	X	X	X	X	X	Report the city in which the laboratory is located.
LabCountry	X	X	X	X	X	X	X	X	Report the country in which the laboratory is located.
LabID	X	X	X	X	X	X	X	X	Report the Agency-assigned Lab Code.
LabName	X	X	X	X	X	X	X	X	Report the Lab Name.
LabPointOfContact	X	X	X	X	X	X	X	X	Report the name of the person at the laboratory serving as the point of contact.
LabPointOfContactElectronicAddress	X	X	X	X	X	X	X	X	Report the Email address of the point of contact.
LabPointOfContactTitle	X	X	X	X	X	X	X	X	Report the title of the point of contact.
LabPointOfContactType									Not required.
LabState	X	X	X	X	X	X	X	X	Report the state or province in which the laboratory is located.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
LabTelephoneNumber	X	X	X	X	X	X	X	X	Report the 10-digit phone number for the laboratory.
LabType									Not required.
LabZipCode	X	X	X	X	X	X	X	X	Report the Zip or postal code.
Analysis	X	X	X	X	X	X	X	X	
AliquotAmount									Not required.
AliquotAmountUnits									Not required.
AnalysisBatch	X	X	X	X	X	X	X	X	Links this analysis to the instrument QC sample(s) that begins this sequence. Report the Lab Analysis ID of the CCV that starts the sequence.
AnalysisBatchEnd	X	X	X	X	X	X	X	X	Links this analysis to the instrument QC sample(s) that ends this sequence. Report the Lab Analysis ID of the CCV that ends this sequence.
AnalysisDuration									Not required.
AnalysisDurationUnits									Not required.
AnalysisGroupID									Not required.
AnalysisType	X	X	X	X	X	X	X		Report "Initial", "Dilution-01", or "Reanalysis-01"; then increment as necessary.
Analyst	X	X	X	X	X	X	X	X	Report the Analyst's initials.
AnalyzedAmount									Not required.
AnalyzedAmountUnits									Not required.
AnalyzedDate	X	X	X	X	X	X	X	X	Report the date and time the sample was analyzed.
ClientAnalysisID									Not required.
ClientMethodCode									Not required.
ClientMethodID	X	X	X	X	X	X	X	X	Report "ISM01.2".
ClientMethodModificationDescription									Not required.
ClientMethodModificationID									Not required.
ClientMethodName									Not required.
ClientMethodSource	X	X	X	X	X	X	X	X	Report "USEPA_CLP".
ClientMethodVersion	X	X	X	X	X	X	X	X	Report month and year the SOW was issued.
Column									Not required.
ColumnInternalDiameter									Not required.
ColumnInternalDiameterUnits									Not required.
ColumnLength									Not required.
ColumnLengthUnits									Not required.
Comment									Not required.
ConfirmationAnalysisID									Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
Counts									Not required.
CountsUncertainty									Not required.
CountsUncertaintyConfidenceLevel									Not required.
CountsUncertaintyDetermination									Not required.
CountsUncertaintyIntervalType									Not required.
CountsUncertaintyLimitHigh									Not required.
CountsUncertaintyLimitLow									Not required.
CountsUncertaintyType									Not required.
CountsUnits									Not required.
DetectorID									Not required.
DetectorType									Not required.
DilutionFactor	X	X	X	X	X	X	X		Report the Dilution Factor used to the nearest tenth. Report "1.0" when no dilutions are used.
Efficiency									Not required.
HeatedPurge									Not required.
Inclusion									Not required.
InjectionVolume									Not required.
InjectionVolumeUnits									Not required.
InstrumentID	X	X	X	X	X	X	X	X	Report the laboratory identifier for the instrument used for this analysis.
LabAnalysisID	X	X	X	X	X	X	X	X	Report a unique identifier.
LabFileID	X	X	X	X	X	X	X	X	Report the lab file ID.
LabID									Not required.
LabMethodID									Not required.
LabMethodName									Not required.
LabName									Not required.
MethodCode									Not required.
MethodID	X	X	X	X	X	X	X	X	Report "ISM01.2".
MethodModificationDescription									Not required.
MethodModificationID									Not required.
MethodName									Not required.
MethodSource	X	X	X	X	X	X	X	X	Report "USEPA_CLP".
MethodVersion	X	X	X	X	X	X	X	X	Report month and year the SOW was issued.
PreparationBatch									Not required.
ProcedureID									Not required.
ProcedureName									Not required.
ReferenceDate									Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MS	Dup	LCS	PB	PDS	SD	NCS	Instructions
ResultBasis	X	X	X		X				Report "Dry" for soil/sediment samples. For water/aqueous sample, report "Dissolved" if sample field-filtered; otherwise report "Total".
RunBatch	X	X	X	X	X	X	X	X	Links this analysis to an initial calibration. Report the Lab Analysis ID of the standard (Tune or calibration standard) that started the ICAL sequence.
Temperature									Not required.
TemperatureUnits									Not required.
WaveLength									Not required.
WaveLengthUnits									Not required.
Yield									Not required.
AnalysisGroup									Not required.
Handling									Not required.
ReportedResult	X	X	X	X	X	X	X		
AnalysisGroupID									Not required.
AnalyteGroupID									Not required.
AnalyteName	X	X	X	X	X	X	X		Report analytes as they appear in the SOW.
AnalyteNameContext	X	X	X	X	X	X	X		Report "CAS".
AnalyteType	X	X	X	X	X	X	X		Report "Target" for all target compounds, "Spike" for all target analytes designated as spike compounds for Matrix Spike analysis.
BiasErrorRatio									Not required.
CASRegistryNumber	X	X	X	X	X	X	X		Report CAS Numbers as they appear in the SOW.
ClientAnalyteID	X	X	X	X	X	X	X		Report CAS number.
ClientAnalyteName	X	X	X	X	X	X	X		Report analytes as they appear in the SOW.
ClientDetectionLimit									Not required.
ClientDetectionLimitUnits									Not required.
ClientQuantitationLimit	X	X	X	X	X	X	X		Report the CRQL.
ClientQuantitationLimitUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
Comment									Not required.
DetectionLimit	X	X	X	X	X	X	X		Report the current Method Detection Limit (MDL), adjusted for sample weight/volume, percent solids, and dilution factor to at least two significant figures.
DetectionLimitType	X	X	X	X	X	X	X		Report "MDL_sa".

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
DetectionLimitUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
DifferenceErrorRatio									Not required.
ExpectedResult		X		X		X			Report the theoretical final calculated concentration (the spike added) for the spiked analytes or the true value for LCS.
ExpectedResultUncertainty									Not required.
ExpectedResultUncertaintyConfidenceLevel									Not required.
ExpectedResultUncertaintyDetermination									Not required.
ExpectedResultUncertaintyIntervalType									Not required.
ExpectedResultUncertaintyLimitHigh									Not required.
ExpectedResultUncertaintyLimitLow									Not required.
ExpectedResultUncertaintyType									Not required.
ExpectedResultUncertaintyUnits									Not required.
ExpectedResultUnits		X		X		X			Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
LabAnalysisID	X	X	X	X	X	X	X		Report the unique identifier from the analysis this reported result was derived from.
LabAnalyteID									Not required.
LabQualifiers	X	X	X	X	X	X	X		Report flags as specified in the SOW. Includes both the C and Q qualifiers from Form I.
LabResultStatus	X	X	X						Report "Preliminary" or "Final" as applicable.
PeakID									Not required.
PercentDifference							X		Report the Percent Difference.
PercentDifferenceLimitHigh							X		Report the upper limit for the Percent Difference.
PercentDifferenceLimitLow									Not required.
PercentDifferenceLimitType							X		Report "Method".
PercentRecovery		X		X		X			Report the Percent Recovery.
PercentRecoveryLimitHigh		X		X					Report the upper limit for the Percent Recovery.
PercentRecoveryLimitLow		X		X					Report the lower limit for the Percent Recovery.
PercentRecoveryLimitType		X		X					Report "Method".
PercentRecoveryType									Not required.
QuantitationLimit	X	X	X	X	X	X	X		Report the Contract Required Quantitation Limit adjusted for sample weight/volume, percent solids, and dilution factor to at least two significant figures.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
QuantitationLimitType	X	X	X	X	X	X	X		Report "CRQL_sa".
QuantitationLimitUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
ReportingLimit									Not required.
ReportingLimitType									Not required.
ReportingLimitUnits									Not required.
Result	X	X	X	X	X	X	X		Report the final calculated result for detects per the SOW.
ResultLimitHigh									Not required.
ResultLimitLow									Not required.
ResultLimitType									Not required.
ResultType	X	X	X	X	X	X	X		Report "=" for all detected analytes. Report "Not_Detected" for non-detects.
ResultUncertainty									Not required.
ResultUncertaintyConfidenceLevel									Not required.
ResultUncertaintyDetermination									Not required.
ResultUncertaintyIntervalType									Not required.
ResultUncertaintyLimitHigh									Not required.
ResultUncertaintyLimitLow									Not required.
ResultUncertaintyType									Not required.
ResultUncertaintyUnits									Not required.
ResultUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
RetentionTime									Not required.
RetentionTimeUnits									Not required.
RPD			X						Report the RPD.
RPDLimitHigh			X						Report the upper limit for the RPD.
RPDLimitType			X						Report "Method".
RPDType									Not required.
PreparationPlusCleanup	X	X	X	X	X	X	X		
AliquotAmount	X	X	X	X	X	X	X		Report the sample amount in grams for soil/sediment or mL for aqueous/water to at least three significant figures. Not required for wipes or filters.
AliquotAmountUnits	X	X	X	X	X	X	X		Report "g" for soil/sediment or "mL" for aqueous/water. Not required for wipes or filters.
Analyst	X	X	X	X	X	X	X		Report the Analyst's initials.
CleanedUpDate									Not required.
CleanUpBatch									Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
CleanUpType									Not required.
ClientMethodCode									Not required.
ClientMethodID	X	X	X	X	X	X	X		Report the sample preparation ID as given in Exhibit B.
ClientMethodModificationDescription									Not required.
ClientMethodModificationID									Not required.
ClientMethodName									Not required.
ClientMethodSource	X	X	X	X	X	X	X		Report "USEPA_CLP".
ClientMethodVersion	X	X	X	X	X	X	X		Report month and year the SOW was issued.
Comment									Not required.
FinalAmount	X	X	X	X	X	X	X		Report the volume of digestate produced by the preparation method in mL.
FinalAmountUnits	X	X	X	X	X	X	X		Report "mL".
InitialAmount									Not required.
InitialAmountUnits									Not required.
LabID									Not required.
LabMethodID									Not required.
LabMethodName									Not required.
LabName									Not required.
LotNumber									Not required.
MethodCode									Not required.
MethodID	X	X	X	X	X	X	X		Report "ISM01.2".
MethodModificationDescription									Not required.
MethodModificationID									Not required.
MethodName									Not required.
MethodSource	X	X	X	X	X	X	X		Report "USEPA_CLP".
MethodVersion	X	X	X	X	X	X	X		Report month and year the SOW was issued.
PreparationBatch	X	X	X	X	X	X	X		Links all samples that were prepared together. Report a unique identifier for each batch.
PreparationPlusCleanupType	X	X	X	X	X	X	X		Report "Preparation".
PreparationType	X	X	X	X	X	X	X		Report "Automated" or "Manual".
PreparedDate	X	X	X	X	X	X	X		Report the date and time the sample was prepared.
ProcedureID									Not required.
ProcedureName									Not required.
Solvent									Not required.
Analyte	X	X	X	X	X	X	X		
AnalyteGroupID									Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
AnalyteName	X	X	X	X	X	X	X		Report analytes as they appear in the SOW.
AnalyteNameContext	X	X	X	X	X	X	X		Report "CAS".
AnalyteType	X	X	X	X	X	X	X		Report "Target" for all target compounds, "Spike" for all target analytes designated as spike analytes, "Internal_Standard" for internal standards, or "Monitor" for non-target interferences and masses requiring monitoring.
BiasErrorRatio									Not required.
CalibrationBasis									Not required.
CalibrationFactor									Not required.
CalibrationFactorUnits									Not required.
CalibrationType									Not required.
CASRegistryNumber	X	X	X	X	X	X	X		Report the CAS Number as it appears in the SOW.
ClientAnalyteID	X	X	X	X	X	X	X		Report CAS number.
ClientAnalyteName	X	X	X	X	X	X	X		Report the analytes as they appear in the SOW.
Coeffa0									Not required.
Coeffa1									Not required.
Coeffa2									Not required.
Coeffa3									Not required.
CoeffOfDetermination									Not required.
CoeffOfDeterminationLimitLow									Not required.
CoeffOfDeterminationLimitType									Not required.
Comment									Not required.
CorrelationCoeff									Not required.
CorrelationCoeffLimitLow									Not required.
CorrelationCoeffLimitType									Not required.
Counts									Not required.
CountsUncertainty									Not required.
CountsUncertaintyConfidenceLevel									Not required.
CountsUncertaintyDetermination									Not required.
CountsUncertaintyIntervalType									Not required.
CountsUncertaintyLimitHigh									Not required.
CountsUncertaintyLimitLow									Not required.
CountsUncertaintyType									Not required.
CountsUnits									Not required.
DetectionLimit	X	X	X	X	X	X	X		Report the Method Detection Limit (MDL).
DetectionLimitType	X	X	X	X	X	X	X		Report "MDL".

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
DetectionLimitUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
DifferenceErrorRatio									Not required.
Efficiency									Not required.
ExpectedResult									Not required.
ExpectedResultUncertainty									Not required.
ExpectedResultUncertaintyConfidenceLevel									Not required.
ExpectedResultUncertaintyDetermination									Not required.
ExpectedResultUncertaintyIntervalType									Not required.
ExpectedResultUncertaintyLimitHigh									Not required.
ExpectedResultUncertaintyLimitLow									Not required.
ExpectedResultUncertaintyType									Not required.
ExpectedResultUncertaintyUnits									Not required.
ExpectedResultUnits									Not required.
Inclusion									Not required.
LabAnalyteID									Not required.
LabQualifiers	X	X	X	X	X	X	X		Report qualifiers as specified in the SOW.
LotNumber	X	X	X	X	X	X	X		Report the vendor/manufacturer assigned lot number for this standard (Internal Standards and spiking compounds only).
Mass									Not required.
MassUnits									Not required.
MeanCalibrationFactor									Not required.
MeanCalibrationFactorUnits									Not required.
MeanRRF									Not required.
MeanRRFLimitLow									Not required.
MeanRRFLimitType									Not required.
PeakID	X	X	X	X	X	X	X		If response from a single peak is used for quantitation, report the ID of that peak.
PercentBreakdown									Not required.
PercentBreakdownLimitHigh									Not required.
PercentBreakdownLimitType									Not required.
PercentDifference									Not required.
PercentDifferenceLimitHigh									Not required.
PercentDifferenceLimitLow									Not required.
PercentDifferenceLimitType									Not required.
PercentRecovery									Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
PercentRecoveryLimitHigh									Not required.
PercentRecoveryLimitLow									Not required.
PercentRecoveryLimitType									Not required.
PercentRecoveryType									Not required.
PercentRSD									Not required.
PercentRSDLimitHigh									Not required.
PercentRSDLimitLow									Not required.
PercentRSDLimitType									Not required.
QuantitationBasis									Not required.
QuantitationLimit	X	X	X	X	X	X	X		Report the Contract Required Quantitation Limit (CRQL).
QuantitationLimitType	X	X	X	X	X	X	X		Report "CRQL".
QuantitationLimitUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
ReportingLimit									Not required.
ReportingLimitType									Not required.
ReportingLimitUnits									Not required.
Result	X	X	X	X	X	X	X		For target and spike analyte detects, and for monitored masses, report the final calculated result.
ResultLimitHigh									Not required.
ResultLimitLow									Not required.
ResultLimitType									Not required.
ResultType	X	X	X	X	X	X	X		Report "=" for all detected analytes. Report "Not_Detected" for non-detects.
ResultUncertainty									Not required.
ResultUncertaintyConfidenceLevel									Not required.
ResultUncertaintyDetermination									Not required.
ResultUncertaintyIntervalType									Not required.
ResultUncertaintyLimitHigh									Not required.
ResultUncertaintylimitLow									Not required.
ResultUncertaintyType									Not required.
ResultUncertaintyUnits									Not required.
ResultUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, and "ug" for wipe and filter samples.
RPD									Not required.
RPDLimitHigh									Not required.
RPDLimitType									Not required.
RPDType									Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
RRF									Not required.
RRFLimitLow									Not required.
RRFLimitType									Not required.
StandardSource	X	X	X	X	X	X	X		Report the vendor/manufacturer for this standard.
TailingFactor									Not required.
TailingFactorLimitHigh									Not required.
TailingFactorLimitType									Not required.
Wavelength									Not required.
WavelengthUnits									Not required.
WeightingFactor									Not required.
AnalyteGroup									Not required.
Peak									Not required.
PeakComparison									Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability					Instructions
	IPC	Cal	ICV CCV	ICB CCB	ICS	
Header	X	X	X	X	X	
ClientID	X	X	X	X	X	Report "1" for Region 1, "2" for Region 2 etc. For samples received from QATS, report "91".
ClientName						Not required.
Comment						Not required.
DateFormat	X	X	X	X	X	Report MMDDYYYYThh:mm:ss. All dates and times reported in the EDD must follow this format. If any part of the time is unknown, report "00" for the unknown hours, minutes, and seconds.
EDDID	X	X	X	X	X	Report "SEDD".
EDDImplementationID	X	X	X	X	X	Report "SEDD_5-2_GENERAL_2b" (This is the DTD used).
EDDImplementationVersion	X	X	X	X	X	Report "3" (This is the version of the DTD used).
EDDVersion	X	X	X	X	X	Report "5.2".
GeneratingSystemID	X	X	X	X	X	Report name of generating software or vendor.
GeneratingSystemVersion	X	X	X	X	X	Report software version number.
LabContract	X	X	X	X	X	Report the Contract number.
LabContractModificationDescription						Not required.
LabContractModificationID						Not required.
LabDataPackageID	X	X	X	X	X	Report the Sample Delivery Group (SDG).
LabDataPackageName	X	X	X	X	X	Report "ICP_AES", "ICP_MS", "Hg", or "CN" as applicable.
LabDataPackageVersion	X	X	X	X	X	Report "1", then increment with each resubmission.
LabID	X	X	X	X	X	Report the Agency-assigned Lab Code.
LabName	X	X	X	X	X	Report the Lab Name.
LabNarrative						Not required.
LabQualifiersDefinition	X	X	X	X	X	Use the format 'Qualifer:Definition' to report each qualifier used. Use a ';' to separate the definitions of multiple qualifiers.
LabReportedDate	X	X	X	X	X	Report the date this data was reported to the client.
ProjectID	X	X	X	X	X	Report the Case Number.
ProjectName						Not required.
SiteID						Not required.
SiteName						Not required.
SamplePlusMethod						Not required.
InstrumentQC	X	X	X	X	X	
ClientInstrumentQCType						Not required.
ClientMethodCode						Not required.
ClientMethodID	X	X	X	X	X	Report "ISM01.2".
ClientMethodModificationDescription						Not required.
ClientMethodModificationID						Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability					Instructions
	IPC	Cal	ICV CCV	ICB CCB	ICS	
ClientMethodName						Not required.
ClientMethodSource	X	X	X	X	X	Report "USEPA_CLP".
ClientMethodVersion	X	X	X	X	X	Report month and year the SOW was issued.
Comment						Not required.
LabID	X	X	X	X	X	Report the Agency-assigned Lab Code.
LabInstrumentQCID	X	X	X	X	X	Report a unique ID for each QC.
LabMethodID						Not required.
LabMethodName						Not required.
LabName	X	X	X	X	X	Report the Lab Name.
MethodCode						Not required.
MethodID	X	X	X	X	X	Report "ISM01.2".
MethodModificationDescription						Not required.
MethodModificationID						Not required.
MethodName						Not required.
MethodSource	X	X	X	X	X	Report "USEPA_CLP".
MethodVersion	X	X	X	X	X	Report month and year the SOW was issued.
QCLinkage	X	X	X	X	X	Report "RunBatch" for IPC, calibration, ICV, ICB, and ICS. Report "AnalysisBatch" for CCV and CCB.
QCType	X	X	X	X	X	Report "Instrument_Performance_Check_Tune" for Tune; "Initial_Calibration" for calibration; "Initial_Calibration_Verification" for ICV; "Initial_Calibration_Blank" for ICB; "Continuing_Calibration_Verification" for CCV; "Continuing_Calibration_Blank" for CCB; "Interference_Check_Standard_A" for ICSA;or "Interference_Check_Standard_A/B" for ICSAB.
ContactInformation	X	X	X	X	X	
LabAddress1	X	X	X	X	X	Report the street address of the laboratory.
LabAddress2	X	X	X	X	X	If applicable, report any additional address information (e.g., suite, maildrop). Otherwise leave blank.
LabCity	X	X	X	X	X	Report the city in which the laboratory is located.
LabCountry	X	X	X	X	X	Report the country in which the laboratory is located.
LabID	X	X	X	X	X	Report the Agency-assigned Lab Code.
LabName	X	X	X	X	X	Report the Lab Name.
LabPointOfContact	X	X	X	X	X	Report the name of person at the laboratory serving as the point of contact.
LabPointOfContactElectronicAddress	X	X	X	X	X	Report the Email address of the point of contact.
LabPointOfContactTitle	X	X	X	X	X	Report the title of the point of contact.
LabPointOfContactType						Not required.
LabState	X	X	X	X	X	Report the state or province in which the laboratory is located.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability: IPC	Cal	ICV CCV	ICB CCB	ICS	Instructions
LabTelephoneNumber	X	X	X	X	X	Report the 10-digit phone number for the laboratory.
LabType						Not required.
LabZipCode	X	X	X	X	X	Report the Zip or postal code.
Analysis	X	X	X	X	X	
AliquotAmount						Not required.
AliquotAmountUnits						Not required.
AnalysisBatch			X	X		Links this analysis to the instrument QC sample that begins this sequence. Report the Lab Analysis ID of the CCV that starts the sequence.
AnalysisBatchEnd			X	X		Links this analysis to the instrument QC sample that ends this sequence. Report the Lab Analysis ID of the CCV that ends this sequence.
AnalysisDuration						Not required.
AnalysisDurationUnits						Not required.
AnalysisGroupID		X				Links a group of analyses together that are used for the initial calibration. Report the Lab Analysis ID of the standard that starts this calibration sequence.
AnalysisType	X	X	X	X	X	Report "Initial", "Dilution-01", or "Reanalysis-01"; then increment as necessary.
Analyst	X	X	X	X	X	Report the Analyst's initials.
AnalyzedAmount						Not required.
AnalyzedAmountUnits						Not required.
AnalyzedDate	X	X	X	X	X	Report the date and time the sample was analyzed.
ClientAnalysisID						Not required.
ClientMethodCode						Not required.
ClientMethodID	X	X	X	X	X	Report "ISM01.2".
ClientMethodModificationDescription						Not required.
ClientMethodModificationID						Not required.
ClientMethodName						Not required.
ClientMethodSource	X	X	X	X	X	Report "USEPA_CLP".
ClientMethodVersion	X	X	X	X	X	Report month and year the SOW was issued.
Column						Not required.
ColumnInternalDiameter						Not required.
ColumnInternalDiameterUnits						Not required.
ColumnLength						Not required.
ColumnLengthUnits						Not required.
Comment						Not required.
ConfirmationAnalysisID						Not required.
Counts						Not required.
CountsUncertainty						Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability					Instructions
	IPC	Cal	ICV CCV	ICB CCB	ICS	
CountsUncertaintyConfidenceLevel						Not required.
CountsUncertaintyDetermination						Not required.
CountsUncertaintyIntervalType						Not required.
CountsUncertaintyLimitHigh						Not required.
CountsUncertaintyLimitLow						Not required.
CountsUncertaintyType						Not required.
CountsUnits						Not required.
DetectorID						Not required.
DetectorType						Not required.
DilutionFactor	X	X	X	X	X	Report the Dilution Factor used to the nearest tenth. Report "1.0" when no dilutions are used.
Efficiency						Not required.
HeatedPurge						Not required.
Inclusion						Not required.
InjectionVolume						Not required.
InjectionVolumeUnits						Not required.
InstrumentID	X	X	X	X	X	Report the laboratory identifier for the instrument used for this analysis.
LabAnalysisID	X	X	X	X	X	Report a unique identifier.
LabFileID	X	X	X	X	X	Report the lab file ID.
LabID						Not required.
LabMethodID						Not required.
LabMethodName						Not required.
LabName						Not required.
MethodCode						Not required.
MethodID	X	X	X	X	X	Report "ISM01.2".
MethodModificationDescription						Not required.
MethodModificationID						Not required.
MethodName						Not required.
MethodSource	X	X	X	X	X	Report "USEPA_CLP".
MethodVersion	X	X	X	X	X	Report month and year the SOW was issued.
PreparationBatch						Not required.
ProcedureID						Not required.
ProcedureName						Not required.
ReferenceDate						Not required.
ResultBasis						Not required.
RunBatch	X	X	X	X	X	Links this analysis to an initial calibration. Report the Lab Analysis ID of the standard (Tune or calibration standard) that started the ICAL sequence.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability: IPC	Cal	ICV CCV	ICB CCB	ICS	Instructions
Temperature						Not required.
TemperatureUnits						Not required.
Wavelength						Not required.
WavelengthUnits						Not required.
Yield						Not required.
AnalysisGroup		X				
AnalysisGroupID		X				This links a group of analyses together that are used for the initial calibration. Report the lab analysis ID of the standard that starts this calibration sequence.
AnalysisType		X				Report "Initial_Calibration".
Comment						Not required.
Handling						Not required.
ReportedResult						Not required.
PreparationPlusCleanup		X	X	X		
AliquotAmount		X	X	X		Report the actual amount of standard digested/distilled in mL to at least three significant figures.
AliquotAmountUnits		X	X	X		Report "mL".
Analyst		X	X	X		Report the Analyst's initials.
CleanedUpDate						Not required.
CleanupBatch						Not required.
CleanupType						Not required.
ClientMethodCode						Not required.
ClientMethodID		X	X	X		Enter the sample preparation ID as described in Exhibit B.
ClientMethodModificationDescription						Not required.
ClientMethodModificationID						Not required.
ClientMethodName						Not required.
ClientMethodSource		X	X	X		Report "USEPA_CLP".
ClientMethodVersion		X	X	X		Report month and year the SOW was issued.
Comment						Not required.
FinalAmount		X	X	X		Report the volume of digestate produced by the preparation method in mL.
FinalAmountUnits		X	X	X		Report "mL".
InitialAmount						Not required.
InitialAmountUnits						Not required.
LabID						Not required.
LabMethodID						Not required.
LabMethodName						Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability: IPC	Cal	ICV CCV	ICB CCB	ICS	Instructions
LabName						Not required.
LotNumber						Not required.
MethodCode						Not required.
MethodID		X	X	X		Report "ISM01.2".
MethodModificationDescription						Not required.
MethodModificationID						Not required.
MethodName						Not required.
MethodSource		X	X	X		Report "USEPA_CLP".
MethodVersion		X	X	X		Report month and year the SOW was issued.
PreparationBatch		X	X	X		Links all samples that were prepared together. Report a unique identifier for each batch.
PreparationPlusCleanupType		X	X	X		Report "Preparation".
PreparationType		X	X	X		Report "Automated" or "Manual".
PreparedDate		X	X	X		Report the date and time the sample was prepared.
ProcedureID						Not required.
ProcedureName						Not required.
Solvent						Not required.
Characteristic						Not required.
Analyte	X	X	X	X	X	
AnalyteGroupID						Not required.
AnalyteName	X	X	X	X	X	Report analytes as they appear in the SOW.
AnalyteNameContext	X	X	X	X	X	Report "CAS".
AnalyteType	X	X	X	X	X	Report "Target" for all target compounds, "Spike" for all target analytes designated as spike compounds for MS analysis, "Internal_Standard" for internal standards, "Monitor" for non-target interferences and masses requiring monitoring, or "Instrument_Performance" for tune analytes.
BiasErrorRatio						Not required.
CalibrationBasis		X				Report "Peak" under the AnalysisGroup node.
CalibrationFactor						Not required.
CalibrationFactorUnits						Not required.
CalibrationType						Not required.
CASRegistryNumber	X	X	X	X	X	Report the CAS Number as it appears in the SOW.
ClientAnalyteID	X	X	X	X	X	Report CAS number.
ClientAnalyteName	X	X	X	X	X	Report the analytes as they appear in the SOW.
Coeffa0						Not required.
Coeffa1						Not required.
Coeffa2						Not required.
Coeffa3						Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability					Instructions
	IPC	Cal	ICV CCV	ICB CCB	ICS	
CoeffOfDetermination						Not required.
CoeffOfDeterminationLimitLow						Not required.
CoeffOfDtereminationLimitType						Not required.
Comment						Not required.
CorrelationCoeff						Not required.
CorrelationCoeffLimitLow						Not required.
CorrelationCoeffLimitType						Not required.
Counts						Not required.
CountsUncertainty						Not required.
CountsUncertaintyConfidenceLevel						Not required.
CountsUncertaintyDetermination						Not required.
CountsUncertaintyIntervalType						Not required.
CountsUncertaintyLimitHigh						Not required.
CountsUncertaintyLimitLow						Not required.
CountsUncertaintyType						Not required.
CountsUnits						Not required.
DetectionLimit		X	X	X	X	Report the current Method Detection Limit from the default aqueous preparation method or other appropriate method.
DetectionLimitType		X	X	X	X	Report "MDL".
DetectionLimitUnits		X	X	X	X	Report "ug/L".
DifferenceErrorRatio						Not required.
Efficiency						Not required.
ExpectedResult		X	X		X	Report the concentration of the standard in ug/L.
ExpectedResultUncertainty						Not required.
ExpectedResultUncertaintyConfidenceLevel						Not required.
ExpectedResultUncertaintyDetermination						Not required.
ExpectedResultUncertaintyIntervalType						Not required.
ExpectedResultUncertaintyLimitHigh						Not required.
ExpectedResultUncertaintyLimitLow						Not required.
ExpectedResultUncertaintyType						Not required.
ExpectedResultUncertaintyUnits						Not required.
ExpectedResultUnits		X	X		X	Report "ug/L".
Inclusion		X				Report "No" if an analyte in a standard is not to be included in the calibration curve; otherwise report "Yes".
LabAnalyteID						Not required.
LabQualifiers	X	X	X	X	X	Report qualifiers as specified in the SOW.
LotNumber	X	X	X	X	X	Report the vendor/manufacturer assigned lot number for this standard.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability					Instructions
	IPC	Cal	ICV CCV	ICB CCB	ICS	
Mass						Not required.
MassUnits						Not required.
MeanCalibrationFactor						Not required.
MeanCalibrationFactorUnits						Not required.
MeanRRF						Not required.
MeanRRFLimitLow						Not required.
MeanRRFLimitType						Not required.
PeakID			X	X	X	If response from a single peak is used for quantitation, report the ID of that peak.
PercentBreakdown						Not required.
PercentBreakdownLimitHigh						Not required.
PercentBreakdownLimitType						Not required.
PercentDifference		X				Report the percent difference.
PercentDifferenceLimitHigh		X				Report the upper limit for the percent difference.
PercentDifferenceLimitLow		X				Report the lower limit for the percent difference.
PercentDifferenceLimitType		X				Report "Method".
PercentRecovery			X		X	Report the percent recovery. Not required for ICS when true value equals 0.
PercentRecoveryLimitHigh			X		X	Report the upper limit for the percent recovery. Not required when ResultLimitHigh applies.
PercentRecoveryLimitLow			X		X	Report the lower limit for the percent recovery. Not required when ResultLimitLow applies.
PercentRecoveryLimitType			X		X	Report "Method".
PercentRecoveryType						Not required.
PercentRSD						Not required.
PercentRSDLimitHigh						Not required.
PercentRSDLimitLow						Not required.
PercentRSDLimitType						Not required.
QuantitationBasis		X				Report "External_Standard" under the AnalysisGroup node.
QuantitationLimit		X	X	X	X	Report the Contract Required Quantitation Limit.
QuantitationLimitType		X	X	X	X	Report "CRQL".
QuantitationLimitUnits		X	X	X	X	Report "ug/L".
ReportingLimit						Not required.
ReportingLimitType						Not required.
ReportingLimitUnits						Not required.
Result		X	X	X	X	For detected target and spike analytes, and for monitored masses, report the final calculated result (in ug/L).
ResultLimitHigh					X	For analytes and interferents with true values less than 5x (10x for ICP-MS) CRQL.
ResultLimitLow					X	For analytes and interferents with true values less than 5x (10x for ICP-MS) CRQL.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability					Instructions
	IPC	Cal	ICV CCV	ICB CCB	ICS	
ResultLimitType					X	Report "Method".
ResultType		X	X	X	X	Report "=" for all detected analytes. Report "Not_Detected" for non-detects.
ResultUncertainty						Not required.
ResultUncertaintyConfidenceLevel						Not required.
ResultUncertaintyDetermination						Not required.
ResultUncertaintyIntervalType						Not required.
ResultUncertaintyLimitHigh						Not required.
ResultUncertaintyLimitLow						Not required.
ResultUncertaintyType						Not required.
ResultUncertaintyUnits						Not required.
ResultUnits		X	X	X	X	Report "ug/L".
RPD						Not required.
RPDLimitHigh						Not required.
RPDLimitType						Not required.
RPDType						Not required.
RRF						Not required.
RRFLimitLow						Not required.
RRFLimitType						Not required.
StandardSource	X	X	X	X	X	Report the vendor/manufacturer for this standard.
TailingFactor						Not required.
TailingFactorLimitHigh						Not required.
TailingFactorLimitType						Not required.
Wavelength						Not required.
WavelengthUnits						Not required.
WeightingFactor						Not required.
AnalyteGroup						Not required.
Peak	X	X	X	X	X	
CalibrationFactor						Not required.
CalibrationFactorUnits						Not required.
CalibrationType		X				Report "Linear_Regression"; "Linear_Regression_With_Blank_Force"; "Weighted_Linear_Regression"; or "Weighted_Linear_Regression_With_Blank_Force" under the AnalysisGroup node.
Coeffa0		X				Report the y-intercept of the calibration curve under the AnalysisGroup node.
Coeffa1		X				Report the slope of the calibration curve under the AnalysisGroup node.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability					Instructions
	IPC	Cal	ICV CCV	ICB CCB	ICS	
Coeffa2						Not required.
Coeffa3						Not required.
CoeffOfDetermination						Not required.
CoeffOfDeterminationLimitLow						Not required.
CoeffOfDeterminationLimitType						Not required.
Comment						Not required.
CorrelationCoeff		X				Report the correlation coefficient (r) of the calibration curve to at least 4 significant figures under the AnalysisGroup node.
CorrelationCoeffLimitLow		X				Report the lower limit for the correlation coefficient to at least 4 significant figures under the AnalysisGroup node.
CorrelationCoeffLimitType		X				Report "Method" under the AnalysisGroup node.
DifferenceErrorRatio						Not required.
Efficiency						Not required.
Inclusion		X				Report "No" if a peak in a standard is not to be included in the calibration curve; otherwise report "Yes".
LabQualifiers						Not required.
Mass	X					Report the Average Measured Mass.
MassLimitHigh	X					Report the upper limit for the mass.
MassLimitLow	X					Report the lower limit for the mass.
MassLimitType	X					Report "method".
MassUnits	X					Report "u".
MeanCalibrationFactor						Not required.
MeanCalibrationFactorUnits						Not required.
MeanRetentionTime						Not required.
MeanRetentionTimeLimitHigh						Not required.
MeanRetentionTimeLimitLow						Not required.
MeanReterntionTimeLimitType						Not required.
MeanRetentionTimeUnits						Not required.
MeanRRF						Not required.
MeanRRFLimitLow						Not required.
MeanRRFLimitType						Not required.
PeakID	X	X	X	X	X	Report a unique identifier.
PercentDifference						Not required.
PercentDifferenceLimitHigh						Not required.
PercentDifferenceLimitLow						Not required.
PercentDifferenceLimitType						Not required.
PercentRecovery						Not required.
PercentRecoveryLimitHigh						Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability					Instructions
	IPC	Cal	ICV CCV	ICB CCB	ICS	
PercentRecoveryLimitLow						Not required.
PercentRecoveryLimitType						Not required.
PercentRecoveryType						Not required.
PercentRSD	X	X	X	X	X	For ICP, report the %RSD of the replicates.
PercentRSDLimitHigh	X	X	X	X	X	Report the upper limit for the %RSD.
PercentRSDLimitLow						Not required.
PercentRSDLimitType	X	X	X	X	X	Report "Method".
Resolution	X					Report the Average Peak Width.
ResolutionLimitHigh	X					Report the upper limit from the manufacturer specifications.
ResolutionLimitLow	X					Report the lower limit from the manufacturer specifications.
ResolutionLimitType	X					Report "Laboratory".
ResolutionType						Not required.
ResolutionUnits	X					Report "u".
Result						Not required.
ResultLimitHigh						Not required.
ResultLimitLow						Not required.
ResultLimitType						Not required.
ResultType						Not required.
ResultUncertainty						Not required.
ResultUnits						Not required.
RRF						Not required.
RRFLimitLow						Not required.
RRFLimitType						Not required.
TailingFactor						Not required.
TailingFactorLimitHigh						Not required.
TailingFactorLimitType						Not required.
Wavelength	X	X	X	X	X	For ICP-AES, Hg, and CN, report the wavelength of the peak in nm.
WavelengthUnits	X	X	X	X	X	Report "nm".
WeightingFactor		X				Report "Inverse_Of_Concentration"; "Inverse_Square_Of_Concentration"; or "None" as applicable under the AnalysisGroup node.
PeakComparison		X	X	X	X	
Comment						Not required.
PeakID		X	X	X	X	Report the unique peak identifier of the associated internal standard.
PercentRatio						Not required.

Table 1

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability: IPC	Cal	ICV CCV	ICB CCB	ICS	Instructions
PercentRatioLimitHigh						Not required.
PercentRatioLimitLow						Not required.
PercentRatioLimitType						Not required.

6.2 Stage 2a

Table 2

Inorganics Data Element Instructions

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
Header	X	X	X	X	X	X	X	X	
ClientID	X	X	X	X	X	X	X	X	Report "1" for Region 1, "2" for Region 2, etc. For samples received from QATS, report "91".
ClientName									Not required.
Comment									Not Required.
DateFormat	X	X	X	X	X	X	X	X	Report MMDDYYYYThh:mm:ss. All dates and times reported in the EDD must follow this format. If any part of the time is unknown, report "00" for the unknown hours, minutes, and seconds.
EDDID	X	X	X	X	X	X	X	X	Report "SEDD".
EDDImplementationID	X	X	X	X	X	X	X	X	Report "SEDD_5-2_GENERAL_2a" (This is the DTD used).
EDDImplementationVersion	X	X	X	X	X	X	X	X	Report "2" (This is the version of the DTD used).
EDDVersion	X	X	X	X	X	X	X	X	Report "5.2".
GeneratingSystemID	X	X	X	X	X	X	X	X	Report name of generating software or vendor.
GeneratingSystemVersion	X	X	X	X	X	X	X	X	Report software version number.
Lab Contract	X	X	X	X	X	X	X	X	Report the Contract number.
LabContractModificationDescription									Not required.
LabContractModificationID									Not required.
LabDataPackageID	X	X	X	X	X	X	X	X	Report the Sample Delivery Group (SDG).
LabDataPackageName	X	X	X	X	X	X	X	X	Report "ICP_AES", "ICP_MS", "Hg", or "CN" as applicable.
LabDataPackageVersion	X	X	X	X	X	X	X	X	Report "1", then increment with each resubmission.
LabID									Report the Agency-assigned Lab Code.
Lab Name	X	X	X	X	X	X	X	X	Report the Lab Name.
LabNarrative									Not required.
LabQualifiersDefinition	X	X	X	X	X	X	X	X	Use the format 'Qualifier:Definition' to report each qualifier used. Use a ';' to separate the definitions of multiple qualifiers.
LabReportedDate	X	X	X	X	X	X	X	X	Report the date this data was reported to the client.
ProjectID	X	X	X	X	X	X	X	X	Report the Case Number.
ProjectName									Not required.
SiteID									Not required.
SiteName									Not required.
SamplePlusMethod	X	X	X	X	X	X	X	X	
ClientID	X	X	X						Report "1" for Region 1, "2" for Region 2, etc. For samples received from QATS, report "91".
ClientMethodCategory									Not required.

Table 2

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
ClientMethodCode									Not required.
ClientMethodID	X	X	X	X	X	X	X	X	Report "ISM01.2".
ClientMethodModificationDescription									Not Required.
ClientMethodModificationID	X	X	X	X	X	X	X		Report the Modified Analysis number, if applicable.
ClientMethodName									Not required.
ClientMethodSource	X	X	X	X	X	X	X	X	Report "USEPA_CLP".
ClientMethodType	X	X	X	X	X	X	X	X	Report "ICP/AES", "ICP/MS", "CVAA", or "Spectrophotometry" as applicable.
ClientMethodVersion	X	X	X	X	X	X	X	X	Report month and year the SOW was issued.
ClientName									Not required.
ClientSampleID	X	X	X	X	X	X	X	X	Report the EPA Sample Number.
CollectedDate	X	X	X						Report the date and time the sample was collected.
CollectedEndDate									Not required.
Comment									Not required.
Composite									Not required.
CoolerID									Not required.
CustodyID	X								Report the Traffic Report/Chain of Custody Form number.
EquipmentBatch									Not required.
Filtered	X								Report "Yes" for dissolved metals, or "No" for total metals.
LabContract	X	X	X	X	X	X	X		Report the Contract number.
LabContractModificationDescription									Not required.
LabContractModificationID									Not required.
LabID	X	X	X	X	X	X	X	X	Report the Agency-assigned Lab Code.
LabMethodID									Not required.
LabMethodName									Not required.
LabName	X	X	X	X	X	X	X	X	Report the Lab Name.
LabReceiptDate	X	X	X						Report the date and time the sample was received.
LabReportingBatch	X	X	X	X	X	X	X	X	Links all samples analyzed to this deliverable. Report the SDG number.
LabSampleID	X	X	X	X	X	X	X	X	Report the Lab Sample ID as assigned by the lab.
LocationID									Not required.
LocationName									Not required.
MatrixID	X	X	X	X	X	X	X	X	Report "Water", "Soil", "Wipe", or "Filter" as applicable.
MatrixMedium	X	X	X	X	X	X	X	X	Report "Aqueous" or "Solid" as applicable. Use "Solid" for wipes and filters.
MethodBatch									Not required.

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Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
MethodCategory									Not required.
MethodCode									Not required.
MethodID	X	X	X	X	X	X	X	X	Report "ISM01.2".
MethodLevel	X	X	X			X	X		Report "Low" or "Medium".
MethodModificationDescription									Not required.
MethodModificationID									Not required.
MethodName									Not required.
MethodSource	X	X	X	X	X	X	X	X	Report "USEPA_CLP".
MethodType	X	X	X	X	X	X	X	X	Report "ICP/AES", "ICP/MS", "CVAA", or "Spectrophotometry" as applicable.
MethodVersion	X	X	X	X	X	X	X	X	Report month and year the SOW was issued.
OriginalClientSampleID		X	X			X	X		Report the EPA Sample Number of the original sample this sample was derived from.
OriginalLabSampleID									Not required.
PhaseAnalyzed									Not required.
Preservative	X	X	X						Report any chemical or physical preservative used.
ProjectID	X	X	X	X	X	X	X		Report the Case Number.
ProjectName									Not required.
QCCategory		X	X	X	X	X	X		Report "Blank" for PB; "Spike" for MS and post-digestion spike; "Blank_Spike" for LCS; "Duplicate" for duplicate; or "Serial_Dilution" for SD.
QCLinkage		X	X	X	X	X	X		Report "LabReportingBatch" for MS, post-digestion spike, Dup, and SD; or "PreparationBatch" for PB and LCS.
QCType	X	X	X	X	X	X	X		Report "Field_Sample" for field samples; "Field_Blank" for field, equipment, rinse, or trip blanks; "PT_Sample" for Performance Evaluation Samples; "Method_Blank" for PB; "Matrix_Spike" for MS; "Duplicate" for dup; "Laboratory_Control_Sample" for LCS; "Post_Digestion_Spike" for post-digestion spikes; or "Serial_Dilution" for SD.
Quarantine	X								Report "Yes" or "No" based on sampling information.
SamplingBatch									Not required.
ShippingBatch									Not required.
SiteID									Not required.
SiteName									Not required.
StorageBatch									Not required.
Characteristic	X	X	X	X	X	X	X		
CharacteristicType									Report "Artifacts"; "Clarity"; "Color"; "Percent_Solids"; "pH"; "Temperature"; and "Texture" for each SamplePlusMethod. Report "Clarity" and "Color" for each PreparationPlusCleanup.

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Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
CharacteristicValue									Report any sample artifacts for "Artifact"; the clarity (at receipt and after preparation)for aqueous/water samples for "Clarity"; the color (at receipt and after preparation) for "Color"; the percent solids to two significant figures if less than 10 and three significant figures if greater than or equal to 10 for soil/sediment samples for "Percent_Solids"; the pH (at receipt) to the nearest whole unit for aqueous/water samples for "pH"; the temperature at receipt to the nearest degree for "Temperature"; and the texture for soil/sediment samples for "Texture".
CharacteristicUnits									Report "C" for "Temperature".
Comment									Not required.
ContactInformation	X	X	X	X	X	X	X	X	
LabAddress1	X	X	X	X	X	X	X	X	Report the street address of the laboratory.
LabAddress2	X	X	X	X	X	X	X	X	If applicable, report any additional address information (e.g., suite, maildrop). Otherwise leave blank.
LabCity	X	X	X	X	X	X	X	X	Report the city in which the laboratory is located.
LabCountry	X	X	X	X	X	X	X	X	Report the country in which the laboratory is located.
LabID	X	X	X	X	X	X	X	X	Report the Agency-assigned Lab Code.
LabName	X	X	X	X	X	X	X	X	Report the Lab Name.
LabPointOfContact	X	X	X	X	X	X	X	X	Report the name of the person at the laboratory serving as the point of contact.
LabPointOfContactElectronicAddress	X	X	X	X	X	X	X	X	Report the Email address of the point of contact.
LabPointOfContactTitle	X	X	X	X	X	X	X	X	Report the title of the point of contact.
LabPointOfContactType									Not required.
LabState	X	X	X	X	X	X	X	X	Report the state or province in which the laboratory is located.
LabTelephoneNumber	X	X	X	X	X	X	X	X	Report the 10-digit phone number for the laboratory.
LabType									Not required.
LabZipCode	X	X	X	X	X	X	X	X	Report the Zip or postal code.
Analysis	X	X	X	X	X	X	X	X	
AliquotAmount									Not required.
AliquotAmountUnits									Not required.
AnalysisDuration									Not required.
AnalysisDurationUnits									Not required.
AnalysisGroupID									Not required.
AnalysisType	X	X	X	X	X	X	X		Report "Initial", "Dilution-01", or "Reanalysis-01"; then increment as necessary.

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Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
Analyst	X	X	X	X	X	X	X	X	Report the Analyst's initials.
AnalyzedAmount									Not required.
AnalyzedAmountUnits									Not required.
AnalyzedDate	X	X	X	X	X	X	X	X	Report the date and time the sample was analyzed.
ClientAnalysisID									Not required.
ClientMethodCode									Not required.
ClientMethodID	X	X	X	X	X	X	X	X	Report "ISM01.2".
ClientMethodModificationDescription									Not required.
ClientMethodModificationID									Not required.
ClientMethodName									Not required.
ClientMethodSource	X	X	X	X	X	X	X	X	Report "USEPA_CLP".
ClientMethodVersion	X	X	X	X	X	X	X	X	Report month and year the SOW was issued.
Column									Not required.
ColumnInternalDiameter									Not required.
ColumnInternalDiameterUnits									Not required.
ColumnLength									Not required.
ColumnLengthUnits									Not required.
Comment									Not required.
ConfirmationAnalysisID									Not required.
Counts									Not required.
CountsUncertainty									Not required.
CountsUncertaintyConfidenceLevel									Not required.
CountsUncertaintyDetermination									Not required.
CountsUncertaintyIntervalType									Not required.
CountsUncertaintyLimitHigh									Not required.
CountsUncertaintyLimitLow									Not required.
CountsUncertaintyType									Not required.
CountsUnits									Not required.
DetectorID									Not required.
DetectorType									Not required.
DilutionFactor	X	X	X	X	X	X	X		Report the Dilution Factor used to the nearest tenth. Report "1.0" when no dilutions are used.
Efficiency									Not required.
HeatedPurge									Not required.
Inclusion									Not required.
InjectionVolume									Not required.
InjectionVolumeUnits									Not required.
InstrumentID	X	X	X	X	X	X	X	X	Report the laboratory identifier for the instrument used for this analysis.

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Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
LabAnalysisID	X	X	X	X	X	X	X	X	Report a unique identifier.
LabFileID	X	X	X	X	X	X	X	X	Report the lab file ID.
LabID									Not required.
LabMethodID									Not required.
LabMethodName									Not required.
LabName									Not required.
MethodCode									Not required.
MethodID	X	X	X	X	X	X	X	X	Report "ISM01.2".
MethodModificationDescription									Not required.
MethodModificationID									Not required.
MethodName									Not required.
MethodSource	X	X	X	X	X	X	X	X	Report "USEPA_CLP".
MethodVersion	X	X	X	X	X	X	X	X	Report month and year the SOW was issued.
PreparationBatch									Not required.
ProcedureID									Not required.
ProcedureName									Not required.
ReferenceDate									Not required.
ResultBasis	X	X	X		X				Report "Dry" for soil/sediment samples. For water/aqueous samples, report "Dissolved" if field-filtered; otherwise report "Total".
Temperature									Not required.
TemperatureUnits									Not required.
WaveLength									Not required.
WaveLengthUnits									Not required.
Yield									Not required.
AnalysisGroup									Not required.
Handling									Not required.
ReportedResult	X	X	X	X	X	X	X		
AnalysisGroupID									Not required.
AnalyteGroupID									Not required.
AnalyteName	X	X	X	X	X	X	X		Report analytes as they appear in the SOW.
AnalyteNameContext	X	X	X	X	X	X	X		Report "CAS".
AnalyteType	X	X	X	X	X	X	X		Report "Target" for all target compounds or "Spike" for all target analytes designated as spike compounds for Matrix Spike analysis.
BiasErrorRatio									Not required.
CASRegistryNumber	X	X	X	X	X	X	X		Report CAS Numbers as they appear in the SOW.
ClientAnalyteID	X	X	X	X	X	X	X		Report CAS number.

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Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MS	Dup	LCS	PB	PDS	SD	NCS	Instructions
ClientAnalyteName	X	X	X	X	X	X	X		Report analytes as they appear in the SOW.
ClientDetectionLimit									Not required.
ClientDetectionLimitUnits									Not required.
ClientQuantitationLimit	X	X	X	X	X	X	X		Report the CRQL.
ClientQuantitationLimitUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
Comment									Not required.
DetectionLimit	X	X	X	X	X	X	X		Report the current Method Detection Limit (MDL), adjusted for sample weight/volume, percent solids, and dilution factor to at least two significant figures.
DetectionLimitType	X	X	X	X	X	X	X		Report "MDL_sa".
DetectionLimitUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
DifferenceErrorRatio									Not required.
ExpectedResult		X		X		X			Report the theoretical final calculated concentration (the spike added) for the spiked analytes or the true value for LCS.
ExpectedResultUncertainty									Not required.
ExpectedResultUncertaintyConfidenceLevel									Not required.
ExpectedResultUncertaintyDetermination									Not required.
ExpectedResultUncertaintyIntervalType									Not required.
ExpectedResultUncertaintyLimitHigh									Not required.
ExpectedResultUncertaintyLimitLow									Not required.
ExpectedResultUncertaintyType									Not required.
ExpectedResultUncertaintyUnits									Not required.
ExpectedResultUnits		X		X		X			Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
LabAnalysisID	X	X	X	X	X	X	X		Report the unique identifier from the analysis this reported result was derived from.
LabAnalyteID									Not required.
LabQualifiers	X	X	X	X	X	X	X		Report flags as specified in the SOW. Includes the C and Q qualifiers from Form I.
LabResultStatus	X	X	X						Report "Preliminary" or "Final" as applicable.
PeakID									Not required.
PercentDifference							X		Report the Percent Difference.
PercentDifferenceLimitHigh							X		Report the upper limit for the Percent Difference.
PercentDifferenceLimitLow									Not required.
PercentDifferenceLimitType							X		Report "Method".
PercentRecovery		X		X		X			Report the Percent Recovery.

Table 2

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
PercentRecoveryLimitHigh		X		X					Report the upper limit for the Percent Recovery.
PercentRecoveryLimitLow		X		X					Report the lower limit for the Percent Recovery.
PercentRecoveryLimitType		X		X					Report "Method".
PercentRecoveryType									Not required.
QuantitationLimit	X	X	X	X	X	X	X		Report the CRQL adjusted for sample weight/volume, percent solids, and dilution factor to at least two significant figures.
QuantitationLimitType	X	X	X	X	X	X	X		Report "CRQL_sa".
QuantitationLimitUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
ReportingLimit									Not required.
ReportingLimitType									Not required.
ReportingLimitUnits									Not required.
Result	X	X	X	X	X	X	X		Report the final calculated result for detects.
ResultLimitHigh									Not required.
ResultLimitLow									Not required.
ResultLimitType									Not required.
ResultType	X	X	X	X	X	X	X		Report "=" for all detected analytes. Report "Not_Detected" for non-detects.
ResultUncertainty									Not required.
ResultUncertaintyConfidenceLevel									Not required.
ResultUncertaintyDetermination									Not required.
ResultUncertaintyIntervalType									Not required.
ResultUncertaintyLimitHigh									Not required.
ResultUncertaintyLimitLow									Not required.
ResultUncertaintyType									Not required.
ResultUncertaintyUnits									Not required.
ResultUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
RetentionTime									Not required.
RetentionTimeUnits									Not required.
RPD			X						Report the RPD to the nearest whole percent.
RPDLimitHigh			X						Report the upper limit for the RPD to the nearest whole percent.
RPDLimitType			X						Report "Method".
RPDType									Not required.
PreparationPlusCleanup	X	X	X	X	X	X	X		
AliquotAmount	X	X	X	X	X	X	X		Report the sample amount in grams for soil/sediment or mL for aqueous/water to at least three significant figures. Not required for wipes or filters.

Table 2

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
AliquotAmountUnits	X	X	X	X	X	X	X		Report "g" for soil/sediment or "mL" for aqueous/water. Not required for wipes or filters.
Analyst	X	X	X	X	X	X	X		Report the Analyst's initials.
CleanedUpDate									Not required.
CleanUpBatch									Not required.
CleanUpType									Not required.
ClientMethodCode									Not required.
ClientMethodID	X	X	X	X	X	X	X		Report the sample preparation ID as given in Exhibit B.
ClientMethodModificationDescription									Not required.
ClientMethodModificationID									Not required.
ClientMethodName									Not required.
ClientMethodSource	X	X	X	X	X	X	X		Report "USEPA_CLP".
ClientMethodVersion	X	X	X	X	X	X	X		Report month and year the SOW was issued.
Comment									Not required.
FinalAmount	X	X	X	X	X	X	X		Report the volume of digestate produced by the preparation method in mL.
FinalAmountUnits	X	X	X	X	X	X	X		Report "mL".
InitialAmount									Not required.
InitialAmountUnits									Not required.
LabID									Not required.
LabMethodID									Not required.
LabMethodName									Not required.
LabName									Not required.
LotNumber									Not required.
MethodCode									Not required.
MethodID	X	X	X	X	X	X	X		Report "ISM01.2".
MethodModificationDescription									Not required.
MethodModificationID									Not required.
MethodName									Not required.
MethodSource	X	X	X	X	X	X	X		Report "USEPA_CLP".
MethodVersion	X	X	X	X	X	X	X		Report month and year the SOW was issued.
PreparationBatch	X	X	X	X	X	X	X		Links all samples that were prepared together. Report a unique identifier for each batch.
PreparationPlusCleanupType	X	X	X	X	X	X	X		Report "Preparation".
PreparationType	X	X	X	X	X	X	X		Report "Automated" or "Manual".
PreparedDate	X	X	X	X	X	X	X		Report the date and time the sample was prepared.
ProcedureID									Not required.
ProcedureName									Not required.

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Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MS	Dup	LCS	PB	PDS	SD	NCS	Instructions
Solvent									Not required.
Analyte	X	X	X	X	X	X	X		
AnalyteGroupID									Not required.
AnalyteName	X	X	X	X	X	X	X		Report analytes as they appear in the SOW.
AnalyteNameContext	X	X	X	X	X	X	X		Report "CAS".
AnalyteType	X	X	X	X	X	X	X		Report "Target" for all target compounds, "Spike" for all target analytes designated as spike analytes, "Internal_Standard" for internal standards, or "Monitor" for non-target interferences and masses requiring monitoring.
BiasErrorRatio									Not required.
CASRegistryNumber	X	X	X	X	X	X	X		Report the CAS Number as it appears in the SOW.
ClientAnalyteID	X	X	X	X	X	X	X		Report CAS number.
ClientAnalyteName	X	X	X	X	X	X	X		Report the analytes as they appear in the SOW.
Comment									Not required.
Counts									Not required.
CountsUncertainty									Not required.
CountsUncertaintyConfidenceLevel									Not required.
CountsUncertaintyDetermination									Not required.
CountsUncertaintyIntervalType									Not required.
CountsUncertaintyLimitHigh									Not required.
CountsUncertaintyLimitLow									Not required.
CountsUncertaintyType									Not required.
CountsUnits									Not required.
DetectionLimit	X	X	X	X	X	X	X		Report the Method Detection Limit (MDL).
DetectionLimitType	X	X	X	X	X	X	X		Report "MDL".
DetectionLimitUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
DifferenceErrorRatio									Not required.
Efficiency									Not required.
ExpectedResult									Not required.
ExpectedResultUncertainty									Not required.
ExpectedResultUncertaintyConfidenceLevel									Not required.
ExpectedResultUncertaintyDetermination									Not required.
ExpectedResultUncertaintyIntervalType									Not required.
ExpectedResultUncertaintyLimitHigh									Not required.
ExpectedResultUncertaintyLimitLow									Not required.
ExpectedResultUncertaintyType									Not required.
ExpectedResultUncertaintyUnits									Not required.

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Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
ExpectedResultUnits									Not required.
Inclusion									Not required.
LabAnalyteID									Not required.
LabQualifiers	X	X	X	X	X	X	X		Report qualifiers as specified in the SOW.
LotNumber	X	X	X	X	X	X	X		Report the vendor/manufacturer assigned lot number for this standard (Internal Standards and spiking compounds only).
PeakID	X	X	X	X	X	X	X		If response from a single peak is used for quantitation, report the ID of that peak.
PercentRecovery									Not required.
PercentRecoveryLimitHigh									Not required.
PercentRecoveryLimitLow									Not required.
PercentRecoveryLimitType									Not required.
PercentRecoveryType									Not required.
QuantitationLimit	X	X	X	X	X	X	X		Report the CRQL.
QuantitationLimitType	X	X	X	X	X	X	X		Report "CRQL".
QuantitationLimitUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
ReportingLimit									Not required.
ReportingLimitType									Not required.
ReportingLimitUnits									Not required.
Result	X	X	X	X	X	X	X		For target and spike analyte detects, and for monitored masses, report the final calculated result.
ResultLimitHigh									Not required.
ResultLimitLow									Not required.
ResultLimitType									Not required.
ResultType	X	X	X	X	X	X	X		Report "=" for all detected analytes. Report "Not_Detected" for non-detects.
ResultUncertainty									Not required.
ResultUncertaintyConfidenceLevel									Not required.
ResultUncertaintyDetermination									Not required.
ResultUncertaintyIntervalType									Not required.
ResultUncertaintyLimitHigh									Not required.
ResultUncertaintyLimitLow									Not required.
ResultUncertaintyType									Not required.
ResultUncertaintyUnits									Not required.
ResultUnits	X	X	X	X	X	X	X		Report "mg/kg" for soil/sediment, "ug/L" for aqueous/water, or "ug" for wipe and filter samples.
StandardSource	X	X	X	X	X	X	X		Report the vendor/manufacturer for this standard.

Table 2

Inorganics Data Element Instructions (Con't)

Node and Data Elements	Applicability								Instructions
	Sample	MS	Dup	LCS	PB	PDS	SD	NCS	
Wavelength									Not required.
WavelengthUnits									Not required.
AnalyteGroup									Not required.

Table 3

Abbreviations Used in the Instructions

Abbreviation	Definition
%RSD	Percent Relative Standard Deviation
Cal.	(Initial) Calibration
CAS	Chemical Abstracts Service
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CRQL	Contract Required Quantitation Limit
DTD	Document Type Definition
Dup	Duplicate Sample
EDD	Electronic Data Deliverable
ICAL	Initial Calibration
ICB	Initial Calibration Blank
ICS	Interference Check Sample
ICSA	Interference Check Sample Solution A
ICSAB	Interference Check Sample Solution AB
ICV	Initial Calibration Verification
ID	Identifier
IPC	Instrument Performance Check (Tune)
Lab	Laboratory
LCS	Laboratory Control Sample
MDL	Method Detection Limit
MS	Matrix Spike
NCS	Non-Client (ZZZZZZ) Sample
PB	Preparation Blank
PDS	Post-Digestion/Distillation Spike
QATS	Quality Assurance Technical Support
QC	Quality Control
RPD	Relative Percent Difference
SD	Serial Dilution
SDG	Sample Delivery Group
SOW	Statement of Work