FOURTH FIVE-YEAR REVIEW REPORT FOR PEERLESS PLATING CO. SUPERFUND SITE MUSKEGON COUNTY, MICHIGAN

Prepared by

U.S. Environmental Protection Agency
Region 5
CHICAGO, ILLINOIS

Margaret M. Guerriero
Acting Director
Superfund Division

July 11, 2017
Date

Table of Contents

LIST OF ABBREVIATIONS & ACRONYMS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FYR	Five-Year Review
GES	Groundwater Extraction System
HDI	Hardware Distributors Company
ICs	Institutional Controls
LTS	Long-Term Stewardship
MCLs	Maximum Contaminant Levels
MDEQ	Michigan Department of Environmental Quality
MCWMS	Muskegon County Waste Management System
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PRB	Permeable Reactive Barrier
RAO	Remedial Action Objective
RC	Restrictive Covenant
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
Site	Peerless Plating Co. Superfund Site
TBC	To be considered
UU/UE	Unlimited Use and Unrestricted Exposure

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The United States Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the Fourth FYR for the Peerless Plating Co. Superfund Site (Site). The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of one Operable Unit (OU) at the site and one OU will be addressed in this FYR. OU1 addresses the site-wide groundwater remedy.

The Peerless Plating Co. Superfund Site FYR was led by Cindy Fairbanks, Project Manager, Michigan Department of Environmental Quality (MDEQ). Participants included: Matthew Baltusis, MDEQ Site Geologist; Cheryl Allen, Community Involvement Coordinator; and Sarah Rolfes, EPA Remedial Project Manager (RPM). As the Peerless Plating Superfund Site is an orphan site currently owned by the State of Michigan, no Potentially Responsible Party notification of the start of the FYR was required. However, the previous EPA RPM, Howard Caine, was notified of the initiation of the FYR in a letter dated August 11, 2016. The review began on August 8, 2016.

Site Background

The Peerless Plating Co. Site is an abandoned electroplating facility located at 2554 Getty Avenue, Muskegon Township Muskegon, Michigan. The property covers approximately 1 acre in the southwest 1/4 of Section 33, T.10 N., and R. 16 W Muskegon Township. (See Appendix D) The vicinity of the Site is urban light industrial and residential. Lake Michigan supplies drinking water for residences and businesses within a three-mile radius of the Site. The Site is located adjacent to Little Black Creek. There are no known private wells that supply drinking water within a one mile radius of the Site.

Electroplating operations were conducted at the Peerless Plating Site from 1937 to 1983. The current land use of the surrounding area is light urban industrial and residential. In establishing cleanup requirements for the Site, EPA considered the possibility of industrial redevelopment for the Site. The Site is fenced and contaminated soils were removed approximately to the depth of the water table and back filled with clean fill.

The groundwater aquifer underlying the Site occurs between 5 and 13 feet within lacustrine sands. Shallow groundwater flow is primarily horizontal to the southeast toward Little Black Creek.

Electroplating operations and processes conducted at Peerless Plating included copper, nickel, chromium, cadmium and zinc plating. Other associated activities such as burnishing, polishing, pickling,

oiling, passivating, stress relieving, and dichromate dipping also occurred over the years of operation. Throughout the operations of the Site, waste was discharged to a seepage lagoon at the rear of the facility. During the remedial action soil excavation operations at the Site, it was discovered that a process pipe was not connected to anything and was discharging directly to groundwater.

Inorganic contaminants found in the soils included arsenic, antimony, beryllium, cadmium chromium, copper, lead, nickel, and cyanide. Additional contaminants in the soil included benzene, 1,1-dichloroethane, ethylbenzene, perchloroethylene, toluene, vinyl chloride, and xylene. Contaminants in the groundwater included the same inorganics as well as acetone, benzene, trichloroethylene, and vinyl chloride.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Peerless Plating Co.		
EPA ID: MID 006031348		
Region: 5	**State:** MI	**City/County:** Muskegon, Muskegon County
SITE STATUS		
NPL Status: Final		
Multiple OUs? No	**Has the site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: EPA for the In-Situ Injection Soil Treatment and Permeable Restrictive Barrier Remedy; MDEQ for Operation and Maintenance of the Pump and Treatment Remedy		
Author name (Federal or State Project Manager): Cindy Fairbanks, State Project Manager		
Author affiliation: Michigan Department of Environmental Quality		
Review Period: 8/8/2016 – 5/4/2017		
Date of site inspection: 4/11/2017		
Type of review: Statutory		
Review number: 4		
Triggering action date: 7/12/2012		
Due date ***(five years after triggering action date)***: 7/12/2017		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

Initial Action under 1992 Record of Decision

In August 1990, the Peerless Plating Site was finalized on the National Priorities List. From 1990 through 1992, a Remedial Investigation/Feasibility Study (RI/FS) was conducted to determine the nature and extent of contamination at the Site.

Based on the results of the sampling conducted as part of the RI/FS, the following were found to have been released to the environment:

Soil	Groundwater
Arsenic	Cadmium
Cadmium	Chromium
Chromium	Copper
Copper	Nickel
Lead	Cyanide
Nickel	Acetone
Cyanide	Benzene
Benzene	Trichloroethene
1,1-dichloromethane	Vinyl chloride
Ethylbenzene	
Perchloroethylene	
Toluene	
Vinyl chloride	
Xylene	

Exposure to soil via ingestion and groundwater via ingestion and inhalation of volatile organic compounds are associated with significant human health risks due to exceedances of EPA's risk management criteria for the reasonable maximum exposure scenarios. The carcinogenic risks were highest for exposure to contaminated soil and groundwater exceeded the acceptable risk range of 1 X10-4 to 1 X 10-6. Based on these findings, a Record of Decision (ROD) was issued for the Site in September 1992.

Response Actions

Remedial Action Objectives

The remedial action objectives (RAOs) for the Peerless Plating Site were identified in the 1992 ROD and included: (1) control risks posed by ingestion of and dermal contact with contaminated groundwater and soils and (2) to treat the principal threat (the contaminated soils).

Remedial Actions under the 1992 ROD

On September 21, 1992, EPA issued a ROD that called for the following actions:

- Demolition and disposal of the Peerless Plating building in order to facilitate additional soil sampling underneath the building and around the perimeter during the remedial design phase.

- Air stripping and treatment of the volatile organic compounds in the groundwater, followed by precipitation of inorganic compounds. The treated groundwater was discharged into Little Black Creek.

- In-situ Vapor Extraction for the organic compounds and stabilization of inorganic compounds in the soil. The treated soil will be disposed of offsite.

The ROD established groundwater cleanup standards based on Safe Drinking Water Act Maximum Contaminant Levels (MCLs), risk-based levels, and State of Michigan criteria for protection of groundwater quality.

Explanation of Significant Differences

Three Explanations of Significant Differences (ESDs) have been issued for the Site. The first ESD, issued in 1997, was based on the collection of Site specific data that had not been collected previously. The cleanup standards in the ROD were based on background concentrations from a single sample collected at another Superfund Site. Also, the State of Michigan promulgated new cleanup standards for land use-based remediation. Using this information, new soil cleanup standards were generated.

During remedial activities, previously unidentified soil contamination was discovered in the saturated zone. Because of the difficulties and expense of excavating soil below the water table, a second ESD was issued in 2001. This ESD was issued to allow for contaminated soils to remain on Site above the cleanup levels because the ROD indicated that all contaminated soils would be excavated and stabilized on Site to allow for unrestricted Site use. This ESD also allowed for excavation of contaminated soils within 2 feet of Little Black Creek. This would maintain the integrity of the stream bank and reduce any impact to the creek. The ESD required that deed restrictions be placed on the property because contaminated soils were being left on Site as well as on adjacent property.

Groundwater extraction and treatment began in July 2002 and treated groundwater was discharged to Little Black Creek. When the extraction system was designed, the Muskegon County Wastewater Management System did not accept industrial wastewater discharge. When the Muskegon County Wastewater Management System indicated they had the capacity to accept the water from the Site, a third ESD was issued in March 2006. EPA issued this ESD in order to make a change to reduce some or all of the treatment requirements outlined in the 1992 ROD and also to change the discharge point for the groundwater pump and treat system from Little Black Creek to the Muskegon County Waste Management System (MCWMS). This ESD also allowed for reduction or elimination of pretreatment products. To date, the plant operator has been able to eliminate all pretreatment chemicals needed.

Remedial Actions under the 2013 ROD Amendment

EPA, with concurrence from MDEQ, issued a ROD Amendment in 2013 to modify the 1992 ROD for the groundwater cleanup remedy in order to accelerate the time frame required to clean up the groundwater contamination and to address residual contamination left in place following the soil excavation work performed as part of the 1992 ROD remedy. The enhancements under the 2013 ROD Amendment included additional in-situ treatment in identified saturated source soil areas on the Site, along with the addition of a Permeable Reactive Barrier (PRB) to treat groundwater flowing toward Little Black Creek.

The additional remedial measures in the ROD Amendment only addressed the residual soil contamination known to be located on the Site. EPA acknowledged that an additional suspected source area related to the Site does exist on the Hardware Distributors Company (HDI) property directly south of the Site under the HDI building. Because this is currently an operating facility, additional investigations would be required to fully determine the impact of the suspected contamination under this building. Additional investigations may be completed if the property is vacant and the building is abandoned. EPA will address this area under a future action if it is determined to be necessary, based on any future information.

Remedy Implementation

All work performed at this Site was conducted by EPA under a Superfund financed cleanup.

Soil remediation construction activities. There were three phases of soil remediation construction activities. Phase 1 occurred from August 1977 until January 1999 and included soil vapor extraction treatment; soil excavation, treatment, and disposal; and removal of an underground storage tank. Phase 2 took place from December 1999 through October 2000 and included additional soil excavation, treatment and disposal off-Site. Phase 3 lasted from October 2000 to February 2001 and included soil excavation, treatment and disposal of soils from the HDI and Asphalt Paving properties. A total of 16,404 tons of soil were treated and disposed off-Site during this action.

During soil excavation activities, it was determined that soil exceeding the cleanup standards two feet below the groundwater table would not be excavated and would be left in place. Phase 1 excavation activities required that some areas on-Site be left above cleanup standards. Confirmatory sampling during this phase showed that levels of cadmium and trichloroethylene were detected at concentrations greater than their cleanup standards.

All confirmatory samples collected during Phase 2 and Phase 3 were below cleanup standards. However, soils were only removed up to the building on the HDI property, and it is known that an addition to this building was constructed over contaminated soils.

Groundwater remediation construction activities. Groundwater remediation construction activities were conducted from November 1999 through April 2002. This involved constructing a groundwater extraction and treatment system and conducting performance testing. In 2002, development of the Groundwater Extraction System (GES) was completed. The GES included the installation of six extraction wells and the control vault. Modifications to the GES were implemented in 2008 to discharge the groundwater into the MCWMS under Permit #PPS-m07a. The Site achieved construction completion status when the Preliminary Closeout Report was signed in April 2001.

Table 1 Remedial Action Objectives for Groundwater and Soil

Contaminant of Concern	Groundwater	Soil
Arsenic	0.2 ug/l*	1.7 mg/kg*
Cadmium	4.0 ug/l	0.8 mg/kg
Aluminum	50 ug/l	3770 mg/kg
Antimony	3.0 ug/l	7 mg.kg
Barium	2,000 ug/l	40 mg/kg
Hexavalent Chromium	2.0 ug/l	0.04 mg/kg
Lead	5.0 ug/l	5.0 mg/kg
Mercury	2.0 ug/l	0.04 mg/kg
Nickel	57 ug/l	1.8 mg/kg
Cyanide	4.0 ug/l	0.08 mg/kg

* ug/l- microgram per liter
* mg/l milligram per liter

In March 2012, additional soil and groundwater sampling was conducted within two areas of the Peerless property: the former remedial area south of the groundwater treatment building that was excavated as part of the Phase I soil excavation area, and the most up-gradient portion of the Peerless property in the northwest corner. Soil sample results from this investigation indicated the presence of cadmium in saturated soils below the water table at concentrations exceeding site RAOs. Residual saturated soils contamination was found to be as high as 1,100 mg/kg of cadmium.

Groundwater results from this work indicated that arsenic, lead, nickel, cadmium, and cyanide were still present throughout the investigation areas at concentrations exceeding site specific RAOs. Cadmium and cyanide were the most prevalent contaminants in the groundwater.

In accordance with the 2013 ROD Amendment, predesign activities were conducted to define the appropriate down gradient location for the PRB and a pilot study of the injection remedy was conducted on the Site in 2014. The positive results confirmed that the injection treatment of the groundwater and saturated soils and the installation of the PRB along the west bank of the Little Black Creek would be an appropriate enhancement for the Site.

Injection points were mapped out in two areas on the Peerless property: the Northwest Area, located west of the former plating building and the main injection area located between the former Peerless Plating building and the HDI building. The field injection work occurred from August 7, 2015 through October 6, 2015. The PRB installation occurred along the west bank of the Little Black Creek. A baseline groundwater sampling event occurred prior to the injection work. The quarterly performance groundwater monitoring began in December of 2015 and is currently ongoing.

During the 2013 ROD Amendment remedial enhancement work, it was determined that the on-site GES would not operate. Instead, the PRB would provide in-situ remediation for any residual groundwater contamination and would reduce migration of contaminated groundwater beyond the property boundary. Upon completion of two years of quarterly performance monitoring (eight quarters), an evaluation will be completed to determine if the PRB should be regenerated or if the GES will be restarted. Performance monitoring will be completed in October 2017 and the evaluation will begin in November 2017.

Institutional Controls

Institutional Controls (ICs) are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy.

Compliance with ICs is required to assure long-term protectiveness for any areas which do not allow for UU/UE.

Table 3: Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Peerless Plating Site Property Soil treated to industrial cleanup standards/ Groundwater exceeding cleanup standards	Yes	Yes	Peerless Plating Site Property	See text below	Restrictive Covenant recorded on 3/22/2013 at the Muskegon County Recorder's Office
Asphalt Paving Company Property Groundwater treatment system, pumping wells and monitoring wells on property and groundwater exceeding cleanup standards	Yes	Yes	Asphalt Paving Company Property	See text below	Restrictive Covenant recorded on 2/12/2015 at the Muskegon County Recorder's Office
Hardware Distributors Property Soil under the existing building exceeds industrial cleanup standards/ Groundwater exceeding cleanup standards	Yes	Yes	Hardware Distributors Property	See text below	Restrictive Covenant recorded on 10/18/2013 at the Muskegon County Recorder's Office
Bill's Used Car Property Groundwater exceeding cleanup standards	Yes	Yes	Bill's Used Car Property	See text below	Restrictive Covenant recorded on 6/25/2014 at the Muskegon County Recorder's Office
CAPCO, LLCs Property Groundwater exceeding cleanup standards	Yes	Yes	CAPCO, LLCs Property	See text below	Restrictive Covenant (planned)

Status of Access Restrictions and ICs Current Compliance: Restrictive covenants (RCs) have been recorded on four of the five parcels that constitute the Site. The remaining RC for the CAPCO property is yet to be developed and recorded. MDEQ continues attempts to find the current owner of record for the parcel for aid in development of the RC. The access restrictions specified below apply to all of the RCs.

1. Restrictions on Land Use:
    a. Prohibit all residential uses of the Property.
2. Restrictions on Activity:
    a. Prohibit activities that cause existing contamination to migrate beyond the boundaries of the Property, increase the cost of Response Activities, or otherwise exacerbate the existing contamination located on the Property.
    b Prohibit and prevent use of the Property in a manner that may interfere with Response Activities at the Property, including interim response, remedial action, operation and maintenance, monitoring, or other measures necessary to assure the effectiveness and integrity of the remedial action.
    c Not interfere with or damage the integrity of the extraction and monitoring wells U.S. EPA or the MDEQ have installed on the Property.
    d. Prohibit the construction of and use of wells or other devices on the Property to extract groundwater for consumption, irrigation, or any other use, except for wells and devices that are necessary for Response Activities or testing and monitoring groundwater contamination in accordance with plans approved by the MDEQ and the U.S. EPA.
    e. Prohibit any drilling, digging, building, or removal of any buildings, wells, pipes, roads, ditches or any other structures on the Property unless the written consent of U.S. EPA and the MDEQ to such use or activity is first obtained.
    f Prohibit disturbing the soil underneath the existing building on the Property unless the written consent of U.S. EPA or the MDEQ is first obtained.

Copies of the filed ICs and a map showing the area in which the ICs apply is included in Appendix J.

Long Term Stewardship: Long-term protectiveness at the Site requires compliance with the remedy and implementation of effective ICs to ensure that the remedy continues to function as intended. To assure proper maintenance, monitoring and enforcement once ICs are implemented, long-term stewardship (LTS) procedures should be reviewed and a plan developed. The plan would include regular inspection of ICs at the Site and annual certification to EPA that ICs are in place and effective. Additionally, use of a communications plan and use of one-call system should be explored for LTS.

IC Follow up Actions Needed: Development and recording of the RC for the CAPCO property is still needed. MDEQ continues attempts to find the current owner of record for the parcel for aide in development of the RC. LTS procedures should be developed and documented in a LTS plan (or in an amendment to the Operation and Maintenance (O&M) plan). The plan will document activities associated with ensuring LTS of ICs and specify the people and/or organizations that will be responsible for these activities.

Systems Operations/Operation & Maintenance

MDEQ took over the operation and maintenance of the site GES on October 1, 2013 and operated the system until August 2015. At that time, construction began on the remedy enhancement that was specified in the 2013 ROD Amendment and the GES was shut down. MDEQ continues to maintain the extraction wells and equipment as re-activation of the GES is a possibility, depending on the results of

the remedy enhancement. No modifications to the GES were made in the past five years. Until system shut down in August 2015, the system operated as designed.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the last FYR as well as the recommendations from the last FYR and the current status of those recommendations.

Table 4: Protectiveness Determinations/Statements from the 2012 FYR

OU #	Protectiveness Determination	Protectiveness Statement
Sitewide	Short-term Protective	The remedy at the Peerless Plating Site currently protects human health and the environment in the short term because there are no current exposure pathways, and the remedy is functioning as designed. The removal of onsite contaminated soils has achieved the remedial objectives to minimize the migration of contaminates to the groundwater and prevent direct contact with and ingestion of contaminants in the soil. Institutional controls (ICs) that do not allow for unlimited use and restricted exposure are required for the soils and groundwater. Long term protectiveness requires the implementation of effective ICs and long-term stewardship (LTS) of ICs along with site remedy components. LTS must be assured once ICs are implemented and include maintaining, monitoring and enforcing effective ICs. ICs in the form of restrictive covenants are currently being requested from property owners where extraction wells and monitoring wells exist. Long-term protectiveness will not fully be achieved until these ICs are in place and groundwater cleanup goals are achieved.

Table 5: Status of Recommendations from the 2012 FYR

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
Sitewide	Restrictive Covenants are required on five properties	Letters of request have been sent, but follow-up with affected landowners will need to continue to assure LTS	Ongoing	RCs have been recorded for four of the five parcels comprising the Site; RC for CAPCO property still needed	NA
Sitewide	Evaluation for possible enhancement of remedy (addressing additional source areas)	Undertake an evaluation of the remaining site source areas	Completed	Evaluation completed and remedy enhancement in the form of in-situ injection and PRB installation began in October 2015 and is ongoing	4/22/2013

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A public notice was made available by EPA via notice in the Muskegon newspaper posted on November 15, 2016. The notice informed the public that the FYR was being conducted and invited the public to provide input to EPA and MDEQ. A copy of this ad can be found in Appendix H. The results of the review and the report were made available at the Norton Shores Branch Library in the Peerless Plating Superfund Site information repository. Since the notice was issued, no member of the community has voiced any interest or opinion concerning the FYR process.

Data Review

The groundwater data collected from the Site from June 2005 through September 2016 has been compiled into a data table included in this report as Appendix E. This data includes sampling results from both the GES remedy, which was suspended in August 2015, and the first five quarterly groundwater data sets (through September 2016) collected after the in-situ soil treatment and PRB.

The annual data reports for the GES remedy for 2012-2014 indicate that the system was operating as designed and was effectively capturing groundwater at the Peerless Site. Contaminant concentrations detected in groundwater at certain areas of the Site remained above RAOs. Based on an evaluation of soil and groundwater data at the Site, a feasibility study was conducted in 2013 and it was determined that a remedial enhancement was necessary in order to accelerate the timeframe to achieve RAOs at the Site.

The remedy enhancement measures began in October 2015 at the Site and consisted of in-situ soil treatment and installation of a PRB. It is too early to determine if the remedy enhancement will meet the RAOs. An initial review of the first five quarters of data have shown reductions or elimination of cyanide and arsenic and some gradual reductions of the cadmium concentrations. The data also indicates that areas of elevated metals concentrations remain. In accordance with the 2013 ROD Amendment, an evaluation of the groundwater data collected during the remedy enhancement will be performed following the completion of eight quarterly sets of groundwater sampling to determine if the PRB needs to be reenergized. The evaluation is anticipated to begin in November 2017. If the data evaluation indicates additional treatment is required and the PRB is reenergized, an additional two years of monitoring will occur.

Site Inspection

The inspection of the Site was conducted on April 11, 2017. In attendance were Sarah Rolfes, EPA RPM, Cindy Fairbanks, MDEQ RPM, Dave Franc, SulTrac, EPA Contractor, and Greg Azzoli, ES, MDEQ Contractor. The purpose of the inspection was to assess the protectiveness of the remedy. At the time of the inspection, quarterly groundwater monitoring was occurring. All of the pumping wells and monitoring wells were in place and there appeared to be no issues. There were no issues observed during this event. A copy of the site inspection report can be found in Appendix I.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Yes.

Question A Summary:

Remedial Action Performance

Yes, the remedy is functioning as intended by the decision documents. The review of documents, ARARs, risk assumptions and the results of the Site inspection indicates that the remedy is functioning as intended by the ROD, as modified by three ESDs and a 2013 ROD Amendment. In accordance with the 2013 ROD Amendment, EPA is conducting a remedy enhancement which consists of an in-situ injection treatment of the groundwater and saturated soils and the installation of the PRB along the west bank of the Little Black Creek. This enhancement does not affect the protectiveness of the current groundwater remedy in the short term and will help to accelerate the cleanup times associated with the groundwater pump and treat system. Also, to ensure that the remedy is protective in the long-term, effective ICs must be implemented, monitored, maintained and enforced. ICs in the form of RCs are in place on four of the five properties that comprise the site. The RC for the CAPCO property is still needed.

System Operations/O&M

The GES was shut down when the In-Situ and PRB remedy enhancement was initiated. MDEQ continues to maintain the extraction wells and equipment as re-activation of the GES is a possibility, depending on the results of the remedy enhancement. No modifications to the GES were made in the past five years. Until system shut down in August 2015, the system operated as designed. However, if the In-Situ and PRB remedy enhancement does not perform as expected, the contingency is to re-activate the GES.

Implementation of Institutional Controls and Other Measures

ICs in the form of RCs are in place on four of the five properties that comprise the site. The RC for the CAPCO property is still needed. LTS procedures should be developed and documented in a LTS plan (or in an amendment to the O&M plan). The plan will document activities associated with ensuring LTS of ICs and specify the people and/or organizations that will be responsible for these activities.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Yes.

Question B Summary:

Yes, the exposure assumptions. toxicity data, cleanup levels and RAOs used at the time of the remedy selection are still valid. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy.

Expected Progress Towards Meeting RAOs

A feasibility study conducted in 2013, estimated that based on the mass estimates of cadmium, the GES remedy would need to operate for at least 44 years, if not longer, to meet RAOs for the Site. The implementation of the remedy enhancement in 2013, which consisted of in-situ injections and

installation of a PRB, are expected to accelerate the progress towards meeting RAOs. A full evaluation of the remedy enhancements measures will be conducted once two years of monitoring are completed. However, review of the first five quarters of data have shown reductions or elimination of cyanide and arsenic and some gradual reductions of the cadmium concentrations.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

No. No other information has come to light to call into question the protectiveness of the remedy at the Peerless Plating Co. site.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
None
Issues and Recommendations Identified in the Five-Year Review:

OU(s): Sitewide	**Issue Category: Institutional Controls**			
	Issue: IC needed for the CAPCO Property.			
	Recommendation: Place RC on CAPCO property.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	State	EPA	7/7/2022

OU(s): Sitewide	**Issue Category: Institutional Controls**			
	Issue: Long-term stewardship procedures are needed to ensure that effective ICs are monitored, maintained and enforced.			
	Recommendation: Develop and implement a LTS Plan or amend the existing O&M Plan to incorporate LTS procedures.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	State	EPA	7/7/2022

VII. PROTECTIVENESS STATEMENT

OU1 and Sitewide Protectiveness Statement
Protectiveness Determination Short-term Protective
Protectiveness Statement The remedy at the Peerless Plating Co. Site is currently protective of human health and the environment because there are no current complete exposure pathways, the remedy is functioning as designed, and the groundwater cleanup goals are expected to be achieved. ICs are in place for four of the five properties for the soils and groundwater that do not allow UU/UE. However, in order for the remedy to be protective in the long-term, the following actions need to be taken to ensure protectiveness: complete the IC on the CAPCO property; and develop and implement a LTS plan (or amend the O&M plan to incorporate LTS procedures).

VIII. NEXT REVIEW

The next FYR report for the Peerless Plating Co. Superfund Site is required no less than five years from EPA's signature date of this review.

APPENDIX A – REFERENCE LIST

2016 Annual Groundwater Monitoring Report, Peerless Plating, Environmental Solutions, January 2017

Amendment to the 1992 Record of Decision for the Peerless Plating Superfund Site, Muskegon Michigan, August 2013

Data Summary Report, Post Remedial Action Quarterly Groundwater Sampling Peerless Plating Site, June 1, 2016

Third Five Year Review Report for Peerless Plating Superfund Site Muskegon, Michigan, July 12, 2012

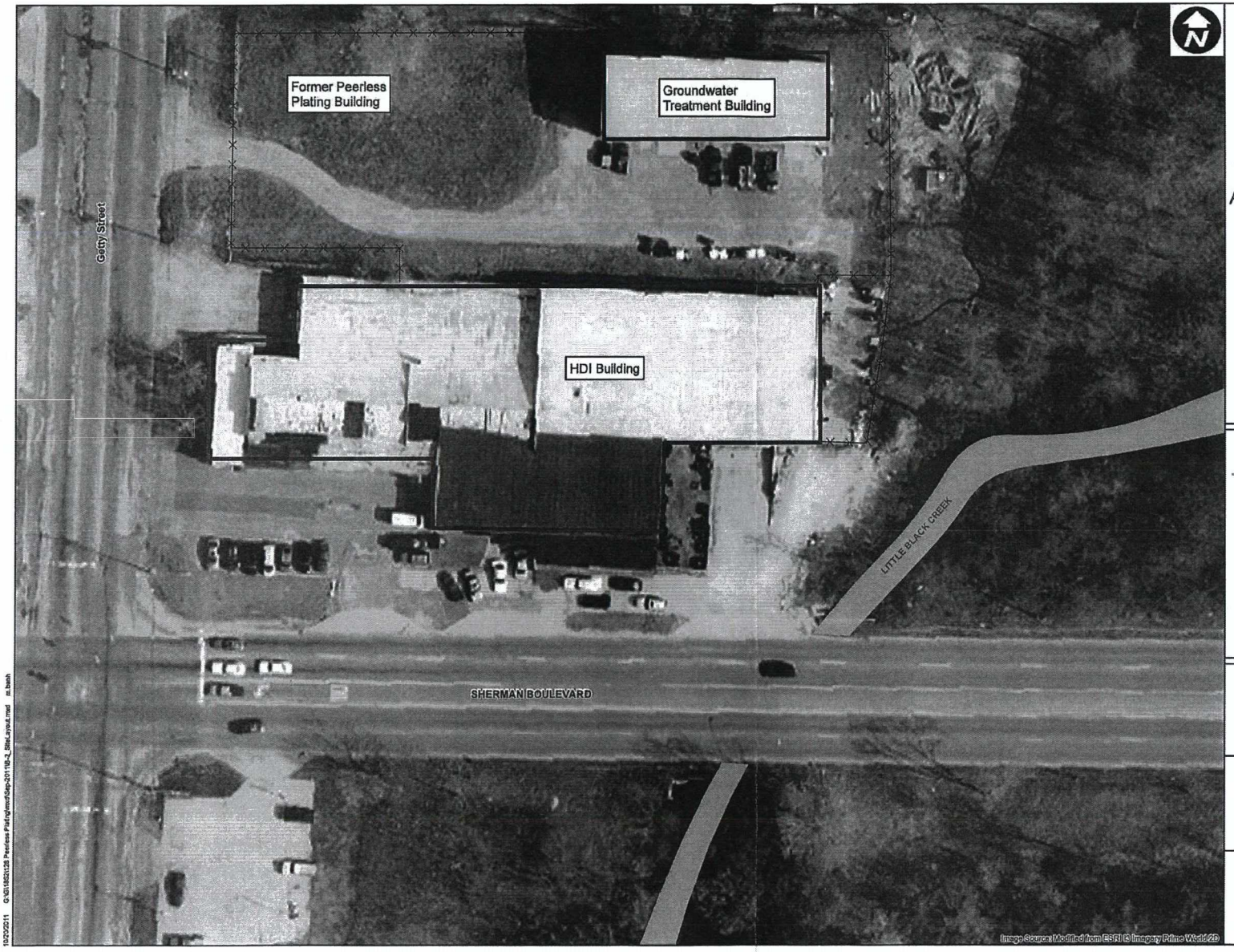
Basis of Design Report Preliminary Design Revision 1 Peerless Plating Site, Muskegon Michigan June 4, 2014

Cleanup Status Report Pre Remedial Action Investigation Peerless Plating, October 22, 2015

Peerless Plating Remedial Action Report, January 2016

APPENDICES

- APPENDIX A REFREENCE LIST
- APPENDIX B SITE LOCATION AND SITE FEATURES MAP
- APPENDIX C MONITORING WELL LOCATION MAP FOR GES REMEDY
- APPENDIX D MONITORING WELL LOCATION MAP FOR INSITU AND PRB REMEDY
- APPENDIX E GROUNDWATER MONITORING ANALYTICAL RESULTS FROM JUNE 2005 THROUGH SEPTEMBER 2016
- APPENDIX F EXPANDED SITE HISTORY
- APPENDIX G SITE CHRONOLOGY TABLE
- APPENDIX H NEWSPAPER PUBLIC NOTICE
- APPENDIX I SITE INSPECTION CHECKLIST
- APPENDIX J ICs MAP; FILED RESTRICTIVE COVENANTS



Legend

- BUILDING OUTLINE
- FENCE LINE
- STREAM

APPENDIX B SITE FEATURES

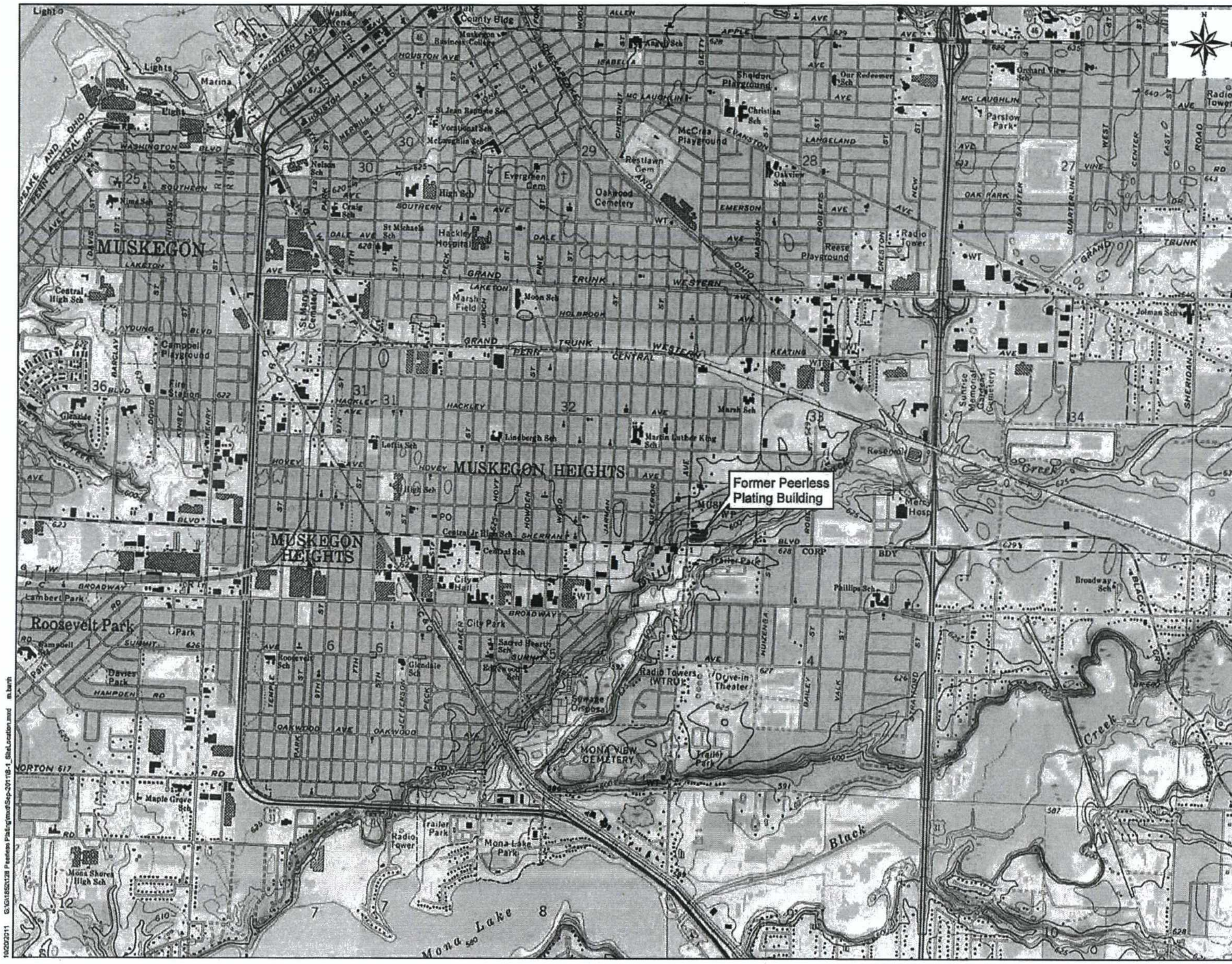
0 50 100 Feet

PEERLESS PLATING SUPERFUND SITE MUSKEGON, MICHIGAN

FIGURE 2
SITE LAYOUT

SulTRAC

10/20/2011 G:\GIS\621\28 Peerless Plating\mxd\Sep-2011\B-2_SiteLayout.mxd m.bash



APPENDIX B SITE LOCATION

MAP SOURCE:
U.S. Geological Survey (USGS) 7.5 Minute Topographic Map of Muskegon, Michigan, United States 01/01/1980

0 2,000 4,000 Feet

PEERLESS PLATING SUPERFUND SITE MUSKEGON, MICHIGAN

FIGURE 1
SITE LOCATION

ST SulTRAC

APPENDIX C

MONITORING WELL LOCATION MAP

FOR GES REMEDY

LEGEND

- MONITORING WELL–WATER LEVEL AND SAMPLING
- MONITORING WELL–WATER LEVEL ONLY
- EXTRACTION WELL
- STAFF GAUGE
- MANHOLE
- LITTLE BLACK CREEK

SOURCES:
GOOGLE EARTH AERIAL PHOTO IMAGERY DATE 8/22/13

N
W E
S
GRAPHIC SCALE
0 25' 50'

Enviro Solutions

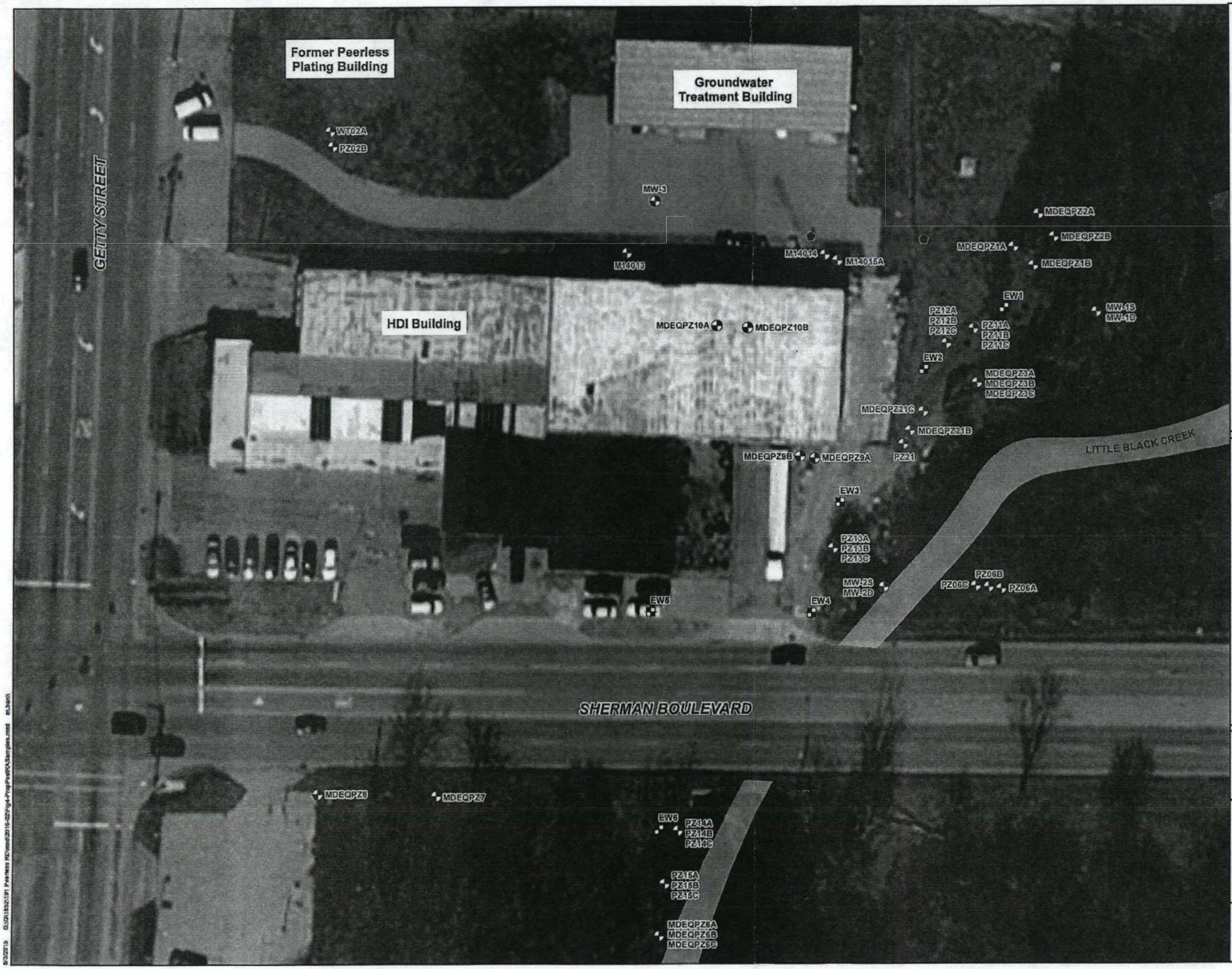
Date	Revision Description
3/28/14	CREATE
1/23/15	UPDATE FOR ANNUAL GW REPORT

Scale: 1"=50'-0"
Checked By: GA
EnviroSolutions, Inc.
Drawn By: DB
Path and file name: Z:\PEERLESS PLATING\2014 ANNUAL GROUNDWATER MONITORING REPORT\FINAL\FIGURE-2 (SITE LAYOUT MAP).dwg

PEERLESS PLATING SUPERFUND SITE
SHERMAN BOULEVARD & GETTY STREET
MUSKEGON MICHIGAN, 49444

SITE LAYOUT MAP

FIGURE–2



Legend

- Monitoring Well – Water Level and Sample
- Monitoring Well – Water Level Only
- Manhole
- Extraction Well

APPENDIX D
MONITORING WELL LOCATION MAP FOR INSITU AND PRB REMEDY

N

0 50 100 Feet

REFERENCE MAP

PEERLESS PLATING SUPERFUND SITE MUSKEGON, MICHIGAN

FIGURE 4
PROPOSED POST-RA MONITORING WELL SAMPLE LOCATIONS

SulTRAC

APPENDIX E GROUNDWATER MONITORING ANALYTICAL RESULTS FROM JUNE 2005 THROUGH SEPTEMBER 2016 (from 2016 Annual Groundwater Monitoring Report Peerless Plating Superfund Site)

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM AUGUST 2015 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MW1S

Sample Number:	Groundwater Cleanup Goal (µg/L)	MW-1S			MW-1S/MW-1S-D					
Sampling Date:		08/05/15	10/13/15	01/13/16	04/06/16	06/21/16	09/20/16			
Groundwater Elevation:[1]	NA	NA	NA		NA	NA	NA			
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper			
pH (standard units)	NA	7.86	6.59	6.73	6.91	6.92	6.1			
Oxidation Reduction Potential (mV)	NA	22.7	42.3	63.60	55.7	44.67	106.7			
Conductivity (mS/cm)	NA	1.450	0.436	0.476	0.248	0.003	481			
Dissolved Oxygen (mg/L)	NA	0.21	3.51	0.63	1.34	5.25	1.22			
Turbidity (NTU)	NA	--	7.41	0.39	7.35	3.09	3.9			
Temperature (°C)	NA	13.17	12.32	7.46	9.27	24.91	13.49			
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	200 U	5.7	200 U	5.0 U	7.6 J	5.0 U			
Antimony	3	1.0 U	1.0 U	1.0 U	1.0 U	60.0 U, J	1.0 U			
Arsenic	0.2	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U, J	1.0 U			
Barium	2,000	35.4	23.0	23.6	15	26.6 J	19			
Beryllium	NA	--	1.0 U	2.0 U	1.0 U	5.0 U	1.0 U			
Cadmium	4	2.9	1.6	2.4	3.2	**7.1**	**8.3**			
Calcium	NA	64,700	56,000	45,300	27,000	47,800	28,000			
Chromium	7,000	5.0 U	110	177	120	30.0	93			
Cobalt	NA	6.0 U	5.0 U	6.0 U	5.0	50.0 U	5.0 U			
Copper	NA	20.0	3.8	20 U	12	4.0 J	3.0			
Iron	NA	113	71	80 U	24	356	20			
Lead	5	1.0 U	1.0 U	1.0 U	1.1	2.2 J	1.0 U			
Magnesium	NA	21,600	17,000	15,100	12,000	11,200	5,800			
Manganese	NA	8.0 U	8.1	29.4	380	3,390	200			
Nickel	57	6.0 U	6.5	6.0 U	9.8	14.6 J	12			
Potassium	NA	5,610	4,400	3,410	2,300	5,000 U	2,900			
Selenium	NA	1.0 U	2.1	2.52	1.0	5.0 J	1.0 U			
Silver	0.1	-- U	0.2 U	10.0 U	0.2 U	10.0 U, J	0.2 U			
Sodium	NA	43,500	25,000	30,700	28,000	38,000	74,000			
Thallium	0.5	1.0 U	2.0 U	1.0 U	2.0 U	25.0 U	2.0 U			
Vanadium	NA	5.0 U	2.0 U	5.0 U	2.0 U	50.0 U	2.0 U			
Zinc	NA	30.0 U	5.4	30.0 U	8.3	60.0 U, J	7.4			
Hexavalent Chromium	2	5 U	**100**	**173**	**120**	**9.6**	**91**			
Cyanide	4	10 U	**120**	**47**	**25**	10 U	**22**			

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM AUGUST 2015 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MW1D

Sample Number:	Groundwater Cleanup Goal (µg/L)	MW1D-D	MW1D							
Sampling Date:		08/05/15	10/13/15	01/13/16	04/06/16	06/21/16	09/20/16			
Groundwater Elevation:[1]	NA	NA	NA		NA	NA	NA			
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower			
pH (standard units)	NA	7.86	8.01	7.72	8.83	7.74	7.5			
Oxidation Reduction Potential (mV)	NA	19.6	45.3	15.10	72.8	32.35	121.80			
Conductivity (mS/cm)	NA	1.454	0.591	0.855	0.581	0.587	729			
Dissoved Oxygen (mg/L)	NA	0.22	0.46	0.19	0	3.97	1.04			
Turbidity (NTU)	NA	--	4.26	1.50	5.39	1.54	3.15			
Temperature (°C)	NA	13.12	11.71	7.39	9.64	22.86	13.24			
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	234	32	200 U	18	16.4 J	5.6			
Antimony	3	5.0 U	1.0 U	1.0 U	1.0 U	60.0 U, J	1.0 U			
Arsenic	0.2	6.0 U	1.0 U	1.0 U	1.0 U	10.0 U, J	1.0 U			
Barium	2,000	86.7	100	90.2	83	68.3 J	64			
Beryllium	NA	--	1.0 U	2.0 U	1.0 U	5.0 U	1.0 U			
Cadmium	4	**4.9**	3.7	2.6	1.9	**5.4**	0.9			
Calcium	NA	60,600	78,000	80,200	68,000	59,400	70,000			
Chromium	7,000	5.0 U	1.0 U	5.0 U	1.0 U	10.0 U	1.0 U			
Cobalt	NA	6.0 U	5.0 U	6.0 U	5.0 U	50.0 U	5.0 U			
Copper	NA	20.0 U	2.9	20.0 U	3.1	25.0 U, J	1.0 U			
Iron	NA	203	53	80 U	37	100 U	20 U			
Lead	5	1.0 U	1.0 U	1.0 U	1.0 U	1.6 J	1.0 U			
Magnesium	NA	13,200	22,000	25,800	22,000	18,500	21,000			
Manganese	NA	72.7	12	9.5	5.0 U	15.0 U	5.0 U			
Nickel	57	6.0 U	7.9	6.0 U	8.4	40.0 U	5.3			
Potassium	NA	4,850	3,900	2,450	1.8	5,000 U	1,700			
Selenium	NA	1.0 U	1.0 U	1.25	1.9	35.0 U	1.6			
Silver	0.1	-- U	0.2 U	10.0 U	0.2 U	10.0 U	0.2 U			
Sodium	NA	170,000	62,000	61,800	61,000	55,800	56,000			
Thallium	0.5	1.0 U	2.0 U	1.0 U	2.0 U	25.0 U	2.0 U			
Vanadium	NA	5.0 U	2.0 U	5.0 U	2.0 U	50.0 U	2.0 U			
Zinc	NA	30.0 U	5.0 U	30.0 U	5.0 U	60.0 U, J	5 U			
Hexavalent Chromium	2	5 U	5 U	5 U	5 U	5 U	5 U			
Cyanide	4	10 U	5 U	40 J, L	5 U	10 U	5 U			

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM AUGUST 2015 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MW2S

Sample Number:	Groundwater Cleanup Goal (µg/L)	MW2S								
Sampling Date:		08/05/15	10/14/15	01/14/16	04/08/16	06/21/16	09/22/16			
Groundwater Elevation:[1]	NA	NA	NA	NA	NA	NA	NA			
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper			
pH (standard units)	NA	7.34	7.48	7.46	7.50	7.04	6.25			
Oxidation Reduction Potential (mV)		33.8	64.0	-78.9	-89.9	-91.98	-34.10			
Conductivity (mS/cm)	NA	0.748	0.586	1.089	0.705	0.979	781			
Dissoved Oxygen (mg/L)	NA	0.25	0.51	0.15	0.39	0.10	0.95			
Turbidity (NTU)	NA	--	4.22	1.42	17.5	7.65	9.39			
Temperature (°C)	NA	12.76	12.98	10.92	10.28	17.02	14.25			
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	200 U	46	200 U	5.3	13.2 J	5.0 U			
Antimony	3	1.0 U	1.0 U	1.0 U	1.0 U	60.0 U, J	1.0 U			
Arsenic	0.2	1.0 U	1.0 U	1.0 U	**1.5**	**5.8** J	**1.9**			
Barium	2,000	56.6	49	52.2	70	196 J	78			
Beryllium	NA	-- U	1.0 U	2.0 U	1.0 U	5.0 U	1.0 U			
Cadmium	4	**853**	**1,000**	**708**	**1,600**	**1,950**	**1,400**			
Calcium	NA	57,100	52,000	103,000	120,000	57,000	48,000			
Chromium	7,000	5.4	9.5	5.8	4.5	10.0 U	6.3			
Cobalt	NA	6.0 U	5.0 U	6.0 U	5.9	5.0 J	5.0 U			
Copper	NA	24.0	24	20.4	11	3.6 J	11			
Iron	NA	415	180	505	12,000	14,600	11,000			
Lead	5	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U			
Magnesium	NA	13,300	12,000	22,800	30,000	24,700	22,000			
Manganese	NA	467	630	251	2,000	2,320	1,300			
Nickel	57	**172**	**95**	51	**200**	**218**	**180**			
Potassium	NA	3,170	2,300	2,350	4,700	46,500	23,000			
Selenium	NA	1.0 U	1.0 U	1.0 U	1.0 U	35.0 U, J	1.0 U			
Silver	0.1	-- U	0.2 U	10.0 U	0.2 U	10.0 U, J	0.2 U			
Sodium	NA	86,400	99,000	80,900	70,000	63,300	56,000			
Thallium	0.5	1.0 U	2.0 U	1.0 U	2.0 U	25.0 U	2.0 U			
Vanadium	NA	5.0 U	2.0 U	5.0 U	2.0 U	50.0 U	2.0 U			
Zinc	NA	160	370	242	1,100	1,110 J	810			
Hexavalent Chromium	2	5 U	5 U	5 U	5 U	5.0 U	50 U			
Cyanide	4	**10**	5 U	--	5 U	10.0 U	5 U			

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM AUGUST 2015 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MW2D

Sample Number:	Groundwater Cleanup Goal (µg/L)	MW2D			MW2D/MW2D-D	MW2D				
Sampling Date:		08/05/15	10/14/15	01/14/16	04/08/16	06/21/16	09/22/16			
Groundwater Elevation:[1]	NA	NA	NA	NA	NA	NA	NA			
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower			
pH (standard units)	NA	7.15	7.76	7.82	7.61	7.20	7.74			
Oxidation Reduction Potential (mV)	NA	-37.6	66.0	-25.20	30.4	24.37	-23.00			
Conductivity (mS/cm)	NA	0.859	0.504	0.797	0.974	1.613	1.76			
Dissoved Oxygen (mg/L)	NA	0.09	3.62	0.21	0.54	0.16	0.41			
Turbidity (NTU)	NA	--	4.27	0.89	59.5	3.06	9.00			
Temperature (°C)	NA	17.66	13.25	10.54	10.80	14.43	15.01			
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	200 U	**76**	200 U	**250**	11.8 J	**80**			
Antimony	3	1.0 U	1.0 U	1.0 U	1.0 U	60.0 U	1.0 U			
Arsenic	0.2	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U			
Barium	2,000	179	67	110	160	227	200			
Beryllium	NA	--	1.0 U	2.0 U	1.0 U	5.0 U	1.0 U			
Cadmium	4	**77**	**880**	**108**	**87**	**84.3**	**76**			
Calcium	NA	77,000	55,000	65,200	140,000	105,000	93,000			
Chromium	7,000	5.0 U	7.7	5.0 U	18	10.0 U	9.7			
Cobalt	NA	6.0 U	5.0 U	6.0 U	6.8	2.6 J	5.0 U			
Copper	NA	20.0 U	19	20.0 U	23	17.4 J	19			
Iron	NA	80 U	130	80.0 U	850	253	240			
Lead	5	1.0 U	1.0 U	1.0 U	1.0 U	2.4 J	1.0 U			
Magnesium	NA	21,900	13,000	18,800	120,000	109,000	140,000			
Manganese	NA	138 *K	2,800	292	470	488	410			
Nickel	57	17.3	81	17.2	93	52.3	**58**			
Potassium	NA	2,430	2,400	2,940	58	64,000	120,000			
Selenium	NA	1.0 U	1.0 U	1.0 U	1.0 U	35.0 U, J	1.0			
Silver	0.1	--	0.2 U	10.0 U	0.2 U	10.0 U, J	0.2 U			
Sodium	NA	86,300	80,000	64,000	62,000	62,600	65,000			
Thallium	0.5	1.0 U	2.0 U	1.0 U	2.0 U	25.0 U	2.0 U			
Vanadium	NA	5.0 U	2.0 U	5.0 U	2.0 U	50.0 U	2.0 U			
Zinc	NA	48.3	250	42.7	210	143 J	130			
Hexavalent Chromium	2	5 U	5 U	5 U	5 U	5.0 U	5 U			
Cyanide	4	**10 L**	5 U	--	5 U	10.0 U	5 U			

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM AUGUST 2015 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MW3

Sample Number:	Groundwater Cleanup Goal (µg/L)	MW3								
Sampling Date:		08/05/15	10/14/15	01/12/16	04/08/16	06/21/16	09/23/16			
Groundwater Elevation:[1]	NA	NA	NA	NA	NA	NA	NA			
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper			
pH (standard units)	NA	7.05	7.21	6.98	7.56	7.12	7.2			
Oxidation Reduction Potential (mV)	NA	61.5	-26.8	-29.8	260.1	57.19	-46.00			
Conductivity (mS/cm)	NA	1.139	0.551	0.927	0.432	0.555	0.596			
Dissoved Oxygen (mg/L)	NA	0.18	0.51	0.19	0.35	0.18	0.54			
Turbidity (NTU)	NA	--	8.39	3.37	6.88	2.26	3.69			
Temperature (°C)	NA	21.13	19.03	6.60	9.01	20.00	21.64			
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	200 U	46	200 U	17	24.6 J	23			
Antimony	3	1.2	1.0 U	1.0 U	1.0 U	60.0 U, J	1.0 U			
Arsenic	0.2	1.0 U	**1.0**	1.0 U	1.0 U	10.0 U, J	**1.1**			
Barium	2,000	158	87	122	89	92.4 J	100			
Beryllium	NA	--	1.0 U	2.0 U	1.0 U	5.0 U	1.0 U			
Cadmium	4	**753**	**330**	**445**	**260**	**181**	**170**			
Calcium	NA	84,700	75,000	108,000	73,000	68,500	58,000			
Chromium	7,000	16.2	15	33.7	8.3	5.7 J-	10			
Cobalt	NA	6.0 U	5.0 U	6.0 U	5.0 U	50.0 U	5.0 U			
Copper	NA	20.0 U	5.2	20.0 U	6.2	5.5 J	4.9			
Iron	NA	80 U	1,900	700	120	57.0 J	370			
Lead	5	1.0 U	1.0 U	1.43	1.0 U	2.2 J	1.0 U			
Magnesium	NA	11,900	10,000	15,600	10,000	7,840	8,000			
Manganese	NA	77.8	110	236	150	129	110			
Nickel	57	56.3	24	22.4	24	9.2 J	21			
Potassium	NA	3,700	4,800	5,550	7,300	6,870	14,000			
Selenium	NA	1.0 U	1.0 U	1.0 U	1.0	35.0 U, J	1.0 U			
Silver	0.1	-- U	0.2 U	10.0 U	0.2 U	10.0 U, J	0.2 U			
Sodium	NA	103,000	24,000	63,300	45,000	28,100	78,000			
Thallium	0.5	1.0 U	2.0 U	1.0 U	2.0 U	25.0 U	2.0 U			
Vanadium	NA	5.0 U	2.0 U	5.0 U	2.0 U	50.0 U	2.0 U			
Zinc	NA	233	200	227	170	112 J	110			
Hexavalent Chromium	2	109 U,J	5 U	5 U	5 U	5.0 U	5 U			
Cyanide	4	**109**	**31**	**38**	**14**	**17.3**	**7**			

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR WT02A

Sample Number:	Ground water Cleanup Goal (µg/L)	WT02A								
Sampling Date:		11/20/02	05/28/03	11/17/03	05/18/04	11/30/04	06/07/05	09/13/05	03/23/06	09/19/06
Groundwater Elevation:[1]	NA	596.55	596.59	596.73	597.63	596.89	597.27	596.43	598.33	597.19
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.07	6.09	8.34	6.87	7.27	6.59	7.28	6.34	7.21
Oxidation Reduction Potential (mV)		--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	1.27	1.33	1.19	1.340	1.91	1.38	1.50	1.06	1.54
Dissoved Oxygen (mg/L)	NA	0	10	10	1.0	0	10	0	1	0
Turbidity (NTU)	NA	--	--	--	--	--	--	--	--	--
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	47.7	**913**	29.7 J,L,*	80.0 U,L	**255 K,***	100 U	100 U	100 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4 U	4 U	4.0 U	4 U	4 U	4 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**0.5 J**
Barium	2,000	22.6	36.0	22.4	34.3	49.6	40.9 K	40.4	21.9	32.7 J
Beryllium	NA	2.8 U	NA	0.3 J,K,*	1.0 U	0.3 J,K,*	1.0 U,L	1.0 U	1.00 U	5.0 U
Cadmium	4	**126**	**94.7**	**77.3 L**	**117**	**118 K,***	**127**	**122**	**63.2**	**113**
Calcium	NA	64,100	NA	64,400 L	78,300	76,500	67,700	58,300	49,100	68,800
Chromium	7,000	0.8 J	4.9	3.2 J,*	6.7 L	3.9 J,*	4.3 J	4.8 J	2.80 J	1.9 J,L
Cobalt	NA	4.2 U	NA	0.9 J,K	2.0 U,L	2.3 K,*	0.9 J	0.8 J	3.00 U	0.5 J,*
Copper	NA	182	NA	130 K	107 *	154 K,*	142	142	105	134
Iron	NA	19.0 J	NA	30.5	20.3 J	258 K,*	8.3 J,K,*	14.2 J	23.8 J	100 U
Lead	5	2.0 U	0.6 J	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U
Magnesium	NA	11,000	NA	11,100	14,200	14,000	11,800	10,000	9,050	10,800
Manganese	NA	24.3	NA	12.2	12.9 *	15.7 K,*	18.5 K	14.7	12.0	16.0
Nickel	57	28.2	19.0	14.9	27.0	22.6 K	30.2 K	18.9	14.2 K	18.5 J
Potassium	NA	5,200 J,K	NA	7,840 K,*	3,620 L,*	4,930 K	7,550 K	3,390	2,670	4,760
Selenium	NA	1.1 J	NA	8.0 U,L	8 U	4 U	2.0 J	1 J	4.0 U	4 U
Silver	0.1	0.5 U	2.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.00 U	10.0 U
Sodium	NA	194,000 K	NA	886,000	160,000	249,000	180,000	209,000	122,000	186,000
Thallium	0.5	2.0 U	2.0 U	4.0 U	2.0 U	1.0 U	**0.6 J**	1.0 U	2.0 U	1.0 U
Vanadium	NA	4.8 U	NA	18.8 J	10.0 U	20.0 U,L	10.0 U	10.0 U	5.00 U	1.8 J
Zinc	NA	905	NA	542	759	679	1,090	826	596	758
Hexavalent Chromium	2	10 U,L	10 U,J,L	**5 J,L**	10 U	1 U,L	1 U,J,L	10 U,J,L	1.26 J,L	10 U,J,L
Cyanide	4	**44 J**	**202**	**52**	**15 J**	**20**	**13**	**37**	**19**	**39**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR WT02A

Sample Number:	Ground water Cleanup Goal (µg/L)	WT02A					WT02A/WT02A-D	WT02A	WT02A/WT02A-D	WT02A
Sampling Date:		03/27/07	09/18/07	03/04/08	09/30/08	03/24/09	09/22/09	03/23/10	09/21/10	03/15/11
Groundwater Elevation:[1]	NA	598.28	596.80	597.67	596.64	597.84	597.00	597.37	596.81	598.32
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	6.52	6.33	6.94	6.43	7.04	6.91	6.91	6.83	6.82
Oxidation Reduction Potential (mV)		--	--	--	--	181.00	257.03	230.11	297.66	232.19
Conductivity (mS/cm)	NA	0.905	--	1.18	1.66	0.85	1.33	0.588	0.840	0.643
Dissoved Oxygen (mg/L)	NA	0	--	1	--	4.35	1.23	2.95	1.39	5.01
Turbidity (NTU)	NA	--	--	--	4	3.99	0.47	1.48	2.45	0.32
Temperature (°C)	NA	--	--	--	--	7.17	16.38	7.76	18.05	7.45
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	14.5 J	28 K, J	200 U	22.4 J	14.3 *,J,L	36.3 J	47.2 J	23.2 J,K	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.29 J,L	0.321 J	0.298 J	4.0 U
Arsenic	0.2	**0.5 J**	2.0 U	2.0 U	2.0 U	2.0 U	**0.46 J**	**0.388 J**	**0.559 J,K**	2.0 U
Barium	2,000	25.3 J	24.4 J	25.6 J	43.9 J	21.3 J	42.3 J	26.8 J	28.2 J	22.4 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**96.9**	**94.1**	**74.9**	**117**	**48.7**	**80.4**	**65.9**	**57.1**	**47.2**
Calcium	NA	59,100	45,000	52,800	75,700	54,300	68,300	55,700	51,300	50,900
Chromium	7,000	3.3 J	3.7 J	4.6 J	3.0 J	3.5 J	2.9 J	2.4 J	1.8 J	3.6 J
Cobalt	NA	50.0 U	0.9 J	1.1 J,K	1.0 J	0.6 J	50.0 U	50.0 U	50.0 U	1.2 J
Copper	NA	153	163	118	172	90.2	129	126	146	89.5
Iron	NA	14.0	51.1 J	10.1 J	20.8 J	100 U,L	31.5 J,K	28.2 J	15.7 J,*	16.5 J
Lead	5	2.0 U	2.0 U	2.0 U	3.4 J	2.0 U	0.15 J	1.0 U	0.066 J	2.0 U
Magnesium	NA	11,100	6,910	8,620	12,300	11,000	13,000	10,800	9,330 K	9,830
Manganese	NA	19.8	12.1 J	10.3 J	35.9	8.9 J	20.5	21.2	19.3	16
Nickel	57	23.2 J	19.5 J	17.5 J,K	21.7 J	12.1 J	17.6 J	20.5 J	14.0 J	15.0 J
Potassium	NA	2,860 J	2,680 J	2,670 J	3,260 J	2,490 J	3,430	1,990 J	2,210 J	1,750 J
Selenium	NA	1.3 J	4.0 U	1.2 J	4.0 U	4.0 U	1.18 J	1.08 J,L	1.23 J	1.2 J
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	126,000	175,000 L	171,000	214,000	111,000	195,000	114,000	115,000	78,400
Thallium	0.5	1.0 U	1.0 U	0.4 J	0.4 J	1.0 U	1.0 U	1.0 U	1.0 U	0.4 J
Vanadium	NA	1.0 J,K	1.8 K, *,	0.5 J,L	2.2 J,K	0.6 J	50.0 U	6.6 J	1.1 J	50.0 U
Zinc	NA	1,040	610	671	678	369	551	833	555	539
Hexavalent Chromium	2	10 U,J,L	10 U,J,	10 U,J,L	5 U,J,L	**2.8 J,L**	5 U,J,L	5 U,J,L	5 U,J,L	**2.2 J,L**
Cyanide	4	**40 J**	**80**	**27**	10 U	**13**	**5 J**	**30**	**18** *	10 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR WT02A

Sample Number:	Ground water Cleanup Goal (µg/L)	WT02A		WT02A/WT02A-D			WT02A			
Sampling Date:		09/08/11	03/20/12	09/25/12	03/05/13	09/04/13	04/01/14	09/23/14	04/21/15	10/13/15
Groundwater Elevation:[1]	NA	596.84	597.07	596.27	597.08	596.71	597.45	598.10	598.30	598.27
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.11	6.89	6.86	7.08	6.76	6.78	6.31	6.93	6.73
Oxidation Reduction Potential (mV)		163.98	97.18	175.54	226.09	190.92	146.70	2.40	88.10	15.20
Conductivity (mS/cm)	NA	1.167	1.209	1.719	0.534	1.125	0.533	1.021	0.821	1.040
Dissoved Oxygen (mg/L)	NA	--	3.43	0.59	7.50	0.49	4.71	1.71	3.31	0.45
Turbidity (NTU)	NA	0.00	0.00	0.23	7.88	0.15	1.90	0.49	0.92	8.52
Temperature (°C)	NA	18.66	10.77	17.48	7.23	17.90	7.78	16.19	8.72	8.18
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	34.7 J	24.7 J	**152 J**	25.4 J	44	42	23	27
Antimony	3	0.419 J	0.393 J	0.288 J,K	0.457 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	1.00 U	**0.448 J**	**0.548 J**	**0.335 J**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	35.7 J	23.6 J	34.1 J	19.4 J	42.4 J	26	32	23	25
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**77.4**	**71.5**	**66.5**	**43.6**	**87.2**	**60**	**87**	**91**	**86**
Calcium	NA	62,900	61,100	58,600	46,900	73,800	54,000	78,000	68,000	80,000
Chromium	7,000	2.3 J	2.1 J,K	1.6 J	4.2 J	1.8 J	2.6	1.4	2.8	2.0
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	155 J	150	95.3	108	142	110	120	160	240
Iron	NA	100 U	34.4 J	100 U	129	100 U	47	20	32	66
Lead	5	0.148 J,K	0.081 J	1.00 U	0.223 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	9,650	10,800	10,600	9,920	12,700	12,000	13,000	12,000	12,000
Manganese	NA	17.6	9.3 J	16.4	14.8 J	13.5 J	8.7	5.0 U	17	15
Nickel	57	18.1 J	21.5 J	14.0 J	12.0 J	15.5 J	14.0	17	16	23
Potassium	NA	2,730 J	1,690 J	3,500 J	1,540 J	2,920 J	1,700	2,600	1,600	2,100
Selenium	NA	0.656 J,L	1.18 J	1.64 J,K	1.62 J	1.4 J	1.4	1.6	1.3	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	151,000	65,300	116,000	50,600	128,000	79,000	110,000	88,000	120,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.062 J,K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	1.5 J	50.0 U	1.5 J	50.0 U	2.4 J	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	604	783	550	509	575	520	390	590	400
Hexavalent Chromium	2	5 U,J,L	5 U,J,L	5 U,J,L	1.2 J,L	5 U,J,L	5 U	5 U	5 U	5 U
Cyanide	4	**8 J**	**62**	**24**	**28**	**10 J**	**28**	**13**	**23**	**64**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR WT02A

Sample Number:	Ground water Cleanup Goal (µg/L)	WT02A								
Sampling Date:		01/12/16	04/08/16	06/21/16	09/20/16					
Groundwater Elevation:[1]	NA	NA	599.44	NA	598.71					
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	6.81	7.01	7.04	7.21					
Oxidation Reduction Potential (mV)		-51.60	-2.50	-48.35	-50.00					
Conductivity (mS/cm)	NA	1.217	1.127	1.329	1.040					
Dissoved Oxygen (mg/L)	NA	0.28	0.27	0.59	0.46					
Turbidity (NTU)	NA	4.23	1.09	3.41	4.81					
Temperature (°C)	NA	5.08	6.57	15.50	18.46					
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	14	26.8 J	23					
Antimony	3	1.0 U	1.0 U	60.0 U, J	1.0 U					
Arsenic	0.2	**1.64**	**1.8**	10.0 U, J	**3.4**					
Barium	2,000	51.4	52	35.0 J	37					
Beryllium	NA	2.0 U	1.0 U	5.0 U	1.0 U					
Cadmium	4	**114**	**58**	**47.2**	**19**					
Calcium	NA	105,000	110,000	135,000	83,000					
Chromium	7,000	5.0 U	1.6	10.0 U	3.4					
Cobalt	NA	6.0 U	5.0 U	50.0 U	5.0 U					
Copper	NA	463	340	335 J	320					
Iron	NA	3,520	11,000	4,420	8,100					
Lead	5	1.0 U,J	1.0 U	4.1 J	1.0 U					
Magnesium	NA	27,000	23,000	23,700	17,000					
Manganese	NA	322	190	162	240					
Nickel	57	31.2	47	15.9 J	20					
Potassium	NA	5,560	8,500	6,670	18,000					
Selenium	NA	1.0 U	1.0 U	35.0 U, J	1.0 U					
Silver	0.1	10 U	0.2 U	10.0 U, J	0.2 U					
Sodium	NA	138,000	140,000	119,000	81,000					
Thallium	0.5	1.0 U	2.0 U	25.0 U	2.0 U					
Vanadium	NA	5.0 U	2.0 U	50.0 U	2.0 U					
Zinc	NA	686	440	237 J	120					
Hexavalent Chromium	2	5 U	5 U	5 U	50 U					
Cyanide	4	**138 L**	**62**	**144**	**57**					

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR M14013

Sample Number:	Groundwater Cleanup Goal (µg/L)	M14013								M14013/13-D
Sampling Date:		11/21/02	05/28/03	11/17/03	05/18/04	11/30/04	06/07/05	09/13/05	03/21/06	09/20/06
Groundwater Elevation:[1]	NA	594.81	594.55	594.58	595.88	595.21	595.46	594.62	596.51	595.60
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.52	7.55	7.96	7.10	7.55	7.06	8.56	7.18	7.13
Oxidation Reduction Potential (mV)		--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.962	0.920	0.461	0.418	0.762	0.718	0.836	0.503	0.570
Dissoved Oxygen (mg/L)		--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	12	10	-10	0.0	11	60	0	9.0	0.0
Temperature (°C)		--	--	--	--	--	--	--	--	--
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	**87.8**	**3,490**	45.2 L	80.0 U	28.1 J,*	100 U	100 U	**112**	**96.4** J
Antimony	3	2.1 J	1.2 J	4.0 U	4.0 U	1 J	4.0 U	3 J	4.0 U	1 J
Arsenic	0.2	2.0 U	**0.8** J	2.0 U	2.0 U	2.0 U	2.0 U	**0.5** J,K	2.0 U	2.0 U
Barium	2,000	24.5	37.4	11.5	19.0	13.1	24.3 K	21.0	11.3	13.9 J
Beryllium	NA	2.8 U	NA	0.5 U	1.0 U	0.5 U,*	1.0 L,U	1.0 U	1.00 U	5.0 U
Cadmium	4	**1,440**	**3,830**	**1,120**	**1,340**	**1,640** *	**2,220**	**2,210**	**1,650**	**1,880**
Calcium	NA	92,000	NA	58,500 K	44,100	77,300	90,500	80,400	49,600	60,700
Chromium	7,000	5.3	592	10.1	5.0 L	7.8 K,*	8.9	10.2	26.2	24.7 L
Cobalt	NA	2.4 J	NA	5.4	3.5 L	5.0 K,*	4.3	3.1	2.68 J	3.3 J,*
Copper	NA	4.4 U	NA	2.6 J	1.9 J,K,*	3.0 U,*	6.0 U	2.0 J	5.31	2.4 J
Iron	NA	34.7 J	NA	37.2	11.0 J	34.0 K,*	34.9 K,*	12.6 J	136	80.5 J
Lead	5	2.0 U	**23.5**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U
Magnesium	NA	15,800	NA	7,770	7,040	13,500	14,000	15,300	8,690	10,500
Manganese	NA	251 *	NA	155	110 *	181 *	249 K	417	97.0	203
Mercury	2	0.5 U	0.5 U,L	0.1 J	0.5 UJ	0.5 U	0.5 U	0.5 U,L	0.5 U	--
Nickel	57	**80.1**	**138**	**60.5**	**73.0**	**90.8** K	**124**	**102**	**85.8**	**100**
Potassium	NA	11,100 J, K	NA	12,800 K,*	15,800 L,*	7,850 K	14,800 K	6,330	9,520	9,690
Selenium	NA	4.0 U	NA	12.0 U,L	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	**1.0 J,K**	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	37,600 K	NA	905,000	16,700	38,700	43,600	56,800	51,600	38,200
Thallium	0.5	2.0 U	2.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17 U	NA	19.7 J	10.0 U	20.0 U	10.0 U	10.0 U	5.0 U	0.6 J
Zinc	NA	651	NA	538	671	770	1,220	970	907	956
Hexavalent Chromium	2	10 U	10 UJ,L	**3.3** J,*	10 U	**10.9 L**	**18.2 J,L**	10 U,J,L	**3.77 J,L**	**4.3 J,L**
Cyanide	4	**6** J	**1,090**	**27**	**12 J**	3 J	**6.0**	**7**	**52**	**17 K**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR M14013

Sample Number:	Groundwater Cleanup Goal (µg/L)	M14013					M14013/13-D	M14013		
Sampling Date:		09/18/07	09/30/08	09/22/09	09/21/10	09/09/11	09/25/12	09/04/13	09/23/14	10/13/15
Groundwater Elevation:[1]	NA	595.13	594.61	595.01	594.91	595.09	594.38	594.49	596.57	597.05
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.06	6.87	7.21	7.20	--	7.17	7.04	6.56	6.42
Oxidation Reduction Potential (mV)		--	--	269.37	194.02	--	70.00	162.77	76.30	-69.00
Conductivity (mS/cm)	NA	NA	0.412	0.548	0.386	--	0.583	0.489	0.573	2.080
Dissoved Oxygen (mg/L)		--	--	1.10	1.27	--	0.09	0.11	1.98	1.41
Turbidity (NTU)	NA	NA	5.3	2.0	0.88	--	0.48	0.96	0.59	4.11
Temperature (°C)		--	--	17.18	19.14	--	18.06	17.87	16.81	17.09
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	12.4 J, K	11.1 J,K	34.4 J	21.9 J,K	200 U	22 J	49.1 J	**300**	28
Antimony	3	1.8 J	1.0 J	1.34 J,L	1.49 J	1.61 J	1.16 J	1.1 J	1.1	1.0 U
Arsenic	0.2	2.0 U	2.0 U	**0.61 J**	**0.408 J**	1.00 U	**0.619 J**	2.0 U	1.0 U	**3.3**
Barium	2,000	14.3 J	9.5 J	9.3 J	7.7 J	8.8 J	12.7 J	8.1 J	17	110
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U
Cadmium	4	**2,060**	**1,510**	**1,740**	**1,390**	**1,660**	**2,350**	**1,860**	**2,600**	**8,700**
Calcium	NA	65,400	60,800	74,000	57,200	67,100	71,100 K	64,400	86,000	140,000
Chromium	7,000	9.1 J	3.3 J	4.7 J	9.9 J	6.4 J	5.1 *,J	6.6 J	72	49
Cobalt	NA	3.6 J	2.8 J,K	2.7 J	3.8 J	4.3 J	1.8 J	3.2 J	5.7	5.0 U
Copper	NA	1.7 J	1.9 J	1.5 J	25.0 U	2.7 J	2.2 J	25.0 U	3.7	9.0
Iron	NA	22.8 J	100 U	8.8 J,K	24.3 J	100 U	100 U	22.9 J	290	60,000
Lead	5	0.6 J	2.0 U	0.54 J	0.534 J	0.817 J	0.460 J	1.3 J	3.7	1.2
Magnesium	NA	11,300	11,300	12,200	7,550 K	8,240	12,100	10,100	15,000	150,000
Manganese	NA	350	86.7	205	219	377	432	727	990	670
Mercury	2	--	--	--	--	--	--	--	--	--
Nickel	57	**108**	**79.3**	**95.6**	**71.5**	**87.0**	**94.0**	**99.5**	**120**	**540**
Potassium	NA	7,720	5,490	5,950	3,840 J	5,680	3,490 J	3,520 J	13,000	220,000
Selenium	NA	4.0 U	4.0 U	0.22 J	0.634 J	0.498 J,L	0.926 *,J,K	4.0 U	2.6	1.7
Silver	0.1	10.0 U	**0.7 J,K**	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U
Sodium	NA	47,700 L	28,400	19,600	18,100	22,600	57,800	22,100	15,000	110,000
Thallium	0.5	1.0 U	1.0 U	0.06 J	0.057 J	0.087 J	0.064 J	2.0 U	2.0 U	2.0 U
Vanadium	NA	0.3 J, K,	0.8 J,K	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U
Zinc	NA	942	666	843	679	834	950	916	1,300	12,000
Hexavalent Chromium	2	10 U,J,	5 U,J,L	5 U,J,L	**5.1 J,L**	**2.6 J,L**	5 U,J,L	5 U,J,L	**5**	5 U
Cyanide	4	**7**	10 U	3 J	**12 ***	**7 J**	**7 J**	**7 J**	**100**	5 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR M14013

Sample Number:	Groundwater Cleanup Goal (µg/L)	M14013								
Sampling Date:		01/12/16	06/21/16	09/21/16						
Groundwater Elevation:[1]	NA	NA	NA	597.45						
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	6.95	7.05	7.43						
Oxidation Reduction Potential (mV)		-85.8	-1.7	-18.00						
Conductivity (mS/cm)	NA	1.022	0.758	0.650						
Dissoved Oxygen (mg/L)		0.18	0.15	0.28						
Turbidity (NTU)	NA	22.70	13.5	4.4						
Temperature (°C)		7.07	15.47	20.80						
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	16.2 J	5.6						
Antimony	3	1.0 U	60.0 U, J	1.0 U						
Arsenic	0.2	1.0 U	10.0 U, J	1.0 U						
Barium	2,000	24.7	10.5 J	8.9						
Beryllium	NA	2.0 U	5.0 U	1.0 U						
Cadmium	4	**2,070**	**2,480**	**2,000**						
Calcium	NA	121,000	104,000	110,000						
Chromium	7,000	10.8	10.0 U	3.4						
Cobalt	NA	6.0 U	50.0 U	5.0 U						
Copper	NA	20 U	25.0 U, J	1.1						
Iron	NA	5,170	883	140						
Lead	5	1.0 U	5.4 J	1.0 U						
Magnesium	NA	21,300	21,000	20,000						
Manganese	NA	237	163	360						
Mercury	2	--	--	--						
Nickel	57	**109**	**147**	**140**						
Potassium	NA	21,300	10,400	8,700						
Selenium	NA	1.0 U	35.0 U, J	1.0 U						
Silver	0.1	1.0 U	10.0 U, J	0.2 U						
Sodium	NA	67,300	27,900	17,000						
Thallium	0.5	1.0 U	25.0 U	2.0 U						
Vanadium	NA	5.0 U	50.0 U	2.0 U						
Zinc	NA	1,600	1,730 J	1,300						
Hexavalent Chromium	2	5 U	5.0 U	5 U						
Cyanide	4	10 U	10.0 U	5 U						

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR M14014

Sample Number:	Groundwater Cleanup Goal (µg/L)	M14014						M14014		
Sampling Date:		06/07/05	09/13/05	03/21/06	09/20/06	09/18/07	09/30/08	09/22/09	09/21/10	09/09/11
Groundwater Elevation:[1]	NA	595.01	594.15	596.06	595.24	594.77	594.19	594.63	594.56	594.65
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	6.86	7.94	7.21	7.49	7.11	6.63	7.05	7.02	--
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	254.76	161.78	--
Conductivity (mS/cm)	NA	0.616	0.674	0.856	0.480	NA	0.433	0.606	0.516	--
Dissoved Oxygen (mg/L)	NA	--	--	--	--	--	--	1.11	0.89	--
Turbidity (NTU)	NA	10	0	159	0	NA	14.6	0.80	0.89	--
Temperature (°C)	NA	--	--	--	--	--	--	16.62	18.78	--
Inorganic Analytes	**Result (ug/L)**									
Aluminum	50	100.0 U	100 U	100 U	200 U	200 U	12.9 J,K	30.7 J	34.3 J,K	**69.6 J**
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.43 J,L	0.46 J	0.942 J
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	**0.396 J**
Barium	2,000	27.6 K	20.9	34.0	19.2 J	21.2 J	29.5 J	32.4 J	20.5 J	51.3 J
Beryllium	NA	1.0 U,L	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**2,180**	**1,440**	**3,740**	**1,280**	**1,120**	**2,020**	**1,840**	**1,900**	**2,540**
Calcium	NA	54,500.0	39,400	66,400	44,800	26,800	59,600	64,300	49,800	81,500
Chromium	7,000	6.6	6.0 J	3.69 J	3.6 J,L	6.2 J	3.8 J	5.5 J	5.0 J	10.4
Cobalt	NA	2.0	1.6	1.92 J	1.70 J,*	2.9 J	1.8 J,K	4.0 J	2.9 J	23.4 J
Copper	NA	2.2 J	2.2 J	3.66 J	2.7 J	1.8 J	1.7 J	2.2 J	25.0 U	5.1 J
Iron	NA	46.8 K,*	7.8 J	32.4 J	61.3 J	153	100 U	92.3 J	89.9 J	646 J
Lead	5	2.0 U	2.0 U	3.0 U	2.0 U	2.0 U	2.0 U	1.0 U	0.156 J	0.548 J,K
Magnesium	NA	13,100.0	8,440	20,800	10,700	9,640	19,400	15,800	18,800	18,400
Manganese	NA	249.0 K	166	123	234	198	69.5	320	228	1460
Mercury	2	0.5 U	0.5 U,L	0.5 U	0.5 U	0.1 U	--	--	--	--
Nickel	57	125.0	**80.1**	**136**	**67.1**	**60.9**	**86.1**	**80.1**	**67.2**	**108**
Potassium	NA	9,450.0 K	6,050	6,170	4,740 J	5,800	7,210	6,490	3,790 J	7,850
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	1.1 J	0.48 J	0.726 J	0.375 J,L
Silver	0.1	4.0 U	4.0 U	5.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	67,200.0	76,300	88,000	33,400	53,300 L	14,100	34,100	29,500	38,700
Thallium	0.5	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.15 J	0.141 J	0.229 J
Vanadium	NA	10.0 U	10.0 U	5.0 U	0.9 J	0.7 J, K,	0.9 J,K	50.0 U	50.0 U	2.0 J
Zinc	NA	1,220.0	672	1,340	623	566	883	925	881	1460
Hexavalent Chromium	2	1 U,J,L	10 U	0.858 J,L	10 U,J,L	10 U,J,	5 U,J,L	5 U,J,L	**2.0 J,L**	5 U,J,L
Cyanide	4	**12.0**	**11**	**19**	**20 J,K**	**12**	10 U	**10**	**6 J,***	**9 J**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR M14014

Sample Number:	Groundwater Cleanup Goal (µg/L)	M14014								
Sampling Date:		09/25/12	09/04/13	09/23/14	10/13/15	01/12/16	06/21/16	09/20/16		
Groundwater Elevation:[1]	NA	594.09	594.08	596.32	596.96	NA	NA	597.32		
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper		
pH (standard units)	NA	6.86	6.81	6.84	6.21	7.01	6.55	7.17		
Oxidation Reduction Potential (mV)	NA	90.00	163.24	134.00	-58.00	-123.3	30.36	-60		
Conductivity (mS/cm)	NA	0.375	0.553	0.419	2.64	0.883	0.095	330		
Dissoved Oxygen (mg/L)	NA	2.29	0.16	1.81	1.36	0.22	0.90	0.21		
Turbidity (NTU)	NA	3.52	2.36	2.52	58.6	7.16	23.30	18.9		
Temperature (°C)	NA	17.65	17.22	16.41	17.04	4.76	22.41	18.34		
Inorganic Analytes		**Result (ug/L)**								
Aluminum	50	28.9 J	**50.4 J**	7.0	**68**	200 U	39.4 J	27		
Antimony	3	0.809 J,K	4.0 U	1.0 U	1.0 U	1.0 U	60.0 U, J	1.0 U		
Arsenic	0.2	1.00 U	2.0 U	1.0 U	**2.8**	1.49	10.0 U, J	1.0 U		
Barium	2,000	21.9 J	28.8 J	20	160	44.2	13.9 J	7.6		
Beryllium	NA	5.0 U	5.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U		
Cadmium	4	**1,990**	**2,470**	**1,800**	**2,800**	**1,070**	**377**	**330**		
Calcium	NA	47,000	65,700	51,000	320,000	127,000	62,400	50,000		
Chromium	7,000	10.1	6.6 J	6.0	18	13.3	5.0 J-	9.1		
Cobalt	NA	8.1 J	13.6 J	5.0 U	5.8	6.0 U	50.0 U	5.0 U		
Copper	NA	2.2 J	25.0 U	2.9	15	20.0 U	25.0 U, J	1.1		
Iron	NA	183	196	41	56,000	16,900	9,920	8,100		
Lead	5	1.00 U	2.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U		
Magnesium	NA	14,200	13,600	11,000	89,000	22,500	11,200	6,100		
Manganese	NA	595	698	100	4,300	1,240	386	240		
Mercury	2	--	--	--	--	--	--	--		
Nickel	57	**77.0**	**99.8**	**66**	**160**	25.3	12.4 J	19		
Potassium	NA	4,140 J	6,440	6,600	88,000	10,800	5,950	4,000		
Selenium	NA	1.45 J,K	2.0 J	1.2	1.0 U	1.0 U	5.5 J	1.0		
Silver	0.1	10.0 U	10.0 U	0.2 U	0.2 U	10 U	10.0 U, J	0.2 U		
Sodium	NA	22,100	19,700	2,800	170,000	14,200	8,470	9,700		
Thallium	0.5	0.063 J	2.0 U	2.0 U	2.0 U	1.0 U	25.0 U	2.0 U		
Vanadium	NA	50.0 U	50.0 U	2.0 U	2.0 U	5.0 U	50.0 U	2.0 U		
Zinc	NA	877	1,320	830	1,500	851	298 J	170		
Hexavalent Chromium	2	**6.9 J,L**	1.5 J,L	5 U	5 U	5 U	5.0 U	50 U		
Cyanide	4	**6 J**	**11**	**19**	**120**	**42**	**72.1**	**47**		

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR M14015A

Sample Number:	Groundwater Cleanup Goal (µg/L)	M14015A	M14015A/A-D	M14015A						
Sampling Date:		11/21/02	05/28/03	11/18/03	05/18/04	11/30/04	06/07/05	09/13/05	03/21/06	09/20/06
Groundwater Elevation:[1]	NA	595.01	--	594.64	595.12	594.65	594.83	594.06	595.86	595.07
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.45	--	7.74	6.86	7.75	7.36	7.35	7.33	7.20
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	1.08	--	0.93	0.874	0.945	0.691	0.910	0.958	0.840
Dissoved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	218	--	10	120.0	129	102	0	159	28.9
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**735**	**3,770**	**5,820** L	**3,820**	**2,680** *	28.6 J,L	**54.9** J	**1,000**	**423**
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	**1.0** J	**1.5** J	**1.1 J**	**0.6 J**	2.0 U	2.0 U	**0.8** J	2.0 U
Barium	2,000	29.2	54.3	69.6	55.9	47.4	33.8 K	37.6	48.0	32.9 J
Beryllium	NA	2.8 U	NA	0.2 J,K	1.0 U	0.5 U,*	1.0 U,L	1.0 U	1.0 U	5.0 J
Cadmium	4	**490**	**738**	**891**	**683**	**488** *	**175**	**231**	**335**	**209**
Calcium	NA	79,900	NA	90,300	75,900	75,100	69,000	72,900	85,100	66,100
Chromium	7,000	34.8	157	227	143	99.4 L,*	27.7	18.7	62.5	39.1 L
Cobalt	NA	2.0 J	NA	4.6 K	4.5 L	5.6 K,*	3.7	5.7	2.04 J	2.5 J,*
Copper	NA	4.2 J	NA	20.9 K	12.2 K,*	3.0 U,L,*	6.0 U	2.5 J	9.18	3.3 J
Iron	NA	2,270	NA	11,400	5,140	3,580 K,*	2,470 K,*	1,270	3,340	1,110
Lead	5	0.6 J	2.5	**6.3**	3.8	1.4 J	2.0 U	2.0 U	3.0 U	2.0 U
Magnesium	NA	13,700	NA	17,100	15,000	13,900	12,300	13,400	18,000	13,400
Manganese	NA	1,920 *	NA	1,150	1,860 *	1,660 *	1,330 K	2,210	814	1,020
Mercury	2	0.5 U	0.5 U,L	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U,L	0.5 U	--
Nickel	57	27.6	45.9	**61.0**	47.1	37.6 K	14 K	15.9	25.0 K	16.0 J
Potassium	NA	4,090 J, K	NA	7,430 K,*	4,910 L,*	4,950 K	8,200 K	5,050	5,420	5,620
Selenium	NA	4.0 U	NA	4.0 U	4.0 U	4.0 U	1.0 J	4 J	1.1 J	4.0 U
Silver	0.1	1.7 U	2.0 U	**1.2** J	4.0 U	4.0 U	1.2 J	4.0 U	5.0 U	10.0 U
Sodium	NA	131,000 K	NA	81,700 L	75,500	79,900	78,300	76,100	108,000	79,100
Thallium	0.5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	0.5 J	1.0 U
Vanadium	NA	17.0 U	NA	15.4 J	5.8 J	20.0 U,L	10.0 U	10.0 U	2.78 J	1.1 J
Zinc	NA	229	NA	398	331	240	115	124	199	127
Hexavalent Chromium	2	10 U	10 UJ,L	**13.8**	**12.6**	**15.1 L**	**9.8 J,L**	**7.4 J**	**21.3 J,L**	**15.1 J,L**
Cyanide	4	**54** J	**155**	**195** J	**209 J**	**140**	**82**	**61**	**91**	**102 J**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR M14015A

Sample Number:	Groundwater Cleanup Goal (µg/L)	M14015A								
Sampling Date:		09/18/07	09/30/08	09/22/09	09/21/10	09/09/11	09/25/12	09/04/13	09/23/14	10/13/15
Groundwater Elevation:[1]	NA	594.65	593.89	594.33	594.27	594.38	593.73	593.78	596.13	596.73
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.85	6.91	7.22	7.28	7.52	7.41	7.33	6.65	7.37
Oxidation Reduction Potential (mV)	NA	--	--	248.55	238.64	241.04	147.76	239.60	187.00	-21.00
Conductivity (mS/cm)	NA	0.650	1.270	1.135	1.053	1.004	2.322	1.035	0.843	0.807
Dissoved Oxygen (mg/L)	NA	--	--	1.05	1.06	--	0.16	0.66	1.26	0.63
Turbidity (NTU)	NA	NA	1.7	5.69	6.20	0.49	6.43	8.26	7.35	2.03
Temperature (°C)	NA	--	--	14.98	16.19	15.98	15.48	16.56	13.51	14.68
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	22.1 J, K	16.2 J	48.6 J	29.3 J,K	200 U	200 U	**114 J**	30	5.0 U
Antimony	3	4.0 U	4.0 U	2.0 U	0.12 J	0.119 J	0.095 J,K	4.0 U	1.0 U	1.0 U
Arsenic	0.2	2.0 U	2.0 U	1.0 U	**0.383 J**	1.0 U	1.00 U	2.0 U	1.0 U	1.0 U
Barium	2,000	27.6 J	31.1 J	37.1 J	51.0 J	40.5 J	62.9 J	55.2 J	47	51
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U
Cadmium	4	**173**	**345**	**587**	**450**	**241**	**355**	**648**	**340**	**230**
Calcium	NA	74,200	76,800	79,300	95,200	54,600	111,000	74,800	94,000	86,000
Chromium	7,000	15.6	6.8 J	9.0 J	12.4	14.4	5.2 J	21.2	19	17
Cobalt	NA	1.9 J	1.2 J	4.9 J	2.7 J	1.8 J	2.3 J	8.3 J	5.0 U	5.0 U
Copper	NA	1.4 J	1.4 J	3.1 J	25.0 U	3.0 J	3.0 J	25.0 U	5.3	9.9
Iron	NA	149	20.1 J	416	259	78 J	234	1,180	350	110
Lead	5	2.0 U	2.0 U	1.0 U	0.07 J	0.196 J,K	1.00 U	2.0 U	1.0 U	1.0 U
Magnesium	NA	14,300	13,200	14,400	16,700	7,840	18,100	12,900	18,000	20,000
Manganese	NA	435	291	1,110	608	299	659	1,910	540	830
Mercury	2	--	--	--	--	--	--	--	--	--
Nickel	57	7.9 J, K	14.1 J	22.1 J	13.4 J	8.4 J	13.1 J	36.4 J	20	40
Potassium	NA	4,460 J	3,760 J	3,190	3,190 J	1,860 J	4,000 J	2,340 J	2,300	15,000
Selenium	NA	4.0 U	1.4 J	1.17 J	1.20 J	1.19 J,L	1.25 J,K	1.2 J	1.5	1.0 U
Silver	0.1	10.0 U	**0.4 J,K**	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U
Sodium	NA	81,200 L	140,000	134,000	103,000	149,000	123,000	116,000	86,000	72,000
Thallium	0.5	4.0 U	2.0 U	1.0 U	1.0 U	1.00 U	1.00 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	0.2 J, K,	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U
Zinc	NA	52.2 J	90.6	154	104	74.6	46.8 J	192	95	110
Hexavalent Chromium	2	**10.9 J, L**	**6.2 J,L**	**3.3 J,L**	**11.4 J,L**	**13.0 J,L**	**5.8 J,L**	**12.5 J,L**	**14**	**16**
Cyanide	4	**42**	**25**	**18**	**23 ***	**87**	**11**	**110**	**19**	**11**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR M14015A

Sample Number:	Groundwater Cleanup Goal (µg/L)	M14015A		M14015A/M1415A-D						
Sampling Date:		01/13/16	06/21/16	09/20/16						
Groundwater Elevation:[1]	NA	NA	NA	597.10						
Portion of Glacial Unit:	NA	Middle	Middle	Middle						
pH (standard units)	NA	7.28	7.21	7.34						
Oxidation Reduction Potential (mV)	NA	-40.20	-118.92	-51.00						
Conductivity (mS/cm)	NA	1.125	0.741	0.652						
Dissoved Oxygen (mg/L)	NA	0.29	0.24	0.37						
Turbidity (NTU)	NA	2.58	3.30	2.7						
Temperature (°C)	NA	8.68	18.38	16.04						
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	12.2 J	5.4						
Antimony	3	1.0 U	60.0 U, J	1.0 U						
Arsenic	0.2	1.0 U	10.0 U, J	**1.4**						
Barium	2,000	47.4	83.5 J	35						
Beryllium	NA	2.0 U	5.0 U	1.0 U						
Cadmium	4	**243**	**109**	**88**						
Calcium	NA	67,400	53,700	40,000						
Chromium	7,000	5.0 U	10.0 U	1.9						
Cobalt	NA	6.0 U	50.0 U	5.0 U						
Copper	NA	20.0 U	25.0 U, J	1.0 U						
Iron	NA	413	7,230	9,000						
Lead	5	1.0 U	10.0 U	1.0 U						
Magnesium	NA	10,800	12,900	8,700						
Manganese	NA	284	2,350	1,200						
Mercury	2	--	--	--						
Nickel	57	11.9	2.8 J	14						
Potassium	NA	4,300	12,900	6,300						
Selenium	NA	1.0 U	35.0 U, J	1.0 U						
Silver	0.1	10.0 U	10.0 U, J	0.2 U						
Sodium	NA	132,000	73,400	96,000						
Thallium	0.5	1.0 U	25.0 U	2.0 U						
Vanadium	NA	5.0 U	50.0 U	2.0 U						
Zinc	NA	90.5	53.5 J	98						
Hexavalent Chromium	2	5 U	5.0 U	50 U						
Cyanide	4	10 U	**15.0**	**7**						

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ11A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ11A								
Sampling Date:		11/21/02	05/28/03	11/17/03	05/19/04	11/30/04	06/07/05	09/13/05	03/22/06	09/20/06
Groundwater Elevation:[1]	NA	592.93	593.15	592.92	593.61	593.66	593.54	592.96	594.47	594.01
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.12	6.89	7.5	7.43	7.16	8.30	6.71	6.53	7.20
Oxidation Reduction Potential (mV)		--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.991	0.849	0.865	0.625	0.607	0.566	0.622	0.490	0.460
Dissolved Oxygen (mg/L)		--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	10	10	-10	1.0	>999	0	0	0	0
Temperature (°C)		--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**36,400**	49.0	**184** L	80.0 U	**80,000** *	**255** L	100 U	100 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	**17.5**	2.0 U	2.0 U	2.0 U	**22.1**	2.0 U	2.0 U	2.0 U	2.0 U
Barium	2,000	775	62.1	65.1	39.0	1,260	52.0 K	40.0	39.9	40.0 J
Beryllium	NA	3.2	NA	0.5 U	1.0 U	5.4 *	1.0 U,L	1.0 U	1.0 U	5.0 U
Cadmium	4	**3,180**	**603**	**713**	**478**	**11,500** *	**679**	**515**	**815**	**685**
Calcium	NA	213,000	NA	96,600 K	65,600	328,000	68,500	47,100	68.4	59,500
Chromium	7,000	233	20.6	21.4	28.9 L	480 L,*	27.9	28.5	19.3	60.1 L
Cobalt	NA	25.6	NA	0.5 J	2.0 U,L	66.5 K,*	0.4 J	0.7 J	3.0 U	0.9 J,*
Copper	NA	111	NA	9.8	10.4 K,*	285 K,*	6.0	4.7 J	10.6	6.0 J,L
Iron	NA	55,400	NA	189	54.9	117,000 *	274 K,*	19.4 J	116	31.0 J
Lead	5	**69.2**	2.0 U	2.0 U	2.0 U	**125**	2.0 U	0.9 J	3.0 U	2.0 U
Magnesium	NA	79,100	NA	35,500	30,000	164,000	27,200	14,600	40,900	18,200
Manganese	NA	8,380 *	NA	26.9	1.0 K,*	26,500 *	97.3 K	48.6	7.49 L	4.4 J
Nickel	57	**97.6**	3.4 L	5.8 J	6.3 J	**228** K	7.5 K	4.2	5.03 K	5.60 J,K
Potassium	NA	14,800 J,K	NA	10,100 K,*	3,620 L,*	17,700 K	8,820 K	5,210	4,290	4,820 J
Selenium	NA	4.0 U	NA	20.0 U,L	4.0 U	12.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	**2.0** J,K	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	55,700 K	NA	861,000	11,100	22,000	21,000	37,100	8,960	8,700
Thallium	0.5	2.0 U	2.0 U	6.0 U	2.0 U	**2.1 J**	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	55.5 L	NA	20.1 J	10.0 U	143 K	10.0 U	10.0 U	5.0 U	0.7 J,L
Zinc	NA	304	NA	28.3 J	30.0 U	602	12.4 J	30.0 U	6.7 J	29.9 J
Hexavalent Chromium	2	**30**	**14.6**	**18.2**	**17.6**	**13.0 L**	**16.0 J,L**	**14.0 J,L**	**18.1** J,L	**56.6 J,***
Cyanide	4	**76 J**	**115**	**118**	**131 J**	**68**	**61**	**31**	**322**	**81**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ11A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ11A								
Sampling Date:		03/28/07	09/17/07	03/04/08	09/30/08	03/24/09	09/22/09	03/23/10	09/21/10	03/15/11
Groundwater Elevation:[1]	NA	594.64	593.64	594.03	592.63	593.42	593.16	593.28	593.04	594.41
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	6.70	7.10	7.79	6.45	7.27	7.22	7.27	7.09	7.12
Oxidation Reduction Potential (mV)		--	--	--	--	230.44	492.38	245.78	311.58	227.19
Conductivity (mS/cm)	NA	0.288	0.504	0.382	0.696	0.686	0.663	0.552	0.682	0.463
Dissolved Oxygen (mg/L)		--	--	--	--	7.35	3.26	7.11	4.89	2.91
Turbidity (NTU)	NA	0	0	241	34.0	1.62	0.33	2.68	1.99	0.00
Temperature (°C)		--	--	--	--	7.90	14.69	8.58	15.90	8.91
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	**262 K**	36.9 J,K	**59.0 J,K**	27.9 J,K,*	200 U	41.4 J	**56.8 J**	**71.5 J,K**	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.65 J,L	0.618 J	0.761 J	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	**0.508 J**	**0.562 J,K**	2.0 U
Barium	2,000	25.6 J	34.3 J	35.6 J	43.9 J	44.2 J	53.5 J	48.1 J	66.7 J	38.8 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**505**	**1,030**	**866**	**828**	**598**	**578**	**560**	**677**	**514**
Calcium	NA	52,100	48,600	75,800	78,100	88,200	91,300	71,000	97,100	62,700
Chromium	7,000	32.3	104	23.7	21.4	19.3	38.8	27.7	31.8	94.8
Cobalt	NA	0.5 J	0.7 J	0.7 J	1.1 J,K	0.5 J	50.0 U	1.2 J	50.0 U	1.0 J
Copper	NA	0.9 J,L	4.1 J	7.5 J	8.5 J	9.4 J	8.7 J	7 J,L	8.5 J	4.2 J
Iron	NA	254	47.9 J	63.3 J	61.0 J	63.1 J,L	34.0 J,K	77.6 J	113.0	34.1 J
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	0.105 J	2.0 U
Magnesium	NA	8,170	12,500	25,300	30,700	40,200	32,300	27,800	34,800	19,900
Manganese	NA	58.9	15	26.2	14.6 J	12.9 J	2.3 J	7.4 J	42.8	3.6 J
Nickel	57	10.5 J	6.1 J	6.7 J,K	4.6 J	4.6 J	5.9 J	4.2 J	40.0 U	3.0 J
Potassium	NA	2,310 J	4,200 J	3,820 J	4,560 J	5110	6,840	6,100	7,880	5,450
Selenium	NA	2.3 J	4.0 U	4.0 U	4.0 U	4.0 U	0.56 J	1.06 J,L	1.12 J	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	60,500	9,020	3,200 J	8,510	4,300 J	5,170	5,560	5,670	6,560
Thallium	0.5	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	0.4 K,J	1.4 J,K,*	0.3 J,L	1.3 J,K	50.0 U	50.0 U	5.2 J	50.0 U	50.0 U
Zinc	NA	163	6.5 J	18.4 J	60.0 U	60.0 U	19.7 J	27.1 J	60.0 U	60.0 U
Hexavalent Chromium	2	**30.7 J,L**	**124 J,L**	**20.8 J,L**	**18.7 J,L**	**16 J,L**	**26.7 J,L**	**19.1 J,L**	**30 J,L**	**82.2 J,L**
Cyanide	4	**63**	**42**	**106**	**93 L, ***	**183**	**81**	**92**	**75 ***	**6 J**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ11A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ11A								
Sampling Date:		09/08/11	03/19/12	09/25/12	03/05/13	09/04/13	04/01/14	09/23/14	04/22/15	10/13/15
Groundwater Elevation:[1]	NA	593.15	592.90	592.85	592.95	592.64	593.57	595.31	593.62	595.93
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.51	7.38	6.99	7.31	6.89	7.48	7.26	6.94	6.71
Oxidation Reduction Potential (mV)		219.54	127.35	155.70	210.44	83.77	6.66	187.00	121.00	23.90
Conductivity (mS/cm)	NA	0.561	0.924	2.098	0.406	0.579	0.355	0.517	0.495	0.470
Dissolved Oxygen (mg/L)		--	9.31	3.19	9.71	2.92	6.66	7.55	3.34	1.83
Turbidity (NTU)	NA	0.52	0.00	0.46	1.06	0.00	2.20	7.65	0.69	--
Temperature (°C)		15.73	13.87	16.08	7.93	15.48	8.61	14.43	8.31	14.05
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	200 U	38.5 J	15	27	36	14
Antimony	3	0.798 J	0.650 J	0.557 J	0.555 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	1.0 U	**0.435 J**	**0.358 J**	**0.304 J**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	44.1 J	31.9 J	38.9 J	21.2 J	34.1 J	25	33	24	31
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**531**	**543**	**632**	**442**	**856**	**340**	**430**	**540**	**510**
Calcium	NA	81,400	69,500	67,500	40,500	76,700	68,000	82,000	69,000	68,000
Chromium	7,000	30.7	20.9 K	67.6	17.4	22.8	22	17	65	31
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	1.3 J	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	11.2 J	8.1 J	6.2 J	5.0 J	4.0 J	5.8	6.7	6.7	7.3
Iron	NA	44.4 J	31.7 J	23.3 J	39.0 J	19.8 J	47	59	78	120
Lead	5	0.386 J,K	1.00 U	1.00 U	0.102 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	23,600	24,300	22,200	25,900	31,200	22,000	34,000	22,000	26,000
Manganese	NA	16.0	7.9 J	22.3	11.0 J	13.4 J	18	8.9	87	78
Nickel	57	2.7 J	2.6 J	4.9 J	2.6 J	2.8 J	2.6	3.8	6.2	8.1
Potassium	NA	5,880	4,040 J	4,650 J	2880.0 J	3,980 J	2,100	3,500	3,000	3,900
Selenium	NA	0.901 J,L	1.42 J	2.12 J,K	2.28 J	1.7 J	1.2	1.0 U	2.0	1.9
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	3,060 J	3,670 J	6,750	3,100 J	2,830 J	2,300	1,900	6,100	5,900
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.071 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	1.4 J	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	15.4 J	60.0 U	60.0 U	60.0 U	60.0 U	6.3	5.0 U	5.0 U	5.0 U
Hexavalent Chromium	2	**28.2 J,L**	**17**	**65.6 J,L**	**15.3 J,L**	**20.3 J,L**	**22**	**16**	**57**	**26**
Cyanide	4	**63**	**55**	**36**	**41**	**36**	**47**	**55**	**65**	**39**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ11A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ11A								
Sampling Date:		01/13/16	04/06/16	06/22/16	09/21/16					
Groundwater Elevation:[1]	NA	NA	596.78	NA	596.21					
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.27	7.33	7.18	4.40					
Oxidation Reduction Potential (mV)		-15.00	181.70	66.30	179.70					
Conductivity (mS/cm)	NA	0.518	0.580	0.602	681.000					
Dissolved Oxygen (mg/L)		4.71	3.68	2.68	1.68					
Turbidity (NTU)	NA	0.24	0.63	1.27	3.54					
Temperature (°C)		6.73	8.22	18.09	15.41					
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	9.7	12.3 J	6.5					
Antimony	3	1.0 U	1.0 U	60.0 U, J	1.0 U					
Arsenic	0.2	1.0 U	1.0 U	10.0 U, J	1.0 U					
Barium	2,000	31.9	38	44.2 J	49					
Beryllium	NA	2.0 U	1.0 U	5.0 U	1.0 U					
Cadmium	4	**448**	**440**	**507**	**730**					
Calcium	NA	79,100	78,000	75,900	78,000					
Chromium	7,000	34.2	27	24.7	5.6					
Cobalt	NA	6.0 U	5.0 U	50.0 U	5.0 U					
Copper	NA	20 U	5.5	5.6 J	5.7					
Iron	NA	80 U	66	31.9 J	78					
Lead	5	1.0 U	1.0 U	10.0 U	1.0 U					
Magnesium	NA	21,200	18,000	16,800	16,000					
Manganese	NA	11.7	7.9	2.8 J	330					
Nickel	57	6.0 U	9.9	40.0 U	8.1					
Potassium	NA	3,920	3,600	5,000 U	5,400					
Selenium	NA	1.37	3.0	35.0 U, J	1.0 U					
Silver	0.1	10 U	0.2 U	10.0 U, J	0.2 U					
Sodium	NA	6,700	19,000	23,400	29,000					
Thallium	0.5	1.0 U	2.0 U	25.0 U	2.0 U					
Vanadium	NA	5.0 U	2.0 U	50.0 U	2.0 U					
Zinc	NA	30 U	5.0 U	60.0 U	5.0 U					
Hexavalent Chromium	2	**31.5**	**27**	**23.6**	5 U					
Cyanide	4	**57**	**99**	**47.9**	**17**					

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ11B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ11B								
Sampling Date:		11/21/02	05/28/03	11/17/03	05/19/04	11/30/04	06/07/05	09/13/05	03/22/06	09/20/06
Groundwater Elevation:[1]	NA	592.88	592.53	588.81	593.53	593.36	593.45	592.85	594.39	594.28
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.72	6.98	7.54	7.00	6.84	6.78	6.53	6.75	6.86
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.846	0.990	0.574	0.576	0.443	0.363	0.490	0.564	0.740
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	329	10	-10	67.0	0	76	0	0	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**370**	**1,210**	**396 L**	**3,510**	**83.3 J,***	100 U	100 U	100 U	35.7 J
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	1 J	4.0 U	4 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	**1.0 J**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U,*
Barium	2,000	25.1	41.7	28.3	75.6	20.5	18.9 K	21.0	27.3	28.2 J
Beryllium	NA	2.8 U	NA	0.5 U	1.0 U	0.5 U,*	1.0 U,L	1.0 U	1.0 U	5.0 U
Cadmium	4	**575**	**1,070**	**1,350**	**1,150**	**1,290 ***	**846**	**1,440**	**459**	**640**
Calcium	NA	54,700	NA	45,600 K	66,600	37,800	37,800	31,300	53,300	50,100
Chromium	7,000	48.5	49.2	63.1	65.9	79.1 L,*	52.9	67.7	36.4	27.1
Cobalt	NA	4.2 U	NA	2.0 U	1.4 J,L	1.2 J,K,*	1.0 U	0.6 J	3.0 U	0.4 J,*
Copper	NA	2.6 J	NA	1.9 J	6.1 K,*	3.0 U,*	6.0 U	6.0 U	1.86 J	1.10 J
Iron	NA	437	NA	220	3,330	101 K,*	16.1 J,K,*	30.9 J	23.9 J	21.2 J
Lead	5	2.0 U	2.0 U	2.0 U	4.1	2.0 U	2.0 U	2.0 U	3.0 U	**15.6 ***
Magnesium	NA	7,420	NA	8,010	16,400	6,550	5,240	5,100	7,410	7,270
Manganese	NA	31.6 *	NA	63.8	312 *	12.9 K,*	6.4 K	22.7	1.22 L	8.7 J
Nickel	57	18.4	27.0	28.9	26.5	21.0 K	15.3 K	21.6	7.99 K	11.3 J
Potassium	NA	3,400 J, K	NA	8,270 K,*	3,620 L,*	3,490 K	5,490 K	3,270	2,500	2,440 J
Selenium	NA	1.2 J	NA	4.0 U,L	2 J	2 J	2.0 J	2 J	1.2 J	1 J
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	**1.0 J,K**	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	43,400 K	NA	360,000	36,700	30,700	35,200	43,100	58,800	79,900 L
Thallium	0.5	2.0 U	2.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U	NA	10.1 J	3.2 J	20.0 U	10.0 U	10.0 U	5.0 U	0.3 J,K
Zinc	NA	174	NA	361	317	292	202	289	142	214
Hexavalent Chromium	2	**47**	**43.2**	**63.7**	**49.8 J,L**	**59.7 L**	**33.4 J,L**	**58.8 J,L**	**38.2 J,L**	**28.1 J,***
Cyanide	4	**6 J**	**26**	**31**	**44 J**	**96**	**30**	**80**	**55**	**32 J,***

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ11B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ11B								
Sampling Date:		03/28/07	09/17/07	03/04/08	09/30/08	03/24/09	09/22/09	03/23/10	09/21/10	03/15/11
Groundwater Elevation:[1]	NA	594.64	593.59	593.98	592.51	593.3	593.06	593.2	592.93	594.38
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.01	7.20	7.69	6.25	6.94	6.96	7.08	7.05	7.29
Oxidation Reduction Potential (mV)	NA	--	--	--	--	262.19	419.16	281.32	319.38	231.36
Conductivity (mS/cm)	NA	0.715	0.731	0.308	0.381	0.341	0.523	0.406	0.521	0.923
Dissolved Oxygen (mg/L)	NA	--	--	--	--	4.26	5.4	3.74	2.93	4.15
Turbidity (NTU)	NA	0	0	876	41.8	4.75	3.00	2.44	5.50	4.43
Temperature (°C)	NA	--	--	--	--	9.98	13.65	10.68	14.81	10.74
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	38.6 J,K	12.6 J, K	22.3 J,K	**79.5 J,K**	**92.5 J**	200 U	**58.9 J**	**54.4 J,K**	26.1 J
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	0.078 J	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	**0.461 J,K**	2.0 U
Barium	2,000	109 J	25.6 J	15.6 J	17.4 J	16.9 J	21.4 J	17.5 J	23.7 J	35.8 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	1.2 J	**238**	**310**	**515**	**450**	**309**	**314**	**206**	**110**
Calcium	NA	96,600	61,400	42,800	40,600	43,200	53,800	49,900	66,500	95,500
Chromium	7,000	6.6 J	39.3	51.5	108	52.6	69.3	60.4	105	29.3
Cobalt	NA	50.0 U	50.0 U	0.5 J	0.7 J,K	50.0 U	50.0 U	50.0 U	50.0 U	0.6 J
Copper	NA	1.4 J,L	25.0 U	25.0 U	1.3 J	1.2 J	25.0 U	25.0 U	25.0 U	25.0 U
Iron	NA	13.1 J	30.6 J	44.4	90.9 J	91.1 J,L	38.3 J,K	72.5 J	73.2 J	60.4 J
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	0.104 J	2.0 U
Magnesium	NA	22,300	11,100	6,600	11,100	10,900	10,500	10,200	13,800	21,300
Manganese	NA	1.5 J	2.1 J	1.5 J	8.5 J	10.4 J	2.3 J	5 J	8.1 J	1.6 J
Nickel	57	2.6 J	7.2 J	8.7 J,K	22.4 J	16.6 J	12.0 J	14.0 J	6.4 J	4.0 J
Potassium	NA	3,940	2,410 J	2,170 J	3,230 J	2,830 J	3,440 J	3,510 J	4,680 J	5,960
Selenium	NA	4.0 U	1.5 J	4.0 U	4.0 U	4.0 U	1.3 J	0.442 J,L	0.94 J	1.4 J
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	93,200	75,400	37,800	8,270	11,600	33,200	12,700	20,700	64,800
Thallium	0.5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	0.4 J,K	0.7 J, K,	50.0 U	0.7 J,K	50.0 U	50.0 U	5.2 J	50.0 U	50.0 U
Zinc	NA	18.6 J,L	111	119	208	200	181	172	133	67.3
Hexavalent Chromium	2	**5.6 J,L**	**43.5 J, L**	**49.0 J,L**	**111 J, L**	**48.0 J,L**	**49.8 J,L**	**49.2 J,L**	**96.9 J,L**	**26.4 J,L**
Cyanide	4	3 J	**63**	**126**	**107**	**111**	**70**	**46**	**33 ***	**17**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ11B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ11B								
Sampling Date:		09/08/11	03/19/12	09/25/12	03/05/13	09/04/13	04/01/14	09/23/14	04/22/15	10/13/15
Groundwater Elevation:[1]	NA	593.08	592.8	595.57	592.84	592.55	593.50	595.27	592.93	595.86
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.25	6.98	6.84	7.02	6.95	7.66	7.57	7.45	6.89
Oxidation Reduction Potential (mV)	NA	234.83	136.02	160.76	303.23	251.58	455	215	160.1	67.7
Conductivity (mS/cm)	NA	0.515	0.916	2.088	0.533	0.435	0.455	0.845	0.617	0.856
Dissolved Oxygen (mg/L)	NA	--	5.83	0.26	7.92	4.33	3.44	2.55	2.44	0.12
Turbidity (NTU)	NA	0.63	0.00	0.64	0.00	0.00	7.10	8.96	9.76	--
Temperature (°C)	NA	14.94	15.19	14.27	9.83	14.49	10.62	12.57	9.71	12.39
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	200 U	200 U	**120**	**100**	**140**	**120**
Antimony	3	0.084 J	0.290 J	0.124 J,K	0.233 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**0.303 J,K**	1.0 U	**0.451 J**	**0.234 J**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	26.9 J	27.5 J	24.8 J	23.3 J	17.4 J	27	37	29	26
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**145**	**295**	**239**	**228**	**150**	**92**	**85**	**100**	**98**
Calcium	NA	64,800	70,700	59,100	65,600	52,400	67,000	73,000	64,000	81,000
Chromium	7,000	40.2	69.6 K	91.3	59.6	64.6	18	18	18	16
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	2.5 J	3.3 J	2.4 J	25.0 U	25.0 U	1.8	3.3	2.3	6.6
Iron	NA	100 U	61.3 J	100 U	93.9 J	71.1	160	110	150	110
Lead	5	0.167 J,K	1.0 U	1.0 U	0.339 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0
Magnesium	NA	11,600	18,100	18,200	18,600	17,800	17,000	13,000	18,000	14,000
Manganese	NA	0.8 J,L	1 J	2.4 J	15.0 U	1.3 J	38	40	73	92
Nickel	57	3.9 J	19.0 J	18.2 J	18.9 J	11.6 J	5.9	4.6	9.1	11
Potassium	NA	4,400 J	3,910 J	3,080 J	2,430 J	2,390 J	4,000	3,700	3,400	2,700
Selenium	NA	2.29 J,L	1.25 J	0.367 J,K	1.63 J	4.0 U	1.2	1.0 U	1.5	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	22,900	8,610	29,300	18,400	11,400	39,000	110,000	30,000	110,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.079 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	148	152	214	193	130	56	45	75	49
Hexavalent Chromium	2	**39.7 J,L**	**63.3**	**89.2 J,L**	**54.7 J,L**	**60.8 J,L**	**15**	**17**	**16**	**16**
Cyanide	4	**14**	**162**	**14**	**195**	**173**	**79**	**55**	**42**	**13**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ11B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ11B								
Sampling Date:		01/13/16	04/06/16	06/22/16	09/21/16					
Groundwater Elevation:[1]	NA	NA	596.72	NA	596.27					
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.26	7.89	7.06	7.26					
Oxidation Reduction Potential (mV)	NA	-297.6	-59.9	-140.88	-118					
Conductivity (mS/cm)	NA	1.498	1.011	1.107	0.856					
Dissolved Oxygen (mg/L)	NA	0.14	0.28	0.12	0.25					
Turbidity (NTU)	NA	1.38	1.41	2.47	7.31					
Temperature (°C)	NA	7.65	10.70	17.27	14.51					
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	18	27.4 J	16					
Antimony	3	1.0 U	1.0 U	60.0 U, J	1.0 U					
Arsenic	0.2	**1.67**	**1.3**	10.0 U, J	1.0 U					
Barium	2,000	141	90	116 J	87					
Beryllium	NA	2.0 U	1.0 U	5.0 U	1.0 U					
Cadmium	4	**11.3**	**38**	**19.4**	**17**					
Calcium	NA	129,000	88,000	89,900	81,000					
Chromium	7,000	5.0 U	1.8	10.0 U	1.0 U					
Cobalt	NA	6.0 U	5.0 U	50.0 U	5.0 U					
Copper	NA	20 U	12	4.7 J	6.8					
Iron	NA	2,230	5,300	13,300	6,500					
Lead	5	1.0 U	1.0 U	1.7 J	1.0 U					
Magnesium	NA	37,700	29,000	27,700	24,000					
Manganese	NA	1,920	2,700	2,880	1,400					
Nickel	57	11.5	12	40.0 U	7.2					
Potassium	NA	47,700	--	29,600	28,000					
Selenium	NA	1.0 U	1.0 U	35.0 U, J	1.0 U					
Silver	0.1	10 U	0.2 U	10.0 U, J	0.2 U					
Sodium	NA	122,000	63,000	57,000	53,000					
Thallium	0.5	1.0 U	2.0 U	25.0 U	2.0 U					
Vanadium	NA	5.0 U	2.0 U	50.0 U	2.0 U					
Zinc	NA	30 U	18	60.0 U, J	9.5					
Hexavalent Chromium	2	5 U	5 U	5.0 U	50 U					
Cyanide	4	10 U	**8**	10.0 U	**20**					

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ11C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ11C								
Sampling Date:		11/21/02	05/28/03	11/17/03	05/19/04	11/30/04	06/07/05	09/13/05	03/22/06	09/20/06
Groundwater Elevation:[1]	NA	592.61	590.38	588.66	593.20	593.01	593.12	589.48	594.13	594.50
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.03	7.95	8.21	8.39	7.73	7.53	7.63	7.66	7.70
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.637	0.782	0.752	0.661	0.911	0.645	0.975	0.720	1.180
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	2	10	-10	5.0	198	57	0	0	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**158**	**266**	44.2 L	**60.7 J,L**	**513** *	**100** U	100 U	100 U	28.8 J
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	8.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	**0.9 J**	2.0 U	2.0 U	2.0 U	2.0 U
Barium	2,000	56.7	71.4	73.9	65.6	76.8	78.0 K	82.8	87.6	104
Beryllium	NA	2.8 U	NA	0.5 U	1.0 U	0.5 U,*	1.0 U,L	1.0 U	1.0 U	5.0 U
Cadmium	4	**4.3**	**6.6** K	2.3 K	1.7 K	**32.3** K,*	1.5 J,K	1.2 J,K	1.07 J	0.8 J
Calcium	NA	51,900	NA	74,200 K	62,100	63,400	63,000	79,000	69,300	88,700
Chromium	7,000	1.9	6.7	3.1	7.1 L	6.0 J,*	8.0	11.6	5.20	7 J,L
Cobalt	NA	4.2 U	NA	2.0 U	2.0 U	1.3 J,K,*	1.0 U	0.6 J	3.00 U	0.40 J,*
Copper	NA	1.6 J	NA	1.7 J	6.0 U,*	3.0 U,L,*	6.0 U	6.0 U	2.73 J	1.3 J,L
Iron	NA	154	NA	51.7	62.3	475 K,*	25.5 K,*	20.0 U,L	50.0 U	19.4 J
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U
Magnesium	NA	12,100	NA	20,700	17,800	15,200	14,600	19,000	18,800	22,800
Manganese	NA	14.3 *	NA	2.1	3.7 *	29.9 K,*	1.4 K	0.4 J	1.0 U	1.6 J
Mercury	2	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U,L	0.5 U	--
Nickel	57	2.9	2.3 U	10.0 U	1.5 J	10.0 U	5.1 K	2.8	3.0 U	3.3 J,K
Potassium	NA	2,680 J, K	NA	7,530 K,*	1,300 J,L,*	2,590 K	6,450 K	3,170	2,970	3,380 J
Selenium	NA	4.0 U	NA	8.0 U,L	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	39,400 K	NA	709,000	37,100	89,300	65,700	63,600	63,700	83,900
Thallium	0.5	2.0 U	2.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U	NA	17.2 J	10.0 U	20.0 U,L	10.0 U	10.0 U	5.0 U	50.0 U
Zinc	NA	13.7 J	NA	13.6 J	30.0 U	30.0 U	22.5 J	30.0 U	30.0 U	34.3 J
Hexavalent Chromium	2	**2.9** J	0.6	**4.3** J	**3.1 J,L**	**3.9 L**	**3.8**	**4.6 J,L**	**4.86**	**5.8 J,***
Cyanide	4	8 U	8 U	8 U	8 UJ	5 U	5 U	3 J	10 U	**8 K**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ11C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ11C								
Sampling Date:		09/17/07	09/30/08	09/22/09	09/21/10	09/09/11	09/25/12	09/04/13	09/23/14	10/14/15
Groundwater Elevation:[1]	NA	593.38	591.80	592.42	592.54	592.68	591.96	591.86	595.59	596.11
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.46	6.99	7.80	7.49	7.97	7.63	7.56	7.73	7.29
Oxidation Reduction Potential (mV)	NA	--	--	414.00	279.55	190.86	115.25	37.91	175.00	37.80
Conductivity (mS/cm)	NA	0.970	9.2	0.838	1.654	1.279	2.092	1.055	0.689	0.776
Dissolved Oxygen (mg/L)	NA	--	--	0.64	1.06	--	0.71	0.74	1.19	0.10
Turbidity (NTU)	NA	0	23	1.03	3.83	0.69	0.28	1.46	5.29	--
Temperature (°C)	NA	--	--	13.65	14.84	13.64	13.95	14.55	12.46	12.37
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	7.9 K, J	32.2 J	**54.6 J**	37.0 J,K	200 U	200 U	36.9 J	5.3	12
Antimony	3	4.0 U	4.0 U	2.0 U	0.078 J	0.097 J	0.159 J,K	4.0 U	1.0 U	1.0 U
Arsenic	0.2	2.0 U	2.0 U	**0.37 J**	**0.405 J,K**	1.00 U	**0.506 J**	2.0 U	1.0 U	1.0 U
Barium	2,000	107 J	78.7 J	40.9 J	71.4 J	45.3 J	35.1 J	32.3 J	62	52
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U
Cadmium	4	0.5 J	**12.6**	**19.6**	**58.8**	**41.1**	**50.0**	**54.9**	**21**	**41**
Calcium	NA	83,900	81,700	69,900	110,000	80,000	86,300	75,800	77,000	91,000
Chromium	7,000	1.2 K, J	12.2	10.4	13.8	12.2	22.7	28.8	2.0	1.0 U
Cobalt	NA	0.8 J	0.8	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U
Copper	NA	1.1 J	2.2	25.0 U	25.0 U	3.8 J	2.4 J	25.0 U	1.8	3.3
Iron	NA	13.4 J	18.2	29.3 *,J,K	30.0 J	100 J	100 U	100 U	20 U	26
Lead	5	2.0 U	2.0 U	0.27 J	1.0 U	0.298 J,K	1.00 U	2.0 U	1.0 U	1.0 U
Magnesium	NA	27,300	16,500	13,500	19,500	12,500	12,800	11,500	14,000	18
Manganese	NA	0.8 J	8.0 J	9.8 J	11.2 J	3.3 J	0.8 J	15.0 U	5.0 U	5.0 U
Mercury	2	--	--	--	--	--	--	--	--	--
Nickel	57	2 J	7.9 J	8.5 J	6.5 J	3.7 J	6.5 J	6.4 J	4.6	13
Potassium	NA	2,560 J	3,210 J	2,200 J	3,220 J	2,890 J	3,330 J	2,650 J	3,100	3.4
Selenium	NA	4.0 U	4.0 U	0.27 J	0.427 J	0.225 J,L	0.958 J,K	1.6 J	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U
Sodium	NA	85,800	178,000	85,900	211,000	174,000	134,000	125,000	69,000	53,000
Thallium	0.5	4.0 U	5.0 U	1.0 U	1.0 U	1.00 U	1.00 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	0.4 K, *,	0.4 J,K	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U
Zinc	NA	9.9 J	60.0 U	17.7 J	60.0 U	15.5 J	60.0 U	60.0 U	5.0 U	5.0 U
Hexavalent Chromium	2	10 U,J,	**11.0 J,L**	**5.6 J,L**	**12.3 J,L**	**11.7 J,L**	**23.5 J,L**	**27.6 J,L**	5 U	5 U
Cyanide	4	3 J	10 U	**4 J**	**5 J,***	**4 J**	**8 J**	**19**	5 U	5 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ11C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ11C								
Sampling Date:		01/13/16	06/23/16	09/21/16						
Groundwater Elevation:[1]	NA	NA	NA	596.45						
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	7.71	7.75	7.99						
Oxidation Reduction Potential (mV)	NA	15.90	54.10	-68.00						
Conductivity (mS/cm)	NA	1.059	0.794	0.66						
Dissolved Oxygen (mg/L)	NA	0.56	0.39	0.23						
Turbidity (NTU)	NA	0.76	5.39	4.58						
Temperature (°C)	NA	7.07	14.12	13.70						
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	29.6 J	9.8						
Antimony	3	1.0 U	60.0 U, J	1.0 U						
Arsenic	0.2	1.0 U	10.0 U, J	1.0 U						
Barium	2,000	61.3	42.0 J	37						
Beryllium	NA	2.0 U	5.0 U, J	1.0						
Cadmium	4	**33.2**	**27.3**	**23**						
Calcium	NA	90,800	71,900	67,000						
Chromium	7,000	5.0 U	10.0 U	1.0 U						
Cobalt	NA	6.0 U	50.0 U	5.0 U						
Copper	NA	20.0 U	25.0 U, J	2.5						
Iron	NA	80 U	32.5 J	20 U						
Lead	5	1.0 U	4.1 J	1.0 U						
Magnesium	NA	20,700	20,100	18,000						
Manganese	NA	8.0 U	5.0 J	5.0 U						
Mercury	2	--	--	--						
Nickel	57	6.0 U	2.4 J	10						
Potassium	NA	4,430	5,000 U	2,700						
Selenium	NA	1.41	35.0 U, J	1.0 U						
Silver	0.1	10 U	10.0 U, J	0.2 U						
Sodium	NA	94,600	52,000	50,000						
Thallium	0.5	1.0 U	25.0 U	2.0 U						
Vanadium	NA	5.0 U	50.0 U	2.0 U						
Zinc	NA	30.0 U	60.0 U, J	5.0 U						
Hexavalent Chromium	2	5 U	5.0 U	5 U						
Cyanide	4	10 U	10.0 U	5 U						

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ12A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ12A								
Sampling Date:		11/21/02	05/28/03	11/17/03	05/19/04	11/30/04	06/08/05	09/13/05	09/18/07	03/05/08
Groundwater Elevation:[1]	NA	592.91	594.03	593.03	593.49	593.47	593.3	593.7	591.56	591.87
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.13	6.85	7.49	7.36	7.37	6.75	6.63	7.25	7.31
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.750	0.617	0.471	0.450	0.532	0.456	0.596	--	0.270
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	2	-10	-10	349.0	>999	32	0	--	123
Temperature (℃)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	**40,000**	**1,400**	**329 L**	**25,400**	**62,000** *	**147 L**	**103**	12.1 J,K	38 J,K
Antimony	3	4.0 U	4.0 U	4.0 U	1 J	4.0 U	4.0 U	1 J	4.0 U	4.0 U
Arsenic	0.2	**18.2**	2.0 U	2.0 U	**12.8**	**16.3**	2.0 U	2.0 U	2.0 U	2.0 U
Barium	2,000	780	62.6	46.2	403	1,270	63.6 K	54.7	42.4 J	29.0 J
Beryllium	NA	4.3	NA	0.5 U	1.6	5.7 *	1.0 U,L	1.0 U	5.0 U	5.0 U
Cadmium	4	**5,070**	**625**	**525**	**3,380**	**13,900** *	**984**	**683**	**1,230**	**788**
Calcium	NA	167,000	NA	56,200 K	92,400	187,000	60,000	57,100	51,200	50,200
Chromium	7,000	267	19.3	29.6	176	419 L,*	32.7	47.4	37	22.2
Cobalt	NA	30.7	NA	0.4 J	14.9	55.4 K,*	2.0	0.7 J	0.6 J	0.7 J
Copper	NA	152	NA	7.9	86.5 *	357 K,*	5.5 J	5.8 J	3.4 J	4.8 J
Iron	NA	69,400	NA	294	44,000	97,200 *	257 K	106 K	49.1 J	37.0 J
Lead	5	**98.7**	0.6 J	2.0 U	**44.4**	**118**	2.0 U	2.0 U	2.0 U	2.0 U
Magnesium	NA	70,900	NA	10,700	40,800	81,600	12,300	11,300	9,940	11,600
Manganese	NA	12,600 *	NA	59.8	7,060 *	39,500 *	71.2 K	67.7	1.5 J	1.0 J
Nickel	57	**311**	8.1 L	6.5 J	**142**	**707 K**	14.8 K,*	9.7	2.5 J	3.9 J,K
Potassium	NA	15,200 J, K	NA	9,290 K,*	9,730 L,*	17,100 K	16,700 K	5,610	6,190	3,750 J
Selenium	NA	12.0 U	NA	12.0 U,L	8.0 U	8.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	**1.7 J,K**	4.0 U	4.0 U	10.0 U	10.0 U
Sodium	NA	30,800 K	NA	753,000	31,900	23,000	28,000	28,100	9,580	8,050
Thallium	0.5	10.0 U	2.0 U	4.0 U	4.0 U	**2.0 J**	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	73.1 L	NA	23.7 J	53.8	145 K	10.0 U	1.7 J	2 J,K,*	0.6 J
Zinc	NA	864	NA	26.4 J	423	1,050	33.0	14.4 J	10.1 J	14.7 J
Hexavalent Chromium	2	**5 J**	**9.2**	**28.0**	**18.9 J,L**	**26.8 L**	**34.2 J,L,***	**35.8 J,L**	**36.3 J, L**	**20.7 J,L**
Cyanide	4	**16 J**	**85**	**58**	**49 J**	5 U*	**55 J**	**41**	**62**	**81 J**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ12A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ12A								
Sampling Date:		09/30/08	03/24/09	09/22/09	03/23/10	09/21/10	03/15/11	09/09/11	03/20/12	09/26/12
Groundwater Elevation:[1]	NA	592.69	593.51	593.24	593.24	592.96	594.61	593.15	592.88	592.76
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	6.47	7.25	7.14	7.35	6.80	7.04	--	7.36	7.38
Oxidation Reduction Potential (mV)	NA	--	77.27	279.85	264.81	293.66	109.79	--	104.43	213.87
Conductivity (mS/cm)	NA	0.509	0.411	0.365	0.625	0.457	0.499	--	1.187	3.689
Dissolved Oxygen (mg/L)	NA	--	9.80	6.87	8.26	2.27	8.07	--	10.09	8.00
Turbidity (NTU)	NA	0.00	0	0.64	0.72	39.29	0.00	--	0.00	1.21
Temperature (°C)	NA	--	8.66	14.53	9.76	15.83	9.47	--	11.90	14.15
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	28.9 J	7.9 J,L	200 U	**64.7 J**	**3,250**	20.2 J	200 U	200 U	200 U
Antimony	3	4.0 U	4.0 U	0.47 J,L	0.703 J	0.376 J	4.0 U	0.632 J	0.799 J	0.715 J,K
Arsenic	0.2	2.0 U	2.0 U	1.0 U	**0.436 J**	**0.833 J,K**	2.0 U	1.00 U	**0.389 J**	**0.631 J**
Barium	2,000	40.1 J	29.6 J	28.8 J	47.9 J	77.7 J	37.6 J	34.6 J	45.6 J	41.3 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**905**	**604**	**993**	**809**	**911**	**656**	**1,070**	**554**	**510**
Calcium	NA	63,400	58,600	47,100	92,100	64,400	67,100	54,100	106,000	92,900
Chromium	7,000	29.3	21.5	28.2	26.1	192	37.8	34.6	25.5 K	42.9
Cobalt	NA	0.9 J	50.0 U	50.0 U	50.0 U	1.3 J	0.6 J	50.0 J	50.0 U	50.0 U
Copper	NA	8.2 J	6.4 J	4.8 J	18.3 J,L	14.0 J	5.2 J	5.9 J	10.6 J	9.2 J
Iron	NA	52.5 J	27.6 J,L	36.4 J,K	75.7 J	817	34.9 J	76.0 J	87.7 J	24.0 J
Lead	5	2.0 U	2.0 U	1.0 U	1.0 U	2.31	0.7 J	0.219 J,K	0.082 J	1.00 U
Magnesium	NA	17,100	19,500	13,800	25,900	19,700	20,700	14,700	25,700	23,000
Manganese	NA	2.4 J	0.4 J	1.3 J	1.2 J	98.1 J	15.0 U	3.7 J	4.4 *,J	1.0 J
Nickel	57	13.0 J	6.0 J	13.6 J	24.0 J	40.3	13.2 J	28.3 J	39.9 J	26.8 J
Potassium	NA	4,310 J	3,820 J	3,970	4,690 J	4,880 J	4,510 J	4,570 J	4,760 J	5,500
Selenium	NA	4.0 U	4.0 U	0.35 J	0.631 J,L	0.845 J	4.0 U	0.608 J,L	1.11 J	2.58 J,K
Silver	0.1	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	4,650 J	3,360 J	5,300	4,900 J	8,130	8,420	4,580 J	2,710 J	5,400
Thallium	0.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	2.6 J,K	1.0 J	50.0 U	6.5 J	3.9 J	50.0 U	1.4 J	1.6 J	2.4 J
Zinc	NA	60.0 U	60.0 U	17.2 J	31.9 J	37.6 J	7.8 J	13.8 J	60.0 U	60.0 U
Hexavalent Chromium	2	**26.7 J, L**	**18.5 J,L**	**17.4 J,L**	**20.9 J,L**	**172 J,L**	**30.0 J,L**	**32.5 J,L**	**21.9 J,L**	**39.2 J,L**
Cyanide	4	**61**	**98**	**53**	**148**	**44 ***	**10 J**	**45**	**108**	**35**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ12A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ12A								
Sampling Date:		3/5/2013	9/4/2013	04/02/14	09/23/14	04/22/15	10/14/15	1/13/2016	4/6/2016	6/22/2016
Groundwater Elevation:[1]	NA	592.93	592.56	593.58	595.19	593.59	596.08	NA	596.76	NA
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.51	7.27	7.48	6.74	7.02	2.05	7.37	8.08	7.50
Oxidation Reduction Potential (mV)	NA	11.97	65.46	178.10	34.20	128.00	446.50	52.80	19.10	140.22
Conductivity (mS/cm)	NA	0.477	0.601	0.430	0.318	0.458	0.287	0.709	0.457	0.391
Dissolved Oxygen (mg/L)	NA	9.60	6.82	7.34	8.50	2.14	6.48	8.57	7.10	4.48
Turbidity (NTU)	NA	1.53	3.96	3.10	0.28	0.91	--	0.70	0.81	5.15
Temperature (°C)	NA	9.30	16.16	9.20	14.41	9.16	14.13	8.04	8.21	16.24
Inorganic Analytes		**'Result (µg/L)**								
Aluminum	50	200 U	34.6 J	32	8	5.0 U	12	200 U	13	125 J
Antimony	3	0.835 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	60.0 U, J
Arsenic	0.2	**0.403 J**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U, J
Barium	2,000	28.6 J	37.2 J	25	24	34	32	63.6	51	28.4 J
Beryllium	NA	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U
Cadmium	4	**488**	**578**	**410**	**290**	**760**	**160**	**442**	**170**	**54.6**
Calcium	NA	63,700	91,600	64,000	39,000	58,000	52,000	73,700	49,000	22,500
Chromium	7,000	26.3	31.5	23	14	120	10	5.4	2.7	7.9 J-
Cobalt	NA	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U	6.0 U	5.0	50.0 U
Copper	NA	12.3 J	5.5 J	6.8	4.7	4.3	4.2	20 U	5.1	5.0 J
Iron	NA	54.6 J	25.8 J	72	27	28	42	80 U	51	210
Lead	5	0.806 *,J,K	2.0 U	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1.0 U	2.4 J
Magnesium	NA	20,700	23,200	19,000	13,000	19,000	13,000	16,200	10,000	4,100 J
Manganese	NA	1.7 J	15.0 U	5.0 U	5.0 U	5.0 U	5.0 U	6.0 U	5.0 U	2.7 J
Nickel	57	19.0 J	23.0 J	13	12	49	7.7	8.0 U	6.5	40.0 U
Potassium	NA	3,870 J	4,790 J	3,200	3,100	4,100	3,600	5,120	3,500	5,000 U
Selenium	NA	2.16 J	1.1 J	1.0 U	1.0 U	1.3	1 U	1.06	1.0 U	35.0 U, J
Silver	0.1	10.0 U	10.0 U	0.2	0.2 U	0.2 U	0.2 U	10 U	0.2 U	10.0 U, J
Sodium	NA	2,970	2,650 J	2,500	5,100	11,000	8,800	39,900	58,000	54,100
Thallium	0.5	0.123 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	25.0 U
Vanadium	NA	50.0 U	2.7 J	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	50.0 U
Zinc	NA	23.4 J	60.0 U	7.2	7.3	54.5	5.0 U	30 U	5.0 U	60.0 U, J
Hexavalent Chromium	2	**23.5 J,L**	**31.3 J,L**	**23**	**13**	**110**	**10**	**5 U**	5 U	5.0 U
Cyanide	4	**56**	**55**	**55**	**35**	**43**	**34**	**37**	**86**	**69.5**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ12A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ12A								
Sampling Date:		9/21/2016								
Groundwater Elevation:[1]	NA	596.38								
Portion of Glacial Unit:	NA	Upper								
pH (standard units)	NA	7.14								
Oxidation Reduction Potential (mV)	NA	39.00								
Conductivity (mS/cm)	NA	0.473								
Dissolved Oxygen (mg/L)	NA	2.72								
Turbidity (NTU)	NA	4.00								
Temperature (°C)	NA	17.73								
Inorganic Analytes		**'Result (µg/L)**								
Aluminum	50	22								
Antimony	3	1.0 U								
Arsenic	0.2	1.0 U								
Barium	2,000	82								
Beryllium	NA	1.0 U								
Cadmium	4	**600**								
Calcium	NA	62,000								
Chromium	7,000	6.0								
Cobalt	NA	5.0 U								
Copper	NA	3.9								
Iron	NA	43								
Lead	5	1.0 U								
Magnesium	NA	11,000								
Manganese	NA	5.0 U								
Nickel	57	12								
Potassium	NA	6,600								
Selenium	NA	1.0 U								
Silver	0.1	0.2 U								
Sodium	NA	29,000								
Thallium	0.5	2.0 U								
Vanadium	NA	2.0 U								
Zinc	NA	5.1								
Hexavalent Chromium	2	5 U								
Cyanide	4	**45**								

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ12B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ12B/PZ12BD	PZ12B							
Sampling Date:		11/21/02	05/28/03	11/17/03	05/19/04	11/30/04	06/08/05	09/13/05	09/18/07	03/05/08
Groundwater Elevation:[1]	NA	592.96	593.22	593.76	593.44	593.35	593.44	592.4	591.63	591.89
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.78	7.06	7.77	8.06	7.02	7.05	6.74	7.18	6.79
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.837	1.200	0.970	1.020	0.952	0.671	0.699	--	0.411
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	0	-10	0	7.0	0	67	0	--	7
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**253**	**1,710**	**2,450 L**	**272 L**	**4,730** *	100 U	100 U	17 J,K	11.1 J,K
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	**1.8 J**	2.0 U	2.0 U	2.0 U	2.0 U
Barium	2,000	23.4	38.1	39.0	27.0	146	22.3 K	22.5	27.4 J	20.3 J
Beryllium	NA	2.8 U	NA	0.2 J,K	1.0 U	0.6 K,*	1.0 L,U	1.0 U	5.0 U	5.0 U
Cadmium	4	**137**	**266**	**347**	**459**	**735** *	**213**	**607**	**175**	**539**
Calcium	NA	75,700	NA	77,900 K	48,400	85,200	50,400	72,800	78,800	54,700
Chromium	7,000	18.5	39.5	35.5	34.9 L	53.0 L,*	25.0	34.0	20.1	33.9
Cobalt	NA	4.2 U	NA	2.0 U	2.0 U,L	2.9 K,*	1.0 U	1.0 U	2.0 U	50.0 U
Copper	NA	4.4 U	NA	2.6 J	3.0 J,K,*	4.0 J,*	6.0 U	6.0 U	0.9 J	25.0 U
Iron	NA	233	NA	1,270	192	5,240 K,*	32.2 K	22.9 J	29.5 J	22.9 J
Lead	5	2.0 U	0.6 J	0.6 J	2.0 U	**6.4**	2.0 U	2.0 U	2.0 U	2.0 U
Magnesium	NA	13,000	NA	13,700	7,500	17,800	7,110	10,200	13,900	8,590
Manganese	NA	34.5 *	NA	95.2	17.6 *	168 *	6.8 K	4.6	15.0 U	2.2 J
Nickel	57	5.9	11.0	13.0	17.4	31.2 K	13.9 K,*	22.1	8.4 J	19.1 J
Potassium	NA	4,280 J,K	NA	9,450 K,*	3,050 L,*	4,340 K	6,530 K	2,600	2,730 J	2,020 J
Selenium	NA	4.0 U	NA	8.0 U,L	2 J	2 J	2.0 J	2 J	4.0 U	2.0 J
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	**1.2 J,K**	4.0 U	4.0 U	10.0 U	10.0 U
Sodium	NA	87,500 K	NA	949,000	132,000	110,000	92,000	29,600	106,000	49,300
Thallium	0.5	2.0 U	2.0 U	4.0 U	2.0 U	0.3 J	1.0 U	1.0 U	1.0 U	2.0 U
Vanadium	NA	17.0 U	NA	24.4 J	10.0 U	20.0 U,L	10.0 U	10.0 U	10.0 U,*	50.0 U
Zinc	NA	42.7	NA	67.5	57.6	175.0	81.0	148	47.2 J	186
Hexavalent Chromium	2	**20**	**37.5 J,L**	**31.4**	**30.9 J,L**	**23.4 L**	**12.7 J,L,***	**27.3 J,L**	**9.8 J,L**	**32.7 J,L**
Cyanide	4	**99 J**	**32**	**39**	**51 J**	**36** *	**58 J**	**27**	**65**	**67 J**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ12B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ12B								
Sampling Date:		10/01/08	03/24/09	09/22/09	03/23/10	09/21/10	03/15/11	09/09/11	03/20/12	09/25/12
Groundwater Elevation:[1]	NA	592.62	593.43	593.17	593.17	592.87	594.62	593.09	592.83	592.56
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	6.22	6.80	7.05	6.93	6.94	7.34	--	7.34	7.36
Oxidation Reduction Potential (mV)	NA	--	72.79	323.42	289.74	336.89	-19.92	--	111.26	172.97
Conductivity (mS/cm)	NA	0.437	0.501	0.394	0.531	0.559	1.378	--	0.823	1.547
Dissolved Oxygen (mg/L)	NA	--	3.79	5.05	8.09	5.47	0.00	--	5.38	2.47
Turbidity (NTU)	NA	9.8	0.0	1.7	5.39	1.86	0.02	--	0.00	0.00
Temperature (°C)	NA	--	10.75	13.29	10.75	15.47	12.42	--	13.17	16.13
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	31.5 J	200 U	200 U	200 U	200 U	200 U
Antimony	3	4.0 U	4.0 U	2.0 U	2.0 U	0.168 J	4.0 U	0.172 J	0.151 J	2.00 U
Arsenic	0.2	2.0 U	2.0 U	1.0 U	1.0 U	**0.303 J,K**	2.0 U	1.0 U	1.0 U	**0.320 J**
Barium	2,000	17.1 J	19.1 J	15.0 J	26.2 J	30.0 J	45.9 J	33.7 J	19.4 J	22.3 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**732**	**539**	**440**	**421**	**375**	**159**	**434**	**136**	**94.3**
Calcium	NA	49,600	56,300	44,300	67,800	64,800	74,300	87,800	56,400	62,500
Chromium	7,000	54.3	30.8	30.5	25.9	31.6	17.6	24.6	28.4 K	26.5
Cobalt	NA	0.5 J	50.0 U	50.0 U	50.0 U	50.0 U	1.1 J,K	50.0 U	50.0 U	50.0 U
Copper	NA	1.0 J	0.9 J	1.2 J	25.0 U	25.0 U	25.0 U	3.0 J	1.6 J	1.5 J
Iron	NA	52.9	100 U,L	52.9 J,K	22.2 J	28.8 J	28.0 J	100 U	144	22.3 J
Lead	5	2.0 U	2.0 U	1.0 U	1.0 U	0.062 J	2.0 U	0.068 J,K	1.0 U	1.0 U
Magnesium	NA	7,410	7,360	6,310	11,600	11,400	12,400	14,400	11,500	14,600
Manganese	NA	1.4 J	1.2 J	0.8 J	15.0 U	1.4 J	15.0 U	0.7 J	0.6 J	15.0 U
Nickel	57	17.2 J	17.5 J	11.9 J	12.9 J	5.7 J	5.0 J	6.8 J	5.9 J	4.1 J
Potassium	NA	2,170 J	2,410 J	2,880 J	3,570 J	4,020 J	4,730 J	4,640 J	4,280 J	4,940 J
Selenium	NA	1.3 J	3.2 J	1.72 J	2.19 J,L	3.59 J	4.0 U	2.77 J	0.594 J	0.320 J
Silver	0.1	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	18,000	34,900	23,500	20,700	35,300	204,000	38,900	20,600	21,700
Thallium	0.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.3 J	1.0 U	1.0 U	1.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	4.6 J	50.0 U	50.0 U	1.0 U	1.0 U	50.0 U
Zinc	NA	171	128	106	173	107	71.4	169	54.8 J	26.4 J
Hexavalent Chromium	2	**57.3 J, L**	**27.3 J,L**	**19.9 J,L**	**18.6 J,L**	**29.3 J,L**	**15.6 J,L**	**22.7 J,L**	**26.8 J,L**	**26.4**
Cyanide	4	**108**	**53**	**117**	**45**	**38 ***	**18 J**	**13**	**392**	**65**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ12B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ12B								
Sampling Date:		3/5/2013	9/4/2013	04/02/14	09/23/14	04/22/15	10/14/15	1/13/2016	4/6/2016	6/23/2016
Groundwater Elevation:[1]	NA	592.87	592.70	593.54	595.45	593.52	596.06	NA	596.80	NA
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.33	7.03	7.41	7.12	7.61	9.34	7.77	7.98	7.45
Oxidation Reduction Potential (mV)	NA	189.09	73.02	273.40	44.90	207.30	125.00	-19.10	-35.80	-92.18
Conductivity (mS/cm)	NA	0.488	0.567	0.735	0.868	0.879	1.498	0.876	0.591	0.800
Dissolved Oxygen (mg/L)	NA	0.30	2.98	1.74	1.71	2.53	0.47	0.14	0.37	0.25
Turbidity (NTU)	NA	0.00	2.99	1.00	0.39	0.67	--	0.75	1.22	2.65
Temperature (°C)	NA	9.86	15.48	10.98	12.66	10.36	12.18	9.37	10.38	14.48
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	22.7 J	22.4 J	5.0 U	5.0 U	5.0 U	12	200 U	5.0 U	19.9 J
Antimony	3	0.098 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	60.0 U, J
Arsenic	0.2	0.135 J	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.2**	10.0 U, J
Barium	2,000	17.9 J	22.9 J	26	20	18	450	23	53	25.0 J
Beryllium	NA	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	5.0 U
Cadmium	4	**105**	**139**	**130**	**72**	**130**	**1,600**	**42.5**	**81**	**14.1**
Calcium	NA	49,600	61,800	78,000	53,000	50,000	250,000	72,800	45,000	82,800
Chromium	7,000	30.5	30.5	15	13	22	11	5.0 U	1.0 U	10.0 U
Cobalt	NA	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	13	6.0 U	5.0 U	50.0 U
Copper	NA	25.0 U	25.0 U	1.5	2.4	4.6	25	20 U	5.5	25.0 U, J
Iron	NA	75.2 J	100 U	30	52	21	560	80 U	1,300	1,000
Lead	5	0.084 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.7 J
Magnesium	NA	10,600	11,900	16,000	9,500	8,300	110,000	15,400	10,000	16,200
Manganese	NA	15.0 U	15.0 U	5.0 U	5.0 U	5.0 U	5,700	1,030	2,600	1,330
Nickel	57	5.1 J	4.7 J	5.6	2.7	5.2	150	6.0 U	11	40.0 U
Potassium	NA	3,630 J	4,910 J	4,300	2,600	3,200	94,000	3,740	22,000	5,000 U
Selenium	NA	0.412 J	1.3 J	1.3	1.0 U	2.3	1.4	1.37	1.0 U	35.0 U, J
Silver	0.1	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U	10.0 U, J
Sodium	NA	30,700	32,900	43,000	120,000	120,000	110,000	74,900	48,000	61,100
Thallium	0.5	0.089 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	25.0 U
Vanadium	NA	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	50.0 U
Zinc	NA	70.3	77.2	48	24	31	1,000	40.9	54	60.0 U, J
Hexavalent Chromium	2	**31.9 J,L**	**28.5 J,L**	**15**	**12**	**20**	5 U	5 U	5 U	5.0 U
Cyanide	4	**197**	**29**	**62**	**130**	**44**	5 U	10 U	**6**	**18.6**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ12B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ12B								
Sampling Date:		9/21/2016								
Groundwater Elevation:[1]	NA	596.39								
Portion of Glacial Unit:	NA	Middle								
pH (standard units)	NA	7.50								
Oxidation Reduction Potential (mV)	NA	-90.00								
Conductivity (mS/cm)	NA	0.726								
Dissolved Oxygen (mg/L)	NA	0.36								
Turbidity (NTU)	NA	5.24								
Temperature (°C)	NA	14.25								
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	5.0 U								
Antimony	3	1.0 U								
Arsenic	0.2	**2.0**								
Barium	2,000	27								
Beryllium	NA	1.0 U								
Cadmium	4	**88**								
Calcium	NA	79,000								
Chromium	7,000	1.0 U								
Cobalt	NA	5.0 U								
Copper	NA	3.6								
Iron	NA	3,900								
Lead	5	1.0 U								
Magnesium	NA	15,000								
Manganese	NA	1,100								
Nickel	57	12								
Potassium	NA	4,000								
Selenium	NA	1.0 U								
Silver	0.1	0.2 U								
Sodium	NA	60,000								
Thallium	0.5	2.0 U								
Vanadium	NA	2.0 U								
Zinc	NA	18								
Hexavalent Chromium	2	50 U								
Cyanide	4	**9**								

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ12C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ12C								
Sampling Date:		11/21/02	05/28/03	11/17/03	05/19/04	11/30/04	06/08/05	09/13/05	09/18/07	03/05/08
Groundwater Elevation:[1]	NA	592.95	593.09	592.86	593.33	593.09	593.16	592.43	594.75	594.41
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.02	7.80	7.89	7.52	8.10	7.59	7.56	7.18	8.29
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.721	0.628	0.713	0.712	0.790	0.681	0.853	--	1.030
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	51	-10	-10	11.0	0	54	0	--	10
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**634**	**955**	**441 L**	**55.6 J,L**	39.4 J,*	100 U	100 U	36.2 K,J	13.3 J,K
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	8.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	**0.7 J**	2.0 U	2.0 U	2.0 U	2.0 U
Barium	2,000	65.1	63.9	81.7	70.7	67.0	86.4 K	71.2	101 J	81.0 J
Beryllium	NA	2.8 U	NA	0.5 U	1.0 U	0.3 J,K,*	1.0 U,L	1.0 U	5.0 U	5.0 U
Cadmium	4	**29.1**	**42.8**	**27.6**	**6.2**	**49.7 K,***	**4.4 K**	1.7 J,K	3.1 J	**4.0 J,L**
Calcium	NA	58,700	NA	88,200 K	66,800	55,200	81,300	79,700	82,300	79,600
Chromium	7,000	9.7	5.8 L	4.3	8.3 L	2.4 J,*	9.5	12.6	1.2 J,K	6.8 J
Cobalt	NA	4.2 U	NA	2.0 U	2.0 U	1.2 J,K,*	0.5 J	0.5 J	0.5 J	0.5 J
Copper	NA	3.3 J	NA	2.6 J	6.0 U,*	3.0 U,L,*	6.0 U	6.0 U	1.3 J	1.0 J
Iron	NA	789	NA	449	53.7	92.2 K,*	39.4 K	6.8 J	97.8 J	100 U
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.7 J	2.0 U	2.0 U
Magnesium	NA	15,400	NA	25,800	19,600	14,300	18,500	18,200	27,100	20,100
Manganese	NA	22.6 *	NA	20.8	2.8 *	30.9 K,*	2.2 K	1.4	1.3 J	1.6 J
Nickel	57	4.4	4.2 L	10.0 U	1.7 J	10.0 U	5.5 K,*	3.4	2.5 J	6.6 J,K
Potassium	NA	2,580 J,K	NA	6,450 K,*	1,250 J,L,*	2,150 K	6,660 K	2,630	2,420 J	3,430 J
Selenium	NA	4.0 U	NA	12.0 U,L	4 U	4 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	**1.1 J**	4.0 U	**1.1 J,K**	4.0 U	4.0 U	10.0 U	10.0 U
Sodium	NA	44,900 K	NA	657,000	33,900	72,900	45,500	41,500	87,400	89,300
Thallium	0.5	2.0 U	2.0 U	4.0 U	2.0 U	0.3 U	1.0 U	1.0 U	2.0 U	2.0 U
Vanadium	NA	17.0 U	NA	15.4 J	10.0 U	20.0 U	10.0 U	10.0 U	0.5 J,K,*	50.0 U
Zinc	NA	17.9 J	NA	17.6 J	30.0 U	8.6 J	12.6 J	30.0 U	10.6 J	17.8 J
Hexavalent Chromium	2	10 U	10 U	10 U	10 UJ, L	1 U,L	1 J,L,*	**4.9 J,L**	10 U,J,L	**5.1 J,L**
Cyanide	4	8 U	8 U	3 J	8 UJ	5 U*	5 U,J	5 U	**4 J**	5 U,J

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ12C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ12C					PZ12C/PZ12C-D	PZ12C		
Sampling Date:		10/01/08	03/24/09	09/22/09	03/23/10	09/21/10	03/15/11	09/09/11	03/20/12	09/25/12
Groundwater Elevation:[1]	NA	591.52	592.38	592.16	592.57	592.22	594.75	592.35	592.09	591.62
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	7.13	7.59	7.80	7.70	7.61	7.44	--	7.59	7.69
Oxidation Reduction Potential (mV)	NA	--	-66.53	207.00	171.22	265.00	-4.58	--	103.80	62.76
Conductivity (mS/cm)	NA	2.830	1.344	0.839	1.367	1.567	1.559	--	2.640	2.174
Dissolved Oxygen (mg/L)	NA	--	0.00	0.79	0.67	0.71	0.02	--	0.22	0.09
Turbidity (NTU)	NA	3.9	0.05	3.36	6.86	4.84	0.00	--	0.00	0.00
Temperature (°C)	NA	--	11.21	13.39	11.51	15.55	11.53	--	14.54	15.48
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U,L	32.0 J	44.5 J	20.0 J,K	200 U	200 U	200 U	200 U
Antimony	3	4.0 U	4.0 U	2.0 U	2.0 U	0.048 J	4.0 U	0.075 J	0.088 J	2.00 U
Arsenic	0.2	2.0 U	2.0 U	1.0 U	**0.412 J**	**0.701 J**	2.0 U	**0.471 J**	**0.405 J**	**0.514 J**
Barium	2,000	106 J	58.7 J	38.8 J	93.1 J	97.4 J	111 J	48.5 J	47.1 J	39.0 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**16.3**	**46.5**	**54.2**	**22.4**	**28.9**	**13.2**	**28.1**	**70.7**	**59.2**
Calcium	NA	98,000	81,400	79,200	110,000	115,000	117,000	82,000	82,000	70,700
Chromium	7,000	7.8 J	10.1	11.4	4.2 J	4.1 J	0.9 J	4.1 J	6.8 J,K	11.0
Cobalt	NA	1.0 J	0.4 J	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Copper	NA	1.8 J,L	2.0 J	25.0 U	25.0 U	25.0 U	25.0 U	4.1 J	3.1 J	2.6 J
Iron	NA	100 U	100 U,L	15.3 J,K	100 U	15.7 J	100 U	100 U	100 U	100 U
Lead	5	2.0 U	2.0 U	0.38 J	1.0 U	0.077 J	2.0 U	0.458 J,K	0.065 J	1.00 U
Magnesium	NA	21,800	14,700	17,000	21,100	21,600	23,600	13,600	15,800	11,900
Manganese	NA	4.6 J	10.2 J	14.7 J	8.2 J	7.7 J	5.2 J	9.1 J	10.0 J	12.6 J
Nickel	57	8.6 J	9.6 J	11.0 J	9.3 J	5.0 J	6.5 J	5.1 J	8.6 J	6.8 J
Potassium	NA	4,740 J	2,970 J	3,350	3,730 J	4,310 J	4,830 J	3,160 J	3,220 J	4,560 J
Selenium	NA	4.0 U	4.0 U	0.29 J	5.0 U	0.336 J	4.0 U	5.0 U	5.0 U	0.709 J
Silver	0.1	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	145,000	177,000	71,800	136,000	185,000	165,000	178,000	183,000	213,000
Thallium	0.5	2.0 U	0.4 J	0.05 J	1.0 U	1.0 U	0.3 J	1.0 U	1.0 U	1.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	3.8 J	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Zinc	NA	60.0 U	60.0 U	18.4 J	36.7 J	60.0 U	6.3 J	12.6 J	60.0 U	60.0 U
Hexavalent Chromium	2	**7.1 J, L**	**7.8 J,L**	**5.6 J,L**	**2.5 J,L**	**3.2 J,L**	5 U,J,L	**4.0 J,L**	**6.9 J,L**	**12.1**
Cyanide	4	10 U	10 U	**6 J**	3 J	**6 J,***	10 U	**4 J**	**5 J**	10 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ12C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ12C								
Sampling Date:		03/05/13	09/04/13	04/01/14	09/23/14	04/22/15	10/14/15	01/13/16	04/06/16	06/22/16
Groundwater Elevation:[1]	NA	591.89	591.67	592.75	595.88	592.78	596.39	NA	597.17	NA
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	7.78	7.60	7.87	7.77	7.85	10.39	7.92	8.61	7.61
Oxidation Reduction Potential (mV)	NA	-123.31	-93.74	200.80	183.00	174.20	46.5	-13.5	-75.0	58.32
Conductivity (mS/cm)	NA	1.324	1.039	0.853	0.588	0.881	0.606	1.022	0.700	0.708
Dissolved Oxygen (mg/L)	NA	0.50	0.11	0.30	1.14	0.34	1.90	0.25	0.43	0.34
Turbidity (NTU)	NA	0.00	0.00	1.30	4.11	0.64	--	0.39	1.19	1.68
Temperature (°C)	NA	10.29	15.41	11.67	12.39	11.01	12.49	8.6	10.85	17.48
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	21.3 J	6.6	11	5.0 U	5.1	200 U	5.0 U	11.1 J
Antimony	3	2.00 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	60.0 U, J
Arsenic	0.2	**0.291 J**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U, J
Barium	2,000	50.2 J	39.3 J	32	37	40	74	78.2	60	62.4 J
Beryllium	NA	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	5.0 U
Cadmium	4	**31.8**	**34.2**	**22.0**	**13**	**20**	**20**	**5.3**	3.3	3.5 J
Calcium	NA	76,000	69,200	52,000	70,000	79,000	88,000	82,300	63,000	66,000
Chromium	7,000	14.2	8.6 J	4.7	1.3	2.6	1.6	5.0 U	1.0 U	10.0 U
Cobalt	NA	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U	6.0 U	5.0 U	50.0 U
Copper	NA	25.0 U	25.0 U	2.3	1.4	3.5	3.6	20 U	2.7	25.0 U, J
Iron	NA	100 U	100 U	20 U	23	20	21	80 U	22	100 U
Lead	5	0.081 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U
Magnesium	NA	12,700	11,600	9,100	14,000	14,000	23,000	24,800 U	19,000	18,800
Manganese	NA	3.5 J	2.7 J	5.0 U	5.9	12	14	8.0 U	5.0 U	15.0 U
Nickel	57	5.4 J	4.6 J	4.8	5.2	10	11	6.0 U	8.1	40.0 U
Potassium	NA	3,530 J	3,170 J	2.5	3,300	3,000	3,000	2,840	1,900	629 J
Selenium	NA	0.881 J	4.0 U	1.0 U	1.0 U	1.0 U	1.2	1.3	1.7	35.0 U, J
Silver	0.1	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U	10.0 U	0.2 U	10.0 U, J
Sodium	NA	171,000	125,000	120,000	44,000	78,000	70,000	73,500	52,000	50,200
Thallium	0.5	0.078 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	25.0 U
Vanadium	NA	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	50.0 U
Zinc	NA	5.0 J	60.0 U	5.0 U	5.0 U	5.0 U	6.0	30 U	5.0 U	60.0 U, J
Hexavalent Chromium	2	**13.0 J,L**	**7.3 J,L**	**5.0**	5 U	5 U	5 U	5 U	5 U	5.0
Cyanide	4	10 U	10 U	5 U	5 U	5 U	5 U	**95**	5 U	2.1 J

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ12C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ12C								
Sampling Date:		09/21/16								
Groundwater Elevation:[1]	NA	596.71								
Portion of Glacial Unit:	NA	Lower								
pH (standard units)	NA	8.09								
Oxidation Reduction Potential (mV)	NA	-232								
Conductivity (mS/cm)	NA	0.603								
Dissolved Oxygen (mg/L)	NA	0.25								
Turbidity (NTU)	NA	3.27								
Temperature (°C)	NA	14.16								
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	5.0 U								
Antimony	3	1.0 U								
Arsenic	0.2	1.0 U								
Barium	2,000	55								
Beryllium	NA	1.0 U								
Cadmium	4	1.6								
Calcium	NA	60,000								
Chromium	7,000	1.0 U								
Cobalt	NA	5.0 U								
Copper	NA	2.0								
Iron	NA	20 U								
Lead	5	1.0 U								
Magnesium	NA	17,000								
Manganese	NA	5.0 U								
Nickel	57	6.1								
Potassium	NA	2,000								
Selenium	NA	1.0 U								
Silver	0.1	0.2 U								
Sodium	NA	51,000								
Thallium	0.5	2.0 U								
Vanadium	NA	2.0 U								
Zinc	NA	5.0 U								
Hexavalent Chromium	2	5 U								
Cyanide	4	5 U								

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ13A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ13A								
Sampling Date:		11/26/02	05/29/03	11/17/03	05/19/04	12/01/04	06/07/05	09/12/05	03/22/06	03/28/07
Groundwater Elevation:[1]	NA	592.37	592.73	592.65	593.43	593.04	593.01	592.1	593.95	594.14
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	6.88	7.56	7.78	9.00	7.39	8.34	7.06	7.19	6.80
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	1.38	2.200	1.870	1.320	1.360	0.781	0.930	1.410	2.200
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	10	-10	0	861.0	344	0	38	0	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	**48,800 ***	**74.3**	**53.3 L**	**11,200**	**10,500 ***	100 U	**146**	100 U	**51.7 J**
Antimony	3	1.3 J	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	**31.8**	2.0 U	6.0 U	**3.8**	**7.1**	2.0 U	2.0 U	**0.5** J	2.0 U
Barium	2,000	689	182	174	159	304	123 K	179	129	197 J
Beryllium	NA	4.3	NA	0.5 U	0.3 J	0.8 K,*	1.0 U,L	1.0 U	1.0 U	5.0 U
Cadmium	4	**9,580**	**439**	**285**	**929**	**1,990 ***	**512**	**412**	**134**	**761**
Calcium	NA	393,000	NA	212,000 K	119,000	146,000	58,100	89,700	44,100	141,000
Chromium	7,000	2,260	7.3	10.1	253	414 L,*	13.9	26.9	10.4	9.4 J
Cobalt	NA	17.5	NA	2.0 U	4.4 K	8.7 K,*	2.4	1.5	1.33 J	0.9 J
Copper	NA	384 *	NA	25.2	71.4 K,*	145 K,*	9.4	14.9	15.8	15.3 J
Iron	NA	78,400 *	NA	101	9,640	15,400 *	12.2 J,K,*	118 K	36.2 J	40.2 J
Lead	5	**85.7**	2.0 U	6.0 U	**7.4**	**15.5**	0.8 J	2.0 U	3.0 U	2.0 U
Magnesium	NA	115,000	NA	140,000	100,000	82,500	23,100	23,200	54,800	71,000
Manganese	NA	3,510	NA	37.0	1,000 *	3,690 *	31.6 K	449	5.54	212
Nickel	57	**1,120**	**103**	**103**	**218 ***	**438 K**	**133**	**104**	42.6	**74.0**
Potassium	NA	26,700	NA	32,200 K,*	19,800 *	20,400 K	26,600 K	17,100	19,600	17,000
Selenium	NA	40.0 U	NA	40.0 U,L	12.0 U	3 J	4.0 U	4.0 U	1.8 J	1.2 J
Silver	0.1	1.7 U	2.0 U	**1.2 J**	4.0 U	**1.1 J,K**	4.0 U	4.0 U	5.00 U	10.0 U
Sodium	NA	74,300 K	NA	946,000	50,600	70,600	66,700	93,100	115,000	222,800
Thallium	0.5	20.0 U	2.0 U	10.0 U	2.0 U	**0.5 J**	0.3 J	1.0 U	2.0 U	1.0 U
Vanadium	NA	68.5 L	NA	29.0 J	12.6	11.3 J	10.0 U	1.6 J	5.0 U	0.9 J,K
Zinc	NA	3,880	NA	137	476	817	198	163	52.2 J	197
Hexavalent Chromium	2	**7.9 J**	**4.7 J,L**	**8.7 J**	**12.7**	**3.6 L**	**3.6 J,L**	10 U,J,L	**7.28**	**4.3 J,L**
Cyanide	4	**306 J**	**122**	**125**	**106 J**	**206 ***	**8**	**50 J**	**59**	**9**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ13A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ13A								
Sampling Date:		09/19/07	03/05/08	10/01/08	03/24/09	09/23/09	03/23/10	09/22/10	03/15/11	09/08/11
Groundwater Elevation:[1]	NA	592.84	593.70	592.20	592.79	592.54	592.87	592.51	593.58	592.74
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.82	8.38	6.76	7.38	7.40	7.51	7.29	7.52	--
Oxidation Reduction Potential (mV)	NA	--	--	--	157.84	190.18	248.39	249.70	255.58	--
Conductivity (mS/cm)	NA	--	1.310	2.150	0.718	1.285	1.414	0.458	1.411	--
Dissolved Oxygen (mg/L)	NA	--	--	--	9.28	0.89	8.29	0.76	9.30	--
Turbidity (NTU)	NA	--	63.0	6.2	0.2	1.31	1.00	1.71	0.55	--
Temperature (°C)	NA	--	--	--	5.55	14.26	7.19	16.38	8.51	--
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	23.4 J	200 U	23.7 J	**126.0 J,L**	200 U	**152 J**	30.2 J	200 U	47.3 J
Antimony	3	1 J	1.1 J	4.0 U	4.0 U	0.33 J,L	0.682 J	1.14 J	4.0 U	1.02 J
Arsenic	0.2	2.0 U	**0.5 J**	2.0 U	2.0 U	**0.76 J**	**0.687 J**	**0.869 J,K**	**0.9 J**	**0.918 J**
Barium	2,000	86.9 J	65.5 J	156 J	34 J	54.8 J	40.3 J	22.4 J	34.2 J	51.6 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	0.1 J,K	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**224**	**164**	**1,310**	**221**	**351**	**195**	**105**	**127**	**174**
Calcium	NA	74,600	64,500	185,000	39,100	46,000	66,800	43,900	75,900	75,300
Chromium	7,000	6.1 J	19.3	9.4 J	15.6	6.9 J	14.7	24.7	17.9	13.4
Cobalt	NA	0.8 J	0.7 J	2.9 J	4.3 J	1.2 J	1.7 J	50.0 U	1.3 J,K	2.1 J
Copper	NA	7.6 J	22.4 J	22.1 J	28.0	13 J	14 J,L	12.6 J	14.3 J	16.5 J
Iron	NA	23.6 J	30.0 J	15.5 J	130.0 L	13.5 J	172	20.3 J	47.6 J	73.2 J
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	0.154 J	1.0 U	2.0 U	0.621 J,K
Magnesium	NA	18,700	84,700	98,700	5,000 U	44,300	127,000	24,100	125,000	95,300
Manganese	NA	894	21.2	365	556	378	171	2.1 J	74.6	272
Nickel	57	47.7	31.1 J	**3,090**	**265**	**198**	**126**	35.1 J	**61.2**	**64.7**
Potassium	NA	10,600	9,400	10,000	3,290 J	10,600	5,550	6,990	4,660 J	10,500
Selenium	NA	4.0 U	4.8	20.0 U	1.6 J	0.98 J	7.16	2.60 J	12.0	10.2
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	**1.4 J,K**	10.0 U
Sodium	NA	74,800	88,800	123,000	32,200	174,000	51,800	23,500	60,500	91,200
Thallium	0.5	2.0 U	2.0 U	**0.5 J**	1.0 U	0.08 J	0.058 J	1.0 U	1.0 U	1.0 U
Vanadium	NA	1 J, K,	0.8 J	1.7 J,K	1.3 J	50.0 U	2.3 J	2.0 J	2.0 J	3.3 J
Zinc	NA	91.8	66.3	287	109	84.5	87.4	21.3 J,L	40.7 J	61.5 J
Hexavalent Chromium	2	**2.2 J, L**	**14.4 J,L**	**3.6 J, L**	**5.5 J,L**	1.3 J,L	**6.9 J,L**	**21.4 J,L**	**12.7 J,L**	**10.4 J,L**
Cyanide	4	**15 J**	**52 J**	**15**	**29**	**10 J**	**42**	**16**	**6 J**	**53**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ13A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ13A								
Sampling Date:		03/21/12	09/26/12	3/6/2013	9/4/2013	04/01/14	09/24/14	04/22/15	10/14/15	01/14/16
Groundwater Elevation:[1]	NA	592.37	592.12	592.24	591.95	592.66	594.52	593.51	595.19	NA
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.19	7.02	7.38	6.76	6.42	6.89	7.29	7.25	6.91
Oxidation Reduction Potential (mV)	NA	-47.97	141.95	21.22	145.91	213.70	52.20	59.90	80.00	-61.30
Conductivity (mS/cm)	NA	1.726	2.088	1.500	0.890	0.948	0.999	0.813	0.658	1.105
Dissolved Oxygen (mg/L)	NA	8.53	0.19	9.07	0.05	6.41	0.38	4.41	0.67	0.29
Turbidity (NTU)	NA	0.00	0.86	0.31	0.65	1.21	0.14	1.51	--	2.08
Temperature (°C)	NA	10.45	17.92	4.14	17.99	5.39	12.57	5.63	12.89	9.75
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	25.6 J	41.2 J	12	5.0 U	27	11	200 U
Antimony	3	1.26 J	0.481 J,L	2.62	4.0 U	1.2	1.0 U	1.3	1.0 U	1.0 U
Arsenic	0.2	**0.503 J**	**0.815 J,K**	**1.04**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4.43**
Barium	2,000	34 J	77.9 J	58.5 J	64.2 J	45	36	36	35	185
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Cadmium	4	**195**	5.0 U	**601**	**942**	**340**	**570**	**150**	**530**	**1,760**
Calcium	NA	50,200	59,800	80,600	67,900	81,000	57,000	53,000	48,000	61,800
Chromium	7,000	21.3 K	10.0 U	33.4	14.2 J	20	5.8	36	4.1	14.5
Cobalt	NA	50.0 U	50.0 U	50.0 U	6.4 J	5.0 U	5.0 U	5.0 U	5.0 U	25.9
Copper	NA	24 J	1.5 J	66.0	32.1	32	12	40	15	34.2
Iron	NA	22.9 J	100 U	54.2 J	37.3 J	34	20 U	68	24	5,170
Lead	5	1.0 U	1.0 U	1.08 *, K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	53,800	16,900	103,000	18,500	54,000	15,000	46,000	11,000	34,900
Manganese	NA	2.7 J	7.4 J	31.5	1,510	6.8	270	71	610	5,380
Nickel	57	**311**	40.0 U	**1,510**	**2,710**	**520.0**	**320**	**300**	**300**	**891**
Potassium	NA	2,110 J	1,840 J	1,190 J, K	2,810 J	2,100	2,600	3,700	2,300	9,790
Selenium	NA	2.55 J	0.868 J,K	7.81	4.0 U	2.0	1.2	1.8	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.3	10.0 U
Sodium	NA	63,400	20,200	103,000	80,400	47,000	96,000	57,000	100,000	126,000
Thallium	0.5	1.0 U	1.0 U	0.080 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U
Vanadium	NA	1.2 J	1.1 J	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U
Zinc	NA	71.8	60.0 U	442	431	160	94	91	110	585
Hexavalent Chromium	2	**6 J,L**	5 U,J,L	**5.0 J,L**	5 U,J,L	**6**	5 U	16	5 U	5 U
Cyanide	4	**25 J**	10 U	**53**	**14**	**14**	**6**	**27**	5 U	--

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ13A

Sample Number:	**Groundwater Cleanup Goal (µg/L)**	PZ13A/PZ13A-D	PZ13A							
Sampling Date:		04/07/16	06/21/16	09/22/16						
Groundwater Elevation:[1]	NA	596.19	NA	595.66						
Portion of Glacial Unit:	NA	Upper	Upper	Upper						
pH (standard units)	NA	7.98	6.78	7.26						
Oxidation Reduction Potential (mV)	NA	-42.00	-87.45	-109.00						
Conductivity (mS/cm)	NA	1.126	1.149	0.604						
Dissolved Oxygen (mg/L)	NA	0.43	0.21	0.20						
Turbidity (NTU)	NA	9.46	9.57	12.80						
Temperature (°C)	NA	10.10	16.66	15.15						
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	9.3	20.7 J	**65**						
Antimony	3	1.0 U	60.0 U, J	1.0 U						
Arsenic	0.2	**2.9**	10.0 U, J	**2.6**						
Barium	2,000	100	126 J	45						
Beryllium	NA	1.0 U	0.27 J	1.0 U						
Cadmium	4	**2,600**	**3,290**	**1,800**						
Calcium	NA	110,000	61,300	43,000						
Chromium	7,000	7.8	10.0 U	9.2						
Cobalt	NA	8.9	11.7 J	6.8						
Copper	NA	17	15.5 J	10						
Iron	NA	41,000	48,800	33,000						
Lead	5	1.0 U	2.4 J	1.0 U						
Magnesium	NA	26,000	25,800	13,000						
Manganese	NA	1,800	1,890	720						
Nickel	57	**500**	**425**	**200**						
Potassium	NA	16,000	33,400	16,000						
Selenium	NA	1.0 U	35.0 U, J	1.0 U						
Silver	0.1	0.2 U	1.1 J+	0.2 U						
Sodium	NA	140,000	77,800	52,000						
Thallium	0.5	2.0 U	25.0 U	2.0 U						
Vanadium	NA	2.0 U	50.0 U	2.0 U						
Zinc	NA	850	1,400 J	880						
Hexavalent Chromium	2	5 U	5.0 U	50 U						
Cyanide	4	5 U	10.0 U	5 U						

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ13B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ13B								PZ13B/PZ13B-D
Sampling Date:		11/26/02	05/29/03	11/17/03	05/19/04	12/01/04	06/07/05	09/12/05	03/22/06	09/21/06
Groundwater Elevation:[1]	NA	592.28	592.70	579.45	593.41	592.88	592.03	592.19	593.9	594.31
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	6.77	7.53	8	9.44	7.79	7.50	7.19	6.59	7.24
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.794	0.851	0.993	0.913	1.020	0.913	0.906	0.799	1.590
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	4	-10	-10	10.0	318	0	37	2	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**326 ***	**1,770**	**239 L**	**357**	**1,580 ***	100 U	**1,610**	100 U	**58.0 J**
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	8.0 U	4.0 U	4.0 U	4.0 U	2 J
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**0.5 J**	**0.7 J**	**0.9 J,***
Barium	2,000	77.1	21.4	79.6	18.8	34.0	29.7 K	46.5	28.8	27.7 J
Beryllium	NA	2.8 U	NA	0.5 U	1.0 U	0.5 J,K,*	1.0 U,L	1.0 U	1.0 U	5.0 U,L
Cadmium	4	**47.6**	**1,380**	**29.8**	**2,210**	**973 ***	**2,260**	**1,830**	**2,260**	**1,420**
Calcium	NA	73,300	NA	83,000 K	73,600	94,100	90,900	95,300	72,700	88,500
Chromium	7,000	27.4	24.4	25.0	14.2	20.5 L,*	7.3	42.1	5.59	3.3 J
Cobalt	NA	4.2 U	NA	2.0 U	0.9 J,K	2.2 K,*	1.9	1.5	1.51 J	1.1 J,K,*
Copper	NA	4.4 U,*	NA	4.4	6.0 U,*	3.0 U,L,*	2.0 J	5.7 J	3.99 J	2.6 J
Iron	NA	322 *	NA	193	210	1,160 K,*	21.2 K,*	1,500	50.0 U	93.4 J
Lead	5	2.0 U	0.7 J	2.0 U	2.0 U	1.1 J	2.0 U	2.4 J	3.0 U	2.0 U,*
Magnesium	NA	18,300	NA	18,600	19,500	19,500	14,600	17,700	11,800	17,500
Manganese	NA	11.8	NA	9.1	187 *	445 *	688 K	370	214	599
Nickel	57	6.9	**102**	26.9	**141 ***	49.7 K	**179**	**120**	**169**	**58.9**
Potassium	NA	2,950 K	NA	8,320 K,*	5,550 K,*	4,810 K	6,380 K	2,780	4,340	3,620 J
Selenium	NA	4.0 U	NA	8.0 U,L	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	83,900 K	NA	779,000	66,100	78,900	93,000	61,800	92,100	151,000
Thallium	0.5	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U,L	NA	20.3 J	10.0 U	20.0 U	10.0 U	2.2 J	5.0 U	0.5 J,K
Zinc	NA	28.2 J	NA	31.2	1,800	522	2,150	1,180	2,240	835
Hexavalent Chromium	2	**18**	10 U,J,L	**20.2**	10 U	1 U,L	1 U,L,J	10 U,J,L	10 U	10 U,J,L
Cyanide	4	**32 J**	**5 J**	**21**	**4 J**	3 J	2 U	2 J	10 U	**4 J,K**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ13B

Sample Number:	Groundwater Cleanup Goal	PZ13B					PZ13B			
Sampling Date:	(µg/L)	03/28/07	09/19/07	03/05/08	10/01/08	03/24/09	09/23/09	03/23/10	09/22/10	03/15/11
Groundwater Elevation:[1]	NA	594.16	592.84	593.66	592.17	592.69	592.6	592.81	592.44	593.48
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	6.78	7.83	8.22	7.18	7.61	7.57	7.76	7.83	7.54
Oxidation Reduction Potential (mV)	NA	--	--	--	--	92.08	191.22	184.77	216.48	236.09
Conductivity (mS/cm)	NA	0.976	--	0.634	0.730	0.813	0.926	1.028	0.857	0.895
Dissolved Oxygen (mg/L)	NA	--	--	--	--	1.06	0.90	1.02	0.49	0.13
Turbidity (NTU)	NA	220	--	102.0	27.6	4.11	4.62	1.82	9.22	6.65
Temperature (°C)	NA	--	--	--	--	7.68	13.34	8.53	14.51	10.29
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	**1,220 K**	25.2 J	25.8 J,K	33.9 J	**132 J,L**	**88.7 J**	42.4 J	**156 J**	43.7 J
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	0.193 J	4.0 U
Arsenic	0.2	**1.3 J**	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	**0.470 J,K**	2.0 U
Barium	2,000	32.8 J	26.1 J	21.8 J	27.4 J	15.2 J	20.3 J	12.6 J	11.8 J	14.4 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**1,510**	**1,120**	**858**	**299**	**242**	**285**	**210**	**223**	**225**
Calcium	NA	96,100	85,300	72,100	71,300	52,800	76,800	75,400	71,700	74,200
Chromium	7,000	63.0	3.3 J, K	4.6 J	5.0 J	25.7	44.0	53.5	29.1	34.8
Cobalt	NA	1.9 J	1.5 J	1.0 J	0.6 J	0.6 J	50.0 U	50.0 U	50.0 U	0.7 J,K
Copper	NA	9.7 J,L	0.8 J	25.0 U	3.0 J	3.0 J	1.1 J	25.0 U	25.0 U	25.0 U
Iron	NA	1,390	11.7 J	100 U	28.9 J	144 L	60.5 J	23.3 J	135	37.2 J
Lead	5	1.6 J	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	0.206 J	2.0 U
Magnesium	NA	22,900	14,900	12,900	17,000	13,400	19,800	24,800	22,300	18,300
Manganese	NA	443	314	508	137	43.9	73.8	12.2 J	33.3	66.9
Nickel	57	**97.0**	33.9 J	34.1 J	16.4 J	15.2 J	17.7 J	11.8 J	7.7 J	13.5 J
Potassium	NA	4,620 J	5,220	4,270 J	3,420 J	2,230 J	3,640 J	1,890 J	1,790 J	2,750 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.81 J	0.233 J,L	5.0 U	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	129,000	143,000	93,200	88,100	95,000	87,200	93,800	79,000	95,300
Thallium	0.5	1.0 U	1.0 U	0.3 J	2.0 U	**0.5 J**	0.08 J	1.0 U	1.0 U	0.3 J
Vanadium	NA	2.0 J,K	0.5 J, K,	50.0 U	0.5 K,J	50.0 U	50.0 U	4.6 J	50.0 U	50.0 U
Zinc	NA	980	376	473	212	191	240	169	121	163
Hexavalent Chromium	2	10 U,J,L	10 U,J,	**3.0 J,L**	**3.0 J,L**	**17.2 J,L**	**35.5 J,L**	**40.8 J,L**	**23.2 J,L**	**30.6 J,L**
Cyanide	4	2 J	2 J	**5 J**	10 U	20 U	10 U	**4 J**	**5 J**	10 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ13B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ13B					PZ13B/PZ13BD	PZ13B		
Sampling Date:		09/08/11	03/21/12	09/26/12	03/06/13	09/04/13	04/01/14	09/24/14	04/22/15	10/14/15
Groundwater Elevation:[1]	NA	592.79	592.18	591.61	592.11	591.83	592.42	594.93	593.52	595.43
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	--	7.21	7.53	7.51	7.27	7.43	7.24	7.44	6.92
Oxidation Reduction Potential (mV)	NA	--	-52.34	112.82	-49.45	136.89	188.80	142.00	56.60	91.20
Conductivity (mS/cm)	NA	--	2.309	2.114	1.544	0.998	1.163	0.701	1.111	0.610
Dissolved Oxygen (mg/L)	NA	--	0.09	0.14	2.05	0.07	1.27	0.48	0.35	0.69
Turbidity (NTU)	NA	--	6.99	0.29	0.69	1.04	3.85	3.77	0.11	5.22
Temperature (°C)	NA	--	11.10	16.31	4.74	16.91	7.10	11.80	7.85	11.71
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	**141 J**	**930**	200 U	200 U	34.0 J	**520**	22	7.0	11
Antimony	3	0.252 J	0.184 J	0.335 J,K	0.313 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**0.846 J**	**0.959 J**	**0.310 J**	**0.223 J**	2.0 U	1.0 U	1.0 U	1.6	1.0 U
Barium	2,000	9.7 J	25.5 J	16.9 J	31.6 J	26.6 J	30	20	23	19
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**149**	**560**	**241**	**374**	**265**	**340**	**320**	**380**	**200**
Calcium	NA	44,900	73,400	77,600	85,800	71,100	79,000	54,000	59,000	76,000
Chromium	7,000	59.3	26.4	15.6	21.6	19.1	36	30	19	12
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	2.4 J	5.5 J	3.0 J	25.0 U	25.0 U	5.0	3.6	8.0	3.5
Iron	NA	123	881	100 U	26.1 J	20.8 J	530	28	20 U	27
Lead	5	0.487 J,K	1.21	1.00 U	0.170 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	12,800	14,400	17,400	21,800	16,200	20,000	15,000	12,000	16,000
Manganese	NA	68.3	232	80.5	33.5	163	320	680	1,300	150
Nickel	57	7.9 J	36.2 J	18.0 J	27.3 J	26.0 J	28	36	40	25
Potassium	NA	2,080 J	2,260 J	3,620 J	2,900 J	3,000 J	2,500	2,100	1,600	1,900
Selenium	NA	0.741 J,L	1.550 J	0.546 J,K	0.247 J	4.0 U	1.0 U	1.4	5.5	1.4
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	92,200	182,000	121,000	157,000	103,000	130,000	70,000	170,000	56,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.089 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	110	110	110	261	163	200	250	230	**120**
Hexavalent Chromium	2	**56.6 J,L**	**5.9 J,L**	**13.3 J,L**	**20.0 J,L**	**13.2 J,L**	**32**	**29**	**14**	**11**
Cyanide	4	10 U	10 U	10 U	**13**	10 U	**5**	5 U	5 U	5 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ13B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ13B								
Sampling Date:		01/14/16	04/07/16	06/21/16	09/22/16					
Groundwater Elevation:[1]	NA	NA	596.31	NA	595.73					
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle					
pH (standard units)	NA	6.96	7.28	6.84	7.49					
Oxidation Reduction Potential (mV)	NA	-77.40	-33.60	-98.60	-135.00					
Conductivity (mS/cm)	NA	1.585	0.895	1.321	0.839					
Dissolved Oxygen (mg/L)	NA	0.09	0.53	0.17	0.48					
Turbidity (NTU)	NA	1.65	9.69	9.83	5.22					
Temperature (°C)	NA	10.74	10.37	17.08	14.54					
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	5.0 U	19.5 J	5.0 U					
Antimony	3	1.0 U	1.0 U	60.0 U, J	1.0 U					
Arsenic	0.2	**3.00**	**2.5**	10.0 U, J	**2.6**					
Barium	2,000	108	180	117 J	68					
Beryllium	NA	2.0 U	1.0 U	5.0 U	1.0 U					
Cadmium	4	**1,090**	**140**	**388**	**150**					
Calcium	NA	184,000	94,000	73,200	50,000					
Chromium	7,000	5.0 U	2.8	10.0 R	1.1					
Cobalt	NA	6.2	8.1	9.1 J	5.0 U					
Copper	NA	20.0 U	6.7	3.7 J	4.6					
Iron	NA	2,650	7,800	31,800	20,000					
Lead	5	1.0 U	1.0 U	10.0 U	1.0 U					
Magnesium	NA	54,800	67,000	33,000	24,000					
Manganese	NA	3,310	2,700	2,880	910					
Nickel	57	**172**	99	**179**	34					
Potassium	NA	39,500	73,000	46,600	30,000					
Selenium	NA	1.0 U	1.0 U	35.0 U, J	1.0 U					
Silver	0.1	10.0 U	0.2 U	0.57 J+	0.2 U					
Sodium	NA	87,300	67,000	83,500	69,000					
Thallium	0.5	1.0 U	2.0 U	25.0 U	2.0 U					
Vanadium	NA	5.0 U	2.0 U	50.0 U	2.0 U					
Zinc	NA	1,230	410	2,520 J	940					
Hexavalent Chromium	2	5 U	5 U	5.0 U	50 U					
Cyanide	4	--	**7**	10.0 U	5 U					

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ13C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ13C		PZ13C/PZ13C-D	PZ13C		PZ13C/PZ13C-D	PZ13C	PZ13C/PZ13C-D	PZ13C
Sampling Date:		11/26/02	05/29/03	11/17/03	05/19/04	12/01/04	06/07/05	09/12/05	03/22/06	09/21/06
Groundwater Elevation:[1]	NA	592.19	592.75	570.32	593.27	592.67	592.92	591.85	593.67	593.67
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	7.62	8.12	8.15	7.11	8.05	7.60	7.68	7.42	7.51
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.880	0.900	0.508	0.886	0.675	1.170	0.962	1.340	0.789
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	5	-10	-10	8.0	16	0	0	1	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**137** *	**493**	**126** L	**106**	22.3 J,*	100 U	100 U	100 U	31.7 J
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	**1.0 J**	2.0 U	2.0 U	2.0 U	2.0 U,*
Barium	2,000	14.2	66.4	8.8	72.6	35.4	80.7 K	47.2	56.3	62.8 J
Beryllium	NA	2.8 U	NA	0.5 U	1.0 U	0.1 J,K,*	1.0 U,L	1.0 U	1.0 U	5.0 U,L
Cadmium	4	**1,680**	**62.4**	**661**	**19.4**	**26.0 K,***	**26.7**	**36.5**	**38.4**	**16.3**
Calcium	NA	62,200	NA	64,600 K	69,800	57,600	97,100	73,600	80,500	72,300
Chromium	7,000	3.0	27.9	3.8	45.4	14.2 L,*	45.1	32.7	44.1	37.7
Cobalt	NA	4.2 U	NA	2.0 U	0.5 J,K	1.0 J,K,*	0.6 J	0.3	0.949 J	5.0 U,*
Copper	NA	2.0 L,*,J	NA	2.0 J	4.5 J,K,*	3.0 U,L,*	4.5 J	5.1 J	10.0	4.8 J,*
Iron	NA	107 *	NA	118	68.0	51.5 K,*	24.8 K,*	6.5 J	38.1 J	45.9 J
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U,*
Magnesium	NA	13,400	NA	11,700	15,800	15,700	20,000	15,000	18,300	16,900
Manganese	NA	247	NA	239	5.9 *	8.9 K,*	11.2 K	60.0	0.689 J	3.8 J
Mercury	2	0.5 U	0.5 U,L	0.2 J	0.5 UJ	0.5 U	0.5 U	0.5 U,L,J	0.5 U	--
Nickel	57	**159**	6.6 L	40.1	30.3 *	24.8 K	45.1	43.2	39.9	20.8 J
Potassium	NA	4,230 K	NA	6,560 K,*	5,540 K,*	2,140 K	8,050 K	4,060	3,360	5,190
Selenium	NA	4.0 U	NA	8.0 U,L	4.0 U	4.0 U	1 J	4.0 J	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	**1.3 J,K**	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	86,300 K	NA	871,000	71,000	44,200	109,000	70,600	139,000	90,400
Thallium	0.5	2.0 U	2.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U,L	NA	17.0 J	10.0 U	20.0 U	10.0 U	10.0 U	5.0 U	0.5 K,J
Zinc	NA	1,220	NA	457	10.4 J,K	13.5 J	27.8 J	18.4 J,K	15.7 J	40.6 J
Hexavalent Chromium	2	10 U	**18.1** J,L	**3.5 J**	**34.5**	**14.4 L**	**26.9**	**24.2 J,L**	**37.7**	**40.3 J**
Cyanide	4	**8** J	**24**	8 U	**28 J**	**20** *	**18**	**24 J**	**25**	**64 J**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ13C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ13C	PZ13C/PZ13C-D	PZ13C			PZ13C			
Sampling Date:		09/19/07	10/01/08	09/23/09	09/22/10	09/08/11	09/26/12	09/04/13	09/24/14	10/14/15
Groundwater Elevation:[1]	NA	592.79	592.09	592.52	592.31	592.65	591.44	591.70	595.00	595.51
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	7.85	7.47	7.96	8.05	--	7.94	7.78	7.37	7.76
Oxidation Reduction Potential (mV)	NA	--	--	219.78	236.00	--	102.72	134.83	49.10	62.00
Conductivity (mS/cm)	NA	NA	1.920	1.019	0.892	--	4.953	0.802	1.192	0.700
Dissolved Oxygen (mg/L)	NA	--	--	1.00	0.89	--	0.12	0.07	0.25	0.39
Turbidity (NTU)	NA	0	15.10	10.43	10.20	--	3.88	8.54	0.08	2.87
Temperature (°C)	NA	--	--	15.04	13.26	--	14.76	16.01	11.58	11.95
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	13.6 J, L	34.4 J	**160 J**	35.5 J	200 U	20.2 J	**250**	8.3	13
Antimony	3	4.0 U	4.0 U	2.0 U	0.051 J	0.077 J	2.00 U	4.0 U	1.0 U	1.0 U
Arsenic	0.2	2.0 U	2.0 U	1.0 U	**0.483 J,K**	**0.469 J**	**0.527 J**	**1.3 J**	1.0 U	1.0 U
Barium	2,000	65.4 J	121 J	78.4 J	70.9 J	62.9 J	84.4 J	102 J	130	100
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U
Cadmium	4	**20.5**	**29.8**	**24.0**	**5.7**	**7.2**	**7.5**	**23.8**	**6**	**8.1**
Calcium	NA	79,000	115,000	95,900	98,900	96,200	113,000	69,000	76,000	72,000
Chromium	7,000	42.4	5.8 J	19.9	2.9 J	15.6	2.6 J	9.8 *, J	4.1	2.7
Cobalt	NA	50.0 U	0.6 J	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U
Copper	NA	4.4 J	3.1 L,J	3.2 J	25.0 U	5.4 J	3.6 J	25.0 U	6.6	5.3
Iron	NA	16.3 J	34.4 J	123	100 U	100 U	100 U	200	20	28
Lead	5	2.0 U	2.0 U	0.15 J	0.167 J	0.102 J,K	1.00 U	2.0 U	1.0 U	1 U
Magnesium	NA	17,900	36,700	30,600	32,100	29,000	31,600	22,100	25,000	22,000
Manganese	NA	1.1 J	6.0 J	8.9 J	2.0 J	2.4 J,L	5.8 J	19.9	13.0	5.0 U
Mercury	2	--	--	--	--	--	--	--	--	--
Nickel	57	16.9 J	27.7 J	19.7 J	14 J	15.7 J	18.5 J	15.3 J	14	15
Potassium	NA	5,370	2,900 J	2,100 J	1,850 J	1,650 J	2,180 J	1,490 J	1,500	1,500
Selenium	NA	4.0 U	4.0 U	0.65 J	5.0 U	5.00 U	5.00 U	4.0 U	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U
Sodium	NA	75,400	186,000	72,200	53,200	91,500	39,200	53,700	92,000	69,000
Thallium	0.5	3.0 U	0.4 J	1.0 U	1.0 U	1.00 U	1.00 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	0.7 J,K	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U
Zinc	NA	18.6 J, *	9	26.0 J,K	60.0 U	20.2 J	60.0 U	10.4 J	5.0 U	5.0 U
Hexavalent Chromium	2	**38.8 J, L**	**3.9 J,L**	**12.2 J,L**	**2.4 J,L**	**14.8 J,L**	5 U,J,L	1.1 J,L	5 U	5 U
Cyanide	4	**21 J**	**15**	**7 J**	**4 J**	**9 J**	3 J	**6 J**	5 U	5 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ13C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ13C		PZ13C/PZ13C-D						
Sampling Date:		01/14/16	06/22/16	09/22/16						
Groundwater Elevation:[1]	NA	NA	NA	595.76						
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	7.88	7.83	7.09						
Oxidation Reduction Potential (mV)	NA	-275.30	58.25	1.20						
Conductivity (mS/cm)	NA	0.644	0.716	644.000						
Dissolved Oxygen (mg/L)	NA	0.25	0.40	0.87						
Turbidity (NTU)	NA	0.99	6.09	3.52						
Temperature (°C)	NA	10.22	14.30	13.32						
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	57.3 J	6.1						
Antimony	3	1.0 U	60.0 U, J	1.0 U						
Arsenic	0.2	1.0 U	10.0 U, J	1.0 U						
Barium	2,000	82.3	87.4 J	79						
Beryllium	NA	2.0 U	5.0 U	1.0 U						
Cadmium	4	**5.3**	**13.9**	**8.9**						
Calcium	NA	55,200	62,200	63,000						
Chromium	7,000	5 U	1.1 J-	1.0 U						
Cobalt	NA	6.0 U	50.0 U	5.0 U						
Copper	NA	20 U	3.1 J	4.8						
Iron	NA	80 U	69.8 J	20						
Lead	5	1.0 U	3.3 J	1.0 U						
Magnesium	NA	17,300	18,600	19,000						
Manganese	NA	8 U	5.9 J	5.0 U						
Mercury	2	--	--	--						
Nickel	57	6.5	7.0 J	12						
Potassium	NA	1,410	5,000 U	1,400						
Selenium	NA	1 U	35.0 J	1.0 U						
Silver	0.1	10.0 U	10.0 U, J	0.2 U						
Sodium	NA	55,900	51,500	56,000						
Thallium	0.5	1.0 U	25.0 U	2.0 U						
Vanadium	NA	5.0 U	50.0 U	2.0 U						
Zinc	NA	30 U	60.0 U, J	5.0 U						
Hexavalent Chromium	2	5 U	5.0 U	5 U						
Cyanide	4	--	10.0 U	5 U						

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ21

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ21								
Sampling Date:		11/26/02	05/28/03	11/18/03	5.19/04	12/01/04	06/08/05	09/12/05	03/22/06	09/21/06
Groundwater Elevation:[1]	NA	594.33	593.04	593.26	593.57	593.37	593.15	592.69	594.05	593.63
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	6.83	6.48	7.23	8.24	6.67	6.71	9.25	6.82	6.70
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.579	0.937	0.740	0.681	0.540	0.353	0.779	0.393	0.480
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	18	-10	-10	0.0	0	24	0	16	0.0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**524 ***	**328**	48.2 J,L*	80.0 U	17.1 J,*	100 U	100 U	**172**	**122 J**
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	1 J
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U,J
Barium	2,000	60.6	98.0	102	83.7	72.9	57.5 K	100	73.9	63.6 J
Beryllium	NA	2.8 U	NA	0.3 J,K*	1.0 U	0.2 J,K,*	1.0 U,L	1.0 U	1.0 U	5.0 U,L
Cadmium	4	**810**	**1,470**	**1,190 L**	**668**	**728 ***	**827**	**1,090**	**1,180**	**793**
Calcium	NA	58,000	NA	69,200 L	56,000	57,300	46,300	60,200	46,200	45,300
Chromium	7,000	20.1	16.8	12.6 *	12.3 L	9.8 K,*	11.8	11.7	27.2	38.5
Cobalt	NA	4.2 U	NA	1.2 J,K	2.2 L	2.2 K,*	1.3	1.9	1.15 J	1.0 J,K,*
Copper	NA	18.5 L, *	NA	27.3 K	23.5 K,*	16.7 J,*	28.7	31.4	18.4	24.6 J
Iron	NA	444 *	NA	442	630	665 K,*	69.6 K	20.0 U	235	132
Lead	5	2.0 U	2.0 U	0.6 J	2.0 U	2.0 U	0.5 J	2.0 U	3.0 U	2.0 U,J
Magnesium	NA	10,600	NA	12,000	10,600	8,590	6,830	10,100	7,750	7,690
Manganese	NA	313	NA	379	271 *	136 *	35.3 K	66.3	45.5	37.0
Nickel	57	37.2	47.1	39.2	38.6	44.8 K	41.5 *	53.4 *	38.9	39.8 J
Potassium	NA	5,800 K	NA	11,400 K,*	7,590 L,*	7,770 K	8,800 K	7,480	5,190	5,660
Selenium	NA	4.0 U	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	**0.9 J,K**	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	19,700 K	NA	67,700 L	43,800	26,900	20,900	67,800.0	27,700	25,500
Thallium	0.5	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U,L	NA	12.2 J	10.0 U	20.0 U	10.0 U	10.0 U	5.0 U	1.4 J,K
Zinc	NA	24.0 J	NA	30.1 L	30.4	25.3 J	42.7	35.4 K	90.2	68.1
Hexavalent Chromium	2	10.0 U	10.0 U	10.0 U	10.0 U	1.0 U,L	1.0 U,J,L	10 U,J,L	**14.6**	**34.6 J**
Cyanide	4	**12 J**	**12**	**7 J**	**18 J**	**25 ***	**10 J**	**4 J**	**18**	**13 J,***

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ21

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ21	PZ21/PZ21-D	PZ21						
Sampling Date:		03/27/07	09/19/07	03/04/08	10/01/08	03/24/09	09/23/09	03/23/10	09/21/10	03/16/11
Groundwater Elevation:[1]	NA	594.38	593.14	593.83	592.52	593.21	593.06	593.13	592.81	593.98
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.32	7.75	7.37	6.55	7.20	6.99	7.11	7.01	7.17
Oxidation Reduction Potential (mV)	NA	--	--	--	--	-55.50	82.23	-59.10	-27.40	48.01
Conductivity (mS/cm)	NA	0.588	--	0.567	0.688	0.707	0.660	0.74	0.83	0.88
Dissolved Oxygen (mg/L)	NA	--	--	--	--	0.78	1.85	0.83	0.65	2.08
Turbidity (NTU)	NA	160	--	211.0	38.8	0.0	0.47	3.07	2.21	0.10
Temperature (°C)	NA	--	--	--	--	9.2	15.27	9.72	16.96	6.92
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	**741**	**307**	**93.5 J,K**	22.0 J	22.1 J,L	36.0 J	40.7 J	29.0 J,K	**53.9 J**
Antimony	3	1.1 J	4.0 U	1.0 J	4.0 U	4.0 U	0.54 J,L	2.0 U	0.165 J	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	**0.622 J,K**	2.0 U
Barium	2,000	78 J	71.5 J	85.1 J	56.9 J	62.6 J	57.6 J	67.5 J	97.8 J	76.5 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**1,190**	**945**	**1,050**	**679**	**621**	**558**	**293**	**523**	**381**
Calcium	NA	49,200	56,400	59,600	47,400	51,900	51,500	47,400	63,000	57,300
Chromium	7,000	60.8	33.9	24.0	7.9 J	5.8 J	29.5	9 J	12.6	8.4 J
Cobalt	NA	2.1 J	1.5 J	1.5 J	0.8 J	0.5 J	1.3 J	50 U	1.2 J	1.3 J,K
Copper	NA	51.3	41.3	24.3 J	21.4 J	16.8 J	21.8 J	16.1 J,L	21.5 J	23.9 J
Iron	NA	1,000	519	112	55.8 J	91.5 J,L	359	1,570	1,350	1,260
Lead	5	1.2 J	0.7 J	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	0.087 J	2.0 U
Magnesium	NA	8,370	11,800	11,600	11,100	30,900	18,400	15,700	21,500	26,800
Manganese	NA	83.1	60.4	37.4	108	39.6	18.4	155	215	143
Nickel	57	46.8	42.5	53.5	34.9 J	26.0 J	27.3 J	22.2 J	30.3 J	26.2 J
Potassium	NA	6,360	6,790	6,280	3,470 J	2,340 J	5,880	3,900 J	6,600	5,290 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.48 J	5.0 U	0.369 J	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	56,600	42,700	82,400	63,100	39,000	58,600	77,700	82,500	93,200
Thallium	0.5	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	2.7 J,K	1.8 J	0.5 J,L	0.6 J	50.0 U	50.0 U	5.3 J	50.0 U	50.0 U
Zinc	NA	138	54.3 J, *	101	32 J	102	56.9 J,K	49.5 J	49.3 J	54.5 J
Hexavalent Chromium	2	**40.2 J,L**	**20.8 J, L**	**14.7 J,L**	5 U, J,	5 U,J,L	1.6 J,L	5 U,J,L	5 U,J,L	5 U,J,L
Cyanide	4	**22 J**	**19 J**	**14**	**15 K**	**37**	**40**	**66**	**63 ***	**15**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ21

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ21						PZ21/PZ21-D	PZ21	
Sampling Date:		09/08/11	03/20/12	09/25/12	03/05/13	09/04/13	04/01/14	09/24/14	04/22/15	10/14/15
Groundwater Elevation:[1]	NA	592.96	592.83	592.71	592.82	592.52	593.55	594.07	593.76	595.08
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	--	7.21	7.04	7.27	6.94	7.18	6.61	7.29	7.02
Oxidation Reduction Potential (mV)	NA	--	-41.93	-50.00	103.88	13.66	149.30	16.90	28.10	74.00
Conductivity (mS/cm)	NA	--	1.46	0.92	0.925	1.061	1.258	0.546	0.720	0.267
Dissolved Oxygen (mg/L)	NA	--	1.48	0.18	0.47	0.22	5.32	1.05	1.78	1.28
Turbidity (NTU)	NA	--	0.59	0.59	0.13	0.41	3.20	0.84	2.88	4.22
Temperature (°C)	NA	--	25.48	17.84	5.61	19.30	7.72	14.43	7.03	15.88
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	200 U	28.3 J	11	15	43	19
Antimony	3	0.690 J	0.325 J	0.055 J,L	0.407 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**0.617 J,K**	1.0 U	**0.806 J**	**0.253 J**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	67.1 J	51.7 J	72.6 J	65.7 J	70.8 J	85	28	49	29
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**102**	**348**	**705**	**1,010**	**439**	**700**	**220**	**270**	**170**
Calcium	NA	33,500	49,700	76,400	56,700	75,900	140,000	40,000	52,000	38,000
Chromium	7,000	9.4 J	3.9 J,K	6.6 J	3.9 J	4.3 J	3.2	9.6	5.0	5.8
Cobalt	NA	2.3 J	1.3 J	1.3 J	50.0 U	1.0 J	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	25.5	15.5 J	70.0	23.9 J	32.4	16	17	22	20
Iron	NA	572	661	1,660	76.4 J	923	320	43	600	370
Lead	5	0.162 J,K	1.0 U	1.0 U	0.413 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	17,700	12,300	18,300	14,400	16,700	36,000	10,000	12,000	9,000
Manganese	NA	44.9	88.9	189	73.2	84.5	88	240	67	53
Nickel	57	9.6 J	38.6 J	34.2 J	**58.5**	34.5 J	19	14	13	19
Potassium	NA	7,500	2,330 J	3,210 J	2,210 J	3,000 J	1,900	2,100	2,400	2,600
Selenium	NA	5.0 U	5.0 U	0.484 J	0.298 J	4.0 U	3.1	1.0 U	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	95,000	101,000	113,000	103,000	110,000	73,000	33,000	80,000	18,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.073 J, K	2.0 U	2	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0	2.0 U	2.0 U	2.0 U
Zinc	NA	16.3 J	129 J	60.0 U	480	117	110	30	40	24
Hexavalent Chromium	2	5 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L	5 U	**8**	5 U	5 U
Cyanide	4	**76**	**93**	**20**	**13**	**46**	**46**	**19**	**30**	**64**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ21

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ21			PZ21/PZ21-D					
Sampling Date:		01/14/16	04/07/16	06/22/16	09/22/16					
Groundwater Elevation:[1]	NA	NA	595.80	NA	595.39					
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper					
pH (standard units)	NA	6.64	7.26	6.98	7.17					
Oxidation Reduction Potential (mV)	NA	-286.00	-42.40	-94.37	-119.00					
Conductivity (mS/cm)	NA	1.454	0.600	.650	0.501					
Dissolved Oxygen (mg/L)	NA	0.10	0.63	0.61	0.18					
Turbidity (NTU)	NA	6.16	9.78	5.14	16.20					
Temperature (°C)	NA	10.03	8.73	15.45	15.74					
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	22	14.4 J	**88**					
Antimony	3	1.0 U	1.0 U	60.0 U, J	1.0 U					
Arsenic	0.2	1.0 U	1.0 U	10.0 U, J	**2.9**					
Barium	2,000	584	300	134 J	86					
Beryllium	NA	2.0 U	1.0 U	5.0 U	1.0 U					
Cadmium	4	**3,020**	**770**	**824**	**9,300**					
Calcium	NA	81,100	41,000	14,800	24,000					
Chromium	7,000	15.4	7.9	10.0 U	9.8					
Cobalt	NA	24.1	5.0 U	5.0 U	44					
Copper	NA	20.0 U	15	14.8 J	110					
Iron	NA	4,430	23,000	25,900	32,000					
Lead	5	1.0 U	1.0 U	2.5 J	1.0 U					
Magnesium	NA	52,200	38,000	12,700	11,000					
Manganese	NA	6,480	5,100	768	1,000					
Nickel	57	**362**	25	**61.4**	**670**					
Potassium	NA	68,100	61,000	16,000	14,000					
Selenium	NA	1.0 U	1.0 U	35.0 U, J	1.0 U					
Silver	0.1	10 U	0.2 U	0.46 J+	0.2 U					
Sodium	NA	86,800	59,000	81,900	48,000					
Thallium	0.5	1.0 U	2.0 U	25.0 U	2.0 U					
Vanadium	NA	5.0 U	2.0 U	50.0 U	2.0 U					
Zinc	NA	73.1	20	60 U, J	240					
Hexavalent Chromium	2	5 U	5 U	5.0 U	50					
Cyanide	4	--	**19**	**17.0**	**52**					

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ06A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ06A/PZ06A-D	PZ06A							
Sampling Date:		11/26/02	05/29/03	11/17/03	05/19/04	12/01/04	06/08/05	09/12/05	03/23/06	09/20/06
Groundwater Elevation:[1]	NA	593.05	593.06	598.82	593.80	593.40	593.32	592.78	594.12	594.05
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.58	8.02	8.32	8.64	7.88	7.30	7.69	7.82	7.30
Oxidation Reduction Potential (mV)		--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.598	0.761	0.541	1.170	1.02	--	0.761	0.61	0.534
Dissolved Oxygen (mg/L)		--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	1	-10	-10	2.0	0	--	0	0	0.00
Temperature (°C)		--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**110** *	31.9	20.0 J,L	80.0 U	**3,250** *	100 U	100 U	100 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	8.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	**4.7**	2.0 U	2.0 U	2.0 U	2.0 U,*
Barium	2,000	70.8	83.9	59.2	134	243	112 K	102	93.0	82.7 J
Beryllium	NA	2.8 U	NA	0.2 J,K	1.0 U	0.8 K,*	1.0 U,L	1.0 U	1.0 U	5.0 U
Cadmium	4	1.0 J	**12.4**	1.9 K,J	3.3	**29.5 K,***	2.9 K	**10.0**	2.93 J	3.70 J
Calcium	NA	54,000	NA	51,900	79,000	55,700	73,600 K	70,400	75,200	70,900
Chromium	7,000	4.3	4.6 L	3.3 J	16.1	68.6 L,*	12.5	12.4	5.42	4.3 J
Cobalt	NA	4.2 U	NA	2.0 U	2.0 U	7.0 K,*	1.0 U	1.0 U	3.0 U	50.0 U,*
Copper	NA	4.4 U,*	NA	2.6 J,L	9.4 K,*	99.9 K,*	6.0 U	6.0 U	2.49 J	1.6 J,*
Iron	NA	81.2 *	NA	30.0 U	30.0 U	20,400 *	20.0 U	20.0 U	50.0 U	100 U
Lead	5	2.0 U	2.0 U	4.0 U	2.0 U	**11.9**	1.0 J	2.0 U	3.0 U	2.0 U,*
Magnesium	NA	11,900	NA	15,200	21,100	11,500	15,800	17,800	22,600	19,800
Manganese	NA	8.2 J	NA	0.9 J	0.5 J,L,*	359 *	0.2 J,K	1.0 U	0.914 J	2.5 J
Nickel	57	5.6	15.1	3.9 J	12.7 K,*	120 K	10.4 K,*	10.3 K,*	6.59 K	6.8 J
Potassium	NA	2,710 K	NA	7,160 K,*	2,350 K,*	4,830 K	8,380 K	4,710 K	1,900	1,430 J
Selenium	NA	4.0 U	NA	8.0 U,L	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	**1.9 J,K**	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	21,600 K	NA	838,000	125,000	152,000	35,500	35,900	27,800	23,300
Thallium	0.5	2.0 U	2.0 U	4.0 U	2.0 U	0.3 J	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U,L	NA	10.1 J	10.0 U	8.1 J	10.0 U	10.0 U	5.0 U	0.9 J,K
Zinc	NA	36.0 U	NA	30.0 U	30.0 U	58.4	11.5 J	30.0 U	30.0 U,L	29.0
Hexavalent Chromium	2	**6.2 J,L**	**5.5 J,L**	**3.9 J**	**6.2**	**7.7 L**	**15.2 J,L,***	**3.6 J,L**	**5.36 J**	**3.5 J,***
Cyanide	4	8 U	8 U	8 U	8 UJ	5 U	5 U,J	5 U,J	10 U	5 U,J,*

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ06A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ06A	PZ06A/PZ06A-D	PZ06A		PZ06A/PZ06A-D	PZ06A			
Sampling Date:		03/27/07	09/20/07	03/05/08	09/30/08	03/25/09	09/23/09	03/24/10	09/22/10	03/16/11
Groundwater Elevation:[1]	NA	594.35	593.23	593.89	592.81	593.35	593.08	593.30	593.06	593.85
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	8.10	6.98	9.10	7.62	7.40	8.10	7.34	7.69	7.74
Oxidation Reduction Potential (mV)		--	--	--	--	-21.04	244.65	17.89	83.92	47.72
Conductivity (mS/cm)	NA	0.486	0.760	0.365	0.619	0.800	0.47	0.96	1.09	0.82
Dissolved Oxygen (mg/L)		--	--	--	--	0.05	3.44	0.59	1.76	0.62
Turbidity (NTU)	NA	0.00	0.00	720.00	3.30	0.00	0.09	0.00	0.10	0.70
Temperature (°C)		--	--	--	--	11.42	13.48	11.19	14.22	11.38
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	27.9 J	200 U,L	26.7 J,K	42.5 J	200 U	200 U	200 U	200 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	0.051 J	4.0 U
Arsenic	0.2	**0.8 J**	2.0 U	2.0 U	2.0 U	2.0 U	**2.1**	**0.363 J**	**2.65 K**	2.0 U
Barium	2,000	45.9 J	60.6 J	49.1 J	55.3 J	69.3 J	41.2 J	96.0 J	88.6 J	70.1 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.2 J,K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	1.2 J	**5.9**	**4,5 J**	**10.0**	**19.5**	3.3 J	**14.4**	**13.3**	3.2 J
Calcium	NA	35,200	65,700	50,800	36,100	49,900	36,500	66,100	61,900	53,200
Chromium	7,000	4.2 J	4.2 J	3.9 J	2.8 J	2.9 J	5.0 J	1.7 J	2.3 J	1.9 J
Cobalt	NA	50.0 U	50.0 U	50.0 U	0.5 J	50.0 U	50.0 U	50.0 U	50.0 U	0.6 J,K
Copper	NA	2.1 J,L	2 J	8.0 J	5.7 J	2.8 J	2.7 J	2.1 J,L	25.0 U	25.0 U
Iron	NA	25.4 J	100 U	12.1 J	31.4 J	100 U	41 J,K	100 U	15.5 J	100 U
Lead	5	2.0 U,J	2.0 U	2.0 U	2.0 U	2.0 U	1.92	1.0 U	0.076 J	2.0 U
Magnesium	NA	9,090	19,400	14,200	9,120	11,500	8,950	15,100	13,200	15,200
Manganese	NA	8.8 J	1.4 J	2.5 J	5.0 J	11.1 J	39.3	138	248	20
Nickel	57	3.8 J	6.2 J	6.7 J,K	10.4 J	15 J	6.9 J	18.7 J	15.1 J	7.9 J
Potassium	NA	1,090 J	1,250 J	1,080 J	1,830 J	2,650 J	1,950 J	3,220 J	2,470 J	3,140 J
Selenium	NA	4.0 U	4.0 U,L	4.0 U	4.0 U	4.0 U	5.91	0.219 J,L	9.31	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	**0.7 J,K**	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	50,800	21,300 L	31,600	112,000	106,000	49,800	110,000	154,000	101,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	2.0 U	**0.5 J**	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	1.4 J,K	0.6 J, *	50.0 U	0.9 J,K	50.0 U	50.0 U	5.2 J	50.0 U	50.0 U
Zinc	NA	10.2 J,L	12.4 J	13.8 J	60.0 U	60.0 U	16.6 J	25.3 J	60.0 U	60.0 U
Hexavalent Chromium	2	**4.4 J,L**	**3 J, L**	**2.8 J,L**	**2.0 J, L**	**2.5 J,L**	**2.7 J,L**	5 U,J,L	**3.1 J,L**	1.3 J,L
Cyanide	4	5 U,J	5 U	5 U,J	10 U	10 U	10 U	10 U	10 U	10 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ06A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ06A/PZ06A-D		PZ06A						
Sampling Date:		09/08/11	03/21/12	09/26/12	03/06/13	09/05/13	04/03/14	09/24/14	04/23/15	10/14/15
Groundwater Elevation:[1]	NA	593.17	593.02	592.55	592.96	592.64	593.37	594.57	593.87	594.95
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.88	7.79	7.62	7.99	7.72	7.64	7.52	7.16	7.33
Oxidation Reduction Potential (mV)		110.64	69.90	129.76	-67.23	-64.48	101.70	94.00	152.00	105.00
Conductivity (mS/cm)	NA	1.51	0.81	2.10	0.470	0.632	0.394	1.750	1.071	0.804
Dissolved Oxygen (mg/L)		--	2.92	2.33	3.03	1.35	2.76	0.86	1.81	0.68
Turbidity (NTU)	NA	0.54	0.00	0.11	0.00	0.00	1.32	1.97	0.10	4.20
Temperature (°C)		15.04	12.95	15.56	10.78	14.16	11.33	12.39	9.67	12.18
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	21.6 J	200 U	7.2	21	5.0 U	5.0 U
Antimony	3	2.0 U	0.058 J	2.00 U	2.00 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**1.30**	**0.904 J**	**0.739 J,K**	0.193 J	2.0 U	1.0 U	1.0 U	**1.7**	1.0 U
Barium	2,000	114 J	69.0 J	80.5 J	43.8 J	44.3 J	55	180	80	99
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**6.3**	3.9 J	**4.8 J,K**	2.5 J	**7.5**	1.9	**5.1**	2.7	2.1
Calcium	NA	70,400	57,800	82,700	35,700	31,000	67,000	97,000	78,000	70,000
Chromium	7,000	2.3 J	2.9 J,K	4.8 J	4.9 J	2.8 J	4.5	4.6	2.5	3.8
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	6.2 J	3.3 J	2.8 J	25.0 U	25.0 U	2.2	12.0	3.6	5.9
Iron	NA	100 U	100 U	100 U	22.9 J	100 U	20 U	130	20 U	21
Lead	5	0.185 J,K	0.402 J	1.00 U	0.087 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	16,800	13,400	18,200	8,840	7,840	15,000	27,000	17,000	20,000
Manganese	NA	60	41.9	59.3	16.4	33.6	7.5	5.7	22	23
Nickel	57	8.4 J	8.0 J	11.0 J	5.6 J	9.9 J	6.4	15	8.4	14
Potassium	NA	3,100 J	1,890 J	2,050 J	1,880 J	1,910 J	2,600	3,600	1,200	3,400
Selenium	NA	2.76 J,L	2.95 J	0.864 J,K	0.382 J	4.0 U	1.0 U	1.0 U	1.0 U	1.2
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	205,000	96,700	87,700 K	47,300	91,800	25,000	210,000	110,000	100,000
Thallium	0.5	1.0 U	0.057 J	1.00 U	0.069 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	14.2 J	60.0 U	60.0 U	60.0 U	15.0 J	5.0	5.0	5.0 U	5.0 U
Hexavalent Chromium	2	**2.1 J,L**	**3.8 J,L**	**3.3 J,L**	**3.9 J,L**	**2.5 J,L**	**5**	5 U	5 U	5 U
Cyanide	4	**4 J**	10 U,J	10 U	10 U	10 U	5 U	5 U	5 U	5 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ06A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ06A								
Sampling Date:		04/07/16	09/22/16							
Groundwater Elevation:[1]	NA	595.74	595.22							
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	8.15	6.12							
Oxidation Reduction Potential (mV)		64.90	-16.9							
Conductivity (mS/cm)	NA	0.579	1241.000							
Dissolved Oxygen (mg/L)		0.44	0.86							
Turbidity (NTU)	NA	8.39	4.80							
Temperature (°C)		8.71	13.71							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	14	5.0 U							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	**5.0**	**8.4**							
Barium	2,000	160	180							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	**7.6**	1.1							
Calcium	NA	46,000	94,000							
Chromium	7,000	1.2	1.0 U							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	9.9	3.6							
Iron	NA	730	2,300							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	39,000	54,000							
Manganese	NA	240	470							
Nickel	57	35	10							
Potassium	NA	70,000	54,000							
Selenium	NA	1.0 U	1.0 U							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	63,000	61,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.0 U	2.0 U							
Zinc	NA	5.0 U	5.0 U							
Hexavalent Chromium	2	5 U	5 U							
Cyanide	4	5 U	5 U							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ06B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ06B			PZ06B/PZ06B-D	PZ06B				
Sampling Date:		11/26/02	05/29/03	11/17/03	05/19/04	12/01/04	06/08/05	09/12/05	03/23/06	09/20/06
Groundwater Elevation:[1]	NA	592.85	593.06	592.68	593.76	593.38	593.31	592.72	594.09	594.05
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	7.68	8.21	8.34	8.86	8.32	7.18	8.19	7.91	7.13
Oxidation Reduction Potential (mV)		--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.752	0.755	0.586	0.527	0.412	--	0.468	0.627	0.660
Dissolved Oxygen (mg/L)		--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	0	-10	-10	1.0	0	--	0	0	0
Temperature (°C)		--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**50.7** *	15.9 J	17.2 J,L	80.0 U	20.4 J,*	100 U	**60.1 J**	100 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U,*
Barium	2,000	70.4	71.2	63.5	58.7	46.8	86.6 K	47.8	88.9	103 J
Beryllium	NA	2.8 U	NA	0.5 U	1.0 U	0.4 J,K,*	1.0 U,L	1.0 U	1.0 U	5.0 U,L
Cadmium	4	1.0 U	1.3 U	1.2 K,J	1.0 U	**5.9 J,***	0.5 J,K	2.0 U	2.0 U	5.0 U
Calcium	NA	63,300	NA	55,900	46,000	39,600	69,700 K	43,000	72,400	77,800
Chromium	7,000	0.9 U	1.3 U,L	0.8 J	6.5	0.9 J,*	3.5 J	3.1 J	5.0 U	0.5 J
Cobalt	NA	4.2 U	NA	0.7 J,K	1.1 J,K	1.3 J,K,*	0.3 J	0.3 J	3.0 U	50.0 U,*
Copper	NA	4.4 U,*	NA	4.2 L	3.6 J,K,*	3.0 U,L,*	6.0 U	6.0 U	3.14 J	25.0 U
Iron	NA	42.0 U,*	NA	13.5 J	7.3 J,L	49.0 K,*	12.9 J,K	26.2 J	50.0 U	100 U
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U,*
Magnesium	NA	18,200	NA	16,300	13,900	11,200	18,500	12,600	21,500	23,500
Manganese	NA	8.6 U	NA	2.6	1.9 L,*	3.1 K,*	1.2 K	7.0	2.33	1.9 J
Nickel	57	1.2 J	2.3 U	10.0 U	3.5 J,K,*	10.0 U	4.0 K,*	1.2 J,K	3.0 U	40.0 U
Potassium	NA	1,360 K	NA	6,630 K,*	1,680 J,K,*	1,060 K	5,620 K	967 J	1,260	1,420 J
Selenium	NA	4.0 U	NA	8.0 U,L	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	**1.0 J,K**	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	28,300 K	NA	792,000	25,700	16,400	26,800	18,500	29,300	36,500
Thallium	0.5	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U,L	NA	9.8 J	10.0 U	20.0 U	10.0 U	10.0 U	5.0 U	1.3 J,K
Zinc	NA	36.0 U	NA	30.0 U	30.0 U	30.0 U	12.4 J	30.0 U	30.0 U,L	30.8 J
Hexavalent Chromium	2	10 U	10 UJ,L	10 U	10 U	1 U,L	1 U,L,J	10 U,J,L	10 U,J	10 U,J,L
Cyanide	4	8 U	8 U	8 U	8 UJ	5 U	5 U,J	5 U,J	10 U	5 U,J,*

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ06B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ06B								
Sampling Date:		03/27/07	09/20/07	03/05/08	10/01/08	03/25/09	09/23/09	03/24/10	09/22/10	03/16/11
Groundwater Elevation:[1]	NA	594.27	593.18	593.85	592.77	593.32	593.06	593.26	593.00	593.84
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.13	6.66	8.98	7.60	8.20	8.39	8.21	8.35	8.12
Oxidation Reduction Potential (mV)		--	--	--	--	-56.27	39.48	-83.43	65.43	51.67
Conductivity (mS/cm)	NA	0.834	0.973	0.476	0.197	0.266	0.32	0.42	0.38	0.37
Dissolved Oxygen (mg/L)		--	--	--	--	1.23	3.55	0.58	0.66	0.07
Turbidity (NTU)	NA	0	0	0.0	3.2	0.0	2.49	1.56	2.66	0.48
Temperature (°C)		--	--	--	--	12.25	13.35	10.84	13.73	12.89
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	18.3	200 U,L	26.7 J,K	200 U	200 U,L	32.9 J	**158 J**	**103 J**	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	0.07 J	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	**0.5 J**	**0.65 J**	**0.459 J**	**0.868 J,K**	**0.9 J**
Barium	2,000	108 J	92.1 J	80.5 J	30.7 J	32.5 J	38.9 J	48.6 J	46.5 J	44.3 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.2 J,K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	5.0 U	5.0 U	5.0 U	0.5 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Calcium	NA	83,100	73,100	68,000	28,900	33,000	39,800	46,600	44,800	43,100
Chromium	7,000	0.6 J	1.3 J	0.9 J	10.0 U	10.0 U	1.7 J	10.0 U	10.0 U	0.9 J
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	0.7 J,K
Copper	NA	25.0 U	1.7 J	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
Iron	NA	100 U	16.4 J	100 U	100 U	18.7 J,L	69.6 J,K	74.2 J	45.6 J	100 U
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.82 J	1.0 U	0.123 J	2.0 U
Magnesium	NA	24,900	23,300	21,200	8,380	9,410	12,400	14,700	13,900	12,600
Manganese	NA	3.0 J	1.5 J	0.8 J	2.8 J	2.8 J	4.9 J	5.1 J	4.4 J	3.9 J
Nickel	57	40.0 U	40.0 U	1.5 J,K	0.9 J	40.0 U	1.1 J	40.0 U	40.0 U	40.0 U
Potassium	NA	1,530 J	1,540 J	1,260 J	734 J	831 J	895 J	1,010 J	1,120 J	1,090 J
Selenium	NA	4.0 U	4.0 L	4.0 U	4.0 U	4.0 U	5.0 U	5.0 U	0.467 J	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	42,800	35,000 L	26,900	8,080	6,780 K	8,060	9,510	13,100	9,870
Thallium	0.5	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	0.9 J,K	0.3 *, J	0.5 J,L	1.2 J	0.4 J	50.0 U	7.2 J	50.0 U	50.0 U
Zinc	NA	16.8 J,L	13.2 J	14.6 J	60.0 U	60.0 U	9.5 J	16.3 J	60.0 U	60.0 U
Hexavalent Chromium	2	10 U,J,L	10 U,J,	10 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L
Cyanide	4	5 U,J	5 U	5 U,J	10 U	10 U	**8 J**	10 U	10 U	10 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ06B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ06B		PZ06B-D	PZ06B					
Sampling Date:		09/08/11	03/21/12	09/26/12	03/06/13	09/05/13	04/03/14	09/24/14	04/23/15	10/14/15
Groundwater Elevation:[1]	NA	593.08	592.96	592.48	592.90	592.58	593.32	594.60	593.83	595.00
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.42	8.04	8.09	8.18	7.95	7.55	7.66	7.99	7.77
Oxidation Reduction Potential (mV)		144.69	2.54	100.54	-311.04	-19.24	33.10	35.10	96.10	53.00
Conductivity (mS/cm)	NA	0.42	0.40	2.74	0.559	0.419	0.661	0.660	0.564	0.373
Dissolved Oxygen (mg/L)		--	0.16	0.18	0.00	5.24	0.48	0.24	0.75	0.59
Turbidity (NTU)	NA	0.00	0.00	1.82	0.00	0.00	1.05	0.69	0.89	4.11
Temperature (°C)		14.27	14.21	15.61	10.17	13.70	10.50	12.69	11.06	12.42
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	200 U	200 U	5.5	5.0 U	5.0 U	9.7
Antimony	3	0.078 J	0.074 J	2.00 U	0.073 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**0.423 J**	**0.405 J**	**0.739 J,K**	**0.457 J**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	47.8 J	65 J	77.8 J	71.5 J	51.8 J	84	74	72	58.0
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	5.0 U	0.6 J	5.0 U	0.8 J	5.0 U	0.2 U	0.2 U	0.2 U	7.8
Calcium	NA	47,600	60,400	60,900	56,100	46,500	68,000	53,000	56,000	48,000
Chromium	7,000	10.0 U	10.0 U	10.0 U	1.3 J	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	25.0 U	25.0 U	1.3 J	25.0 U	25.0 U	1.0 U	1.0	1.0 U	2.4
Iron	NA	100 U	100 U	100 U	100 U	100 U	20 U	20 U	20 U	50
Lead	5	0.088 J,K	1.0 U	1.0 U	0.112 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	13,000	15,500	16,900	14,400	12,500	18,000	15,000	15,000	13,000
Manganese	NA	6.5 J,L	6.8 J	7.2 J	8.7 J	15.0 U	14	14	16	17
Nickel	57	40.0 U	40.0 U	40.0 U	40.0 U	40.0 U	2.0 U	2.0 U	2.0 U	5.6
Potassium	NA	1,070 J,K	1,390 J,K	1,880 J	1,520 J	1,100 J	1,900	1,700	1,700	1,600
Selenium	NA	5.0 U	5.0 U	0.864 J,K	5.00 U	4.0 U	1.00 U	1.0 U	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	12,500	15,700	20,200	23,300	13,900	42,000	30,000	28,000	19,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.135 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	1.1 J	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	9.8 J	60.0 U	60.0 U	60.0 U	6.3 J	5.0 U	5.0 U	5.0 U	10
Hexavalent Chromium	2	5 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L	5 U	5 U	5 U	5 U
Cyanide	4	**5 J**	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ06B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ06B								
Sampling Date:		04/07/16	09/22/16							
Groundwater Elevation:[1]	NA	595.83	595.28							
Portion of Glacial Unit:	NA	Lower	Lower							
pH (standard units)	NA	8.91	7.87							
Oxidation Reduction Potential (mV)		46.40	-152.00							
Conductivity (mS/cm)	NA	0.629	0.704							
Dissolved Oxygen (mg/L)		0.47	0.53							
Turbidity (NTU)	NA	1.65	9.80							
Temperature (°C)		9.81	15.01							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	6.6	**79**							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	1.0 U	1.0 U							
Barium	2,000	99	91							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	0.4	0.2							
Calcium	NA	67,000	70,000							
Chromium	7,000	1.0 U	1.0 U							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	2.5	2.6							
Iron	NA	20 U	82							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	19,000	20,000							
Manganese	NA	14	14							
Nickel	57	8.7	6.1							
Potassium	NA	1,700	1,800							
Selenium	NA	1.0 U	1.0 U							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	52,000	56,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.0 U	2.1							
Zinc	NA	5.0 U	5.0 U							
Hexavalent Chromium	2	5 U	5 U							
Cyanide	4	5 U	5 U							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ06C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ06C	PZ06C/PZ06C-D	PZ06C/PZ06C-D	PZ06C		PZ06C/PZ06C-D	PZ06C	PZ06C/PZ06C-D	PZ06C
Sampling Date:		11/26/02	05/29/03	11/17/03	05/19/04	12/01/04	06/09/05	09/12/05	03/23/06	09/21/06
Groundwater Elevation:[1]	NA	592.99	593.01	593.41	593.76	593.32	593.31	592.66	594.09	594.18
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	7.73	8.30	8.41	7.70	8.24	5.43	8.24	7.95	7.35
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.399	0.488	0.481	0.388	0.339	0.420	0.484	0.363	0.410
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	0	-10	-10	1.0	0	6	37	2	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes					**Result (µg/L)**					
Aluminum	50	26.3 J,*	8.8 J	22.2 J,L	80.0 U	25.3 J,*	100 U	100 U	100 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	**5.9**	**5.8**	**4.7**	**4.2**	**4.1**	**5.0**	**3.5**	**4.6**	**5.5** *
Barium	2,000	44.9	56.3	67.6	53.2	50.1	79.2 K	71.9	71.6	44.9 J
Beryllium	NA	2.8 U	NA	0.3 J,K	1.0 U	0.4 J,K,*	1.0 U,L	1.0 U	1.0 U	5.0 U,L
Cadmium	4	1.0 U	2.3 K	1.5 K,J	1.0 U	**12.1 J,***	0.4 J,K	2.0 U	2.0 U	5.0 U
Calcium	NA	36,400	NA	45,700	37,100	31,700	48,700 K	47,800	43,700	53,200
Chromium	7,000	0.9 U	1.3 U,L	1.2 J	5.1	2.0 U,*	2.1 J,K	3.4 J	5.0 U	0.4 J
Cobalt	NA	4.2 U	NA	0.5 J,K	2.0 U	1.4 J,K,*	1.0 U	0.4 J	3.0 U	50.0 U,*
Copper	NA	4.4 U,*	NA	1.1 J,L	6.0 U,*	3.0 U,L,*	6.0 U	6.0 U	5.0 U	25.0
Iron	NA	136 *	NA	187	110	188 K,*	212 K,*	213	203	213
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.8 J	3.0 U	2.0 U,*
Magnesium	NA	9,280	NA	12,200	10,300	8,290	11,700	13,500	12,400	14,000
Manganese	NA	59.4	NA	111	94.9 *	76.6 K,*	135 K	116 K	102	133
Nickel	57	2.7 U	2.3 U	10.0 U	2.3 J,K,*	10.0 U	4.8 K	1.4 J,K	3.0 U	40.0 U
Potassium	NA	964 K	NA	6,470 K,*	1,540 J,K,*	958 K	5,360 K	981 J	1,060	1,090 J
Selenium	NA	4.0 U	NA	12.0 U,L	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	**2.1 J,K**	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	11,400 K	NA	852,000	12,400	11,300	15,600	16,100	14,900	15,900
Thallium	0.5	2.0 U	2.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U,L	NA	15.6 J	10.0 U	20.0 U	10.0 U	10.0 U	5.0 U	50.0 U
Zinc	NA	36.0 U	NA	30.0 U	30.0 U	30.0 U	30.0 U	30.0 U	11.7 J	24.7 J
Hexavalent Chromium	2	10 U	10 U,J,L	10 U	10 U	1 U,L	1 U,J,L	10 U,J,L	10 U,J	10 U,J,L
Cyanide	4	8 U	8 U	8 U	8 UJ	5 U	5 U,J	5 U,J	10 U	5 U,J,*

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ06C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ06C		PZ06C/PZ06C-D	PZ06C		PZ06C/PZ06C-D	PZ06C	PZ06C/PZ06C-D	
Sampling Date:		03/28/07	09/20/07	03/04/08	10/01/08	03/25/09	09/23/09	03/24/10	09/22/10	03/16/11
Groundwater Elevation:[1]	NA	594.37	593.25	593.87	592.68	593.24	591.99	593.22	592.94	593.89
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.23	6.73	8.51	7.97	8.13	8.34	8.15	7.92	8.08
Oxidation Reduction Potential (mV)	NA	--	--	--	--	-98.03	-166.51	-158.41	198.98	-94.04
Conductivity (mS/cm)	NA	0.514	0.685	0.418	0.290	0.306	0.315	0.283	0.254	0.259
Dissolved Oxygen (mg/L)	NA	--	--	--	--	4.89	0.56	0.70	0.53	0.01
Turbidity (NTU)	NA	0	0	326	8.5	0.0	0.71	0.77	0.87	0.00
Temperature (°C)	NA	--	--	--	--	13.05	13.27	10.11	13.86	12.88
Inorganic Analytes		**'Result (µg/L)**								
Aluminum	50	7.1 J,K	200 U	35.9 J,K	200 U	200 U,L	200 U	200 U	200 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	2.0 U	4.0 U
Arsenic	0.2	**4.8**	**6.7**	**5.7**	**4.6**	**5.5**	**6.34**	**8.77**	**11.8**	**16.3**
Barium	2,000	96.5 J	88.7 J	98.7 J	54.7 J	58.7 J	53.4 J	51.3 J	44.9 J	50.8 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.2 J,K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Calcium	NA	60,500	57,300	67,800	33,400	35,900	35,600	33,100	33,000	32,900
Chromium	7,000	0.6 J	0.7 J	0.8 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.7 J
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	0.5 J,K
Copper	NA	0.9 J,L	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
Iron	NA	228	241	139	99.5 J	104 L	203	249 *	83.4 J	197
Lead	5	2.0 U	2.0 U	0.5 J	2.0 U	2.0 U	0.38 J	1.0 U	0.127 J	2.0 U
Magnesium	NA	17,700	16,700	18,900	9,750	9,730	10,700	9,340	8,920 K	8,260
Manganese	NA	129	166	148	69.9	66.6	79.1	75	23.8	75.1
Nickel	57	40.0 U	40.0 U	1.9 J,K	40.0 U	40.0 U	1.6 J	40.0 U	40.0 U	40.0 U
Potassium	NA	1,160 J	1,190 J	1,060 J	887 J,*	991 J	986 J	967 J	954 J	1,080 J
Selenium	NA	4.0 U	4.0 U,L	4.0 U	4.0 U	4.0 U	5.0 U	5.0 U	5.0 U	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	0.5 J,K	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	18,100	16,300 L	20,500	10,000	10,400	10,200	8,300	12,200	10,900
Thallium	0.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	0.2 J,K	50.0 U,L,	50.0 U	0.5 J,K	50.0 U	50.0 U	5.6 *,J	50.0 U	50.0 U
Zinc	NA	17.0 J,L	12.7 J	15.9 J	60.0 U	60.0 U	12.4 J	11.1 J	60.0 U	5.0 J
Hexavalent Chromium	2	10 U,J	10 U,J,	10 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L
Cyanide	4	5 U	5 U	5 U	10 U	20 U	10 U	10 U	10 U	10 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ06C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ06C				PZ06C/PZ06C-D	PZ06C	PZ06C/PZ06C-D	PZ06C	
Sampling Date:		09/08/11	03/21/12	09/26/12	03/06/13	09/05/13	04/03/14	09/24/14	04/23/15	10/14/15
Groundwater Elevation:[1]	NA	593.05	592.88	592.38	592.81	592.49	593.22	594.74	593.78	595.13
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	--	7.88	8.10	8.19	7.99	7.85	7.29	7.80	7.81
Oxidation Reduction Potential (mV)	NA	--	47.36	-145.95	-253.38	-201.27	100.2	16.9	96.3	32.0
Conductivity (mS/cm)	NA	0.260	0.260	1.993	0.296	0.297	0.189	0.312	0.256	0.224
Dissolved Oxygen (mg/L)	NA	--	3.68	0.06	0.10	0.14	5.60	0.95	4.10	0.48
Turbidity (NTU)	NA	0.00	0.00	0.96	0.00	0.00	1.22	0.89	0.77	4.28
Temperature (°C)	NA	13.53	14.29	15.15	9.37	12.99	9.64	12.67	10.44	12.97
Inorganic Analytes		**'Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	200 U	200 U	5.0 U	5.0 U	5.0 U	5.0 U
Antimony	3	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**12.6**	**11.6**	**10.2**	**8.41**	**10**	**10**	**10**	**11**	**14**
Barium	2,000	46.1 J	43.6 J	56.8 J	58.0 J	57.1 J	46	45	42	54
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	0.5 J	0.6 J	5.0 U	0.7 J	5.0 U	0.2	0.3	0.2 U	0.2 U
Calcium	NA	32,700	33,000	33,600	32,800	35,300	30,000	30,000	31,000	32,000
Chromium	7,000	10.0 U	10.0 U	10.0 U	10.0 U	1.7 J	1.0 U	1.0 U	1.0 U	1.0 U
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	25.0 U	25.0 U	25.0 U	9.7 *,J	25.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Iron	NA	114	100 U	124	163	148	37	20 U	20 U	70
Lead	5	0.243 J,K	1.0 U	1.0 U	0.791 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	8,100	8,290	9,430	8,890	9,480	8,300	8,300	8,200	8,200
Manganese	NA	39.3	1.5 J	72.7	82.2	85.0	11	5.0 U	5.0 U	190
Nickel	57	40.0 U	40.0 U	40.0 U	40.0 U	40.0 U	2.0 U	2.0 U	2.0 U	2.9
Potassium	NA	1,020 J,K	1,080 J,K	1,140 J	1,060 J, K	1,030 J	1,100	1,000	900	900
Selenium	NA	5.0 U	5.0 U	0.614 J,K	5.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	10,900	10,700	9,310	8,480	8,600	8,700	9,400	9,900	11,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.066 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	7.3 J	60.0 U	60.0 U	60.0 U	60.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Hexavalent Chromium	2	5 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L	5 U,J,L	5 U	5 U	5 U	5 U
Cyanide	4	10 U	10 U,J	10 U	10 U	10 U	5 U	5 U	5 U	5 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JUNE 2005 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ06C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ06C								
Sampling Date:		04/07/16	09/22/16							
Groundwater Elevation:[1]	NA	595.90	595.38							
Portion of Glacial Unit:	NA	Lower	Lower							
pH (standard units)	NA	8.03	8.25							
Oxidation Reduction Potential (mV)	NA	40.40	-146.00							
Conductivity (mS/cm)	NA	0.159	0.590							
Dissolved Oxygen (mg/L)	NA	2.89	0.53							
Turbidity (NTU)	NA	0.91	9.07							
Temperature (°C)	NA	8.02	13.87							
Inorganic Analytes		**'Result (µg/L)**								
Aluminum	50	5.0 U	5.0							
Antimony	3	1.0 U	1.0							
Arsenic	0.2	**11**	**15**							
Barium	2,000	51	110							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	0.2 U	0.2 U							
Calcium	NA	31,000	64,000							
Chromium	7,000	1.0 U	1.0 U							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	1.0 U	1.8							
Iron	NA	44	260							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	8,400	17,000							
Manganese	NA	5.2	150							
Nickel	57	3.9	5.2							
Potassium	NA	900	1,600							
Selenium	NA	1.0 U	1.0 U							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	12,000	39,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.0 U	2.0 U							
Zinc	NA	5.0 U	5.0 U							
Hexavalent Chromium	2	5 U	5 U							
Cyanide	4	5 U	**17**							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ14A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ14A		PZ14A/PZ14A-D	PZ14A					PZ14A/PZ14A-D
Sampling Date:		11/20/02	05/29/03	11/18/03	05/20/04	12/01/04	06/08/05	09/14/05	03/21/06	09/20/06
Groundwater Elevation:[1]	NA	592.00	593.09	588.67	593.36	592.62	593.54	592.89	595.83	593.48
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.59	7.59	7.57	8.45	7.48	6.50	6.69	8.02	7.38
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.937	1.07	0.957	0.763	0.886	1.140	0.960	0.980	0.430
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	0	-10	-10	572.0	844	25	111	0	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**65.3**	25.5	**63.0 L**	**7,890**	**5,630 ***	100 U	100 U	100 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	**7.7**	**7.7**	2.0 U	2.0 U	2.0 U	2.0 U
Barium	2,000	30.9	35.9	56.2	94.4	120	42.0 K	57.4	31.8	22.2 J
Beryllium	NA	2.8 U	NA	0.5 U	0.7 J	0.9 K,*	1.0 U,L	1.0 U	1.0 U	5.0 U
Cadmium	4	**38.2**	**25.3**	**19.3**	**94.9**	**83.5** K,*	**45.7**	**28.1**	**50.5**	**21.6**
Calcium	NA	72,900	NA	75,100	80,200	77,500	92,500 K	72,000	75,900	63,500
Chromium	7,000	3.9	11.3	2.6 J	164	113 L,*	51.8	6.1	50.6	66.0 L
Cobalt	NA	4.2 U	NA	2.0 U	2.9 K	3.8 K,*	0.5 J	0.5 J	3.0 U	0.3 J,*
Copper	NA	2.9 J	NA	3.2 L	78.0 K,*	82.4 J,*	3.0 J	3.7 J	5.72	3.7 J
Iron	NA	34.6 J	NA	1,620	19,400	17,200 *	134 K	18.7 J,K	77.0	216
Lead	5	2.0 U	2.0 U	2.0 U	**11.6**	**8.9**	2.0 U	2.0 U	3.0 U	3.2 K
Magnesium	NA	13,100	NA	14,800	22,700	14,300	18,300	11,700	17,600	14,500
Manganese	NA	160	NA	231	341 *	427 *	55.7 K	191	22.1	19.9
Nickel	57	23.3	25.0	26.2	**77.9 ***	**78.4 K**	29.0 K,*	27.2	26.3 K	18.8 J
Potassium	NA	4,640 J, K	NA	3,580 K,*	5,450 K,*	4,180 K	7,980 K	3,890	3,060	1,930 J
Selenium	NA	4.0 U	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	1.5 J	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	**1.2 J,L**	**2.3 J,K**	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	68,900 K	NA	98,000 L	56,800	85,900	97,100	92,800	89,500	21,800
Thallium	0.5	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U	NA	5.8 J	33.4	27.1 J	10.0 U	2.3 J	2.11 J	3.9 J
Zinc	NA	11.6 J	NA	30.0 U	33.8 K	41.8	18.9 J	30.0 U	20.1 J	29.4 J
Hexavalent Chromium	2	**3.9 L,J**	10.0 U,J,L	10.0 U	**31.7 J,L**	1.0 U,L	**33.7 J,L,***	10.0 U,J,L	**49.9 J,L**	**59.6 J,L**
Cyanide	4	**4 J**	**99**	**7 J**	**169 J**	**40**	**179 J**	**6**	**99**	**414 J**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ14A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ14A								
Sampling Date:		03/28/07	09/20/07	03/05/08	10/02/08	03/25/09	09/23/09	03/24/10	09/22/10	03/16/11
Groundwater Elevation:[1]	NA	594.56	593.10	594.19	592.48	592.89	592.81	592.92	592.78	593.36
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.13	7.15	7.44	6.84	7.38	7.21	7.81	7.41	7.53
Oxidation Reduction Potential (mV)	NA	--	--	--	--	-117.62	213.46	225.29	249.02	1.15
Conductivity (mS/cm)	NA	0.542	--	0.303	0.660	0.755	1.25	0.68	0.84	0.49
Dissolved Oxygen (mg/L)	NA	--	--	--	--	0.00	0.97	1.19	0.58	0.74
Turbidity (NTU)	NA	0	--	0.00	21.20	0.00	2.71	0.62	3.02	0.08
Temperature (°C)	NA	--	--	--	--	7.70	15.01	6.41	15.73	8.59
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	10.0 J,K,*	200 U,L	28.1 J,K	14.4 J	200 U,L	42.6 J	200 U	30.5 J	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.19 J,L	2.0 U	0.250 J	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	**1.1 J**	**0.5 J**	**0.36 J**	**0.603 J**	**0.859 J,K**	2.0 U
Barium	2,000	21.4 J	43.2 J	16.4 J	70.4 J	43.3 J	52.9 J	23.6 J	34.2 J	15.1 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.3 J,K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**53.8 J**	**61.5**	**11.6**	**13.9**	3.7 J	**11.5**	2.0 J	**5.3**	2.2 J
Calcium	NA	73,600	70,400	49,800	66,900	57,200	83,500	56,100	83,000	59,100
Chromium	7,000	55.4	5.7 J	60.1	5.5 J	4.3 J	5.2 J	11.3	6 J	39.2
Cobalt	NA	50.0 U	0.6 J	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Copper	NA	2.8 J,L.*	7.6 J	3.3 J	2.8 J	2.6 J	7.6 J	4.6 J,L	6.7 J	25.0 U
Iron	NA	21.3 J	27 J	136	3,960	1,580 L	58.1 J	53.8 J	116	43.7 J
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Magnesium	NA	15,200	12,400	9,790	13,300	12,000	17,700	13,100	18,100	12,500
Manganese	NA	6.8 J	132	12.3 J	169	107	82.2	28.1	32.3	13.6 J
Nickel	57	23.0 J	35.8 J	14.3 J	26.1 J	16.8 J	33.1 J	18.8 J	18.3 J	13.7 J
Potassium	NA	3,360 J	4,450 J	2070 J	2600 J	1,900 J	4,500 J	3,230 J	4,350 J	2,900 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.65 J	5.0 U	0.555 J	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	46,400	115,000	20,700	79,100	75,700	151,000	67,100	69,000	25,000
Thallium	0.5	2.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	2.0 J,K	1.9 J, L	2.9 J	0.4 J	0.4 J	2.1 J	50.0 U	4.3 J	2.8 J
Zinc	NA	14.3 J,L	12.3 J, *	15.5 J	60.0 U	60.0 U	22.0 J,K	20.2 J	60.0 U	60.0 U
Hexavalent Chromium	2	**52.4 J,L**	10.0 U,J	**54.0 J,L**	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	**4.0 J,L**	**3.7 J,L**	**34.7 J,L**
Cyanide	4	**48**	**7 J**	**283 J**	10.0 U	10.0 U	10.0 U	**9 J**	10.0 U	**29**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ14A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ14A		PZ14A/PZ14A-D	PZ14A					
Sampling Date:		09/09/11	03/21/12	09/26/12	03/06/13	09/05/13	04/03/14	09/24/14	04/23/15	10/13/15
Groundwater Elevation:[1]	NA	592.95	592.38	591.87	592.38	592.06	592.73	594.38	592.67	594.60
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.94	7.27	7.39	7.53	7.31	7.40	7.15	7.35	7.64
Oxidation Reduction Potential (mV)	NA	199.32	-77.32	-120.00	-60.51	-90.57	67.1	57.9	115.0	87.2
Conductivity (mS/cm)	NA	0.578	0.737	0.836	1.026	1.003	0.58	0.750	0.747	0.524
Dissolved Oxygen (mg/L)	NA	--	0.21	0.01	1.10	0.16	0.33	0.38	0.49	1.98
Turbidity (NTU)	NA	2.95	0.00	1.70	1.20	0.72	1.74	0.63	3.78	5.94
Temperature (°C)	NA	13.61	12.34	15.57	4.35	16.62	4.27	13.50	6.71	12.03
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	23.1 J	200 U	28.3 J	24.8 J	30	**50**	8.6	7.8
Antimony	3	0.207 J	0.251 J	0.075 J,K	0.244 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**0.423 J**	1.0 U	**1.34**	**0.385 J**	**1.3 J**	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	16.4 J	49.4 J	87.6 J	63.8 J	85.8 J	49	33	37	46
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**10.4**	**8.1**	**4.2 J**	3.8 J	**4.7 J**	3.5	**6.6**	**4.5**	**21**
Calcium	NA	65,700	55,100	82,500	56,800	72,500	58,000	55,000	53,000	73,000
Chromium	7,000	51.3	2.7 J,K	4.5 J	3.7 J	4.2 J	4.4	22	9.8	48
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	3.7 J	5.4 J	8.9 J	6.1 J	26.1	9.6	6.5	7.9	6.4
Iron	NA	66.4 J	1270	2930	1,950	2,860	120	28	210	220
Lead	5	0.237 J,K	0.058 J	1.00 U	0.190 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	15,700	10,300	16,600	13,500	16,000	14,000	14,000	12,000	14,000
Manganese	NA	8.5 J	101	165	136	140	170	150	70	17
Nickel	57	13.2 J	12.9 J	10.0 J	10.1 J	9.3 J	12	20	13	26
Potassium	NA	2,410 J	1,680 J	3,590 J	2,180 J	3,380 J	2,000	2,500	2,100	3,300
Selenium	NA	2.64 J	0.351 J	0.839 J,K	0.291 J	4.0 U	1.0 U	1.5	1.0 U	1.8
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	31,200	86,900	120,000	116,000	104,000	130,000	53,000	82,000	67,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.068 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	2.3 J	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	14.0 J	60.0 U	60.0 U	6.9 J	13.3 J	5.0 U	7.3	5.0 U	5.0 U
Hexavalent Chromium	2	**49.9 J,L**	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5 U	**21**	**9**	**46**
Cyanide	4	**26**	3 J	**5 J**	**4 J**	**18**	**8**	**6**	**36**	**14**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ14A

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ14A								
Sampling Date:		04/08/16	09/23/16							
Groundwater Elevation:[1]	NA	595.41	594.8							
Portion of Glacial Unit:	NA	Upper	Upper							
pH (standard units)	NA	6.48	5.68							
Oxidation Reduction Potential (mV)	NA	145	89.7							
Conductivity (mS/cm)	NA	0.573	951							
Dissolved Oxygen (mg/L)	NA	0.61	1.24							
Turbidity (NTU)	NA	3.01	5.96							
Temperature (°C)	NA	10.61	13.30							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	7.6	5.0 U							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	1.0 U	**1.1**							
Barium	2,000	24	43							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	42	**32**							
Calcium	NA	61,000	86,000							
Chromium	7,000	100	2.9							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	5.3	22							
Iron	NA	130	2,900							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	13,000	19,000							
Manganese	NA	5.0 U	1,100							
Nickel	57	25	**73**							
Potassium	NA	2,700	2,800							
Selenium	NA	1.4	1.0 U							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	67,000	96,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.0 U	4.6							
Zinc	NA	5.0 U	5.0 U							
Hexavalent Chromium	2	**94**	5 U							
Cyanide	4	**110**	5 U							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ14B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ14B				PZ14B/PZ14B-D		PZ14B	PZ14B/PZ14B-D	PZ14B
Sampling Date:		11/20/02	05/29/03	11/18/03	05/20/04	12/02/04	06/08/05	09/14/05	03/21/06	09/20/06
Groundwater Elevation:[1]	NA	591.79	592.06	589.59	593.27	592.48	592.64	591.97	594.13	592.65
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	8.32	8.11	8.16	8.27	7.76	8.75	7.77	8.72	7.08
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.606	0.596	0.441	0.527	0.437	0.443	0.451	0.491	0.416
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	0	-10	-10	150.0	0	0	0	0	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	40.4 J	**469**	34.9 J,L	**1,600**	**6,980**	100 U	100 U	46.0 J	33.2 J
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	**0.9 J**	**3.0 K**	2.0 U	2.0 U	2.0 U	2.0 U
Barium	2,000	18.5	24.2	18.0	59.0	136.0	27.7 K	24.2	29.3	35.3 J
Beryllium	NA	2.8 U	NA	0.5 U	0.3 J	0.3 J	1.0 U,L	1.0 U	1.0 U	5.0 U
Cadmium	4	**12.5**	**25.7**	**26.5**	**35.1**	**108**	**26.2**	**25.0**	**22.9**	**31.9**
Calcium	NA	30,900	NA	52,400	70,500	232,000	61,100	52,600	51,200	65,600
Chromium	7,000	22.6	25.4	19.5	41.0	44.0	23.7	21.1	30.6	15.2 L
Cobalt	NA	4.2 U	NA	0.4 J,K	0.8 J,K	2.4 K	0.4 J	1.0 U	3.0 U	50.0 U,*
Copper	NA	2.0 J	NA	3.8 L	5.6 J,K,*	54.3	3.1 J	3.6 J	5.63	4.9 J,L
Iron	NA	41.0 J	NA	36.7	1,750	6,850	17 J,K	20.0 U	65.5	47.4 J
Lead	5	2.0 U	0.7 J	2.0 U	2.2	**11.4**	2.0 U	2.0 U	3.0 U	2.0 U
Magnesium	NA	8,720	NA	15,600	19,000	67,600	13,900	14,600	12,000	12,800
Manganese	NA	8.6 U	NA	1.8	35.4 *	392	1.0 U	1.0 U	2.23 L	1.3 J
Nickel	57	3.0	4.5 L	4.8 J	12.6 K,*	31.4	11.0 K,*	8.2	6.49 K	8.8 J
Potassium	NA	1,600 J, K	NA	1,620 J,K*	3,200 K,*	4,420 K	5,440 K	2,090	2,420	2,780 J
Selenium	NA	4.0 U	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	66,800 K	NA	28,600 L	13,100	12,600 L	14,700	12,700	27,700	17,600
Thallium	0.5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U	NA	20.0 U,L	10.0 U	8.4 J	10.0 U	10.0 U	5.0 U	50.0 U
Zinc	NA	36.0 U	NA	30.0 U	30.0 U	95.1 U	12.1 J	30.0 U	11.9 J	29.1 J
Hexavalent Chromium	2	**26**	**28.7 J,L**	**20.1**	**25.8 J,L**	**11.6 L**	**13.4 J,L,***	10.0 U,J,L	**31.8 J,L**	**12.3 J,L**
Cyanide	4	**76 J**	**15**	**17 J**	**14 J**	**6**	**17 J**	**6**	**28**	**14 K**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ14B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ14B							PZ14B/PZ14B-D	
Sampling Date:		03/28/07	09/19/07	03/05/08	10/02/08	03/25/09	09/23/09	03/24/10	09/22/10	03/16/11
Groundwater Elevation:[1]	NA	593.76	589.12	593.34	592.33	592.76	592.72	592.82	592.73	593.34
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.94	7.20	7.85	7.47	7.87	7.95	8.08	7.83	7.82
Oxidation Reduction Potential (mV)	NA	--	--	--	--	38.37	199.82	223.27	244.52	17.50
Conductivity (mS/cm)	NA	0.402	--	0.282	0.386	0.436	0.485	0.421	0.534	0.515
Dissolved Oxygen (mg/L)	NA	--	--	--	--	4.98	0.95	2.54	1.14	0.67
Turbidity (NTU)	NA	0	--	0	13.6	0.7	0.8	0.71	13.0	4.62
Temperature (°C)	NA	--	--	--	--	9.44	13.31	8.93	13.75	9.07
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	20.3 J	200 U	22.6 J,K	15.2 J	25.5 J,L	35.0 J	**73.4 J**	**54.8 J**	**62.1 J**
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	0.098 J	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	**0.478 J**	**0.642 J,K**	2.0 U
Barium	2,000	5.0 U	28.4 J	31.7 J	46.5 J	59.7 J	63.3 J	78.5 J	96.3 J	78.2 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.3 J,K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**29.9**	**28.7**	**25.6**	**31.1**	**25.9**	**26.6**	**18.2**	**21.9**	**19.2**
Calcium	NA	67,900	54,400	51,700	58,300	54,400	50,500	45,600	58,500	57,200
Chromium	7,000	20.0	17.7	13.0	10.6	7.5 J	10.7	5.6 J	8.8 J	9.7 J
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	0.5 J,K
Copper	NA	3.6 J,L	3.5 J	2.0 J	3.9 J	4.1 J	3.4 J	3.4 J,L	25.0 U	25.0 U
Iron	NA	100 U	100 U	100 U	16.1 J	100 U,L	24.3 J	100 U	44.7 J	56.2 J
Lead	5	2.0 U	2.0 U	1.1 J	2.0 U	2.0 U	1.0 U	1.0 U	0.106 J	2.0 U
Magnesium	NA	12,300	14,300	9,950	15,000	15,500	15,300	14,100	18,000	16,300
Manganese	NA	0.7 J	15.0 U	15.0 U	15.0 U	15.0 U	0.8 J	2.4 J	15.0 U	6.4 J
Nickel	57	8.1 J	7.9 J	7.9 J,K	9.1 J	6.7 J	8.2 J	7.3 J	4.4 J	6.7 J
Potassium	NA	2,330 J	2,710 J	2,180 J	2,330 J	2,790 J	3,110 J	2,150 J	1,560 J	1,060 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.15 J	5.0 U	5.0 U	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	9,640	12,500	10,000	15,100	12,400	22,500	19,800	27,000	26,600
Thallium	0.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.04 J	1.0 U	1.0 U	1.0 U
Vanadium	NA	0.4 J,K	50.0 U,L	50.0 U	0.5 J	0.7 J	50.0 U	50.0 U	50.0 U	50.0 U
Zinc	NA	14.6 J,L	9.2 J, *	11.3 J	60.0 U	60.0 U	13.9 J,K	19.7 J	60.0 U	7.4 J
Hexavalent Chromium	2	**18.8 J,L**	**12.4 J**	**11.9 J,L**	**10.7 J, L**	**5.6 J,L**	**8.4 J,L**	**2.0 J,L**	**8.3 J,L**	**8.9 J,L**
Cyanide	4	**12**	**4 J**	**8 J**	10.0 U	10.0 U	10.0 U	**4 J**	**4 J**	10.0 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ14B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ14B								
Sampling Date:		09/08/11	03/21/12	09/26/12	03/06/13	09/05/13	04/03/14	09/24/14	04/23/15	10/13/15
Groundwater Elevation:[1]	NA	592.81	592.09	591.61	592.15	591.82	592.45	594.59	592.43	594.84
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	8.35	7.79	7.76	7.70	7.50	7.38	7.87	7.50	7.98
Oxidation Reduction Potential (mV)	NA	180.44	17.97	0	76.69	174.44	60.9	138.0	116.4	82.0
Conductivity (mS/cm)	NA	0.578	0.462	0.506	0.570	0.634	0.613	0.584	0.593	0.386
Dissolved Oxygen (mg/L)	NA	--	4.55	3.95	3.24	4.94	4.14	0.21	3.70	0.82
Turbidity (NTU)	NA	0.00	0.00	0.00	0.00	0.02	1.31	0.59	0.53	8.65
Temperature (°C)	NA	12.60	13.29	14.46	7.28	14.71	8.26	12.79	8.39	12.18
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	200 U	28.2 J	6.3	5.1	5.0 U	5.0 U
Antimony	3	0.079 J	0.094 J	2.00 U	0.074 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	1.00 U	**6.95**	**6.39**	**7.87**	**11.8**	**3.8**	**2.1**	**3.3**	1.0 U
Barium	2,000	83.9 J	132 J	133 J	126 J	154 J	130	94	130	100
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**18.4**	**32.1**	**29.4**	**19.9**	**22.0**	**14**	**13**	**17**	**16**
Calcium	NA	62,000	90,000	82,900	75,300	81,300	78,000	51,000	78,000	60,000
Chromium	7,000	6.6 J	11.7 K	12.2	11.1	8.3 J	6.6	9.4	8.4	14
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	2.5 J	5.8 J	6.0 J	5.8 J	25.0 U	4.9	5.5	5.6	5.2
Iron	NA	100 U	100 U	100 U	100 U	100 U	20 U	20 U	23	20 U
Lead	5	0.055 J,K	1.0 U	1.0 U	0.093 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	16,700	15,400	16,600	15,900	17,300	17,000	14,000	16,000	16,000
Manganese	NA	1.9 J	15.0 U	15.0 U	15.0 U	15.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Nickel	57	3.7 J	10 J	10.3 J	8.7 J	9.4 J	9.3	7.7	11	14
Potassium	NA	1,060 J	4,770 J	4,470 J	3,650 J	4,950 J	4,400	1,800	3,700	2,500
Selenium	NA	5.0 U	0.280 J	5.00 U	5.00 U	4.0 U	1.0 U	1.0 U	1.0 U	1.3
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	27,800	18,900	21,600	20,500	22,200	27,000	48,000	22,000	25,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.080 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	2.2 J	2.5 J	50.0 U	2.0 J	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	12.4 J	60.0 U	60.0 U	8 J	7.4 J	6.3	5	5.0 U	5.0 U
Hexavalent Chromium	2	**6.5 J,L**	**11.8 J,L**	**10.9 J,L**	**9.2 J,L**	**7.5 J,L**	**6**	**10**	**10**	**14**
Cyanide	4	3 J	**4 J**	10.0 U	10.0 U	10.0 U	5 U	5 U	5 U	**5**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ14B

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ14B	PZ14B/PZ14B-D	PZ14B						
Sampling Date:		04/08/16	09/23/16							
Groundwater Elevation:[1]	NA	595.65	595.1							
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.02	7.79							
Oxidation Reduction Potential (mV)	NA	115.0	149							
Conductivity (mS/cm)	NA	0.746	1.042							
Dissolved Oxygen (mg/L)	NA	0.31	0.52							
Turbidity (NTU)	NA	1.09	3.50							
Temperature (°C)	NA	11.18	13.54							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	9.5	5.0 U							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	1.0 U	1.0 U							
Barium	2,000	110	58							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	**21**	**9.6**							
Calcium	NA	74,000	62,000							
Chromium	7,000	9.8	1.0 U							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	7.2	30							
Iron	NA	40	20 U							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	21,000	17,000							
Manganese	NA	5.0 U	320							
Nickel	57	15	28							
Potassium	NA	3,700	3,800							
Selenium	NA	1.1	1.0 U							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	76,000	130,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.0 U	2.0 U							
Zinc	NA	5.0 U	5.0 U							
Hexavalent Chromium	2	**10**	5 U							
Cyanide	4	**14**	**9**							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ14C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ14C								
Sampling Date:		11/20/02	05/29/03	11/18/03	05/20/04	12/01/04	06/08/05	09/14/05	03/21/06	09/20/06
Groundwater Elevation:[1]	NA	591.56	592.04	571.96	593.12	592.28	592.48	591.76	594.14	592.45
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.45	8.42	8.44	8.17	7.99	8.50	7.83	9.66	7.79
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	0.514	0.564	0.338	0.289	0.425	0.370	0.365	0.400	0.357
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	1	-10	-10	45.0	18	0	0	24	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**56.3**	45.6	17.7 J,L	80.0 U	**234 K,***	100 U	100 U	100 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	**0.7 J**	**1.4 J**	2.0 U	**0.6 J**	**0.7 J**	**0.6 J**
Barium	2,000	65.4	52.6	52.7	41.7	65.1	78.7 K	65.2	78.2	78.6 J
Beryllium	NA	2.8 U	NA	0.5 U	1.0 U	0.4 J,K,*	1.0 U,L	1.0 U	1.0 U	5.0 U
Cadmium	4	1.2	1.3 U	2.8 K	0.6 J	**6.8 J,***	1.0 J,K	1.0 J,K	1.66 J	0.5 J
Calcium	NA	47,300	NA	39,600	29,800	40,900	45,100 K	42,000	46,700	42,700
Chromium	7,000	0.9 U	1.3 U	2.0 U	4.6	1.3 J,*	2.0 J	2.4 J	5.0 U	0.5 J,L
Cobalt	NA	4.2 U	NA	2.0 U	2.0 U	1.0 J,K,*	0.4 J	1.0 U	3.0 U	50.0 U
Copper	NA	4.4 U	NA	2.0 J,L	6.0 U,*	3.0 U,L,*	6.0 U	6.0 U	1.83 J	0.9
Iron	NA	19.9 J	NA	10.2 J	10.4 J,L	238 K,*	8.0 J,K	15.6 J,K	20.5 J	100 U
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.5 J	2.0 J	3.0 J	2.0 U
Magnesium	NA	12,900	NA	11,500	8,840	11,100	10,400	11,100	12,000	12,500
Manganese	NA	49.8 *	NA	42.7	37.0 *	53.6 K,*	52.1 K	77.9	60.4	43.0
Nickel	57	2.5 J	1.0 J,L	10.0 U	3.4 J,K,*	10.0 U	6.4 K,*	3.8	2.67 J	3.1 J,K
Potassium	NA	1,150 J, K	NA	1,240 J,K,*	2,320 K,*	1,400 K	5,250 K	969 J	1,020	1,010 J
Selenium	NA	4.0 U	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	**0.9 J,K**	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	14,700 K	NA	18,300 L	6,740	9,180 K	18,200	9,970	15,000	19,000
Thallium	0.5	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U	NA	20.0 U,L	10.0 U	20.0 U	10.0 U	1.5 J	1.90 J	2.0 J
Zinc	NA	36.0 U	NA	30.0 U	30.0 U	30.0 U	30.0 U	30.0 U	10.3 J	20.6 J
Hexavalent Chromium	2	10.0 U	10.0 U,J,L	10.0 U	10.0 U,J,L	1.0 U,L	1.0 U,J,L	10.0 U,J,L	10.0 U,J,L	10.0 U,J,L
Cyanide	4	8.0 U	8.0 U	8.0 U,J	8.0 UJ	5.0 U	5.0 U,J	5.0 U	10.0 U	**9 K**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ14C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ14C	PZ14C/PZ14C-D	PZ14C	PZ14C/PZ14C-D	PZ14C	PZ14C			
Sampling Date:		03/28/07	09/19/07	03/05/08	10/02/08	03/25/09	09/23/09	03/24/10	09/22/10	03/16/11
Groundwater Elevation:[1]	NA	593.67	591.88	593.22	592.19	592.56	592.6	592.78	592.65	593.31
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.33	7.20	8.16	7.74	8.22	8.39	8.46	8.24	7.88
Oxidation Reduction Potential (mV)	NA	--	--	--	--	-121.67	167.64	-64.83	48.18	32.07
Conductivity (mS/cm)	NA	0.390	--	0.359	0.41	0.496	0.32	0.31	0.27	0.28
Dissolved Oxygen (mg/L)	NA	--	--	--	--	0.00	0.89	0.97	0.79	0.00
Turbidity (NTU)	NA	0	--	169	15.70	0.0	3.42	5.25	13.19	4.26
Temperature (°C)	NA	--	--	--	--	11.12	13.79	10.07	13.45	9.53
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	13.8 J	200 U	22.7 J,K	26.7 J	24.3 J,L	200 U	34.2 J	200 U	30.8 J
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	0.047 J	4.0 U
Arsenic	0.2	**0.5 J**	2.0 U	**0.7 J**	**0.8 J**	**1.2 J**	**0.86 J**	**3.18**	**5.77**	**9.6**
Barium	2,000	79.1 J	83.2 J	90.5 J	94.4 J	102 J	64.2 J	71.2 J	63.8 J	59.4 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.3 J,K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	0.6 J	0.7 J, K	1.1 J	1.5 J	3.0 J	3.1 J	5.0 U	5.0 U	0.5 J
Calcium	NA	44,100	46,300	50,100	52,900	55,800	34,600	35,400	32,500	33,500
Chromium	7,000	0.7 J	0.9 J	0.9 J	2.7 J	10.0 U	1.2 J	10.0 U	10.0 U	0.7 J
Cobalt	NA	50.0 U	50.0 U	50.0 U	0.6 J	50.0 U	50.0 U	50.0 U	50.0 U	0.6 J,K
Copper	NA	1.2 J,L	1.8 J	0.8 J	1.3 J	1.5 J	1.8 J	25.0 U	25.0 U	25.0 U
Iron	NA	100 U	100 U	100 U	12.8 J	100 U,L	22.1 J	13.8 J	19.8 J	42.1 J
Lead	5	2.0	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	0.068 J	2.0 U
Magnesium	NA	12,700	13,200	14,100	15,100	15,000	10,500	9,740	8,950 K	8,410
Manganese	NA	41.6	48.4	79.3	87.2	175	158	60.5	54.3	62.8
Nickel	57	3.5 J	3.6 J	5.8 J,K	6.5 J	5.9 J	7.0 J	2.8 J	40.0 U	2.3 J
Potassium	NA	1,050 J	1,160 J	1,110 J	890 J	1,340 J	1,060 J	1,290 J	1,220 J	826 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.15 J	5.0 U	5.0 U	4.0 U
Silver	0.1	0.7 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	19,800	19,700	23,600	24,600	25,000	13,500	9,520	7,350	8,240
Thallium	0.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	2.0 K,J	1.7 J, L	1.4 J,L	1.6 J	0.8 J	50.0 U	50.0 U	1.7 J,L	2.1 J
Zinc	NA	8.9 L,J	9.5 J, *	12.0 J	60.0 U	60.0 U	9.8 J,K	15.3 J	60.0 U	60.0 U
Hexavalent Chromium	2	10.0 U,J,L	10.0 U,J	10.0 U,J,L	5.0 U, J,	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L
Cyanide	4	5.0 U	5.0 U,J	5.0 U,J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ14C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ14C								
Sampling Date:		09/08/11	03/21/12	09/26/12	03/06/13	09/05/13	04/03/14	09/24/14	04/23/15	10/13/15
Groundwater Elevation:[1]	NA	592.87	591.96	591.51	592.04	591.72	592.51	594.60	592.16	594.86
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.68	8.23	8.36	8.29	7.98	7.61	7.75	8.19	8.39
Oxidation Reduction Potential (mV)	NA	143.90	-52.45	140.00	-9.44	152.74	44.70	37.80	60.10	48.60
Conductivity (mS/cm)	NA	0.24	0.54	0.45	0.579	0.585	0.527	0.654	0.503	0.398
Dissolved Oxygen (mg/L)	NA	--	0.24	0.08	1.75	0.17	0.46	0.20	0.64	0.50
Turbidity (NTU)	NA	0.15	0.00	0.06	0.00	0.48	2.27	0.14	4.23	4.32
Temperature (°C)	NA	12.70	14.81	13.58	8.17	14.39	8.03	12.36	8.08	11.67
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	200 U	27.6 J	40	**59**	5.0 U	**64**
Antimony	3	0.089 J	0.348 J	0.209 J	0.258 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**8.51**	**1.91**	**1.36**	**1.26**	**1.4 J**	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	49.2 J	121 J	121 J	109 J	113 J	96	100	110	130
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	5.0 U	0.6 J	5.0 U	0.9 J	5.0 U	0.2	0.4	0.2 U	0.3 U
Calcium	NA	29,100 K	57,800	57,700	55,200	57,700	55,000	56,000	48,000	55,000
Chromium	7,000	10.0 U	10.0 U	1.4 J	1.4 J	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	1.6 J	25.0 U	25.0 U	25.0 U	25.0 U	1.3	1.5	1.0 U	2.2
Iron	NA	100 U	100 U	100 U	100 U	100 U	87	54	20 U	88
Lead	5	0.137 J,K	0.072 J	1.00 U	0.082 *,J,K	2.0 U	6.3	1.0 U	1.0 U	1.0 U
Magnesium	NA	7,420	15,700	17,100	16,600	16,900	18,000	17,000	15,000	17,000
Manganese	NA	52.3	94.9	84.0	92.1	93.9	110	110	82	96
Nickel	57	40.0 U	3.6 J	4.0 J	3.5 J	3.8 J	4.1	5.7	2.9	8.3
Potassium	NA	668 J	1,300 J	1,370 J,K	1,390 J, K	1,320 J	1.4	1.1	1,100	1,400
Selenium	NA	5.0 U	5.0 U	0.374 J,K	5.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	8,640	31,300	29,700	29,400	30,800	33,000	25,000	26,000	32,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.056 K, J	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	1.5 J	50.0 U	1.0 J	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	60.0 U	60.0 U	60.0 U	5.4 J	6.1 J	5.0 U	5.0 U	5.0 U	5.0 U
Hexavalent Chromium	2	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5 U	5 U	5 U	5 U
Cyanide	4	10.0 U	10.0 U,J	10.0 U	10.0 U	10.0 U	5 U	5 U	5 U	5 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR PZ14C

Sample Number:	Groundwater Cleanup Goal (µg/L)	PZ14C								
Sampling Date:		04/08/16	09/23/16							
Groundwater Elevation:[1]	NA	595.7	595.11							
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	7.39	8.08							
Oxidation Reduction Potential (mV)	NA	79.00	93.00							
Conductivity (mS/cm)	NA	0.346	0.577							
Dissolved Oxygen (mg/L)	NA	0.29	0.48							
Turbidity (NTU)	NA	1.31	4.93							
Temperature (°C)	NA	11.29	13.35							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	11	32							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	1.0 U	1.0 U							
Barium	2,000	130	110							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	1.5	0.3							
Calcium	NA	56,000	62,000							
Chromium	7,000	1.0 U	1.0 U							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	2.6	2.2							
Iron	NA	29	20 U							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	17,000	18,000							
Manganese	NA	420	110							
Nickel	57	11	8.7							
Potassium	NA	1,600	1,600							
Selenium	NA	1.0 U	1.0 U							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	35,000	37,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.0 U	2.0 U							
Zinc	NA	5.0 U	5.0 U							
Hexavalent Chromium	2	5.0 U	5 U							
Cyanide	4	5.0 U	5 U							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW1

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW1						EW1/EW1-D	EW1	
Sampling Date:		11/21/02	05/28/03	11/18/03	05/20/04	11/30/04	06/07/05	09/12/05	03/22/06	09/20/06
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	--	--	--	6.09	7.01	7.34	9.54	8.90	6.79
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	--	--	--	0.790	0.840	0.754	0.773	0.78	0.699
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	--	--	--	0.0	0	0	0	0	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	45.7	12.3 J	40.0 U,L	80.0 U	100 U	100 U	100 U	100 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	2.0 U	**0.6 J**	**0.7 J**	**0.5 J**	**0.5 J**	**0.5 J**	**0.6 J**	2.0 U
Barium	2,000	69.1	70.8	72.6	68.8	67.8	78.1 K	68.4	67.9	74.2 J
Beryllium	NA	2.8 U	NA	0.2 J,K	1.0 U	1.0 U	1.0 U,L	1.0 U	1.0 U	5.0 U
Cadmium	4	**176**	**124**	**135**	**124**	**123**	**92.7**	**81.6**	**95.9**	**107**
Calcium	NA	65,200	NA	70,400	65,700	68,100	70,500	67,300	65,900	69,600
Chromium	7,000	11.2	10.4	12.9	18.8	16.4	16.2	16.9	14.2	15.0
Cobalt	NA	4.2 U	NA	2.0 U	0.4 J,K	0.5 J,K	0.4 J	0.4 J	3.0 U	50.0 U,*
Copper	NA	3.4 J	NA	4.7 L	9.2 K,*	2.8 J	2.0 J	6.0 U	2.44 J	1.7 J
Iron	NA	55.0	NA	130	30.9 L	54.7	60.4 K,*	20.0 U	50.0 U	100 U
Lead	5	0.6 J	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.0 U	1.5 J,*
Magnesium	NA	15,300	NA	16,900	16,100	16,300	15,700	16,300	16,400	17,000
Manganese	NA	34.3 *	NA	10.2	9.4 *	10.4 *	11.2 K	8.4	8.52 L	8.3 J
Nickel	57	10.9	7.7	6.9 J	11.6 K,*	10.4 K	11.1 K	7.9	7.5 K	7.8 J
Potassium	NA	3,100 J, K	NA	3,160 J,K*	3,530 K,*	4,110 K	5,970 K	2,460	2,300	2,630 J
Selenium	NA	4.0 U	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	71,200 K	NA	58,500 L	55,100	56,400 L	65,600	58,600	60,600	66,600 L
Thallium	0.5	2.0 U	2.0 U	2.0 U	2.0 U	**0.5 J**	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U	NA	20.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U	5.0 U	0.7 J,K
Zinc	NA	34.6 J	NA	16.5 J,L	19.6 J,K	40.9	31.9	18.0 J,K	19.3 J	47.1 J
Hexavalent Chromium	2	**13 L**	**4.4 J,L**	**11.1**	**8.5 J,L**	**10.8 L**	**20.8 J,L**	**6.5 J,L**	**12.8**	**13.8 J,***
Cyanide	4	**7 J**	**4 J**	**8 J**	**8 J**	**4 J**	**8**	**6**	**13**	3 J*

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW1

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW1/EW1-D	EW1			EW1/EW1-D	EW1			EW1/EW1-D
Sampling Date:		03/27/07	09/19/07	03/04/08	10/01/08	03/26/09	09/24/09	03/24/10	09/23/10	03/16/11
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	7.72	7.43	--	--	7.03	7.44	7.10	7.72	7.72
Oxidation Reduction Potential (mV)	NA	--	--	--	--	169.80	236.22	97.70	126.68	30.58
Conductivity (mS/cm)	NA	0.818	0.759	--	--	0.896	0.966	0.900	0.898	0.922
Dissolved Oxygen (mg/L)	NA	--	--	--	--	4.63	5.19	2.92	5.25	3.60
Turbidity (NTU)	NA	0	0	--	--	0	4.39	0.00	1.42	0.43
Temperature (°C)	NA	--	--	--	--	10.22	12.81	13.29	13.63	12.49
Inorganic Analytes						**Result (µg/L)**				
Aluminum	50	33.6 J	200 U,L	19.7 J,K	18.3 J	200 U,L	35.5 J	**51.3 J**	200 U	47.7 J
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	0.076 J	4.0 U
Arsenic	0.2	**0.6 J**	**0.5 J**	2.0 U	**0.7 J**	2.0 U	**0.64 J**	**0.801 J**	**0.793 J,K**	**0.8 J**
Barium	2,000	74.5 J	77.8 J	73.6 J	76.9 J	83.2 J	80.2 J	81.4 J	82.9 J	80.7 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.3 J,K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**103**	**69.6**	**60.8**	**39.8**	**54.7**	**53.7**	**40.4**	**48.5**	**55.9**
Calcium	NA	71,500	72,700	72,300	73,700	79,600	77,400	76,600	82,900	84,100
Chromium	7,000	14.5	15	12.8	10.4	8.2 J	12.2	6.0 J	9.0 J	10.3
Cobalt	NA	0.5 J	0.4 J	50.0 U	0.4 J	50.0 U	50.0 U	50.0 U	50.0 U	0.9 J,K
Copper	NA	1.7 J,L	1.9 J	1.0 J	12.7 J	1.5 J	2.4 J	25.0 U	25.0 U	25.0 U
Iron	NA	25.1 J	8.1 J	100 U	102	100 U,L	13.6 J	8.8 J	22.7 J	36.8 J
Lead	5	3.3	2.0 U	2.0 U	2.9	2.0 U	1.96 *	0.442 J	1.04	0.8 J
Magnesium	NA	18,500	19,000	17,700	18,100	19,500	19,800	19,400	20,700	19,600
Manganese	NA	9.1 J	9.5 J	8.5 J	13.7 J	15.2 J	10.8 J	10.7 J	10.7 J	10.2 J
Nickel	57	7.7 J	5.7 J	6.5 J,K	4.8 J	5.9 J	7.1 J	5.6 J	3.1 J	6.0 J
Potassium	NA	2,550 J	2,670 J	2,400 J	2,780 J	3,150 J	3,060 J	3,000 J	3,000 J	3,180 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.69 J	0.502 J,L	0.606 J	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0	**0.5 J,K**	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	69,500	66,100	68,000	62,700	67,900	74,400	72,200	77,300	81,700
Thallium	0.5	1.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	0.7 J,K	50.0 U,L	50.0 U	0.5 J,K	50.0 U	50.0 U	5.3 J	50.0 U	50.0 U
Zinc	NA	32.4 J,L	25.3 J, *	23.7 J	12.7	12.3 J	35.1 J,K	40.3 J	21.6 J,L	22.5 J
Hexavalent Chromium	2	**13.1 J,L**	**11.8 J, L**	**10.0 J,L**	**9.0 J, L**	**5.6 J,L**	**10.4 J,L**	**2.6 J,L**	**8.4 J,L**	**8.8 J,L**
Cyanide	4	**10 J**	**8 J**	**6**	10.0 U	10.0 U	**4 J**	**6 J**	**6 J**	**6 J**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW1

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW1				EW1/EW1-D	EW-1	EW1/EW1-D		EW-1
Sampling Date:		09/07/11	03/22/12	09/27/12	03/07/13	09/05/13	04/01/14	09/25/14	04/21/15	10/14/15
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	--	7.75	7.74	7.77	7.62	7.62	7.52	7.73	6.93
Oxidation Reduction Potential (mV)	NA	--	-58.93	120.52	127.96	-3.66	74.10	49.00	24.10	64.30
Conductivity (mS/cm)	NA	--	1.510	6.346	1.068	1.112	0.851	0.899	1.079	1.114
Dissolved Oxygen (mg/L)	NA	--	4.33	4.60	4.72	5.19	1.33	1.67	1.02	2.44
Turbidity (NTU)	NA	--	0.00	0.38	0.00	328.14	3.46	5.11	--	5.32
Temperature (°C)	NA	--	12.92	12.71	12.10	12.67	11.86	13.59	11.51	11.84
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	**82.8 J**	28.2 J	200 U	28.1 J	**66.6 J**	29 U	**94**	**480**	5.0 U
Antimony	3	0.101 J	0.112 J	2.00 U	0.086 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	1.0 U	**0.803 J**	**0.861 J**	**0.589 J**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	82.2 J	96.2 J	103 J	102 J	102 J	97	72	98	140
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**56.0**	**38.6**	**26.4**	**17.7**	**19.8**	**24**	**32**	**20**	**580**
Calcium	NA	87,900	89,500	86,400	78,800	84,000	77,000	73,000	76,000	130,000
Chromium	7,000	8.9 J	5.3 J	5.1 J	5.7 J	6.5 J	6.6	12	5.9	4.4
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	5.1 J	2.8 J	2.6 J	8.9 J	25.0 U	4.1	2.4	6.5	10
Iron	NA	22.2 J	100.0 U	33.6 J	37.1 J	20.3 J	87	67	66	47
Lead	5	0.840 J	0.908 J	0.211 J	1.62 *, K	2.0 U	1.0 U	**6.8**	2.0	1.0 U
Magnesium	NA	20,000	20,700	21,800	20,000	20,900	20,000	20,000	19,000	40,000
Manganese	NA	9.9 J	59.2	183	100	86.3	72	58	26	1,500
Nickel	57	4.4 J	5.9 J	4.7 J	3.2 J	4.0 J	6.1	7.5	4.2	43
Potassium	NA	3,110 J	3,200 J	3,630 J	3,180 J	3,310 J	3,000	2,700	3,000	8,000
Selenium	NA	0.382 J,L	0.844 J	1.07 J	0.695 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	86,400	97,200	107,000	101,000	112,000	120,000	81,000	110,000	110,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.09 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	37.1 J	19.3 J	60.0 U	17.0 *, J	16.5 J	17	11	23	110
Hexavalent Chromium	2	**8.2 J,L**	**4.9 J,L**	**3.0 J,L**	**3.6 J,L**	**4.7 J,L**	5 U	**10**	**6**	5 U
Cyanide	4	**7 J**	**4 J**	10.0 U	10.0 U	10.0 U	5 U	**9**	**6**	5 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW1

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW1								
Sampling Date:		04/06/16	09/21/16							
Groundwater Elevation:[1]	NA	--	--							
Portion of Glacial Unit:	NA	NA[2]	NA[2]							
pH (standard units)	NA	--	4.51							
Oxidation Reduction Potential (mV)	NA	--	209.10							
Conductivity (mS/cm)	NA	--	937.000							
Dissolved Oxygen (mg/L)	NA	--	244.00							
Turbidity (NTU)	NA	--	0.10							
Temperature (°C)	NA	--	11.75							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	40	12							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	1.0 U	**1.4**							
Barium	2,000	82	83							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	**160**	**100**							
Calcium	NA	67,000	74,000							
Chromium	7,000	1.1	1.8							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	9.6	9.4							
Iron	NA	400	540							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	21,000	23,000							
Manganese	NA	3,000	3,400							
Nickel	57	17	22							
Potassium	NA	1,500	3,000							
Selenium	NA	1.0	1.0 U							
Silver	0.1	0.2	0.2 U							
Sodium	NA	55,000	64,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.0 U	2.0 U							
Zinc	NA	10	26							
Hexavalent Chromium	2	5.0 U	5 U							
Cyanide	4	5.0 U	5 U							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW2

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW2								
Sampling Date:		11/21/02	05/28/03	11/18/03	05/20/04	11/30/04	06/07/05	09/12/05	03/22/06	09/20/06
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	--	--	--	7.82	7.52	6.87	6.67	8.64	7.16
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	--	--	--	0.747	0.773	0.686	0.722	0.798	0.603
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	--	--	--	1.0	0	0	0	0	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**66.5**	8.8 J	17.6 J,L	80.0 U	100 U	100 U	100 U	100 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	**0.8 J**	2.0 U	2.0 U	2.0 U	**0.5 J**	**0.6 J,***
Barium	2,000	48.9	49.4	47.1	49.4	52.8	65.3 K	59.0	65.0	68.2 J
Beryllium	NA	2.8 U	NA	0.1 J,K	1.0 U	1.0 U	1.0 U,L	1.0 U	1.0 U	5.0 U
Cadmium	4	**302**	**311**	**319**	**392**	**298**	**228**	**202**	**187**	**141**
Calcium	NA	66,000	NA	65,500	61,800	63,400	66,600	63,900	66,200	62,100
Chromium	7,000	19.8	16.2	19.6	36.7	25.0	24.5	25.7	16.9	17.8
Cobalt	NA	4.2 U	NA	2.0 U	1.0 J,K	1.0 U	1.0 U	0.4 J	3.0 U	0.20 J,*
Copper	NA	3.7 J	NA	1.8 J,L	10.8 K,*	6.0 U	6.0 U	6.0 U	1.62 J	1.3 J
Iron	NA	62.5	NA	11.0 J	764	18.1 J	21.9 K,*	20.0 U	17.3 J	100 U
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.7 J	3.0 U	2.0 U,*
Magnesium	NA	14,500	NA	15,300	14,500	15,200	15,000	16,000	16,600	15,900
Manganese	NA	320 *	NA	126	279 *	52.8 *	44.0 K	39.9	28.2	40.3
Nickel	57	19.8	14.4	14.8	20.3 *	16.0 *	15.4 K	12.0	9.52 K	8.1 J
Potassium	NA	3,840 J, K	NA	4,120 K,*	4,870 K,*	5,190 K	6,330 K	3,070	3,050	2,930
Selenium	NA	4.0 U	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	69,400 K	NA	56,800 L	52,900	52,100 L	54,300	48,900	59,700	54,400
Thallium	0.5	2.0 U	2.0 U	2.0 U	2.0 U	0.4 J	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U	NA	10.0 J	10.0 U	10.0 U	10.0 U	10.0 U	5.0 U	0.8 J,K
Zinc	NA	76.5	NA	65.3 L	362	84.5	59.1	53.3 K	52.9 K	56.6 J
Hexavalent Chromium	2	**20 L**	**10.9 J,L**	**19.2**	**15.5 J,L**	**16.8 L**	**15.2 J,L**	**17.2 J,L**	**18.0**	**14.5 J,***
Cyanide	4	**28 J**	**9**	**16 J**	**17**	**19**	**27**	**18**	**22**	**23 ***

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW2

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW2		EW2/EW2-D	EW2		EW2	EW2/EW2-D	EW2	
Sampling Date:		03/27/07	09/19/07	03/04/08	10/01/08	03/26/09	09/24/09	03/24/10	09/23/10	03/16/11
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	7.64	7.35	--	--	7.32	7.60	7.58	7.64	7.75
Oxidation Reduction Potential (mV)	NA	--	--	--	--	112.39	236.06	67.64	105.96	35.77
Conductivity (mS/cm)	NA	0.757	0.925	--	--	0.841	0.776	0.811	NA	0.699
Dissolved Oxygen (mg/L)	NA	--	--	--	--	5.22	8.63	3.22	4.80	1.91
Turbidity (NTU)	NA	0	0	--	--	0	8.63	0.00	0.10	0.00
Temperature (°C)	NA	--	--	--	--	10.06	12.11	12.20	14.09	11.66
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	11.6 J,K	200 U,L	24.7 J,K	7.6 J	200 U,L	200 U	43.6 J	200 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0	4.0 U	2.0 U	2.0 U	0.207 J	4.0 U
Arsenic	0.2	**0.6 J**	2.0 U	2.0 U	**0.6 J**	2.0 U	**0.49 J**	**0.521 J**	**0.824 J,K**	2.0 U
Barium	2,000	72.4 J	50.2 J	69.3 J	75.4 J	77.8 J	77.9 J	66.1 J	49.7 J	48.7 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.3 J,K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**188**	**203**	**140**	**98.5**	**110**	**107**	**226**	**224**	**212**
Calcium	NA	64,300	63,000	68,300	65,000	69,200	67,800	66,500	63,700	64,400
Chromium	7,000	16.2	19.5	21.5	14.2	12.5	16.4	16.1	18.9	17.7
Cobalt	NA	50.0 U	50.0 U	0.5 J,K	0.5 J	50.0 U	50.0 U	50.0 U	50.0 U	0.6 J,K
Copper	NA	1.3 J,L	4.4 J	1.0 J	50.0	1.6 J	5.3 J	2.3 J,L	6.3 J	25.0 U
Iron	NA	20.6 J	38.4 J	8.0 J	85.6 J	100 U,L	22.3 J	24.2 J	257	74.2 J
Lead	5	2.0 U	2.0 U	0.6 J	4.4	2.0 U	0.83 J	0.321 J	2.45	2.0 U,*
Magnesium	NA	16,200	15,600	17,300	17,700	17,800	18,600	16,900	15,600	14,900
Manganese	NA	169	39.9	13.2 J	16.2	12.4 J	14.1 J	20.5	55	48.9
Nickel	57	10.6 J	22.1 J	9.4 J,K	7.5 J	7.4 J	8.5 J	15.2 J	22.2 J	23.9 J
Potassium	NA	2,810	3,180 J	2,510 J	2,660 J	2,570 J	2,600 J	2,740 J	2,700 J	2,820 J
Selenium	NA	1.1 J	4.0 U	4.0 U	4.0 U	4.0 U	0.85 J	0.711 J,L	0.796 J	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	0.5 J,K	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	59,700	54,500	62,100	60,700	64,600	64,700	65,300	63,700	63,900
Thallium	0.5	2.0 U	2.0 U	2.0 U	**0.6 J**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	0.6 J,K	0.3 J	50.0 U	1.6 J,K	50.0 U	50.0 U	6.2 J	50.0 U	50.0 U
Zinc	NA	50.5 J	66.7 *	46.2	60.2	29.2 J	44.8 J,K	79.1	85.1	84.6
Hexavalent Chromium	2	**15.0 J,L**	**15.2 J, L**	**19.3 J,L**	**14.6 J, L**	**9.7 J,L**	**14.8 J,L**	**12.8 J,L**	**6.7 J,L**	**13.3 J,L**
Cyanide	4	**22 J**	**23 J**	**20**	**17 K**	**14**	**30**	**17**	**28**	**11**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW2

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW2		EW2/EW2-D	EW2					
Sampling Date:		09/07/11	03/22/12	09/27/12	03/07/13	09/05/13	04/01/14	09/24/14	04/21/15	10/14/15
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	--	7.65	7.62	7.68	7.63	7.64	7.08	7.56	6.96
Oxidation Reduction Potential (mV)	NA	--	-58.94	100.34	130.83	4.21	82.30	-27.00	5.70	129.10
Conductivity (mS/cm)	NA	--	1.202	4.902	0.802	0.789	0.622	0.933	0.877	1.367
Dissolved Oxygen (mg/L)	NA	--	3.95	4.76	5.31	5.15	1.80	1.30	1.37	3.71
Turbidity (NTU)	NA	--	0.00	0.00	0.00	1.79	0.88	1.43	--	--
Temperature (°C)	NA	--	12.26	12.58	12.16	12.27	11.97	15.62	11.19	11.88
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	31 J	200 U	200 U	32.8 J	**58**	**69**	**160**	6.8
Antimony	3	0.109 J	0.098 J	2.00 U	0.085 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**0.767** J,K	1.0 U	**0.795 J,K**	**0.524 J**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	72.5 J	75.7 J	80.1 J	74.4 J	73.1 J	83	75	71	130
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**163**	**193**	**197**	**137**	**121**	**100**	**300**	**140**	**330**
Calcium	NA	73,600	74,700	70,800	65,900	67,500	74,000	70,000	70,000	110,000
Chromium	7,000	14.2	12.6	16.8	14.4	14.1	13	6.4	13	2.4
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	5.9 J	19.7 J	3.2 J	25.0 U	16.1 J	3.4	8.7	3.7	12
Iron	NA	100 U	24.5 J	100 U	35.1 J	45.7 J	52	150	57	50
Lead	5	0.446 J,K	0.807 J	0.057 J	0.296 *,J,K	1.3 J	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	17,300	17,500	19,000	17,100	17,200	20,000	18,000	17,000	29,000
Manganese	NA	16.1	15.2	18.7	17.5	23.7 *	18	250	18	510
Nickel	57	9.2 J	11.6 J	13.2 J	10.0 J	8.2 J	8.6	15	9.8	26
Potassium	NA	2,650 J	2,500 J	2,900 J	2,560 J	2,440 J	2,400	2,200	2,500	4,000
Selenium	NA	0.544 J,L	0.890 J	1.36 J	0.793 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	75,400	76,700	74,400	67,700	66,400	72,000	9,800	76,000	110,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.113 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	52.2 J	49.7 J	33.6 J	50.7 J	44.9 J	33	49	39	58
Hexavalent Chromium	2	**13.8 J,L**	**11.9 J,L**	**15.0 J,L**	**13.3 J,L**	**11.8 J,L**	**12**	5 U	**14**	5 U
Cyanide	4	**13**	**33**	**13**	**35**	**57**	**17**	**11**	**19**	5 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW2

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW2								
Sampling Date:		04/06/16	09/21/16							
Groundwater Elevation:[1]	NA	--								
Portion of Glacial Unit:	NA	NA[2]	NA[2]							
pH (standard units)	NA	--	4.97							
Oxidation Reduction Potential (mV)	NA	--	166.60							
Conductivity (mS/cm)	NA	--	830.000							
Dissolved Oxygen (mg/L)	NA	--	4.50							
Turbidity (NTU)	NA	--	350.00							
Temperature (°C)	NA	--	12.10							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	6	16							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	1.0 U	1.0 U							
Barium	2,000	95	41							
Beryllium	NA	1.0	1.0 U							
Cadmium	4	**36**	**14**							
Calcium	NA	66,000	65,000							
Chromium	7,000	1.0 U	1.2							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	5.3	8.2							
Iron	NA	140	170							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	20,000	18,000							
Manganese	NA	120	410							
Nickel	57	11	12							
Potassium	NA	3,000	5,900							
Selenium	NA	1.5	1.0 U							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	59,000	58,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.0 U	2.0 U							
Zinc	NA	21	8.6							
Hexavalent Chromium	2	5 U	5 U							
Cyanide	4	**9**	5 U							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW3

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW3	EW3/EW3-D	EW3	EW3/EW3-D		EW3	EW3/EW3-D		EW3
Sampling Date:		11/21/02	11/18/03	05/20/04	11/30/04	06/07/05	09/12/05	03/22/06	09/20/06	03/27/07
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	--	--	7.23	7.61	7.17	6.20	8.83	7.29	7.77
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	--	--	0.728	0.778	0.727	0.790	0.761	0.569	0.709
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	--	--	0.0	0	0	0	0	0	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**58.3**	EW3/EW3-D J,L	80.0 U	100 U	100 U	100 U	100 U	200 U	35.3 J,K
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	1 J	4.0 U	4.0 U	4.0 U
Arsenic	0.2	**1.7** J	2.0 U	2.0 U	**0.9 J**	2.0 U	2.0 U	**1.3 J**	**1.3 J,***	**11.5**
Barium	2,000	63.9	53.4	54.2	58.9	68.0 K	59.2	68.1	69.5 J	106 J
Beryllium	NA	2.8 U	0.1 J,K	1.0 U	1.0 U	1.0 U,L	1.0 U	1.0 U	5.0 U	5.0 U
Cadmium	4	**516**	**355**	**298**	**275**	**294**	**268**	**271**	**149**	**465**
Calcium	NA	68,200	65,100	59,500	64,000	69,300	66,300	61,100	59,900	61,100
Chromium	7,000	58.0	13.7	16.7	11.3	18.3	15.7	26.6	27.3	314
Cobalt	NA	4.2 U	0.7 J,K	0.7 J,K	0.5 J,K	0.6 J	0.4 J	3.0 U	0.4 J,K,*	50.0 U
Copper	NA	16.2	4.6 L	6.0 U,*	2.1 J	6.0 U	6.0 U	5.5	4.7 J	43.3
Iron	NA	3,850	450	68.5	129	89.4 K,*	83.7 K,*	649	909	12,100
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	3.1	2.0 U	3.3	1.8 J,*	2.0 U
Magnesium	NA	15,800	15,300	15,600	15,700	16,400	15,700	16,200	15,600	16,200
Manganese	NA	109 *	94.6	80.8 *	76.9 *	69.2 K	81.0 K	66.8	37.1 J	39.0
Nickel	57	50.4	38.4	36.9 *	32.3	34.4 K	30.4 K	23.0 K	15.5 J	26.5 J
Potassium	NA	4,000 J, K	4,120 K,*	4,900 K,*	5,050 K	7,010 K	3,080 K	3,400	3,240 J	3,330 J
Selenium	NA	4.0 U	4.0 U	4 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	1.0 J
Silver	0.1	1.7 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.0 U	10.0 U	10.0 U
Sodium	NA	66,500 K	60,300 L	54,600	51,300 L	57,100	58,800	58,400	48,500	57,000
Thallium	0.5	2.0 U	2.0 U	2.0 U	0.3 J	**0.5 J**	1.0 U	2.0 U	1.0 U	2.0 U
Vanadium	NA	17.0 U	6.6 J	10.0 U	10.0 U	10.0 U	10.0 U	5.0 U	1.5 J,K	11.1 J
Zinc	NA	460	206	186	181	165	172.0	171	124	740
Hexavalent Chromium	2	10.0 U	**2.9 J**	**4.2 J,L**	**4.2 L**	**5.2 J,L**	10.0 U,J,L	**6.20**	10.0 U,J,L	**5.8 J,L**
Cyanide	4	**363 J**	**9 J**	**7 J**	**8**	**14**	**11**	**27**	**37 J,***	**22 J**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW3

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW3/EW3-D	EW3				EW3			EW3/EW3-D
Sampling Date:		09/19/07	03/04/08	10/01/08	03/26/09	09/24/09	03/24/10	09/23/10	03/16/11	09/07/11
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	7.25	--	--	7.37	7.43	6.98	7.57	7.68	--
Oxidation Reduction Potential (mV)	NA	--	--	--	89.49	125.67	45.24	63.02	42.75	--
Conductivity (mS/cm)	NA	0.699	--	--	0.791	0.805	0.780	NA	0.766	--
Dissolved Oxygen (mg/L)	NA	--	--	--	3.68	7.75	2.89	5.11	3.62	--
Turbidity (NTU)	NA	0	--	--	0.3	2.27	0.30	0.83	0.00	--
Temperature (°C)	NA	--	--	--	10.79	12.45	12.53	13.44	12.67	--
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	9.5 J,K,*	18.1 J,L	14.0 J,L	200 U	32.2 J	200 U	200 U	**90.0 J**
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	0.281 J	0.273 J	4.0 U	0.332 J
Arsenic	0.2	2.0 U	**0.7 J**	**2.1**	2.0 U	**0.53 J**	**0.375 J**	**0.779 J,K**	**0.7 J**	**2.93 K**
Barium	2,000	37.7 J	39.2 J	57.3 J	34.7 J	35.5 J	36.7 J	38.8 J	40.1 J	60.8 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	0.2 J,K	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**465**	**482**	**697**	**357**	**388**	**393**	**386**	**354**	**615**
Calcium	NA	65,500	64,700	64,200	61,900	62,700	58,100	64,800	65,700	64,400
Chromium	7,000	20.8	34.1	63.9	14.8	15.3	13.9	13.8	19.4	85.4
Cobalt	NA	0.6 J	0.9 J	0.9 J	50.0 U	50.0 U	50.0 U	50.0 U	0.9 J,K	50.0 U
Copper	NA	4.9 J	7.2 J	42.7	7.8 J	6.7 J	25.0 U	25.0 U	9.5 J	92.2
Iron	NA	635	1,330	6,590	192 L	265	354	519	631	7790
Lead	5	2.0 U	2.0 U	**17.9 L**	2.0	1.17	1	0.409 J	2.0 U	**5.47**
Magnesium	NA	14,600	14,100	14,800	14,100	14,600	13,700	14,900	14,400	13,900
Manganese	NA	120	109	141	75	93.3	89.3	91	74.2	86.2
Nickel	57	47.8	47.8	**67.5**	37.5 J	41.9	37.6 J	32.2 J	32.8 J	36.8 J
Potassium	NA	4,180 J	3,850 J	3,560 J	3,460 J	3,530 J	3,350	3,370 J	3,370 J	3,120 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	0.66 J	0.622 J,L	0.878 J	4.0 U	0.456 J,L
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	**1.2 J,K**	10.0 U
Sodium	NA	66,400	78,500	76,900	75,100	81,200	75,100	80,500	78,500	71,600
Thallium	0.5	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	0.5 J	50.0 U	1.9 J	50.0 U	50.0 U	5.5 J	50.0 U	50.0 U	2.2 J
Zinc	NA	287 *	356	726	211	245	251	224	220	877
Hexavalent Chromium	2	10.0 U,J,	10.0 U,J,L	**2.3 J, L**	5.0 U,J,L	1.4 J	5.0 U,J,L	5.0 U,J,L	**2.1 J,L**	5.0 U,J,L
Cyanide	4	**13 J**	**26**	**21 K**	**43**	**18**	**26**	**32**	**8 J**	**29**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW3

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW3/EW3-D	EW3							
Sampling Date:		03/22/12	09/27/12	03/07/13	09/05/13	04/01/14	09/24/14	04/21/15	10/14/15	04/06/16
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	7.62	7.54	7.66	7.53	7.49	7.02	7.37	6.72	--
Oxidation Reduction Potential (mV)	NA	-58.61	24.02	50.54	-0.24	-40.10	-68.00	19.60	81.40	--
Conductivity (mS/cm)	NA	1.125	4.409	0.771	0.696	0.532	0.705	0.751	0.886	--
Dissolved Oxygen (mg/L)	NA	4.57	5.35	4.81	4.50	1.01	1.16	0.57	0.47	--
Turbidity (NTU)	NA	0.00	0.17	6.14	3.22	0.79	2.49	--	6.12	--
Temperature (°C)	NA	12.37	13.16	12.56	12.48	12.25	15.56	11.83	11.84	--
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	**52.2 J**	20	16	**360**	14	52
Antimony	3	0.198 J	0.129 J,L	0.207 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**0.511 J**	**0.694 J**	**0.556 J**	**2.2**	1.0 U	1.0 U	1.0 U	**1.4**	**2.8**
Barium	2,000	41.8 J	51.8 J	41.9 J	46.3 J	38	47	42	120	140
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**344**	**166**	**355**	**424**	**320**	**310**	**330**	**270**	**210**
Calcium	NA	68,800	62,300	62,400	60,500	64,000	66,000	63,000	130,000	74,000
Chromium	7,000	16.1	19.3	18.5	34.8	15	5.5	10	76	140
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	6.9 J	4.6 J	25.0 U	63.4	2.9	6.4	6.8	27	33
Iron	NA	549	100 U	590	2,900	200	2,400	590	2,100	3,600
Lead	5	1.07	0.111 J	1.01 *, K	**28.1**	1.0 U	1.0 U	1.8	1.0 U	1.5
Magnesium	NA	15,100	15,800	14,700	14,000	15,000	16,000	16,000	33,000	34,000
Manganese	NA	60.6	20.0	63.0	59.0	63	240	170	460	150
Nickel	57	29.3 J	21.2 J	31.3 J	29.4 J	29	35	34	54	20
Potassium	NA	2,840 J	2,930 J	2,970 J	2,820 J	2,800	4,700	3,300	4,300	28,000
Selenium	NA	0.608 J	1.46 J	0.677 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.3
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	73,400	61,800	67,900	61,600	62,000	52,000	62,000	68,000	49,000
Thallium	0.5	1.0 U	1.0 U	0.114 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	1.1 J	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.4	2.3
Zinc	NA	200	60.0 U	238	371	170	140	190	180	190
Hexavalent Chromium	2	5.0 U,J,L	**17.2 J,L**	5.0 U,J,L	1.4 J,L	5 U	5 U	5 U	5 U	50 U
Cyanide	4	**16**	**18**	**20**	**49**	**10**	5 U	**8**	**16**	**97**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW3

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW4								
Sampling Date:		09/21/16								
Groundwater Elevation:[1]	NA	--								
Portion of Glacial Unit:	NA	NA[2]								
pH (standard units)	NA	5.39								
Oxidation Reduction Potential (mV)	NA	72.40								
Conductivity (mS/cm)	NA	893.00								
Dissolved Oxygen (mg/L)	NA	1.65								
Turbidity (NTU)	NA	1.01								
Temperature (°C)	NA	12.07								
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	10								
Antimony	3	1.0 U								
Arsenic	0.2	**1.5**								
Barium	2,000	120								
Beryllium	NA	1.0 U								
Cadmium	4	**24**								
Calcium	NA	62,000								
Chromium	7,000	30								
Cobalt	NA	5.0 U								
Copper	NA	7.5								
Iron	NA	4,600								
Lead	5	1.0 U								
Magnesium	NA	22,000								
Manganese	NA	220								
Nickel	57	14								
Potassium	NA	19,000								
Selenium	NA	1.0 U								
Silver	0.1	0.2 U								
Sodium	NA	61,000								
Thallium	0.5	2.0 U								
Vanadium	NA	2.0 U								
Zinc	NA	51								
Hexavalent Chromium	2	50 U								
Cyanide	4	**42**								

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW4

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW4/EW4-D		EW4						
Sampling Date:		11/21/02	05/28/03	11/18/03	05/20/04	11/30/04	06/07/05	09/12/05	03/22/06	09/20/06
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	--	--	--	7.56	7.67	7.09	7.47	8.66	7.37
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	--	--	--	0.748	0.779	0.747	0.726	0.844	0.618
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	--	--	--	0.0	0	0	0	0	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	49.0	12.9 J	40.0 U,L	80.0 U	29.6 J	100 U	100 U	34.2 J	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	**0.5 J**	**0.7 J**	2.0 U	**0.5 J**	**0.6 J**	**0.5 J,***
Barium	2,000	47.1	42.9	43.3	42.4	44.1	52.9 K	42.9	53.8	52.0 J,*
Beryllium	NA	2.8 U	NA	0.5 U	1.0 U	1.0 U	1.0 U,L	1.0 U	1.0 U	5.0 U
Cadmium	4	**349**	**482**	**316**	**294**	**308**	**372**	**337**	**448**	**339**
Calcium	NA	66,700	NA	65,100	61,100	64,600	68,700	63,400	64,800	59,400
Chromium	7,000	19.0	41.3	23.0	36.4	36.4	22.6	31.0	22.3	18.7
Cobalt	NA	4.2 U	NA	2.0 U	0.5 J,K	0.3 J,K	1.0 U	0.5 J	3.0 U	0.6 J,*
Copper	NA	1.6 J	NA	1.3 J,L	10.5 K,*	11.5	6.0 U	6.0 U	2.63 J	1.3 J
Iron	NA	63.2	NA	22.4 J	117	151	14.9 J,K,*	10.3 J	50.0 U	100 U
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.5 J	2.0 U	3.0 U	2.0 U,*
Magnesium	NA	16,900	NA	16,900	16,000	16,100	15,700	15,600	16,100	13,900
Manganese	NA	111 *	NA	51.0	50.8 *	46.7 *	102 K	76.7	89.9	94.8
Nickel	57	35.8	42.4	29.8	32.3 *	29.2 *	43.1	35.4	42.6	38.9 J
Potassium	NA	3,320 J, K	NA	3,110 J,K*	3,540 K,*	4,500 K	6,610 K	2,790	3,420	3,330 J
Selenium	NA	4.0 U	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	79,800 K	NA	55,900 L	46,700	49,500 L	62,100	50,100	72,700	64,700
Thallium	0.5	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	2.0 U	0.4 J
Vanadium	NA	17.0 U	NA	5.6 J	10.0 U	10.0 U	10.0 U	10.0 U	5.0 U	0.90 J,K
Zinc	NA	161	NA	105 L	121 K	132 K	180	151	218 K	220
Hexavalent Chromium	2	**20 L**	**11.8 J,L**	**20.0**	**11.0 J,L**	**37.9 L**	**13.4 J,L**	**20.1 J,L**	**21.0**	**14.6 J,***
Cyanide	4	**13 J**	**7 J**	**6 J**	**9**	**4 J**	**5**	**7**	10.0 U	**7 ***

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW4

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW4								EW4/EW4-D
Sampling Date:		03/27/07	09/19/07	03/04/08	10/01/08	03/26/09	09/24/09	03/24/10	09/23/10	03/16/11
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	7.57	7.50	--	--	7.46	7.70	7.13	7.67	7.74
Oxidation Reduction Potential (mV)	NA	--	--	--	--	62.73	72.74	41.75	75.82	42.76
Conductivity (mS/cm)	NA	0.751	0.949	--	--	0.689	0.646	0.672	NA	0.65
Dissolved Oxygen (mg/L)	NA	--	--	--	--	4.02	10.02	3.50	4.20	2.54
Turbidity (NTU)	NA	0	0	--	--	0.00	1.04	0.00	0.00	0.00
Temperature (°C)	NA	--	--	--	--	10.51	12.35	11.84	13.71	11.88
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	11.9 J,K	200 U	200 U	24.3 L,J	200 U	49.6 J	35.2 J	200 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	0.175 J	4.0 U
Arsenic	0.2	**1.1 J**	2.0 U	**0.6 J**	**2.3**	**0.8 J**	**0.77 J**	**0.869 J**	**1.13 K**	**1.1 J**
Barium	2,000	56.1 J	52.9 J	47.5 J	59.1 J, L	50.9 J	52.8 J	56.6 J	56.8 J	54.6 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.3 J,K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**433**	**306**	**201**	**484**	**202**	**179**	**203**	**221**	**197**
Calcium	NA	59,900	65,900	58,100	60,200	58,400	59,500	60,400	60,700	60,000
Chromium	7,000	44.4	20.5	29.5	70.4	15.0	20.0	17.1	18.0	19.3
Cobalt	NA	50.0 U	50.0 U	0.4 J,K	0.4 J	50.0 U	50.0 U	50.0 U	50.0 U	0.9 J,K
Copper	NA	31.7	2 J	1.8 J	190	5.3 J	10.1 J	1.7 J,L	25 U	16.7 J
Iron	NA	439	10.4 J	26.1 J	1,180	100 U,L	38.8 J	20.2 J	32.6 J	55.3 J
Lead	5	2.0 U	2.0 U	2.0 U	**65.3**	0.5 J	2.36	0.19 J	0.308 J	3.5
Magnesium	NA	14,900	16,700	14,000	16,800	15,400	15,900	15,900	15,900	14,500
Manganese	NA	111	70.5	15.7	92.1	37.1	37.8	64	92	110
Nickel	57	40.1	29.9 J	23.1 J	38.6 J	22.3 J	23.1 J	24.7 J	25.1 J	23.7 J
Potassium	NA	3,280	3,220 J	2,490 J	2,670 J	2,390 J	2,440 J	2,380	2,360 J	2,340 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.46 J	0.354 J,L	0.481 J	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	1.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	68,300	52,400	59,100	56,300	53,400	50,500	57,800	62,500	56,100
Thallium	0.5	1.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	0.90	0.4 J	0.4 J,L	1.3 J	50.0 U,*	50.0 U	6.4 J	50.0 U	50.0 U
Zinc	NA	394	153 *	27.9 J	574	92.7	115	111	82.1	85.3
Hexavalent Chromium	2	**17.3 J,L**	**15.8 J, L**	**26.6 J,L**	**19.5 J, L**	**10.8 J,L**	**16.4 J,L**	**12.3 J,L**	**14.6 J,L**	**14.7 J,L**
Cyanide	4	**4 J**	**4 J**	**68**	10.0 U	10.0 U	**7 J**	**12**	**14**	3 J

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW4

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW4	EW4/EW4-D	EW4						
Sampling Date:		09/07/11	03/22/12	09/27/12	3/7/2013	9/5/2013	4/1/2014	9/24/2014	4/21/2015	10/14/2015
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	--	7.70	7.61	7.78	7.52	7.64	7.02	7.54	7.13
Oxidation Reduction Potential (mV)	NA	--	-58.07	30.70	34.07	-7.81	-46.20	81.00	86.40	59.10
Conductivity (mS/cm)	NA	--	0.91	3.88	0.66	0.69	0.530	0.644	0.741	0.660
Dissolved Oxygen (mg/L)	NA	--	4.94	4.49	4.47	4.12	1.28	0.90	2.01	2.65
Turbidity (NTU)	NA	--	0.00	0.00	0.00	0.00	1.01	7.39	--	5.29
Temperature (°C)	NA	--	11.93	13.49	11.67	12.65	11.18	16.00	11.82	11.76
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	200 U	**73.2 J**	**130**	**76**	**460**	**10**
Antimony	3	0.163 J	0.142 J	0.088 J,L	0.138 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**0.632 J,K**	**1.2**	**1.33 K**	**0.828 J**	**1.2 J**	**1.0**	1.0 U	**9.4**	**4.2**
Barium	2,000	58.1 J	61.1 J	62.7 J	66.6 J	71.0 J	70	76	100	110
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**196**	**187**	**209**	**162**	**210**	**160**	**120**	**220**	**110**
Calcium	NA	65,400	60,200	58,600	57,900	64,800	63,000	60,000	63,000	70,000
Chromium	7,000	23.1	23.4	13.2	11.7	12.1	13	4.9	140	140
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	7.6 J,*	83.8	5.6 J	25.0 U	25.0 U	5.0	7.3	560	79
Iron	NA	24.9 J	325	34.8 J	65.0 J	230	140	440	6,100	2,100
Lead	5	0.624 J,K	**11.4**	0.161 J	0.608 *, J,	2.0 U	1.0 U	1.1	**9.4**	1.0 U
Magnesium	NA	15,600	14,400	15,000	14,900	15,900	17,000	16,000	16,000	19,000
Manganese	NA	59.1	125	203	182	270	160	590	280	360
Nickel	57	21.3 J	24 J	29.8 J	23.9 J	34.0 J	26	25	26	33
Potassium	NA	2,350 J	2,310 J	2,630 J	2,370 J	2,520 J	2,200	2,200	2,500	2,000
Selenium	NA	0.281 J,L	0.525 J	0.980 J,K	0.315 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	**0.4**	0.2 U
Sodium	NA	58,800	53,800	52,800	50,000	53,200	60,000	48,000	62,000	59,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.163 J, K	2.0 U	2 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	3.9
Zinc	NA	88.0	96.2	63.9	82.8	105	76	46	190	81
Hexavalent Chromium	2	**20.7 J,L**	**14.0 J,L**	**8.1 J,L**	**8.5 J,L**	1.3 J,L	5 U	5 U	**17**	5 U
Cyanide	4	**15**	**9 J**	**4 J**	**4 J**	**6 J**	5 U	5 U	**11**	**38**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW4

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW4								
Sampling Date:		04/06/16	09/21/16							
Groundwater Elevation:[1]	NA	--	--							
Portion of Glacial Unit:	NA	NA[2]	NA[2]							
pH (standard units)	NA	--	6.11							
Oxidation Reduction Potential (mV)	NA	--	18.80							
Conductivity (mS/cm)	NA	--	913.00							
Dissolved Oxygen (mg/L)	NA	--	1.73							
Turbidity (NTU)	NA	--	1.62							
Temperature (°C)	NA	--	12.19							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	41	5.2							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	**4.4**	**2.7**							
Barium	2,000	130	130							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	**70**	**5.2**							
Calcium	NA	72,000	65,000							
Chromium	7,000	70	7.6							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	50	6.5							
Iron	NA	1,700	700							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	24,000	29,000							
Manganese	NA	290	140							
Nickel	57	25	13							
Potassium	NA	6,200	21,000							
Selenium	NA	1.3	1.0 U							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	45,000	51,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	3.3	2.0 U							
Zinc	NA	58	18							
Hexavalent Chromium	2	5.0 U	5 U							
Cyanide	4	**23**	5 U							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW5

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW5								
Sampling Date:		11/21/02	05/28/03	11/18/03	05/20/04	11/30/04	06/07/05	09/12/05	03/22/06	09/20/06
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	--	--	--	7.54	7.65	7.75	7.78	8.78	7.49
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	--	--	--	0.770	0.853	0.791	0.853	0.752	0.615
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	--	--	--	1.0	0	0	0	0	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	48.0	10.6 J	10.6 J,L	80.0 U	100 U	100 U	100 U	100 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**0.6 J**	2.0 U,*
Barium	2,000	48.9	50.6	52.3	51.3	53.5	61.8 K	56.4	48.8	54.2 J,*
Beryllium	NA	2.8 U	NA	0.5 U	1.0 U	1.0 U	1.0 U,L	1.0 U	1.0 U	5.0 U
Cadmium	4	**212**	**242**	**232**	**230**	**301**	**314**	**321**	**248**	**209**
Calcium	NA	62,500	NA	68,200	64,500	71,300	71,200	69,300	61,400	62,000
Chromium	7,000	18.1	19.8	22.0	28.9	26.5	28.2	27.3	24.9	20.1
Cobalt	NA	4.2 U	NA	2.0 U	2.0 U	0.4 JK	1.3	0.3 J	3.0 U	0.3 J,*
Copper	NA	2.3 J	NA	3.2 L	12.1 K,*	3.2 J	2.4 J	4.5 J	4.14 J	3.1 J
Iron	NA	24.5 J	NA	18.1 J	23.9 J,L	27.4	28.6 K,*	22.0 J	26.6 J	22.3 J
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U,*
Magnesium	NA	14,100	NA	16,000	15,300	16,500	15,600	16,200	14,600	15,000
Manganese	NA	66.4 *	NA	43.4	43.8 *	41.9 *	59.6 K	92.7 K	25.4	22.9
Nickel	57	24.8	26.6	22.6	26.8 *	32.8 *	35.5 K	32.6 K	23.0 K	22.9 J
Potassium	NA	3,320 J, K	NA	3,720 K,*	4,130 K,*	5,340 K	6,720 K	3,090 K	2,700	3,080 J
Selenium	NA	4.0 U	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.0 U	10.0 U
Sodium	NA	62,300 K	NA	54,900 L	52,600	58,600 L	71,000	67,400	59,300	60,200 L
Thallium	0.5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Vanadium	NA	17.0 U	NA	6.5 J	10.0 U	10.0 U	10.0 U	10.0 U	1.7 J	0.9 J,K
Zinc	NA	18.7 J	NA	7.3 J,L	25.1 J,K	59.2	39.9	34.5 K	28.8 J	49.0 J
Hexavalent Chromium	2	**19 L**	**13.8 J,L**	**21.0**	**17.3 J,L**	**18.6 L**	**17.2 J,L**	**18.4 J,L**	**23.8**	**19.4 J,***
Cyanide	4	**58 J**	**52**	**50 J**	**12**	**18**	**65**	**56 J**	**73**	**53 J,***

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW5

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW5			EW5/EW5-D	EW5	EW5/EW5-D	EW5		
Sampling Date:		03/27/07	09/19/07	03/04/08	10/01/08	03/26/09	09/24/09	03/24/10	09/23/10	03/16/11
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	7.62	7.46	--	--	7.47	7.80	7.44	7.72	7.69
Oxidation Reduction Potential (mV)	NA	--	--	--	--	63.82	116.65	35.86	83.05	44.00
Conductivity (mS/cm)	NA	0.766	0.991	--	--	0.726	0.749	0.71	NA	0.70
Dissolved Oxygen (mg/L)	NA	--	--	--	--	4.40	8.93	3.67	5.32	2.30
Turbidity (NTU)	NA	0	0	--	--	0.00	0.15	0.00	0.00	0.00
Temperature (°C)	NA	--	--	--	--	11.39	13.45	12.44	14.11	12.53
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	21 J,K	200 U	11.0 J	200 U	200 U,L	**82.9 J**	43.1 J	200 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	0.2 J	0.228 J	4.0 U
Arsenic	0.2	**0.6 J**	2.0 U	**0.8 J**	**0.6 J**	2.0 U	**0.61 J**	**0.698 J**	**0.768 J,K**	**0.8 J**
Barium	2,000	52.5 J	55.1 J	52.4 J	50.1 J	52.6 J	53.3 J	51 J	50.6 J	53.1 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.4 J,K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**236**	**244**	**263**	**198**	**184**	**184**	**182**	**169**	**152**
Calcium	NA	65,900	63,400	64,800	60,700	63,900	65,800	62,900	65,300	67,000
Chromium	7,000	24.2	24.8	27.0	20.6	21.3	24.5	23	22.1	23.8
Cobalt	NA	50.0 U	50.0 U	0.5 K,J	0.5 J	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Copper	NA	2.2 J,L	3.5 J	3.5 J	35.2	4.8 J	5.0 J	1.9 J,L	25.0 U	25.0 U
Iron	NA	20.0 J	18.3 J	49.5 J	52.2 J	100 U,L	19.1 J	20.8 J	26.7 J	15.5 J
Lead	5	2.0 U	2.0 U	0.7 J	2.6	2.0 U	1.0	0.473 J	0.134 J	2.0 U
Magnesium	NA	16,100	16,200	16,300	15,300	15,700	16,800	16,000	16,200	15,900
Manganese	NA	21.3	23.7	43.5	48.5	16.6	18.7	22.4	16.8	16.3
Nickel	57	23.4	24.1 J	26.6 J	24.3 J	22.0 J	24.2 J	23 J	17.5 J	19.3 J
Potassium	NA	2,840 J	3,220 J	2,690 J	2,630 J	2,720 J,K	2,820 J	2,630 J	2,620 J	2,680 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	1.03 J	0.897 J,L	1.29 J	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	63,200	63,100	59,600	53,200	58,000	64,100	56,200	59,400	61,400
Thallium	0.5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	0.8 K,J	0.4 J	0.2 L,J	0.9 J	0.3 J	50.0 U	6.5 J	50.0 U	50.0 U
Zinc	NA	46.2 J	31.2 J, *	126	27.3 J	20.1 J	38.9 J,K	37.8 J	9.7 J,L	19.2 J
Hexavalent Chromium	2	**27.4 J,L**	**20.6 J,L**	**21.9 J,L**	**16.9 J,L**	**17.4 J,L**	**22.3 J,L**	**17.2 J,L**	**19.7 J,L**	**23.0 J,L**
Cyanide	4	**45 J**	**43 J**	**37**	**41 K**	**34**	**26**	**36**	**26**	**4 J**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW5

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW5								
Sampling Date:		09/07/11	03/22/12	09/27/12	03/07/13	09/05/13	04/01/14	09/24/14	04/21/15	10/14/15
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	--	7.65	7.71	7.82	7.53	7.63	6.73	7.46	7.18
Oxidation Reduction Potential (mV)	NA	--	-56.33	66.35	51.92	-9.56	-17.10	215.00	91.50	41.10
Conductivity (mS/cm)	NA	--	1.03	4.08	0.717	0.718	0.542	0.738	0.747	0.740
Dissolved Oxygen (mg/L)	NA	--	4.74	5.89	5.58	3.92	1.18	1.78	1.30	2.14
Turbidity (NTU)	NA	--	0.00	0.14	0.00	3.37	0.98	1.23	--	5.51
Temperature (°C)	NA	--	12.79	13.80	12.73	13.38	12.40	15.63	12.15	13.40
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	28.1 J	29.4 *,J	200 U	**50.7 J**	28	**56**	**140**	5.0 U
Antimony	3	0.281 J	0.188 J	0.121 J,L	0.183 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**0.871 J,K**	**0.625 J**	**0.763 J,K**	**0.555 J**	**0.9 J**	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	56.7 J	52.9 J	52.4 J	51.6 J	51.0 J	52	55	47	64
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**210**	**176**	**165**	**156**	**149**	**150**	**210**	**150**	**320**
Calcium	NA	69,200 K	67,100	62,300	61,600	62,000	66,000	57,000	63,000	65,000
Chromium	7,000	22.4	20.6	19.7	19	16.6	20	16	21	19
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	5.8 J	3.4 J	4.3 J	4.0 J	4.6 J	4.0	7.9	7.3	14
Iron	NA	100 U	100 U	100 U	56.7 J	57.5 J	23	20 U	32	110
Lead	5	0.490 J,K	0.436 J	0.071 J	0.396 *, J,	0.8 J	1.0 U	1.0 U	1.0 U	1.4
Magnesium	NA	16,200	15,000	15,900	15,300	15,200	17,000	15,000	16,000	15,000
Manganese	NA	22.3	22.4	20.0	69.5	99.5	30	17	21	460
Nickel	57	21.8 J	21.4 J	21.8 J	21.0 J	22.8 J	22.0	27	28	44
Potassium	NA	2,840 J	2,730 J	2,860 J	2,690 J	2,720 J	2,600	2,500	2,500	2,600
Selenium	NA	0.999 J,L	1.22 J	1.49 J,K	0.972 J	1.0 J	1.0 U	1.1	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	63,200	59,900	61,500	57,800	60,700	63,000	72,000	61,000	83,000
Thallium	0.5	0.061 J	1.0 U	1.0 U	0.109 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	32.1 J	16.7 J	60.0 U	27.2 J	22.6 J	21	22	35	35
Hexavalent Chromium	2	**22.0 J,L**	**19.1 J,L**	**17.1 J,L**	**17.1 J,L**	**13.2 J,L**	**18**	**17**	**18**	**20**
Cyanide	4	**31**	**25**	**11**	**23**	**19**	**16**	**14**	**23**	**18**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW5

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW5								
Sampling Date:		04/06/16	09/21/16							
Groundwater Elevation:[1]	NA	--	--							
Portion of Glacial Unit:	NA	NA[2]	NA[2]							
pH (standard units)	NA	--	6.48							
Oxidation Reduction Potential (mV)	NA	--	12.80							
Conductivity (mS/cm)	NA	--	921.00							
Dissolved Oxygen (mg/L)	NA	--	1.03							
Turbidity (NTU)	NA	--	1.19							
Temperature (°C)	NA	--	13.86							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	22	16							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	1.0 U	**1.4**							
Barium	2,000	61	81							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	**450**	**570**							
Calcium	NA	60,000	80,000							
Chromium	7,000	12	5.3							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	12	23							
Iron	NA	100	1,300							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	15,000	20,000							
Manganese	NA	650	1,500							
Nickel	57	64	**110**							
Potassium	NA	2,800	4,500							
Selenium	NA	1.6	1.0 U							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	70,000	62,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.0 U	2.0 U							
Zinc	NA	17	23							
Hexavalent Chromium	2	**5.0**	5 U							
Cyanide	4	**7.0**	**14**							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW6

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW6								
Sampling Date:		11/21/02	05/28/03	11/18/03	05/20/04	11/30/04	06/07/05	09/12/05	09/20/06	03/27/07
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	--	--	--	7.54	7.72	8.11	6.69	7.6	7.90
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	--	--	--
Conductivity (mS/cm)	NA	--	--	--	0.757	0.700	0.596	0.649	0.491	0.560
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	--	--	--
Turbidity (NTU)	NA	--	--	--	1.0	0	0	0	0	0
Temperature (°C)	NA	--	--	--	--	--	--	--	--	--
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	45.3	24.3 U	40.0 U,L	80.0 U	**50.3 J**	100 U	100 U	200 U	26.5 J,K
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	1 J	4.0 U
Arsenic	0.2	**0.7 J**	**0.9 J**	**0.5 J**	**0.7 J**	**0.7 J**	2.0 U	**0.7 J**	**1.0 J,***	**1.1**
Barium	2,000	55.6	59.8	53.7	61.1	51.0	58.3 K	48.5	52.3 J	51.0 J
Beryllium	NA	2.8 U	NA	0.1 J,K	1.0 U	1.0 U	1.0 U,L	1.0 U	5.0 U	5.0 U
Cadmium	4	**19.0**	**27.0**	**21.0**	**27.6**	**23.8**	**22.4**	**23.6**	**21.8**	**33.9**
Calcium	NA	63,400	NA	63,200	67,900	61,600	62,800	59,700	57,500	58,400
Chromium	7,000	12.4	13.8	10.0	20.8	12.7	18.3	16.5	15.1	17.7
Cobalt	NA	4.2 U	NA	2.0 U	2.0 U	0.3 J,K,*	1.0 U	1.0 U	50.0 J,*	50.0 U
Copper	NA	3.1 J	NA	3.1 L	2.9 J,K,*	2.5 J	2.1 J	6.0 U	3.1 J	7.1 J,L
Iron	NA	110	NA	44.8	30.3 L	27.2	25.2 K,*	17.8 J	17.6 J	201.0
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U,*	2.0 U
Magnesium	NA	14,800	NA	14,800	15,900	15,600	14,200	14,300	14,200	14,600
Manganese	NA	32.2 *	NA	31.4	31.0 *	28.6 *	25.6 K	28.2	25.0	42.7
Nickel	57	9.2	7.9 L	8.0 J	13.3 *	12.6 K	13.2 K	10.9	9.2 J	8.8 J
Potassium	NA	3,030 J, K	NA	3,240 K,*	3,560 K,*	5,070 K	6,280 K	2,610	2,700 J	2,500 J
Selenium	NA	4.0 U	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	1.1 J
Silver	0.1	1.7 U	2.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	10.0 U	10.0 U
Sodium	NA	49,800 K	NA	43,100 L	46,300	39,100 L	39,300	40,100	38,600 L	35,200
Thallium	0.5	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	17.0 U	NA	5.8 J	10.0 U	10.0 U	10.0 U	10.0 U	0.8 J,K	0.7 J,K
Zinc	NA	10.7 J	NA	30.0 U	30.0 U	20.6 J	11.6 J	30.0 U	26.5 J	16.0 J
Hexavalent Chromium	2	**13 L**	**3.3 J,L**	**5.9** J	**9.6 J,L**	**6.0 L**	**10.2 J,L**	**4.9 J,L**	**12.9 J,***	**10.9 J,L**
Cyanide	4	**38 J**	**30**	**14 J**	**9**	**5 J**	**16**	**12**	**12 ***	**8 J**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW6

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW6								
Sampling Date:		09/19/07	03/04/08	10/01/08	03/26/09	09/24/09	03/24/10	09/23/10	03/16/11	09/07/11
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	7.69	--	--	7.57	7.70	7.34	7.79	7.72	--
Oxidation Reduction Potential (mV)	NA	--	--	--	59.92	124.01	46.21	86.90	44.44	--
Conductivity (mS/cm)	NA	0.792	--	--	0.638	0.603	0.602	NA	0.601	--
Dissolved Oxygen (mg/L)	NA	--	--	--	3.60	7.40	2.86	4.79	2.40	--
Turbidity (NTU)	NA	0	--	--	0.00	1.34	1.99	0.00	0.00	--
Temperature (°C)	NA	--	--	--	11.60	13.16	12.32	14.06	12.23	--
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	14.9 J, K	19.6 J,K	200 U	200 U,L	**83.5 J**	39.9 J	200 U	200 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	0.176 J	0.137 J	4.0 U	0.173 J
Arsenic	0.2	**0.6 J**	**0.6 J**	**2.4**	**0.7 J**	**0.72 J**	**1.25**	**0.829 J,K**	2.0 U	**0.947 J,K**
Barium	2,000	47.9 J	47.1 J	52.7 J	49.6 J	51.4 J	49.1 J	47.3 J	48.3 J	51.2 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	0.3 K,J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**20.9**	**22.1**	**53.5**	**16.5**	**18.3**	**18.7**	**22.4**	**18.7**	**15.2**
Calcium	NA	57,900	60,300	58,400	59,400	59400	61,400	63,300	64,200	67,400
Chromium	7,000	13.6	14.7	27.7	7.4 J	11.7	11.2	8.8 J	10.8 *	11.8
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	0.9 J,K	50.0 U
Copper	NA	2.1 J	3.0 J	60.5	3.2 J	7.8 J	8.8 J,L	25.0 U	25.0 U	17.0 J
Iron	NA	19.3 J	17.7 J	1,120	100 U,L	89.6 J	241	87.4 J	63.0 J	116
Lead	5	2.0 U	2.0 U	**24.0 L**	2.0 U	2.14	**7.29**	0.109 J	2.0 U	1.40 K
Magnesium	NA	14,700	14,300	14,400	14,100	15500	15,400	15,800	15,100	15,600
Manganese	NA	26.8	23.4	44.2	30.1	25.1	43	33.6	44.9 *	24.0
Nickel	57	9.2 J	10.2 J	12.3 J	9.2 J	10.7 J	12 J	7.3 J	10.5 J	7.7 J
Potassium	NA	2,700 J	2,530 J	2,470 J	2,460 J,K	2590 J	2,530 J	2,530 J	2,490 J	2,520 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	0.61 J	0.608 J,L	0.884 J	4.0 U	0.475 J,L
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	37,700	38,700	40,400	44,500	43200	41,500	44,000	43,100	42,900
Thallium	0.5	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.060 J
Vanadium	NA	0.6 J, K,	50.0	1.0 J	50.0 U	50.0 U	5.6 J	50.0 U	50.0 U	50.0 U
Zinc	NA	6.6 J	21.9 J	52.8 J	60.0 U	26.5 J,K	65	10.7 J,L	19.4 J	46.1 J
Hexavalent Chromium	2	**10.4 J, L**	**11.6 J,L**	**19 J, L**	**4.5 J,L**	**8.7 J,L**	**2.8 J,L**	**4.7 J,L**	**7.2 J,L**	**10.1 J,L**
Cyanide	4	**9 J**	**6**	10.0 U	10.0 U	10.0 U	**6 J**	**4 J**	10.0 U	10.0 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW6

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW6			EW6/EW6-D		EW6			
Sampling Date:		03/22/12	09/27/12	03/07/13	09/05/13	04/01/14	09/24/14	04/21/15	10/14/15	04/06/16
Groundwater Elevation:[1]	NA	--	--	--	--	--	--	--	--	--
Portion of Glacial Unit:	NA	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
pH (standard units)	NA	7.74	7.74	7.88	7.63	7.55	6.95	7.64	7.31	--
Oxidation Reduction Potential (mV)	NA	-56.26	56.13	51.49	-4.69	0.80	216.00	74.40	26.80	--
Conductivity (mS/cm)	NA	0.975	3.849	0.675	0.637	0.557	0.624	0.742	0.539	--
Dissolved Oxygen (mg/L)	NA	6.19	6.11	6.00	4.98	4.33	0.77	1.28	2.76	--
Turbidity (NTU)	NA	0.00	1.30	0.01	752.16	1.04	2.31	--	7.31	--
Temperature (°C)	NA	12.01	13.38	11.64	12.96	11.34	16.02	11.22	12.74	--
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	**51.1 *,J**	**61.4 J**	**200 U**	**89.2 J**	46	38	26	5.0 U	**380**
Antimony	3	0.131 J	0.071 J,L	0.118 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**0.976 J**	**1.41 K**	**1.15**	**1.6 J**	**1.6**	**1.1**	**1.3**	**1.5**	**3.7**
Barium	2,000	57.1 J	61.0 J	60.4 J	58.2 J	68.0	62	67	66	85
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**19.3**	**24.4**	**15.6**	**18.9**	**16**	**8.3**	**22**	**30**	**78**
Calcium	NA	64,900	63,500	59,800	62,300	67,000	59,000	62,000	60,000	58,000
Chromium	7,000	5.9 J	7.6 J	5.9 J	6.0 J	5.4	5.6	6.6	14	51
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	4.1 J	10.4 J	6.4 J	25.0 U	7.4	6.7	5.1	41	58
Iron	NA	28 J	131	45.8 J	32.8 J	37	20 U	48	380	2,200
Lead	5	0.129 J	1.93	0.756 *, J,	1.0 J	1.0 U	1.0 U	1.0 U	1.0 U	2.1
Magnesium	NA	14,800	16,100	15,300	15,600	17,000	16,000	16,000	16,000	17,000
Manganese	NA	29.8	48.4	45.2	57.2	47.0	9.7	46	130	270
Nickel	57	9 J	10.5 J	9.2 J	10.4 J	10	6.0	9.4	15	24
Potassium	NA	2,470 J	2,900 J	2,590 J	2,610 J	2,700	2,700	2,600	2,400	2,400
Selenium	NA	0.616 J	0.946 J,K	0.544 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.2**
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5
Sodium	NA	57,400	46,300	48,800	43,700	67,000	42,000	60,000	34,000	55,000
Thallium	0.5	1.0 U	1.0 U	0.083 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	1.1 J	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.1
Zinc	NA	60.0 U	60.0 U	17.8 J	7.8 J	25.0	11	5.0 U	8.6	28
Hexavalent Chromium	2	**5.5 J,L**	**2.4 J,L**	**2.6 J,L**	**3.5 J,L**	5 U	5 U	5 U	**5**	5.0 U
Cyanide	4	**6 J**	**5 J**	10.0 U	10.0 U	5 U	5 U	5 U	5 U	**28**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM NOVEMBER 2002 TO SEPTEMBER 2016 SAMPLING EVENTS FOR EW6

Sample Number:	Groundwater Cleanup Goal (µg/L)	EW6								
Sampling Date:		09/21/16								
Groundwater Elevation:[1]	NA	--								
Portion of Glacial Unit:	NA	NA[2]								
pH (standard units)	NA	6.67								
Oxidation Reduction Potential (mV)	NA	27.90								
Conductivity (mS/cm)	NA	978.000								
Dissolved Oxygen (mg/L)	NA	1.05								
Turbidity (NTU)	NA	1.69								
Temperature (°C)	NA	12.57								
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	27								
Antimony	3	1.0 U								
Arsenic	0.2	**4.3**								
Barium	2,000	86								
Beryllium	NA	1.0 U								
Cadmium	4	**44**								
Calcium	NA	79,000								
Chromium	7,000	21								
Cobalt	NA	5.0 U								
Copper	NA	2.7								
Iron	NA	1,800								
Lead	5	1.0 U								
Magnesium	NA	21,000								
Manganese	NA	340								
Nickel	57	35								
Potassium	NA	3,000								
Selenium	NA	1.0 U								
Silver	0.1	0.2 U								
Sodium	NA	73,000								
Thallium	0.5	2.0 U								
Vanadium	NA	2.0 U								
Zinc	NA	21								
Hexavalent Chromium	2	5 U								
Cyanide	4	5 U								

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ2A

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ2A				MDEQPZ2A/2A-D	MDEQPZ2A		MDEQPZ2A	MDEQPZ2A/2A-D
Sampling Date:		03/28/07	09/17/07	03/04/08	09/30/08	03/24/09	09/22/09	03/23/10	09/21/10	03/15/11
Groundwater Elevation:[1]	NA	595.82	594.39	594.97	593.92	594.73	593.29	594.58	594.29	595.12
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	6.51	7.10	6.97	5.98	6.59	7.17	6.87	7.26	6.60
Oxidation Reduction Potential (mV)	NA	--	--	--	--	95.44	472.97	178.39	1.86	243.96
Conductivity (mS/cm)	NA	0.150	0.696	0.254	0.181	0.324	0.332	0.305	0.329	0.254
Dissolved Oxygen (mg/L)	NA	--	--	--	--	3.95	1.70	1.27	0.47	0.55
Turbidity (NTU)	NA	0	0	0	5	0.00	1.95	2.44	5.40	0.62
Temperature (°C)	NA	--	--	--	--	7.40	14.73	6.98	16.48	6.92
Inorganic Analytes						**Result (µg/L)**				
Aluminum	50	11.9 J,K	13.4 J, K	22.3 J,K	200 U	16.2 J,L	200 U	200 U	200 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	0.068 J	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Barium	2,000	12.5 J	40.5 J	15.0 J	5.1 J	13.6 J	12.7 J	11.4 J	12.4 J	8.7 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	1.2 J	5.0 U	0.9 J,L	0.5 J,L	1.3 J	5.0 U	5.0 U	0.6 J	0.6 J
Calcium	NA	30,600	93,200	36,700	15,400	42,600	37,200	35,200	38,900	28,000
Chromium	7,000	1.6 J	1 J	1.4 J	10.0 U	1.4 J	1.4 J	10.0 U	10.0 U	1.0 J
Cobalt	NA	50.0 U	0.6 J	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	0.8 J
Copper	NA	25.0 U	1.3 J	25.0 U	25.0 U	1.2 J	25.0 U	25.0 U	25.0 U	25.0 U
Iron	NA	12.5 J	21.7 J	7.1 J	16.6 J	100 U,L	100 U	100 U	100 U	100 U
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Magnesium	NA	7,440	21,300	9450	4,810 J	12,500	10,200	10,200	9,550 K	9,200
Manganese	NA	1.2 J	2.6 J	0.6	1.7 J	1.0 J	7.8 J	51.2	110	100
Nickel	57	1.1 J	1.2 J, K	2.1 J,K	40.0 U	1.3 J	1.9 J,K	2.1 J	40.0 U	40.0 U
Potassium	NA	2,500 J	8,250	3,360 J	1,670 J	2,720 J	3,650 J	2,490 J	2,920 J	1,970 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.15 J	5.0 U	5.0 U	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	8,310	24,900 L	11,900	3,110 J	6,600	16,200	10,200	21,400	12,400
Thallium	0.5	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	50.0 U	0.2 J, K,	50.0 U	1.3 J,K	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Zinc	NA	5.6 J	14.2 J	10.7 J	60.0 U	60.0 U	14.9 J	14.5 J	60.0 U	60.0 U
Hexavalent Chromium	2	10.0 U,J,L	10.0 U,J,L	10.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L
Cyanide	4	2	5.0 U	2 J	10.0 U	10.0 U	10.0 U	**4 J**	10.0 U,*	10.0 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ2A

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ2A	MDEQPZ2A/2A-D	MDEQPZ2A			MDEQPZ2A	MDEQPZ2A/2A-D	MDEQPZ2A	MDEQPZ2A
Sampling Date:		09/08/11	03/19/12	09/25/12	03/05/13	09/04/13	04/01/14	09/23/14	04/21/15	10/13/15
Groundwater Elevation:[1]	NA	594.3	594.29	593.93	594.24	593.88	594.82	595.61	595.02	595.9
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.45	6.39	6.48	6.55	6.51	6.98	6.66	6.72	6.47
Oxidation Reduction Potential (mV)	NA	162.42	124.41	160.00	90.80	97.64	113.20	50.10	104.70	25.70
Conductivity (mS/cm)	NA	0.512	0.671	0.266	0.232	0.379	0.237	0.320	0.559	0.344
Dissolved Oxygen (mg/L)	NA	--	4.72	0.51	4.68	1.44	1.86	0.95	0.50	1.05
Turbidity (NTU)	NA	0.00	0.00	0.00	0.56	0.00	1.30	0.29	0.53	5.21
Temperature (°C)	NA	13.91	15.62	15.20	6.08	13.91	8.43	12.84	7.81	12.78
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	200 U	25.2 J	11	5.0 U	5.0 U	5.0 U
Antimony	3	0.064 J	0.153 J	0.119 J,K	0.264 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	1.0 U	1.0 U	**0.339 J**	**0.253 J**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	13.8 J	17.1 J	13.8 J	18.9 J	14.2 J	12	16	26	23
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 J	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	0.9 J	1.0 J	0.9 J,K	1.1 J	2.2 J	0.7	1.0	0.5	0.4
Calcium	NA	69,200	48,300	46,600	39,500	49,200	34,000	33,000	47,000	39,000
Chromium	7,000	10.0 U	10.0 U	1.3 J	1.4 J	1.9 J	1.0 U	1.4	1.0 U	4.8
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	2.6 J,L	3.1 J	3.1 J	25.0 U	25.0 U	1.8	1.7	2.4	2.3
Iron	NA	15.2 J	100 U	100 U	25.0 J	100 U	20 U	20 U	20 U	20 U
Lead	5	0.674 J,K	0.336 J	1.00 U	0.38 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	11,100	14,700	12,200	13,700	13,700	16,000	11,000	19,000	13,000
Manganese	NA	824	83.5	2410	341	3,370	86	550	270	180
Nickel	57	40.0 U	40.0 U	3.6 J	40.0 U	40.0 U	2.0 U	2.0 U	2.0 U	4.4
Potassium	NA	2,580 J	2,730 J	3,160 J	3,350 J	2,940 J	2,400	4,900	4,900	4,300
Selenium	NA	5.0 U	0.548 J	0.609 J,K	1.12 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	16,500	8,680	8,830	7,590	4,580 J	6,400	11,000	37,000	16,000
Thallium	0.5	0.051 J	1.00 U	1.00 U	0.087 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	10.6 J	60.0 U	60.0 U	5.3 J	60.0 U	5.7	5.0 U	5.0 U	5.0 U
Hexavalent Chromium	2	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5 U	5.0 U	5.0 U	5.0 U
Cyanide	4	10.0 U	**12**	10.0 U	**6 J**	10.0 U	5 U	5.0 U	5.0 U	5.0 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ2A

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ2A								
Sampling Date:		04/06/16	09/20/16							
Groundwater Elevation:[1]	NA	596.73	596.28							
Portion of Glacial Unit:	NA	Upper	Upper							
pH (standard units)	NA	7.18	2.49							
Oxidation Reduction Potential (mV)	NA	80.50	339.40							
Conductivity (mS/cm)	NA	0.334	371.000							
Dissolved Oxygen (mg/L)	NA	0.87	1.61							
Turbidity (NTU)	NA	6.74	4.07							
Temperature (°C)	NA	8.43	13.95							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	5.2	5.0 U							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	1.0 U	1.0 U							
Barium	2,000	32	5.0 U							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	1.1	0.7							
Calcium	NA	59,000	39,000							
Chromium	7,000	15	19							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	4.5	3.4							
Iron	NA	31	20 U							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	21,000	15,000							
Manganese	NA	300	23							
Nickel	57	8.2	4.0 U							
Potassium	NA	3,400	3,200							
Selenium	NA	2.0	2.0							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	19,000	15,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.0 U	2.0 U							
Zinc	NA	5.0 U	5.0 U							
Hexavalent Chromium	2	**16**	**18**							
Cyanide	4	**21**	5.0 U							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ2B

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ2B						MDEQPZ2B/2B-D	MDEQPZ2B	
Sampling Date:		03/29/07	09/17/07	03/04/08	09/30/08	03/24/09	09/22/09	03/23/10	09/21/10	03/15/11
Groundwater Elevation:[1]	NA	595.49	594.55	594.55	593.87	594.7	594.24	594.59	594.31	595.18
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	7.74	7.18	7.80	7.22	7.56	7.89	7.71	7.70	7.50
Oxidation Reduction Potential (mV)	NA	--	--	--	--	39.08	440.29	134.65	91.26	237.91
Conductivity (mS/cm)	NA	0.872	0.838	0.492	0.811	0.623	0.804	0.916	1.263	0.667
Dissolved Oxygen (mg/L)	NA	--	--	--	--	4.13	0.64	0.86	0.52	8.13
Turbidity (NTU)	NA	0	0	151	29	0	2.24	1.37	3.86	1.02
Temperature (°C)	NA	--	--	--	--	9.43	13.69	7.17	15.18	7.62
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**371**	13.8 J,K	**130 J,K**	**102 J,K**	**76.2 J,L**	200 U	**53.5 J**	34.3 J,K	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	0.032 J	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	**0.308 J,K**	2.0 U
Barium	2,000	93.7 J	77.1 J	61.3 J	74.5 J	71.4 J	80.4 J	106 J	137 J	68.2 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	5.0 U	5.0 U	5.0 U	5.0 U	0.4 J	5.0 U	5.0 U	5.0 U	1.0 J
Calcium	NA	81,600	69,800	64,100	62,000	66,300	74,700	93,700	133,000	72,600
Chromium	7,000	1.3 J	0.8 J, K	1.4 J	10.0 U	2.1 J	1.4 J	10.0 U	10.0 U	10.0 U
Cobalt	NA	0.7 J	0.4 J	50.0 U	0.5 J,K	0.7 J	50.0 U	50.0 U	50.0 U	50.0 U
Copper	NA	1.6 J,L	25.0 U	25.0 U	1.3 J	4.7 J	25.0 U	25.0 U	25.0 U	25.0 U
Iron	NA	468	100 U	186	117	4,400	100 U	20.8 J,K	20 J	100 U
Lead	5	1.2 J	2.0 U	1.0 J	2.0 U	2.0 U	0.19 J	1.0 U	1.0 U	2.0 U
Magnesium	NA	24,600	21,600	18,800	18,100	17,600	21,700	24,700	33,900	18,300
Manganese	NA	22.0	15.0 U	10.5 J	6.6	25.8	0.9 J	1.3 J	1.6 J	15.0 U
Nickel	57	1.7 J	2 J	2.1 J,K	1.2 J	2.9 J	1.8 J,K	2.2 J	40.0 U	40.0 U
Potassium	NA	2,280	1,910 J	1,690 J	2,710 J	3,230 J	2,940 J	4,380 J	5,430	2,830 J
Selenium	NA	1.2 J	4.0 U	4.0 U	4.0 U	4.0 U	0.31 J	0.187 J,L	0.581 J	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	**0.5 J,K**	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	69,600	73,700	42,800	80,900	43,100	63,700	53,700	82,900	42,600
Thallium	0.5	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	0.9 J,K	0.2 J,K,*	50.0 U	0.7 J,K	50.0 U	50.0 U	4.0 J	50.0 U	50.0 U
Zinc	NA	18.4 J,L	9.9 J	16.1 J	60.0 U	60.0 U	16.7 J	34.3 J	60.0 U	5.5 J
Hexavalent Chromium	2	10.0 U,J,L	10.0 U,J,L	10.0 U,J,L	5.0 U,J,L	5.0 U	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L
Cyanide	4	5.0 U	5.0 U	5.0 U	10.0 U	10.0 U	10.0 U	**4 J**	10.0 U,*	10.0 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ2B

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ2B					MDEQPZ2B	MDEQPZ2B/2B-D	MDEQPZ2B	MDEQPZ2B
Sampling Date:		09/08/11	03/19/12	09/25/12	03/05/13	09/04/13	04/01/14	09/23/14	04/21/15	10/13/15
Groundwater Elevation:[1]	NA	594.3	594.27	593.8	594.13	593.78	594.74	595.90	594.97	595.74
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.15	7.76	8.01	7.79	7.60	8.14	7.42	7.86	7.41
Oxidation Reduction Potential (mV)	NA	132.83	126.75	110.00	-101.97	6.19	80.90	30.80	102.90	60.00
Conductivity (mS/cm)	NA	0.991	2.667	0.815	0.753	1.485	0.739	1.128	1.234	0.841
Dissolved Oxygen (mg/L)	NA	--	0.26	6.00	0.12	0.23	8.47	5.88	1.11	0.009
Turbidity (NTU)	NA	0.62	0.00	0.00	0.00	0.63	1.10	0.68	0.37	2.64
Temperature (°C)	NA	13.44	16.66	13.92	8.14	14.98	10.59	11.97	9.88	11.91
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	20.1 J	200 U	200 U	30.7 J	5.0 U	5.0 U	5.0 U	16
Antimony	3	2.0 U	0.053 J	2.00 U	0.224 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	1.0 U	1.0 U	**0.354 J**	**0.288 J**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	101 J	123 J	110 J	97.6 J	113 J	89	100	72	88
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	0.8 J	0.7 J	5.0 U	0.6 J	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Calcium	NA	95,400	84,200	95,200	66,100	70,900	67,000	74,000	54,000	75,000
Chromium	7,000	10.0 U	10.0 U	10.0 U	1.5 J	1.5 J	1.0 U	1.0 U	1.0 U	1.0 U
Cobalt	NA	1.1 J	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	3.1 J,L	2.3 J	2.2 J	25.0 U	25.0 U	2.2	6.0	3.3	3.8
Iron	NA	100 U	100 U	100 U	100.0 U	100.0 U	20 U	20 U	20 U	20 U
Lead	5	0.415 J,K	0.055 J	1.00 U	0.562 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	22,600	19,600	22,000	15,900	16,400	18,000	19,000	12,000	19,000
Manganese	NA	15.0 U	1.3 J	1.3 J	15.0 U	1.9 J	5.0 U	5.0 U	5.0 U	5.0 U
Nickel	57	40.0 U	40.0 U	40.0 U	40.0 U	40.0 U	2.0 U	2.3	2.0 U	7.4
Potassium	NA	4,250 J	5,200	5,530	4,650 J	5,260	4,600	4,800	4,400	4,300
Selenium	NA	5.0 U	1.59 J	1.12 J,K	1.53 J	1.6 J	1.0	1.5	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2	0.2 U	0.2 U	0.2 U
Sodium	NA	71,500	185,000	123,000	130,000	203,000	120,000	130,000	180,000	96,000
Thallium	0.5	1.0 U	0.076 J	1.00 U	0.408 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	17.6 J	60.0 U	60.0 U	10.1 J	60.0 U	5.0	5.0 U	5.0 U	5.0 U
Hexavalent Chromium	2	5.0 U,J,L	5.0 U	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5 U	5 U	5 U	5.0 U
Cyanide	4	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	5 U	5 U	5 U	5.0 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ2B

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ2B								
Sampling Date:		04/08/16	09/20/16							
Groundwater Elevation:[1]	NA	597.01	596.53							
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.14	6.98							
Oxidation Reduction Potential (mV)	NA	154.3	204.6							
Conductivity (mS/cm)	NA	0.448	677.000							
Dissolved Oxygen (mg/L)	NA	4.28	5.88							
Turbidity (NTU)	NA	2.67	2.86							
Temperature (°C)	NA	9.98	13.22							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	5.0	5.0 U							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	1.0 U	1.0 U							
Barium	2,000	67	60							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	0.2 U	0.2							
Calcium	NA	69,000	73,000							
Chromium	7,000	1.0 U	1.0 U							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	2.3	1.0 U							
Iron	NA	26	20 U							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	19,000	18,000							
Manganese	NA	5.0 U	5.0 U							
Nickel	57	8.5	5.6							
Potassium	NA	3,200	3,100							
Selenium	NA	1.2	1.3							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	41,000	42,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.0 U	2.0 U							
Zinc	NA	6.6	5.0 U							
Hexavalent Chromium	2	5.0 U	5.0 U							
Cyanide	4	5.0 U	5.0 U							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JANUARY 2016 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ2A

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ3A								
Sampling Date:		01/14/16	06/21/16	09/21/16						
Groundwater Elevation:[1]	NA	NA	NA	595.32						
Portion of Glacial Unit:	NA	Upper	Upper	Upper						
pH (standard units)	NA	7.03	7.11	7.42						
Oxidation Reduction Potential (mV)	NA	-333.00	-125.96	-135.00						
Conductivity (mS/cm)	NA	1.663	1.204	0.765						
Dissolved Oxygen (mg/L)	NA	0.17	0.23	0.25						
Turbidity (NTU)	NA	2.71	2.55	9.96						
Temperature (°C)	NA	9.16	14.81	15.69						
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	30.0 J	12						
Antimony	3	1.0 U	60.0 U, J	1.0 U						
Arsenic	0.2	1.0 U	10.0 U, J	**1.1**						
Barium	2,000	268	535	280						
Beryllium	NA	2.0 U	5.0 U	1.0 U						
Cadmium	4	**134**	**7.3**	**9.0**						
Calcium	NA	163,000	41,500	34,000						
Chromium	7,000	10.4	10.0 U	5.1						
Cobalt	NA	6.0 U	50.0 U	5.0 U						
Copper	NA	20 U	25.0 U, J	3.3						
Iron	NA	2,410	19,500	18,000						
Lead	5	1.0 U	10.0 U	1.0 U						
Magnesium	NA	87,500	61,200	39,000						
Manganese	NA	43,400	15,000	8,300						
Nickel	57	44.5	4.6 J	5.7						
Potassium	NA	33,000	109,000	66,000						
Selenium	NA	1.0 U	35.0 U, J	1.0 U						
Silver	0.1	10 U	10.0 U, J	0.2 U						
Sodium	NA	46,100	35,200	42,000						
Thallium	0.5	1.0 U	25.0 U	2.0 U						
Vanadium	NA	5.0 U	5.1 J	2.0 U						
Zinc	NA	30 U	60.0 U, J	5.0 U						
Hexavalent Chromium	2	5.0 U	5 U	50 U						
Cyanide	4	--	10 U	**9**						

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JANUARY 2016 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ2A

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ3B								
Sampling Date:		01/14/16	06/22/16	09/21/16						
Groundwater Elevation:[1]	NA	NA	NA	596.71						
Portion of Glacial Unit:	NA	Middle	Middle	Middle						
pH (standard units)	NA	7.12	6.98	6.56						
Oxidation Reduction Potential (mV)	NA	-152.30	-96.35	-52.20						
Conductivity (mS/cm)	NA	1.414	1.102	760.000						
Dissolved Oxygen (mg/L)	NA	0.25	0.21	1.03						
Turbidity (NTU)	NA	2.17	6.44	8.26						
Temperature (°C)	NA	8.97	14.75	13.36						
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	200 U U	50.9 J	48						
Antimony	3	1.0 U	60.0 U, J	1.0 U						
Arsenic	0.2	**3.36**	**5.1** J	**2.5**						
Barium	2,000	286	72.4 J	38						
Beryllium	NA	2.0 U	5.0 U	1.0 U						
Cadmium	4	**94.3**	**33.3**	39						
Calcium	NA	29,200	110,000	67,000						
Chromium	7,000	6.6	10.0 U	1.0 U						
Cobalt	NA	8.1	3.3 J	5.0 U						
Copper	NA	21.8	4.7 J	9.2						
Iron	NA	6,680	16,300	16000						
Lead	5	1.0 U	2.3 J	1.0 U						
Magnesium	NA	91,600	18,500	12,000						
Manganese	NA	4,260	2,610	890						
Nickel	57	**80.6**	32.9 J	26						
Potassium	NA	109,000	14,100	7,000						
Selenium	NA	1.0 U	35.0 U, J	1.0 U						
Silver	0.1	10 U	10.0 U, J	0.2 U						
Sodium	NA	84,900	74,800	46,000						
Thallium	0.5	1.0 U	25.0 U	2.0 U						
Vanadium	NA	5.0 U	50.0 U	2.0 U						
Zinc	NA	130	74.2 J	86						
Hexavalent Chromium	2	5 U	5 U	50 U						
Cyanide	4	--	10 U	5 U						

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM JANUARY 2016 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ2A

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ3C								
Sampling Date:		01/14/16	06/22/16	09/21/16						
Groundwater Elevation:[1]	NA	NA	NA	595.86						
Portion of Glacial Unit:	NA	Middle	Middle	Middle						
pH (standard units)	NA	7.40	7.73	7.86						
Oxidation Reduction Potential (mV)	NA	-78.40	25.18	-25.80						
Conductivity (mS/cm)	NA	1.543	1.015	766.000						
Dissolved Oxygen (mg/L)	NA	0.26	0.50	0.93						
Turbidity (NTU)	NA	1.63	2.67	3.99						
Temperature (°C)	NA	8.31	15.83	13.62						
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	200 U	15.9 J	5.0 U						
Antimony	3	1.0 U	60.0 U, J	1.0 U						
Arsenic	0.2	1.54	10.0 U, J	1.0 U						
Barium	2,000	88.8	115 J	60						
Beryllium	NA	2.0 U	5.0 U	1.0 U						
Cadmium	4	2.0 U	0.46 J	0.7						
Calcium	NA	98,500	88,300	62,000						
Chromium	7,000	5.0 U	10.0 U	1.0 U						
Cobalt	NA	6.0 U	50.0 U	5.0 U						
Copper	NA	20 U	25.0 U, J	3.0						
Iron	NA	977	100 U	20						
Lead	5	1.0 U	2.2 J	1.0 U						
Magnesium	NA	71,900	21,700	17,000						
Manganese	NA	739	464	310						
Nickel	57	18.3	6.6 J	11						
Potassium	NA	3,670	5,000 U	3,000						
Selenium	NA	1.0 U	35.0 U, J	1.0						
Silver	0.1	10 U	10.0 U, J	0.2						
Sodium	NA	115,000	79,500	58,000						
Thallium	0.5	1.0 U	25.0 U	2.0 U						
Vanadium	NA	5.0 U	50.0 U	2.0 U						
Zinc	NA	30 U	60.0 U, J	5.0 U						
Hexavalent Chromium	2	5.0 U	5 U	5 U						
Cyanide	4	--	10 U	5 U						

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ6A

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ6A								
Sampling Date:		03/27/07	09/19/07	03/05/08	10/02/08	03/25/09	09/23/09	03/24/10	09/22/10	03/16/11
Groundwater Elevation:[1]	NA	593.42	592.13	593.05	592.37	592.89	592.54	592.83	592.64	593.12
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	6.74	7.37	7.44	6.83	7.51	7.52	7.6	7.39	7.45
Oxidation Reduction Potential (mV)	NA	--	--	--	--	4.02	454.03	94.53	312.23	3.79
Conductivity (mS/cm)	NA	1.06	1.01	0.46	1.83	0.636	0.645	0.687	0.659	0.592
Dissolved Oxygen (mg/L)	NA	--	--	--	--	0.12	0.68	0.99	1.22	0.07
Turbidity (NTU)	NA	0	0	163	11.1	0.42	0.45	0.98	7.85	4.78
Temperature (°C)	NA	--	--	--	--	9.15	13.67	9.91	14.69	10.03
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**483**	**93.9 J, L**	**275**	18.8 J,*	200 U, L	200 U	43.9 J	**60.9 J,K**	29.9 J
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.21 J,L	0.373 J	0.684 J	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	**0.351 J,K**	2.0 U
Barium	2,000	57.0 J	65.2 J	33.8 J	30.4 J	32.3 J	29.8 J	35.3 J	46.3 J	38.3 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.1 J,K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**56.0**	**52.4**	**40.6**	**38.2**	**69.3**	**29.1**	**47.5**	**127**	**105**
Calcium	NA	10,100	86,300	75,700	77,900	74,200	65,300	77,100	83,600	71,800
Chromium	7,000	23.8	14.3	12.8	7.9 J	5.5 J	8.7 J	7.1 J	22.5 J	11.2
Cobalt	NA	50.0 U	50.0 U	0.5 J	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	0.8 J,K
Copper	NA	13.1 J,L	9.4 J	8.0 J	3.4 J	7.3 J	4.4 J	4.3 J,L	17.4 J	12.1 J
Iron	NA	463	110	283	100 U	100 U,L	8.4 J	16 J	71.9 J	18.3 J
Lead	5	2.0 U	2.0 U	0.7 J	2.0 U	2.0 U	1.0 U	1.0 U	0.186 J	2.0 U
Magnesium	NA	18,000	13,900	13,100	13,900	13,000	12,000	14,300	15,700	13,100
Manganese	NA	239	266	325	163	721	307	563	2,280	1,310
Nickel	57	43.4	40.4	31.9 J	22.2 J	40.2	23.0 J	33.6 J	**91.0**	**68.7**
Potassium	NA	5,250	7,960	3,660	3,040 J	3,120 J	3,170 J	3,150 J	3,260 J	3,150 J
Selenium	NA	4.0 U	4.0 U	2.3 J	2.9 J	3.3 J	1.49 J	1.82 J,L	2.05 J	2.8 J
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	88,400	99,700	36,600	28,900	36,200	53,400	41,200	33,800	35,900
Thallium	0.5	1.0 U	1.0 U	0.6 U	2.0 U,L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	1.6 J,K	0.7 J,K,*	0.4 J,L	0.5 J,*	50.0 U	50.0 U	5.7 J	50.0 U	50.0 U
Zinc	NA	20.7 J,L	11.2 J	19.5 J	60.0 U	60.0 U	13.4 J,K	26.5 J	60.0 U	5.4 J
Hexavalent Chromium	2	**14.1 J,L**	**8.8 J**	**6.0 J,L**	**5.1 J, L**	**4.3 J,L**	**5.8**	**3.1 J,L**	**19.2 J,L**	**9.1 J,L**
Cyanide	4	2.0 J	5.0 U,J	**4 J**	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,*	10.0 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ6A

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ6A			MDEQPZ6A/6A-D	MDEQPZ6A				
Sampling Date:		09/09/11	03/21/12	09/26/12	03/06/13	09/05/13	04/03/14	09/25/14	04/23/15	10/13/15
Groundwater Elevation:[1]	NA	592.69	592.55	591.98	592.54	592.14	592.88	593.81	592.98	593.92
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.77	7.67	7.72	7.50	7.48	7.5	7.19	7.43	7.34
Oxidation Reduction Potential (mV)	NA	138.67	9.00	10.00	125.89	169.09	94.4	172	99	82.90
Conductivity (mS/cm)	NA	0.688	0.554	0.499	0.727	0.626	0.424	0.569	0.576	0.640
Dissolved Oxygen (mg/L)	NA	--	0.57	0.00	1.09	0.12	0.23	0.29	0.21	0.56
Turbidity (NTU)	NA	5.54	0.00	2.06	1.11	3.87	2.21	0.48	4.26	5.12
Temperature (°C)	NA	13.61	11.73	13.87	8.27	13.09	8.96	12.43	8.18	12.01
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	38.8 J	28.7 J	200 U	28.7 J	39.6 J	5.2	13	15	7.0
Antimony	3	0.436 J	0.451 J	0.190 J,L	0.382 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**0.407 J**	1.0 U	**0.700 J,K**	**0.616 J**	2.0 U	1.0 U	1.0 U	1.0 U	0.2 U
Barium	2,000	45.1 J	41 J	35.0 J	44.5 J	31.0 J	29	30	28	50
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**141**	**121**	**39.1**	**51.5**	**26.3**	**18**	**20**	**19**	**25**
Calcium	NA	77,800 K	65,200	64,900	70,200	64,500	72,000	60,000	57,000	88,000
Chromium	7,000	17.4	18.2 K	17.0	20.6	9.2 J	5.1	11	8.0	9.7
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	15.8 J	16.5 J	7.6 J	8.9 J	4.7 J	4.3	5.3	6.2	8.6
Iron	NA	46.2 J	64.4 J	32.0 J	203	117	110	140	150	140
Lead	5	0.336 J,K	0.104 J	1.00 U	0.169 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	13,700	12,500	13,200	13,800	13,000	15,000	13,000	12,000	17,000
Manganese	NA	1,790	1,990	751	1,160	301	230	320	510	340
Nickel	57	**90.3**	**105**	44.5	**57.1**	22.3 J	18	23	23	31
Potassium	NA	3,280 J	2,980 J	3,690 J	3,550	3,230 J	3.1	3,200	2,500	3,800
Selenium	NA	2.0 J,L	0.447 J	5.00 U	0.315 J	4.0 U	1.0	1.6	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	45,200	35,600	45,400	50,200	36,500	40,000	35,000	27,000	74,000
Thallium	0.5	0.077 J	1.00 U	1.00 U	0.099 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	15.6 J	5.5 J	60.0 U	8.1 J	5.9 J	5.0 U	5.1	5.0 U	5.0 U
Hexavalent Chromium	2	**13.7 J,L**	**14.6 J,L**	**12.7 J,L**	**17.1 J,L**	**4.6 J,L**	**5.0**	**8.0**	**6.0**	**9.0**
Cyanide	4	10.0 U	**5.0 J**	**4.0 J**	**4.0 J**	10.0 U	5.0 U	5.0 U	5.0 U	**5.0**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ6A

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ6A								
Sampling Date:		04/08/16	09/23/16							
Groundwater Elevation:[1]	NA	594.81	594.16							
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.19	7.75							
Oxidation Reduction Potential (mV)	NA	225.90	207							
Conductivity (mS/cm)	NA	0.881	0.632							
Dissolved Oxygen (mg/L)	NA	0.72	0.55							
Turbidity (NTU)	NA	2.51	5.06							
Temperature (°C)	NA	9.35	14.15							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	5.0 U	5.0 U							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	1.0 U	1.0 U							
Barium	2,000	41	31							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	**21**	**16**							
Calcium	NA	78,000	64,000							
Chromium	7,000	97	120							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	6.4	5.7							
Iron	NA	46	60							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	15,000	14,000							
Manganese	NA	220	130							
Nickel	57	28	22							
Potassium	NA	4,100	3,300							
Selenium	NA	2.1	1.1							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	47,000	52,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.7	2.0 U							
Zinc	NA	5.0 U	5.0 U							
Hexavalent Chromium	2	**95**	**110**							
Cyanide	4	**6.0**	**91**							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ6B

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ6B								
Sampling Date:		03/27/07	09/19/07	03/05/08	10/02/08	03/25/09	09/23/09	03/24/10	09/22/10	03/16/11
Groundwater Elevation:[1]	NA	593.25	592.01	592.95	592.32	592.84	592.6	592.81	592.62	593.15
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.28	8.15	7.90	7.55	8.11	8.10	8.12	8.08	7.80
Oxidation Reduction Potential (mV)	NA	--	--	--	--	-34.16	418.67	91.21	121.84	-38.49
Conductivity (mS/cm)	NA	0.552	0.714	0.413	0.9	0.527	0.573	0.595	0.606	0.646
Dissolved Oxygen (mg/L)	NA	--	--	--	--	0.24	1.93	1.91	1.11	0.54
Turbidity (NTU)	NA	1	0.714	29	32.2	1.32	1.16	0.84	1.24	0.55
Temperature (°C)	NA	--	--	--	--	10.36	13.5	11.14	13.97	10.85
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**507**	27.5 J	**230**	13.9 J	**537**	200 U	34.9 J	22 J,K	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	0.039 J	4.0 U
Arsenic	0.2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	**0.339 J,K**	2.0 U
Barium	2,000	49.0 J	38.1 J	42.8 J	29.1 J	43.6 J	38.7 J	38.6 J	39.1 J	43.2 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.2 J, K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	5.0 U	5.0 U	5.0 U	5.0 U	0.5 J	5.0 U	5.0 U	5.0 U	0.5 J
Calcium	NA	56,200	51,600	56,100	45,000	61,400	50,500	52,900	56,200	62,400
Chromium	7,000	12.6	4.4 J, K	7.3 J	2.6 J	10.9	4.6 J	2.7 J	3.3 J	4.4 J
Cobalt	NA	50.0 U	0.4 J	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Copper	NA	4.5 J,L	1.5 J	3.2 J	1.3 J	6.9 J	1.4 J	25.0 U	25.0 U	25.0 U
Iron	NA	913	43.9 J	416	100 U	899	8.9 J	13.5 J	100 U	100 U
Lead	5	1.0 J	2.0 U	2.0 U	2.0 U	1.6 J	1.0 U	1.0 U	0.167 J	2.0 U
Magnesium	NA	15,700	13,600	15,400	13,000	17,600	14,300	15,700	16,100	17,200
Manganese	NA	21.5	1.4 J	13.3 J	1.3 J	24.7	0.7 J	15.0 U	1.5 J	0.7 J
Nickel	57	4.0 J	1.5 J	3.6 J,K	1.7 J	3.8 J	1.8 J	2.1 J	40.0 U	40.0 U
Potassium	NA	2,200	1,940 J	2,000 J	1,570 J	2,090 J	2,030 J	1,930 J	1,920 J	1,950 J
Selenium	NA	1.6 J	4.0 U	4.0 U	4.0 U	4.0 U	0.46 J	0.357 J,L	0.749 J	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U, L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	34,500	38,800	43,900	20,100	28,800	48,000	40,300	52,500	48,300
Thallium	0.5	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	0.9 J,K	50.0 U,*	50.0 U,L	50.0 U	0.6 J	50.0 U	5.3 J	50.0 U	50.0 U
Zinc	NA	16.3 J,L	4.4 J	18.1 J	60.0 U	60.0 U	10.7 J,K	20.9 J	60.0 U	5.9 J
Hexavalent Chromium	2	**4.5 J,L**	**2.5 J**	**2.5 J**	**2 J, L**	**2.9 J,L**	**2.6**	1.3 J,L	**3.8 J,L**	**3.2 J,L**
Cyanide	4	5.0 U,J	5.0 U,J	5.0 U,J	10 U	10 U	10 U	10 U	10 U,*	10 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ6B

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ6B/6B-D	MDEQPZ6B						
Sampling Date:		09/09/11	03/21/12	09/26/12	03/06/13	09/05/13	04/03/14	09/25/14	04/23/15	10/13/15
Groundwater Elevation:[1]	NA	592.62	592.41	591.84	592.56	592.02	592.73	593.97	592.82	594.12
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Upper	Upper	Middle	Middle	Middle	Middle
pH (standard units)	NA	8.26	8.22	8.28	8.14	7.90	7.77	7.58	7.89	8.05
Oxidation Reduction Potential (mV)	NA	142.11	23.96	30.00	147.76	165.23	52.50	164.00	90.40	87.20
Conductivity (mS/cm)	NA	0.574	0.315	0.379	0.476	0.480	0.447	0.710	0.442	0.408
Dissolved Oxygen (mg/L)	NA	--	4.61	5.10	7.72	4.04	3.17	0.29	1.94	0.69
Turbidity (NTU)	NA	0.00	0.00	0.57	0.00	0.43	1.31	2.05	0.54	5.92
Temperature (°C)	NA	13.3	10.56	13.34	8.37	12.66	9.60	11.90	9.82	11.66
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	200 U	25.8 J	5.8	5.0 U	5.0 U	7.4
Antimony	3	0.058 J	0.082 J	2.00 U	0.067 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	1.0 U	1.0 U	**0.389 J**	0.199 J	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	40.08 J	26.6 J	29.5 J	29.4 J	29.6 J	26	41	28	37
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	0.5 J	1.2 J	5.0 U	0.8 J	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Calcium	NA	60,000	51,500	52,000	50,500	49,300	50,000	76,000	46,000	58,000
Chromium	7,000	4.1 J	1.0 J	2.7 J	2.8 J	1.1 J	1.3	2.5	1.2	2.3
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	1.8 J	25.0 U	1.6 J	25.0 U	25.0 U	1.4	1.7	1.1	3.0
Iron	NA	100 U	100 U	100 U	100 U	100 U	20 U	20 U	20 U	20 U
Lead	5	0.326 J,K	0.063 J	1.00 U	0.304 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	15,300	13,700	15,600	14,900	15,700	16,000	23,000	14,000	17,000
Manganese	NA	0.7 J	15.0 U	15.0 U	15.0 U	15.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Nickel	57	40.0 U	40.0 U	40.0 U	40.0 U	40.0 U	2.0 U	4.5	2.0 U	6.0
Potassium	NA	1,840 J	1,060 J	1,150 J	1,190 J, K	1,020 J	1,000	1,300	900	1,200
Selenium	NA	1.08 J,L	0.258 J	0.658 J	0.399 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	46,200	22,600	24,600	23,700	24,600	25,000	27,000	25,000	43,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.103 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	12.0 J	60.0 U	60.0 U	9.8 J	60.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Hexavalent Chromium	2	**4.1 J,L**	**2.7 J,L**	1.1 J,L	1.2 J,L	1.1 J,L	5.0 U	5.0 U	5.0 U	5.0 U
Cyanide	4	10 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ6B

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ6B								
Sampling Date:		04/08/16	09/23/16							
Groundwater Elevation:[1]	NA	594.98	594.37							
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	8.20	7.94							
Oxidation Reduction Potential (mV)	NA	190.10	-28							
Conductivity (mS/cm)	NA	0.426	1.046							
Dissolved Oxygen (mg/L)	NA	1.82	0.54							
Turbidity (NTU)	NA	2.88	7.24							
Temperature (°C)	NA	11.03	13.92							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	7.4	5.0 U							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	1.0 U	1.0 U							
Barium	2,000	43	83							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	0.2 U	0.2 U							
Calcium	NA	55,000	88,000							
Chromium	7,000	2.3	1.0 U							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	20	5.7							
Iron	NA	40	20 U							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	15,000	24,000							
Manganese	NA	5.0 U	5.0 U							
Nickel	57	8.3	12							
Potassium	NA	2,500	5,200							
Selenium	NA	1.5	1.0 U							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	49,000	98,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.0 U	2.0 U							
Zinc	NA	15	5.0 U							
Hexavalent Chromium	2	5.0 U	50 U							
Cyanide	4	**19**	5 U							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ6C

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ6C								
Sampling Date:		03/29/07	09/19/07	03/05/08	10/01/08	03/25/09	09/23/09	03/24/10	09/22/10	03/16/11
Groundwater Elevation:[1]	NA	593.79	591.77	592.74	592.36	592.82	592.59	592.80	592.59	593.16
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	7.89	8.62	7.67	7.51	8.27	8.14	8.25	8.14	7.83
Oxidation Reduction Potential (mV)	NA	--	--	--	--	29.62	444.42	13.9	118.07	-52.99
Conductivity (mS/cm)	NA	0.533	0.445	0.516	0.383	0.315	0.607	0.494	0.578	0.528
Dissolved Oxygen (mg/L)	NA	--	--	--	--	4.17	1.48	1.01	0.64	0.00
Turbidity (NTU)	NA	0	0	164	27.6	0.1	3.82	1.58	4.35	0.66
Temperature (°C)	NA	--	--	--	--	10.45	13.52	11.21	14.01	11.63
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**103 J**	**184 J**	41.1 J,K	200 U	41.4 J,L	200 U	200 U	200 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	0.07 J	4.0 U
Arsenic	0.2	**1.5 J**	**1.7 J**	**1.4 J**	**1.3 J**	**1.5 J**	**1.04**	**1.14**	**1.35 K**	**1.3 J**
Barium	2,000	75.1 J	45.5 J	86.3 J	44.6 J	46.5 J	82.7 J	64 J	77.1 J	68.4 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.2 J,K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	5.0 U	5.0 U	5.0 U	5.0 U	0.5 J	5.0 U	5.0 U	5.0 U	0.5 J
Calcium	NA	56,600	37,200	64,900	35,400	38,200	62,600	49,700	62,100	55,300
Chromium	7,000	3.5 J	4.7 J	3.1 J	10.0 U	4.4 J	2.8 J	1.3 J	1.9 J	1.3 J
Cobalt	NA	2.050.0 U	0.5 J	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Copper	NA	2.0 J,L	1.7 J	25.0 U	25.0 U	7.7 J	25.0 U	25.0 U	25.0 U	25.0 U
Iron	NA	207	360	66.5 J	100 U	160 L	100 U	7.1 J	16.9 J	100 U
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	1.2 J	1.0 U	1.0 U	0.076 J	2.0 U
Magnesium	NA	17,600	11,300	19,100	10,900	11,500	19,800	15,400	18,900	15,900
Manganese	NA	25.8	17.6	9.1 J	5.3 J	7.2 J	4.4 J	11.6 J	10.9 J	8.2 J
Nickel	57	1.3 J	1.8 J	2.1 J,K	1.5 J	3.8 J	2.2 J	1.4 J	40.0 U	40.0 U
Potassium	NA	1,290 J	953 J	1,259 J	820 J	1,010 J	1,320 J	1,100 J	1,140 J	1,170 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.38 J	5.0 U	5.0 U	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	**1.0 J,K**
Sodium	NA	27,500	15,600	39,200	17,400	15,300	30,400	21,800	31,400	28,100
Thallium	0.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	1.40 J,K	2.1 J,K,*	0.7 J,L	0.8 J	0.6 J	50.0 U	5.4 J	50.0 U	50.0 U
Zinc	NA	15.7 J,L	5.1 J	19.2 J, *	60.0 U	12.9 J	13.1 J,K	18 J	60.0 U	7.3 J
Hexavalent Chromium	2	10.0 U,J,L	10.0 U,J	10.0 U	5.0 U,J,L	5.0 U,J,L	5.0 U	5.0 U,J,L	**2.2 J,L**	1.2 J,L
Cyanide	4	5.0 U	5.0 U,J	5.0 U,J	10.0 U	10.0 U	10.0 U	10.0 U	3 J,*	**4 J**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ6C

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ6C								
Sampling Date:		09/09/11	03/21/12	09/26/12	03/06/13	09/05/13	04/03/14	09/25/14	04/25/15	10/13/15
Groundwater Elevation:[1]	NA	592.71	592.41	591.82	592.2	591.99	592.71	594.00	592.83	594.17
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.01	8.37	8.57	8.45	8.22	7.75	7.79	7.87	7.98
Oxidation Reduction Potential (mV)	NA	150.66	-0.27	-50.00	123.04	150.17	83.8	143	94.6	53.3
Conductivity (mS/cm)	NA	0.377	0.249	0.198	0.292	0.297	0.160	0.234	0.221	0.425
Dissolved Oxygen (mg/L)	NA	--	0.10	0.05	1.59	0.20	4.27	0.21	1.84	0.50
Turbidity (NTU)	NA	0.00	0.00	0.19	0.00	0.37	1.63	1.71	0.11	5.25
Temperature (°C)	NA	13.35	11.18	13.22	9.34	12.81	9.21	12.08	9.38	11.73
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	200 U	200 U	5.5	5.8	5.0 U	7.4
Antimony	3	0.098 J	0.073 J	0.078 J	0.065 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**1.32 J**	**1.3**	**1.45**	**1.49**	**1.7 J**	**1.5**	**2.4**	**1.7**	**1.9**
Barium	2,000	45.3 J	45 J	33.3 J	38.2 J	35.7 J	28	27	25	81
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	1.0 J	0.7 J	5.0 U	0.6 J	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Calcium	NA	40,500 K	41,700	29,800	32,400	32,100	30,000	28,000	25,000	63,000
Chromium	7,000	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.2
Cobalt	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	4.6 J	1.4 J	25.0 U	25.0 U	25.0 U	1.2	1.0 U	1.0 U	2.4
Iron	NA	100 U	100 U	100 U	100 U	100 U	20 U	20 U	20 U	24
Lead	5	0.084 J,K	0.095 J	1.00 U	0.078 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	10,700	11,900	9,110	9,390	8,990	8,600	8,400	7,300	18,000
Manganese	NA	15.0 U	5.9 J	7.6 J	9.6 J	15.4	5.0 U	5.0 U	5.0 U	35
Nickel	57	40.0 U	40.0 U	40.0 U	40.0 U	40.0 U	2.0 U	2.0 U	2.0 U	7.4
Potassium	NA	972 J	855 J	861 J,K	1,080 J, K	988 J	1,100	800	700	1,100
Selenium	NA	5.0 U	5.0 U	0.593 J,K	5.0 U	4.0 U	1.0	1.0	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	16,700	9,150	6,750	8,040	10,100	5,600	7,000	7,400	38,000
Thallium	0.5	1.0 U	1.0 U	1.0 U	0.067 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	1.2 J	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	34.2 J	60.0 U	60.0 U	60.0 U	5.9 J	5.0 U	6.0	5.0 U	5.0 U
Hexavalent Chromium	2	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	5 U	5 U	5 U	5 U
Cyanide	4	10.0 U	10.0 U,J	10.0 U	10.0 U	10.0 U	5 U	5 U	5 U	5 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ6C

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ6C								
Sampling Date:		04/08/16	09/23/16							
Groundwater Elevation:[1]	NA	595.03	594.41							
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.55	8.01							
Oxidation Reduction Potential (mV)	NA	233.1	21.8							
Conductivity (mS/cm)	NA	0.423	571.000							
Dissolved Oxygen (mg/L)	NA	0.30	1.37							
Turbidity (NTU)	NA	1.64	5.70							
Temperature (℃)	NA	11.04	13.36							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	33	5.0 U							
Antimony	3	1.0 U	1.0 U							
Arsenic	0.2	**1.1**	1.0 U							
Barium	2,000	80	59							
Beryllium	NA	1.0 U	1.0 U							
Cadmium	4	0.5	0.2 U							
Calcium	NA	64,000	53,000							
Chromium	7,000	1.0	1.0 U							
Cobalt	NA	5.0 U	5.0 U							
Copper	NA	4.8	1.5							
Iron	NA	510	40							
Lead	5	1.0 U	1.0 U							
Magnesium	NA	20,000	16,000							
Manganese	NA	43	73							
Nickel	57	9.5	6.8							
Potassium	NA	1,400	1,400							
Selenium	NA	1.0 U	1.0 U							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	39,000	34,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	2.0 U	2.0 U							
Zinc	NA	7.9	5.0 U							
Hexavalent Chromium	2	5.0 U	5 U							
Cyanide	4	5.0 U	5 U							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM SEPTEMBER 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ8

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ8								
Sampling Date:		09/17/07	10/02/08	09/23/09	09/22/10	09/09/11	09/26/12	--	09/25/14	10/13/15
Groundwater Elevation:[1]	NA	NA	NA	593.26	593.45	593.23	592.69	592.70	593.98	594.13
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.21	6.58	6.83	6.78	--	7.03	--	7.10	7.21
Oxidation Reduction Potential (mV)	NA	--	--	476.51	199.11	--	50.00	--	69.00	-39.70
Conductivity (mS/cm)	NA	1.59	1.66	1.272	1.224	--	0.689	--	0.808	0.839
Dissolved Oxygen (mg/L)	NA	--	--	3.63	0.90	--	0.02	--	0.18	0.05
Turbidity (NTU)	NA	0	49.6	58.62	10.8	--	62.16	--	30.10	7.40
Temperature (°C)	NA	--	--	16.99	17.52	--	17.32	--	15.53	14.99
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**205**	**80.6 J**	**136 J**	**217**	**249**	**548**	**54.7 J**	**740**	**30,000**
Antimony	3	1.2 J	4.0 U	0.79 J,L	1.02 J	0.939 J	0.759 J,L	4.0 U	1.0 U	**3.4**
Arsenic	0.2	2.0 U	2.0 U	1.0 U	**0.727 J,K**	1.00 U	**0.872 J,K**	2.0 U	1.0 U	**11**
Barium	2,000	143 J	118 J	89.5	88.7 J	96.1 J	57.5 J	45.6 J	57	300
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	10 U,J
Cadmium	4	**4.8 J**	3.2 J	2.5 J	3 J	**4.4 J**	2.2 J	1.5 J	2.6	**54**
Calcium	NA	92,200	88,600	84500	96,400	93,300	60,900	55,300	69,000	78,000
Chromium	7,000	10.8	7.9 J	8.5 J	8.1 J	9.9 J	13.0	15.0	14	**420**
Cobalt	NA	0.6 J	0.6 J	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	50 U,J
Copper	NA	4.2 J	3..9 J	4.2 J	5 J	7.5 J	8.0 J	25.0 U	7.5	250
Iron	NA	425	224	235	405	711	1050	120	1,400	63,000
Lead	5	2.0 U	2.0 U	0.2 J	0.235 J	0.927 J	0.442 J	2.0 U	1.0 U	29
Magnesium	NA	15,000	14,200	13700	14,900	13,500	9,940	8,320	12,000	17,000
Manganese	NA	82.6	106	88.4	140	169	49.4	23.1	49	240
Nickel	57	2.1 J	1.8 J	2.1 J	40.0 U	40.0 U	40.0 U	40.0 U	5.6	96
Potassium	NA	10,400	8,130	6550	6,240	6,930	5,020	4,750 J	4,100	9,700
Selenium	NA	4.0 U	4.0 U	0.38 J	0.322 J	0.452 J,L	0.870 J,K	4.0 U	1.0 U	10 U,J
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U
Sodium	NA	191,000	197,000	161000	146,000	133,000	92,000	74,200	89,000	97,000
Thallium	0.5	1.0 U	**0.5 J**	1.0 U	1.0 U	1.00 U	1.00 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	3.7 K, *,	1.7 J	50.0 U	2.3 J,L	3.6 J	4.6 J	3.1 J	5.7	120
Zinc	NA	21.3 J	9.5 J	23.1 J,K	60.0 U	28.9 J	60.0 U	9.8 J	28	1,300
Hexavalent Chromium	2.0	10.0 U,J,	5.0 U,J,L	5.0 U	5.0 U,J,L	5.0 U,J,L	5.0 U,J,L	**9.4 J,L**	**5**	5 U
Cyanide	4	**9 J**	10.0 U	10.0 U	3 J	3 J	10.0 U	10.0 U	5 U	**15**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM SEPTEMBER 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ8

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ9								
Sampling Date:		10/13/15	09/23/16							
Groundwater Elevation:[1]	NA	594.13	594.24							
Portion of Glacial Unit:	NA	Upper	Upper							
pH (standard units)	NA	7.21	7.29							
Oxidation Reduction Potential (mV)	NA	-39.70	-114.30							
Conductivity (mS/cm)	NA	0.839	1002.000							
Dissolved Oxygen (mg/L)	NA	0.05	0.81							
Turbidity (NTU)	NA	7.40	10.80							
Temperature (°C)	NA	14.99	16.14							
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	**30,000**	**200**							
Antimony	3	**3.4**	1.0 U							
Arsenic	0.2	**11**	1.0 U							
Barium	2,000	300	64							
Beryllium	NA	10 U,J	1.0 U							
Cadmium	4	**54**	0.7							
Calcium	NA	78,000	68,000							
Chromium	7,000	**420**	10							
Cobalt	NA	50 U,J	5.0 U							
Copper	NA	250	7.4							
Iron	NA	63,000	700							
Lead	5	29	1.0 U							
Magnesium	NA	17,000	11,000							
Manganese	NA	240	48							
Nickel	57	96	10							
Potassium	NA	9,700	5,400							
Selenium	NA	10 U,J	1.0 U							
Silver	0.1	0.2 U	0.2 U							
Sodium	NA	97,000	120,000							
Thallium	0.5	2.0 U	2.0 U							
Vanadium	NA	120	5.1							
Zinc	NA	1,300	10							
Hexavalent Chromium	2.0	5 U	5 U							
Cyanide	4	**15**	**29**							

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2006 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ9A

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ9A		MDEQPZ9A/A-D	MDEQPZ9A					
Sampling Date:		03/23/06	09/20/06	03/28/07	09/18/07	03/04/08	10/01/08	03/24/09	09/23/09	03/23/10
Groundwater Elevation:[1]	NA	NA	NA	594.32	592.66	593.48	591.9	592.47	592.47	592.92
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	8.04	7.29	7.24	7.26	7.79	6.58	7.01	6.96	7.06
Oxidation Reduction Potential (mV)	NA	--	--	--	--	--	--	91.67	178.84	94.05
Conductivity (mS/cm)	NA	0.447	371	0.318	0.572	0.201	0.309	0.440	0.298	0.352
Dissolved Oxygen (mg/L)	NA	--	--	--	--	--	--	0.1	2.33	1.94
Turbidity (NTU)	NA	0	0	0	0	229	2.2	3.96	0.77	0.15
Temperature (°C)	NA	--	--	--	--	--	--	10.67	14.91	11.71
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	**261 J**	**437**	17.0 J	11.8 J, K	17.5 J,K	200 U	200 U,L	200 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.7 J,L	0.684 J
Arsenic	0.2	2.0 U	**0.5 J,***	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**0.39 J**	1.0 U
Barium	2,000	21.7	15.1 J	13.2 J	9.4 J	6.1 J,L	9.0 J	6.0 J	4.5 J	7.0 J
Beryllium	NA	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**1,470**	**1,380**	**1,280**	**1,200**	**777**	**888**	**1,040**	**1,330**	**1,600**
Calcium	NA	37,300	46,600	40,200	36,500	31,100	48,600	49,600	38,500	43,600
Chromium	7,000	12.4	46.5	8.9 J	3.6 J, K	7.2 J	7.8 J	5.1 J	10.1	11.3
Cobalt	NA	1.25 J	2.1 J,K,*	1.1 J	0.9 J	1.0 J	2.0 J	1.4 J	1.5 J	1.6 J
Copper	NA	6.58	7.4 J	3.4 J,L	2 J	2.8 J	3.1 J	3.2 J	1.9 J	2.4 J,L
Iron	NA	39.3 J	636	7.8 J	100 U	100 U	13.7	100.0 U,L	12.6 J,K	11.1 J
Lead	5	3.0 U	1.4 J,*	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	0.154 J
Magnesium	NA	6,660	8,710	6,740	5,710 K	6,290	7,860	9,520	6,520	9,750
Manganese	NA	117	185	51.9	251	200	183	234	49.1	67.4
Nickel	57	**188**	**167**	**180**	**160**	**130**	**128**	**180**	**238**	**215**
Potassium	NA	3,910	4,240 J	3,960 J	1,920 J	2,340 J	3,040 J	2,010 J	2,200 J	2,980 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.14 J	0.299 J,L
Silver	0.1	5.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U
Sodium	NA	20,300	19,700	17,800	38,400	17,000	13,700	27,500	9,680	12,500
Thallium	0.5	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	NA	5.0 U	2.1 J,K	1.0 J,K	0.4 J,K,*	0.4 J,L	0.5 J	50.0	50.0 U	5.3 J
Zinc	NA	743	751	514	904	574	605	730	887	1,040
Hexavalent Chromium	2	**8.52 J**	**4.1 J**	**5.3 J,L**	10.0 U,J,L	10.0 U,J,L	**4.2 J,L**	**3.1 J,L**	**5.6 J,L**	**5.1 J,L**
Cyanide	4	10.0 U	**42 J,***	**13**	5.0 U	**10**	10.0 U	10.0 U	**7 J**	**7 J**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2006 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ9A

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ9A								
Sampling Date:		09/21/10	03/15/11	09/08/11	03/21/12	09/26/12	03/05/13	09/04/13	04/02/14	09/24/14
Groundwater Elevation:[1]	NA	592.4	593.62	592.75	591.56	591.29	591.72	591.52	592.16	595.23
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
pH (standard units)	NA	7.08	7.09	--	6.98	6.94	7.04	6.90	7.12	6.56
Oxidation Reduction Potential (mV)	NA	139.47	231.11	--	-48.80	104.88	20.66	154.28	164.6	71.00
Conductivity (mS/cm)	NA	0.297	0.349	--	0.738	2.234	0.315	0.379	0.303	0.330
Dissolved Oxygen (mg/L)	NA	1.12	0.18	--	0.48	0.21	4.79	0.08	0.56	0.46
Turbidity (NTU)	NA	7.4	0	--	0.00	0.51	0.00	2.10	1.10	0.38
Temperature (℃)	NA	16.37	12.4	--	17.82	16.82	10.02	17.49	10.79	13.74
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	200 U	200 U	38.8 J	200 U	6.3	5.0 U
Antimony	3	0.665 J	4.0 U	0.717 J	0.609 J	0.649 J,K	0.524 J	4.0 U	1.0 U	1.0 U
Arsenic	0.2	**0.344 J,K**	2.0 U	1.00 U	**0.496 J**	**0.510 J**	**0.285 J**	2.0 U	1.0 U	1.0 U
Barium	2,000	6.9 J	8.0 J	7.2 J	12.6 J	13.3 J	6.5 J	9.1 J	6.2	8.6
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U
Cadmium	4	**1,850**	**1,890**	**1,950**	**1,010**	**979**	**798**	**1,090**	**710**	**1,500**
Calcium	NA	40,200	45,600	47,700	43,000	52,100	37,900	44,000	34,000	35,000
Chromium	7,000	13	8.9 J	20.1	10.2 K	15.2	13.7	10.4	3.7	12
Cobalt	NA	1.3 J	0.9 J,K	2.3 J	50.0 U	50.0 U	50.0 U	1.1 J	5.0 U	5.0 U
Copper	NA	25.0 U	25.0 U	3.0 J	3.2 J	4.0 J	25.0 U	25.0 U	2.4	2.5
Iron	NA	100 U	100 U	100 U	100 U	100 U	59.0 J	100 U	20 U	20 U
Lead	5	0.059 J	2.0 U	0.281 J,K	0.071 J	1.00 U	0.291 K,*,J	2.0 U	1.0 U	1.0 U
Magnesium	NA	8,360 K	9,670	8,150	10,500	13,000	10,200	10,300	8,700	6,900
Manganese	NA	61.5	91.8	94.9	211	120	288	206	75	85
Nickel	57	**269**	**236**	**225**	**169**	**187**	**190**	**157**	**130**	**200**
Potassium	NA	2,030 J	2,560 J	2,140 J	1,910 J	3,150 J	1,870 J, K	2,830 J	1,700	1,300
Selenium	NA	0.486 J	4.0 U	5.0 U	0.966 J	1.09 J,K	1.61 J	4.0 U	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U
Sodium	NA	10,400	15,300	8,570	25,000	18,200	6,910	12,000	15,000	7,000
Thallium	0.5	1.0 U	1.0 U	0.058 J	1.0 U	1.0 U	0.074 J, K	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	1.1 J	50.0 U	50.0 U	2.0 U	2.0 U
Zinc	NA	1,460	1,370	1,420	928	996	962	804	55	980
Hexavalent Chromium	2	**10.1 J,L**	**6.8 J,L**	**16.4 J,L**	**7.9 J,L**	**10.1 J,L**	**8.1 J,L**	**6.3 J,L**	5 U	5 U
Cyanide	4	**7 J,***	10.0 U	**11**	10 U,J	10.0 U	**4 J**	**5 J**	5 U	**8**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2006 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ9A

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ9A								
Sampling Date:		04/21/15	10/13/15	04/08/16	09/23/16					
Groundwater Elevation:[1]	NA	593.26	595.81	596.71	596.14					
Portion of Glacial Unit:	NA	Upper	Upper	Upper	Upper					
pH (standard units)	NA	7.19	6.85	7.14	7.20					
Oxidation Reduction Potential (mV)	NA	98.80	-4.40	25.60	-106.70					
Conductivity (mS/cm)	NA	0.320	0.276	0.546	799.000					
Dissolved Oxygen (mg/L)	NA	1.08	0.15	0.97	0.80					
Turbidity (NTU)	NA	0.51	2.79	15.30	9.56					
Temperature (°C)	NA	9.62	13.28	10.62	14.38					
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	5.0 U	9.8	9.7	5.9					
Antimony	3	1.0 U	1.0 U	1.0 U	1.0 U					
Arsenic	0.2	1.0 U	1.0 U	**2.1**	**2.5**					
Barium	2,000	13	7.6	49	14					
Beryllium	NA	1.0 U	1.0 U	1.0 U	1.0 U					
Cadmium	4	**1,500**	**1,400**	**3,900**	**670**					
Calcium	NA	45,000	47,000	77,000	92,000					
Chromium	7,000	8.5	4.6	5.7	3.3					
Cobalt	NA	5.0 U	5.0 U	16	5.0 U					
Copper	NA	2.2	3.6	8.1	3.0					
Iron	NA	20 U	39	59,000	25,000					
Lead	5	1.0 U	1.0 U	1.0 U	1.0 U					
Magnesium	NA	8,300	7,700	20,000	17,000					
Manganese	NA	50	120	4,500	1,300					
Nickel	57	**160**	**140**	**540**	**89**					
Potassium	NA	2,200	3,500	24,000	8,900					
Selenium	NA	1.0 U	1.0 U	1.5	1.0 U					
Silver	0.1	0.2 U	0.2 U	0.2 U	0.2 U					
Sodium	NA	7,600	12,000	23,000	23,000					
Thallium	0.5	2.0 U	2.0 U	2.0 U	2.0 U					
Vanadium	NA	2.0 U	2.0 U	2.0 U	2.0 U					
Zinc	NA	730	1,100	4,500	810					
Hexavalent Chromium	2	**8**	5 U	50 U	50 U					
Cyanide	4	**6**	5 U	5.0 U	**9**					

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ21B

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ21B								
Sampling Date:		03/29/07	09/19/07	03/04/08	10/01/08	03/24/09	09/22/09	03/23/10	09/21/10	03/15/11
Groundwater Elevation:[1]	NA	595.15	593.19	593.68	592.31	592.97	592.79	592.94	592.6	593.97
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	7.17	7.87	7.38	6.84	7.78	7.12	7.56	7.66	7.43
Oxidation Reduction Potential (mV)	NA	--	--	--	--	-57.05	-23.21	132.95	185.37	-34.48
Conductivity (mS/cm)	NA	0.700	NA	0.477	1.030	0.167	0.335	1.013	0.502	0.881
Dissolved Oxygen (mg/L)	NA	--	--	--	--	1.33	0.76	0.71	1.52	0.00
Turbidity (NTU)	NA	0	0	116	6.2	0.00	4.40	3.76	6.18	0.12
Temperature (°C)	NA	--	--	--	--	9.43	13.18	10.58	14.99	11.47
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	20.4 J	200 U	200 U	200 U	200 U,L	200 U	40.3 J	200 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.28 J,L	0.262 J	0.252 J	4.0 U
Arsenic	0.2	**0.5 J**	2.0 U	2.0 U	2.0 U	2.0 U	**1.27**	**0.368 J**	**0.345 J**	2.0 U
Barium	2,000	15.6 J	17.7 J	11.3 J	20.7 J	5.8 J	12.5 J	23.7 J	10.6 J	18.2 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	0.2 J,K	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**486**	**554**	**338**	**391**	**155**	**572**	**353**	**203**	**281**
Calcium	NA	55,100	52,800	42,800	72,100	17,800	30,900	79,900	59,100	84,800
Chromium	7,000	1.3 J	1.9 J	1.9 J	20.6	28.1	2.5 J	25.5	38.9	11.1
Cobalt	NA	1.8 J	0.8 J	0.6 J	0.8 J	1.5 J	2.8 J	50.0 U	50.0 U	0.7 J,K
Copper	NA	4.4 J,L	4.6 J	2.0 J	3.1 J	1.6 J	22.9 J	2.2 J,L	25.0 U	25.0 U
Iron	NA	237	33.9 J	100 U	12.3 J	56.0 J,L	1,140	21 J,K	100 U	100 U
Lead	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Magnesium	NA	7,220	12,100	7,530	17,300	3,550 J	8,350	13,800	10,200	17,100
Manganese	NA	1,130	351	75.5	140	356	461	32.5	9.5 J	11.5 J
Nickel	57	37.8 J	44.9	31.8 J	23.5 J	10.3 J	43.6	18.6 J	9.9 J	15.2 J
Potassium	NA	3,600 J	3,70 J	3,190 J	5,990	3,180 J	2,860 J	3,880 J	2,440 J	3,170 J
Selenium	NA	4.0 U	4.0 U	2.0 J	4.0 U	4.0 U	5.0 U	1.13 J,L	0.658 J	4.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	80,800	111,000	83,800	65,400	9,800	23,900	102,000	35,600	77,200
Thallium	0.5	1.0 U	1.0 U	0.7 J	2.0 U	0.3 J	1.0 U	0.073 J	1.0 U	1.0 U
Vanadium	NA	50.0 U	0.3 J	50.0 U	50.0 U	50.0 U	50.0 U	3.7 J	50.0 U	50.0 U
Zinc	NA	148	130 *	116	76	31 J	179	76.3	28.7 J	48.9 J
Hexavalent Chromium	2	10.0 U,J,L	10.0 U,J,L	10.0 U,J,L	**19.8 J,L**	**26.5 J,L**	5.0 U,J,L	**20.5 J,L**	**37.7 J,L**	**11.0 J,L**
Cyanide	4	**4 J**	3 J	**5**	10.0 U	10.0 U	10.0 U	**8 J**	**12 ***	10.0 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ21B

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ21B								
Sampling Date:		09/08/11	03/20/12	09/25/12	03/05/13	09/04/13	04/01/14	09/24/14	04/22/15	10/14/15
Groundwater Elevation:[1]	NA	592.85	592.37	592.02	592.38	592.14	592.87	594.97	593.39	595.61
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle	Middle
pH (standard units)	NA	--	7.67	7.27	7.42	6.99	7.29	6.44	7.40	--
Oxidation Reduction Potential (mV)	NA	--	-52.06	90.00	199.75	88.01	144.10	46.90	88.00	36.00
Conductivity (mS/cm)	NA	--	0.886	0.511	0.691	0.412	0.476	1.049	0.930	0.668
Dissolved Oxygen (mg/L)	NA	--	0.53	1.42	3.31	4.51	0.35	0.51	0.18	0.87
Turbidity (NTU)	NA	--	0.00	0.00	2.67	0.84	1.22	0.68	0.59	--
Temperature (°C)	NA	--	17.29	16.19	8.30	16.81	9.58	12.02	7.54	11.25
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	23.2 J	200 U	5.4	**54**	5.4	5.4
Antimony	3	0.269 J	0.110 J	2.00 U	0.156 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	**0.560 J,K**	1.00 U	1.00 U	**0.289 J**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	24.4 J	7.7 J	10.9 J	12.0 J	7.4 J	7.9	15	13	15
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**833**	**167**	**266**	**267**	**204**	**180**	**580**	**300**	**520**
Calcium	NA	65,800	68,500	74,200	80,700	49,600	64,000	59,000	91,000	100,000
Chromium	7,000	4.1 J	20.3 K	42.6	38.2	43.3	74	26	14	84
Cobalt	NA	1.5 J	50.0 U	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	NA	6.9 J	1.0 J	1.3 J	25.0 U	25.0 U	2.2	5.6	5.1	5.3
Iron	NA	133	41.6	100 U	203	24.1 J	97	40	38	130
Lead	5	0.153 J,K	0.087 J	0.146 J	0.219 *,J,K	2.0 U	1.0	1.0 U	1.0 U	1.0 U
Magnesium	NA	8,920	12,100	15,900	19,400	11,400	17,000	13,000	16,000	16,000
Manganese	NA	447	75.2	22.7	99.1	29.8	45	67	50	130
Nickel	57	45.6	11.2 J	21.1 J	20.0 J	21.2 J	18	48	22	46
Potassium	NA	3,180 J	1,910 J	2,520 J	2,300 J	1,750 J	1,700	2,800	1,600	2,200
Selenium	NA	5.0 U	0.406 J	0.703 J	0.556 J	4.0 U	1.0 U	1.0 U	1.0 U	1.9
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	119,000	13,500	23,500	25,600	17,900	11,000	85,000	80,000	64,000
Thallium	0.5	0.052 J	1.00 U	1.00 U	0.13 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	158	34.4 J	40.2 J	86.0	82.1	57	160	53	100
Hexavalent Chromium	2	**2.9 J,L**	**19.4 J,L**	**41.5 J,L**	**37.2 J,L**	**40.3 J,L**	**81**	**26**	**12**	**80**
Cyanide	4	10.0 U	**7 J**	10.0 U	10.0 U	**6 J**	5 U	5 U	5 U	**9**

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ21B

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ21B								
Sampling Date:		01/14/16	04/07/16	06/22/16	09/22/16					
Groundwater Elevation:[1]	NA	NA	596.38	NA	595.81					
Portion of Glacial Unit:	NA	Middle	Middle	Middle	Middle					
pH (standard units)	NA	7.78	7.47	6.97	4.80					
Oxidation Reduction Potential (mV)	NA	21.60	-65.10	-88.44	59.30					
Conductivity (mS/cm)	NA	0.433	0.432	0.828	727.000					
Dissolved Oxygen (mg/L)	NA	8.20	0.47	0.21	1.32					
Turbidity (NTU)	NA	1.13	9.56	3.45	3.97					
Temperature (°C)	NA	11.36	10.92	14.86	14.20					
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	10	17.0 J	5.0 U					
Antimony	3	1.0 U	1.0 U	60.0 U, J	1.0 U					
Arsenic	0.2	1.0 U	**4.8**	7.0 J	**4.2**					
Barium	2,000	5.7	39	34.0 J	25					
Beryllium	NA	2.0 U	1.0 U	5.0 U	1.0 U					
Cadmium	4	**208**	**530**	**345**	**72**					
Calcium	NA	51,200	39,000	94,200	72,000					
Chromium	7,000	30.2	2.2	10.0 U	1.0					
Cobalt	NA	6.0 U	5.2	9.0 J	5.0 U					
Copper	NA	20 U	9.0	6.6 J	5.2					
Iron	NA	80 U	14,000	13,300	6,500					
Lead	5	1.0 U	1.0 U	2.7 J	1.0 U					
Magnesium	NA	9,710	12,000	16,400	12,000					
Manganese	NA	47.5	1,900	**4,040**	1,200					
Nickel	57	9.6	59	**128**	35					
Potassium	NA	1,650	14,000	5,000 U	5,700					
Selenium	NA	1.0 U	1.0 U	35.0 U, J	1.0					
Silver	0.1	10 U	0.2 U	10.0 U, J	0.2					
Sodium	NA	17,600	59,000	57,100	52,000					
Thallium	0.5	1.0 U	2.0 U	25.0 U	2.0 U					
Vanadium	NA	5.0 U	2.0 U	50.0 U	2.0 U					
Zinc	NA	30 U	260	377 J	73					
Hexavalent Chromium	2	**25.9**	5 U	5.0 U	50 U					
Cyanide	4	--	5 U	10.0 U	**7**					

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ21C

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ21C		MDEQPZ21C/C-D	MDEQPZ21C					
Sampling Date:		03/29/07	09/19/07	03/04/06	10/01/08	03/24/09	09/22/09	03/23/10	09/21/10	03/15/11
Groundwater Elevation:[1]	NA	594.98	593.28	593.59	592.11	592.81	592.57	592.77	592.41	594.07
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	7.85	7.89	7.82	7.13	7.53	7.72	7.66	7.64	7.59
Oxidation Reduction Potential (mV)	NA	--	--	--	--	-31.05	245.76	161.7	258.29	-48.91
Conductivity (mS/cm)	NA	0.525	NA	0.784	1.08	0.675	1.027	1.08	0.969	0.96
Dissolved Oxygen (mg/L)	NA	--	--	--	--	1.69	0.9	0.83	1.1	0.64
Turbidity (NTU)	NA	0	NA	576	18.1	0	0.63	7.14	9.51	0.02
Temperature (°C)	NA	--	--	--	--	10.17	13.82	9.94	15.25	12.15
Inorganic Analytes	**Result (µg/L)**									
Aluminum	50	26.7 J	**58.4 J, L**	38.6 J,K	200 U	9.9 J,L	200 U	36.4 J	200 U	200 U
Antimony	3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	2.0 U	0.055 J	4.0 U
Arsenic	0.2	**0.5 J**	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	**0.356 J,K**	2.0 U
Barium	2,000	27.0 J	30.3 J	53.0 J	35.5 J	20.9 J	33.3 J	37.6 J	30.7 J	25.8 J
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	4	**32.5**	**48.6**	**80.8**	**71.9**	**111**	**109**	**115**	**83.6**	**57.7**
Calcium	NA	53,800	63,300	94,400	81,800	73,700	75,300	85,100	74,500	55,300
Chromium	7,000	40.3	27.1	73.1	17.2	28.2	44.8	28.0	21.0	32.0
Cobalt	NA	50.0 U	50.0 U	0.5 J	0.5 J	50.0 U	50.0 U	50.0 U	50.0 U	0.6 J,K
Copper	NA	1.4 J,L	3.7 J	4.8 J	2.2 J	25.0 U	2.1 J	1.9 J,L	25.0 U	25.0 U
Iron	NA	34.9 J	114	61.7 J	100 U	100 U,L	10.7 J,K	100 U	24.8 J	100 U
Lead	5	2.0 U	2.0 U	1.1 J	2.0 U	2.0 U	1.0 U	1.0 U	0.06 J	2.0 U
Magnesium	NA	12,800	16,300	19,000	20,700	12,600	14,400	18,400	14,500	10,000
Manganese	NA	1.1 J	4.3 J	1.8 J	0.8 J	1.3 J	17.9	18.1	2.6 J	15.0 U
Nickel	57	7.2 J	10 J	16.7 J	14.2 J	11.4 J	15.4 J	15.8 J	9.5 J	8.4 J
Potassium	NA	3,790 J	4,290 J	5,130	4,230 J	3,080 J	4,360 J	4,190 J	3,630 J	3,430 J
Selenium	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.98 J	1.28 J,L	1.26 J	1.8 J
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U,L	10.0 U	10.0 U	10.0 U	10.0 U
Sodium	NA	42,300	43,600	106,000	43,000	46,800	115,000	122,000	115,000	137,000
Thallium	0.5	1.0 U	2.0 U	0.4 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.3 J
Vanadium	NA	0.4 J,K	50.0 U,L	50.0 U	50.0 U	50.0 U	50.0 U	4.6 J	50.0 U	50.0 U
Zinc	NA	12.7 J,L	18 J, *	29.0 J	13.7 J	21.5 J	33.6 J	47.5 J	15.2 J,L	11.9 J
Hexavalent Chromium	2	**40.2 J,L**	**22.1 J, L**	**71.6 J,L**	**17.1 J, L**	**25.2 J,L**	**35.2 J,L**	**22.5 J,L**	**19.2 J,L**	**30.0 J,L**
Cyanide	4	**38**	**10 J**	**77**	10.0 U	**11**	**26**	**12**	**5 J,***	10.0 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ21C

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ21C				MDEQPZ21C/C-D	MDEQPZ21C			
Sampling Date:		09/08/11	03/21/12	09/25/12	03/05/13	09/04/13	04/01/14	09/24/14	04/22/15	10/14/15
Groundwater Elevation:[1]	NA	592.7	592.24	591.86	592.24	592.00	592.78	595.05	593.18	595.39
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	--	7.88	7.93	7.87	7.59	7.78	7.45	7.82	--
Oxidation Reduction Potential (mV)	NA	--	-57.45	70.00	231.53	6.64	138.1	144	163.30	-62.30
Conductivity (mS/cm)	NA	--	1.298	0.446	0.622	0.656	0.606	0.880	1.121	1.719
Dissolved Oxygen (mg/L)	NA	--	2.95	4.31	7.44	2.39	0.68	1.11	0.32	0.38
Turbidity (NTU)	NA	--	0.00	0.00	0.00	2.18	1.08	0.91	0.96	--
Temperature (°C)	NA	--	13.26	15.86	8.36	15.47	10.65	11.74	9.33	11.29
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	200 U	200 U	21.5 J	28.9 J	5.0 U	16	5.0 U	12
Antimony	3	0.084 J	0.050 J	2.00 U	0.054 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Arsenic	0.2	1.0 U	**0.461 J**	**0.366 J**	0.136 J	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Barium	2,000	15.9 J	19.6 J	24.9 J	25.3 J	25.8 J	28	32	54	78
Beryllium	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	4	**59.3**	**45.5**	**46.8**	**52.4**	**54.6**	**44**	**67**	**81**	**91**
Calcium	NA	45,200	47,500	60,100	67,500	79,000	75,000	75,000	100,000	81,000
Chromium	7,000	41.2	9.3 J,K	9.9 J	12.5	12.6	14	19	22	16
Cobalt	NA	50.0 U	1.4 J	50.0 U	50.0 U	50.0 U	5.0 U	5.0 U	5.0 U	6.6
Copper	NA	4.0 J	2.0 J	1.9 J	25.0 U	25.0 U	2.0	5.2	5.3	28
Iron	NA	100 U	100 U	100 U	100 U	100 U	20 U	26	20 U	25,000
Lead	5	1.87 K	1.00 U	1.00 U	0.174 *,J,K	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	NA	8,200	9,410	11,000	11,300	13,900	14,000	13,000	23,000	150,000
Manganese	NA	1.8 J,L	15.0 U	15.0 U	15.0 U	15.0 U	5 U	5.0 U	5.0 U	810
Nickel	57	5.9 J	7.6 J	8.6 J	7.6 J	8.6 J	10	12	20	47
Potassium	NA	2,640 J	2,810 J	2,590 J	2,600 J	1,670 J	1,900	2,600	3,900	150,000
Selenium	NA	0.330 J,L	0.647 J	0.478 J	0.64 J	4.0 U	1.0 U	1.2	1.0 U	1.0 U
Silver	0.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	0.2 U	0.2 U	0.2 U	0.2 U
Sodium	NA	51,300	93,700	42,000	38,900	39,500	35,000	87,000	110,000	93,000
Thallium	0.5	1.0 U	1.00 U	1.00 U	0.081 J, K	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	NA	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Zinc	NA	23.0 J	7.9 J	60.0 U	16.8 J	12.0 J	10	15	17	49
Hexavalent Chromium	2	**39.1 J,L**	**10.5 J,L**	**10.8 J,L**	**11.3 J,L**	**11.0 J,L**	**14**	**20**	**17**	5 U
Cyanide	4	**14**	10.0 U,J	10.0 U	10.0 U	10.0 U	5 U	5 U	5 U	5 U

TABLE B3
GROUNDWATER ANALYTICAL RESULTS FROM MARCH 2007 TO SEPTEMBER 2016 SAMPLING EVENTS FOR MDEQPZ21C

Sample Number:	Groundwater Cleanup Goal (µg/L)	MDEQPZ21C								
Sampling Date:		01/14/16	04/07/16	06/22/16	09/22/16					
Groundwater Elevation:[1]	NA	NA	596.41	NA	595.86					
Portion of Glacial Unit:	NA	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower
pH (standard units)	NA	8.04	8.64	7.77	7.12					
Oxidation Reduction Potential (mV)	NA	-2.90	-46.70	19.81	128.00					
Conductivity (mS/cm)	NA	0.85	0.871	0.604	0.535					
Dissolved Oxygen (mg/L)	NA	4.87	1.35	0.34	0.41					
Turbidity (NTU)	NA	1.85	10.60	2.10	3.81					
Temperature (°C)	NA	10.54	10.22	16.20	14.15					
Inorganic Analytes		**Result (µg/L)**								
Aluminum	50	200 U	18	13.3 J	7.0					
Antimony	3	1.0 U	1.0 U	60.0 U, J	1.0 U					
Arsenic	0.2	1.0 U	1.0 U	10.0 U, J	1.0 U					
Barium	2,000	34.9	54	29.2	32					
Beryllium	NA	2.0 U	1.0 U	5.0 U	1.0 U					
Cadmium	4	**27.4**	**50**	**43.9**	**45**					
Calcium	NA	62,100	97,000	54,300	64,000					
Chromium	7,000	5.0 U	2.4	10.0 U	1.0 U					
Cobalt	NA	6.0 U	5.0	50.0 U	5.0 U					
Copper	NA	20 U	9.1	25.0 U, J	4.0					
Iron	NA	108	280	100 U	21					
Lead	5	1.0 U	1.0 U	10.0 U	1.0 U					
Magnesium	NA	16,000	55,000	14,600	19,000					
Manganese	NA	22.6	370	17.2	110					
Nickel	57	7.9	54	5.6 J	14					
Potassium	NA	6,310	15,000	5,000 U	5,400					
Selenium	NA	1.09	1.0 U	35.0 U, J	1.0 U					
Silver	0.1	10.0 U	0.2 U	10.0 U, J	0.2 U					
Sodium	NA	70,300	58,000	46,400	37,000					
Thallium	0.5	1.0 U	2.0 U	25.0 U	2.0 U					
Vanadium	NA	5.0 U	2.0 U	50.0 U	2.0 U					
Zinc	NA	30 U	20	60.0 U, J	15					
Hexavalent Chromium	2	5 U	5 U	5.0 U	5 U					
Cyanide	4	--	5 U	10.0 U	5 U					

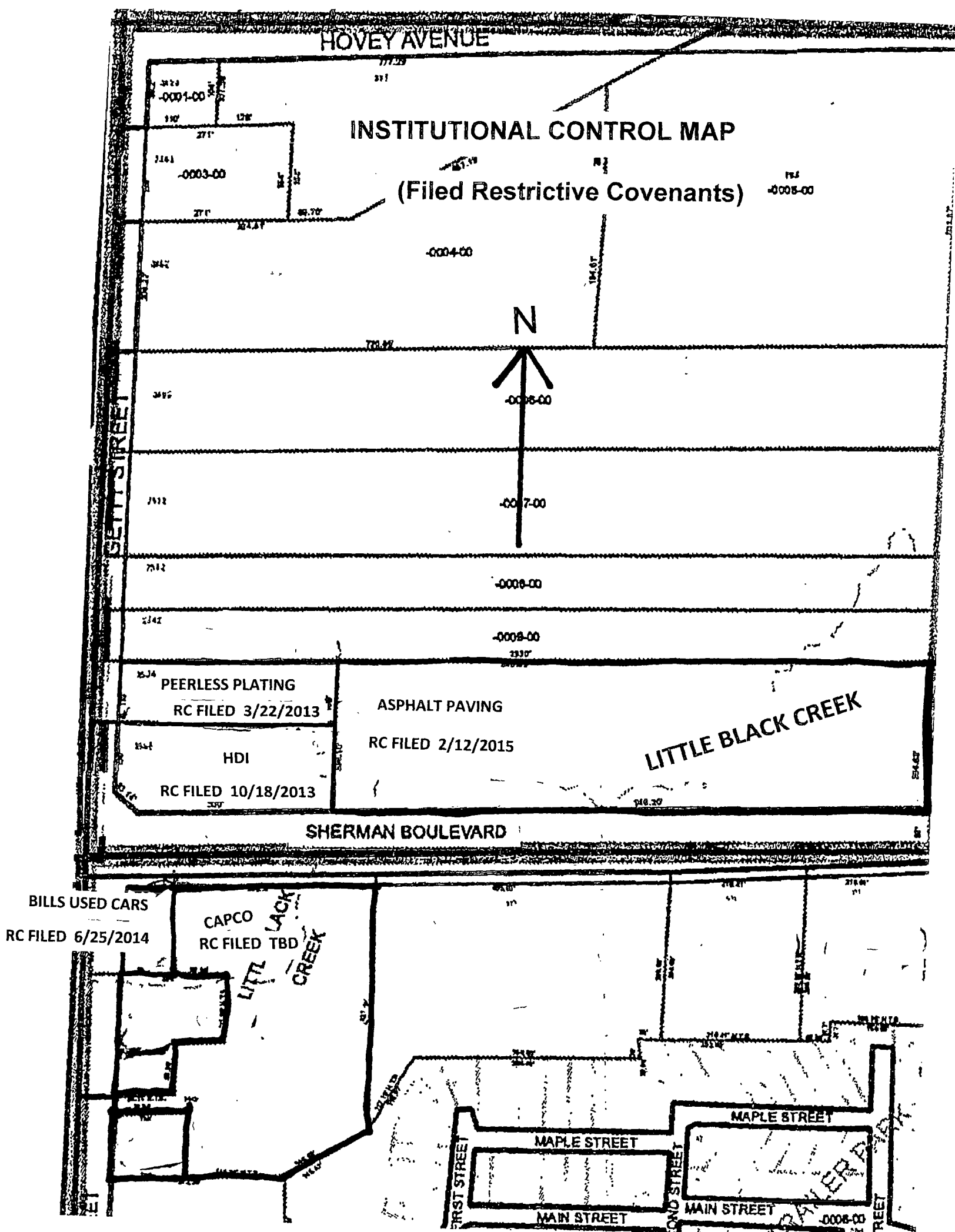
NOTES FOR ATTACHMENT A TABLES

Notes:

Results in **bold** exceed cleanup goals

*	=	Precision of the duplicate analysis is not within control limits; reported value estimated
--	=	Data not available
µg/L	=	Microgram per liter
J	=	Identification of analyte acceptable, reported value estimated
K	=	Identification of analyte acceptable, reported value may be biased high.
L	=	Identification of analyte acceptable; reported value may be biased low
mS/cm	=	MilliSiemen per centimeter
NA	=	Not applicable
NS	=	Not sampled
NTU	=	Nephelometric turbidity unit
U	=	Not detected
UJ	=	Not detected, reported quantitation limit estimated

1 Elevations are given in feet above mean sea level
2 Extraction wells are screened in the upper, middle, and lower portions of the glacial unit


HOVEY AVENUE
INSTITUTIONAL CONTROL MAP
(Filed Restrictive Covenants)
-0001-00
-0003-00
-0004-00
-0005-00
-0006-00
-0007-00
-0008-00
-0009-00
N
SETTY STREET
PEERLESS PLATING
RC FILED 3/22/2013
HDI
RC FILED 10/18/2013
ASPHALT PAVING
RC FILED 2/12/2015
LITTLE BLACK CREEK
SHERMAN BOULEVARD
BILLS USED CARS
RC FILED 6/25/2014
CAPCO
RC FILED TBD
LITTLE BLACK CREEK
MAPLE STREET
MAPLE STREET
MAIN STREET
MAIN STREET
-0006-00

APPENDIX F EXPANDED SITE HISTORY (from 2012 Peerless Plating Five-Year Review)

3.0 Background

3.1 Physical Characteristics

The Peerless Plating Site (Site) is an abandoned electroplating facility located at 2554 Getty Avenue, Muskegon Township Muskegon, Michigan. The property covers approximately 1 acre in the southwest 1/4 of Section 33, T.10 N., and R. 16 W Muskegon Township. (See Attachment 1) The vicinity of the Site is urban light industrial and residential. Lake Michigan supplies drinking water for residences and businesses within a three mile radius of the Site. The Site is located adjacent to Little Black Creek. There are no known private wells that supply drinking water within a one mile radius of the site.

3.2 Land and Resource Use

Electroplating operations were conducted at the Peerless Plating Site from 1937 to 1983. The current land use of the surrounding area is light urban industrial and residential. In establishing cleanup requirements for the Site, U.S. EPA considered the possibility of industrial redevelopment for the Site. The Site is fenced and contaminated soils were removed approximately to the depth of the water table and back filled with clean fill.

The groundwater aquifer underlying the Site occurs between 5 and 13 feet within lacustrine sands. Shallow groundwater flow is primarily horizontal to the southeast toward Little Black Creek.

3.3 History of Contamination

Electroplating operations and processes conducted at Peerless Plating included copper, nickel, chromium, cadmium and zinc plating. Other associated activities such as burnishing, polishing, pickling, oiling, passivating, stress relieving, and dichromate dipping also occurred over the years of operation. Throughout the operations of the Site, waste was discharged to a seepage lagoon at the rear of the facility. During the remedial action soil excavation operations at the site, it was discovered that a process pipe was not connected to anything and was discharging directly to groundwater.

Contaminants found in the soils included arsenic, antimony, beryllium, cadmium chromium, nickel, and cyanide. Contaminants in the groundwater included the same inorganics as well as acetone, benzene, 1, 2, Dichloroethane, Trichloroethylene.

3.4 Initial Response

In 1972, a Stipulation was signed by the Michigan Water Resources Commission (MWRC), requiring Peerless Plating to monitor its waste discharge daily and to establish a schedule for installation of a treatment system to meet specific effluent guidelines. In 1975, the owner was issued a Notice of Noncompliance and Order to Comply. These indicated violations of all aspects of the 1972 Stipulation.

In 1976, the Stipulation was superseded when the MWRC issued a State permit to discharge, requiring Peerless Plating to meet reduced effluent limitations and to construct appropriate treatment facilities. Peerless Plating violated this permit by failing to meet effluent guidelines, failing to construct appropriate treatment facilities, and failing to maintain a daily sampling and analysis program.

A suit was filed by the Michigan Department of Natural Resources (MDNR) and the MWRC, enjoining Peerless from further discharge and requiring compliance with the MWRC permit.

In 1976, MDNR reported high cyanide concentrations in Little Black Creek sediments adjacent to the seepage lagoons. A Water Quality and Biological Survey of Little Black Creek were conducted in 1977 by the MDNR water quality division. Extremely high concentrations of heavy metals in stream sediments and surface water were attributed to seepage from the waste disposal lagoons on the Peerless property.

In 1978, a hydro geologic study was conducted by MDNR to define the extent of groundwater and surface water contamination. This study resulted in the installation of 7 monitoring wells. Cadmium and cyanide were detected in groundwater samples taken from the wells. In 1980, the seepage lagoon sludges were removed and disposed of and the excavated lagoon area was backfilled.

In 1982, the MDNR Water Quality Division conducted a second study of sediment, surface water, and biota in Little Black Creek in the vicinity of Peerless Plating. The resampling was conducted to determine if the removal of contaminated sediments was necessary Cadmium concentrations in both water and sediments remained high, although substantial reductions had occurred since 1977. However, cadmium in sediments near the Site was not markedly different from concentrations upstream or downstream. Leaching of plating waste contaminants from the seepage lagoons was concluded to be greatly reduced. Improvement in stream quality was indicated by the increased number of general biota categories. Sediment removal from Little Black Creek was not recommended because upstream sources and urban runoff continued as significant heavy metal contributors, and sediment removal would eliminate most available animal habitat.

In 1983, the MDNR conducted an investigation into the operating practices at the Site and sampled materials in and around the plant. The MDNR found that treatment facilities still had not been upgraded and discharge limitations were still being exceeded for chromium, cyanide, cadmium, and zinc. The MDNR determined that manholes inside the plant did not connect to the sanitary sewer or plant treatment systems, so wastes were discharged directly to the ground under the building

In 1983, The MDNR and the Michigan Attorney General again filed a suit against Peerless for failure to meet county ordinance discharge limitations.

In June 1983, Peerless Plating closed as a result of regulatory actions, labor problems, and

financial difficulties. The owner declared bankruptcy. The plant was abandoned and the plating solutions, raw materials and drummed wastes were left throughout the building.

The State Agency contacted the U.S. EPA Region V Spill Response section requesting that the Site be considered for emergency action under CERCLA. In the fall of 1983, a Site Assessment was conducted and the U.S. EPA determined that the Peerless Plating facility was an immediate threat to human health and the environment.

From September 6 until October 7, 1983, the U.S. EPA carried out an emergency response action at the Site. The objectives of the emergency response action included the removal and disposal of hazardous waste and decontamination of the facility. This action resulted in the removal of 37,000 gallons of hazardous liquids including sulfuric acid, nitric acid, hydrochloric acid, chromic acid, cyanide plating solution, chromium plating solutions and trichloroethylene. Lagoons were drained, soil was removed from the lagoons area, soils and sludges were removed from the building interior vats, lines, tanks, sumps, floorboards and walls were decontaminated. Sewer lines were sealed, virgin and proprietary chemicals were removed and on site neutralization of cyanides and nitric acid occurred.

In 1984, the U.S. EPA conducted a Preliminary Assessment (PA) and reported that groundwater was contaminated with trichloroethylene (TCE), perchloroethylene (PCE) and Chloroform, and that surface water and sediment in Little Black Creek were contaminated with heavy metals. The building structure was reported to be unsound and site access restriction was inadequate. Recommendations included performing a Site inspection to confirm whether all on Site liquids and containers had been removed during the 1983 emergency response action and to assess groundwater, soil and surface water contamination.

A Site Inspection was conducted in 1985 to determine the extent of contamination. A hydrogeolgic study was also conducted in 1985 to further delineate the extent of groundwater contamination Results indicated contamination of groundwater by heavy metals and volatile organics associated with activities at a plating operation.

3.5 Basis for Taking Action

In August 1990, the Peerless Plating Site was finalized on the National Priorities List. From 1990 through 1992, a Remedial Investigation/Feasibility Study (RI/FS) was conducted to determine the nature and extent of contamination at the Site.

Based on the results of the sampling conducted as part of the RI/FS the following were found to have been released to the environment:

Soil	Groundwater
arsenic	arsenic
antimony	cadmium
cadmium	chromium
chromium	copper

SITE CHRONOLOGY

APPENDIX G SITE CHRONOLOGY TABLE

Chronology of Site Events	
Event	**Date**
Initial Discovery of the Site	**1972**
State of Michigan Cleanup Actions	**1972- 1983**
U.S. EPA Removal Actions (remove additional liquids and sludge in underground storage tanks)	**9/1983**
NPL listing	**1990**
Fund Lead Remedial Investigation/Feasibility Study complete	**6/1992**
Record of Decision Signed	**9/21/1992**
Actual Fund Lead Remedial Action (RA) start	**4/1993**
Remedial Design (RD) Complete	**9/1996**
On-site construction start (soil excavation work)	**8/1997**
Explanation of Significant Difference #1 (to change soil cleanup levels)	**8/1997**
Explanation of Significant Difference #2 (off site treatment of soils and institutional controls)	**4/2001**
Pump and treat groundwater system installed (i.e. Groundwater Extraction System (GES)	**2001**
Construction completion	**4/2001**
Preliminary Close out Report	**4/2001**
First FYR	**9/2002**

Chronology of Site Events	
Event	**Date**
Explanation of Significant Difference #3 (to change the discharge point and adjustments to groundwater pretreatment requirements)	**3/2006**
Second FYR	**7/2007**
Little Black Creek Ecological Risk Evaluation	**3/2010**
Data collection for Groundwater enhancement review	**3/2012**
Restrictive Covenant Filed on Peerless Plating Property	**3/22/2013**
Third Five Year Review	**7/2012**
Amendment to the 1992 Record of Decision for the new In-Situ Chemical Reduction and Permeable Reactive Barrier by Injection Remedy	**8/30/2013**
O & M remedy take over by the DEQ (i.e. GES)	**10/2013**
Restrictive Covenant filed on HDI Property	**10/18/2013**
Restrictive Covenant filed on Bills Used Cars Property	**6/25/2014**
Restrictive Covenant filed on Asphalt Paving Property	**2/12/2015**
Basis of Design for new In-Situ Chemical Reduction and Permeable Reactive Barrier by Injection Remedy	**3/31/2015**
On-site Construction Start (new In-Situ Chemical Reduction and Permeable Reactive Barrier by Injection Remedy); Shut down of GES system	**8/2015**
New In-Situ Chemical Reduction and Permeable Reactive Barrier by Injection Remedy begins	**10/2015**

APPENDIX H NEWSPAPER PUBLIC NOTICE

THE DAVID GROUP

Invoice Number:	123649
Order Number:	341580
Client Name:	Tetra Tech EM Inc.
Ad:	Peerless Plating Superfund Site
Publication:	Muskegon Chronicle/BOOTH
Run dates:	Nov 15 2016

EPA

EPA Begins Review of Peerless Plating Superfund Site

Muskegon, Michigan

U.S. Environmental Protection Agency and Michigan Department of Environmental Quality are conducting a five-year review of the Peerless Plating Superfund site at 2554 Getty Ave. in Muskegon, Mich. The Superfund law requires regular checkups of sites that have been cleaned up – with waste managed on-site – to make sure the cleanup continues to protect people and the environment. This is the fourth five-year review of this site.

EPA's cleanup actions at the site included demolition and disposal of buildings, installation of a system to remove dangerous vapors from the soil, removing contaminated soil, constructing a system to treat and strip chemical contamination from the underground water and diverting the wastewater discharge system from Little Black Creek to the local treatment plant. In 2012, soil and groundwater sampling results prompted EPA to consider alternative cleanup methods. In 2013, EPA proposed a new cleanup plan that consists of additional in-place treatment of contamination sources and EPA is currently implementing this plan, which should help improve cleanup of the contaminated soil and groundwater that remains on site after the cleanup. MDEQ took over the operation and maintenance of the pump and treat system in September 2013 and is working with EPA on this five year review.

More information is available at the Norton Shores Branch Library, 705 Seminole Road, Muskegon, and at **www.epa.gov/superfund/peerless-plating**. The review should be completed by the end of July 2017.
The five-year review is an opportunity for you to tell the EPA about site conditions and any concerns you have. Contact:

Sarah Rolfes
EPA
Remedial Project Manager
312-886-6551
rolfes.sarah@epa.gov

Cindy Fairbanks
MDEQ
Project Manager
517-284-5093
fairbanksc@michigan.gov

Cheryl Allen
EPA
Community Involvement Coordinator
312-353-6196
allen.cheryl@epa.gov

You may also call EPA toll-free at 800-621-8431, 9:30 a.m. – 5:30 p.m., weekdays.

APPENDIX I SITE INSPECTION CHECKLIST

Appendix I
Five-Year Review Site Inspection Checklist

[This page intentionally left blank]

Five-Year Review Site Inspection Checklist

(Working document for site inspection Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status "N/A" refers to "not applicable")

I SITE INFORMATION	
Site name Peerless Plating	Date of Inspection 4/11/2017
Location and Region Michigan, Region 5	EPA ID MID006031348
Agency, office, or company leading the five-year review MDEQ	Weather/temperature Cold, rainy, ~40°

Remedy Includes (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- ☒ Institutional controls
- ☒ Groundwater pump and treatment (currently inactive)
- ☐ Surface water collection and treatment
- ☒ Other_____
- ☐ Monitored natural attenuation
- ☒ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☒ Inspection team roster attached ☒ Site map attached

II INTERVIEWS (Check all that apply)

1 O&M site manager Greg Azzoli (Name) Principal Geologist (Title) 3/27/17 (Date)
Interviewed ☐ at site ☐ at office ☒ by phone Phone no 734-641-2700
Problems, suggestions, ☐ Report attached _____

2 O&M staff Greg Azzoli (Name) Principal Geologist (Title) 3/27/17 (Date)
Interviewed ☐ at site ☐ at office ☒ by phone Phone no 734-641-2700
Problems, suggestions, ☐ Report attached _____

3 Local regulatory authorities and response agencies (i e , State and Tribal offices emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc) Fill in all that apply N/A

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no
Problems suggestions, ☐ Report attached _____

Agency _____
Contact _____ _____ _____
Name Title Date Phone no
Problems, suggestions, ☐ Report attached _____

Agency _____
Contact _____ _____ _____
Name Title Date Phone no
Problems, suggestions, ☐ Report attached _____

Agency _____
Contact _____ _____ _____
Name Title Date Phone no
Problems, suggestions, ☐ Report attached _____

4 Other interviews (optional) ☐ Report attached

Spoke with Mr. Tom Workman, VP of HDI. Discussed current site remedy, that additional injected scheduled for Spring 2018; ongoing quarterly ground water sampling will continue into and beyond 2018; Introduced new EPA RPM.

IV O&M COSTS

1 **O&M Organization**

- [X] State in-house
- [X] Contractor for State
- [ ] PRP in-house
- [ ] Contractor for PRP
- [ ] Federal Facility in-house
- [ ] Contractor for Federal Facility
- [ ] Other

2 **O&M Cost Records**

- [X] Readily available
- [X] Up to date
- [X] Funding mechanism/agreement in place DEQ O&M Contract
- Original O&M cost estimate $206,000 for 3 years [ ] Breakdown attached

DEQ take over of CES system 10/2013. original O&M contract $205,894.00

Total annual cost by year for review period if available

From	To	Total cost	
Date	Date		
10/2013	10/2014	~$70,000	[ ] Breakdown attached
10/2014	10/2015	~$70,000	[ ] Breakdown attached
10/2015	10/2016	~$70,000	[ ] Breakdown attached
10/2016	10/2017	~$20,000	[ ] Breakdown attached
			[ ] Breakdown attached

10/16 - 10/19 contract renewed for $150,000

3 **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons NONE

V ACCESS AND INSTITUTIONAL CONTROLS [X] Applicable [ ] N/A

A Fencing

1 **Fencing damaged** [ ] Location shown on site map [ ] Gates secured [X] N/A

Remarks

B Other Access Restrictions

1 **Signs and other security measures** [X] Location shown on site map [ ] N/A

Remarks

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1 O&M Documents
- [X] O&M manual — [X] Readily available — [X] Up to date — [ ] N/A
- [ ] As-built drawings — [ ] Readily available — [ ] Up to date — [ ] N/A
- [ ] Maintenance logs — [ ] Readily available — [ ] Up to date — [ ] N/A

Remarks: Documents also available from MDEQ, Lansing, MI

2 Site-Specific Health and Safety Plan — [X] Readily available — [X] Up to date — [ ] N/A
- [ ] Contingency plan/emergency response plan — [ ] Readily available — [ ] Up to date — [ ] N/A

Remarks: Document also available from MDEQ, Lansing, MI

3 O&M and OSHA Training Records — [X] Readily available — [ ] Up to date — [ ] N/A

Remarks:

4 Permits and Service Agreements
- [ ] Air discharge permit — [ ] Readily available — [ ] Up to date — [X] N/A
- [ ] Effluent discharge — [ ] Readily available — [ ] Up to date — [ ] N/A
- [X] Waste disposal, POTW — [X] Readily available — [X] Up to date — [ ] N/A
- [ ] Other permits — [ ] Readily available — [ ] Up to date — [ ] N/A

Remarks: Permit No. PPSS-M075 with Muskegon County Waste Water Mangement System

5 Gas Generation Records — [ ] Readily available — [ ] Up to date — [ ] N/A

Remarks:

6 Settlement Monument Records — [ ] Readily available — [ ] Up to date — [X] N/A

Remarks:

7 Groundwater Monitoring Records — [ ] Readily available — [ ] Up to date — [X] N/A

Remarks:

8 Leachate Extraction Records — [ ] Readily available — [ ] Up to date — [X] N/A

Remarks:

9 Discharge Compliance Records
- [ ] Air — [X] Readily available — [X] Up to date — [ ] N/A
- [X] Water (effluent) — [ ] Readily available — [ ] Up to date — [ ] N/A

Remarks: Permit No. PPSS-M075 with Muskegon County Waste Water Management System

10 Daily Access/Security Logs — [ ] Readily available — [ ] Up to date — [X] N/A

Remarks:

C Institutional Controls (ICs)

1 **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☐ No ☐ N/A
Site conditions imply ICs not being fully enforced ☒ Yes ☐ No ☐ N/A

Type of monitoring (e g , self-reporting, drive by) _____
Frequency Annually
Responsible party/agency MDEQ
Contact Cindy Fairbanks EQAII 517-284-5093
Name Title Date Phone no

Reporting is up-to-date ☒ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☒ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☒ Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No ☒ N/A
Other problems or suggestions ☐ Report attached

2 **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D General

1 **Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident
Remarks

2 **Land use changes on site** ☒ N/A
Remarks

3 **Land use changes off site** ☒ N/A
Remarks

VI GENERAL SITE CONDITIONS

A Roads ☒ Applicable ☐ N/A

1 **Roads damaged** ☐ Location shown on site map ☒ Roads adequate N/A
Remarks

B. Other Site Conditions

Remarks None

VII LANDFILL COVERS ☐ Applicable ☒ N/A

A. Landfill Surface

1 **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
Areal extent _____ Depth _____
Remarks _____

2 **Cracks** ☐ Location shown on site map ☐ Cracking not evident
Lengths _____ Widths _____ Depths _____
Remarks _____

3 **Erosion** ☐ Location shown on site map ☐ Erosion not evident
Areal extent _____ Depth _____
Remarks _____

4 **Holes** ☐ Location shown on site map ☐ Holes not evident
Areal extent _____ Depth _____
Remarks _____

5 **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress
☐ Trees/Shrubs (indicate size and locations on a diagram)
Remarks _____

6 **Alternative Cover** (armored rock, concrete, etc.) ☐ N/A
Remarks _____

7 **Bulges** ☐ Location shown on site map ☐ Bulges not evident
Areal extent _____ Height _____
Remarks _____

8 **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident
- ☐ Wet areas ☐ Location shown on site map Areal extent_____
- ☐ Ponding ☐ Location shown on site map Areal extent_____
- ☐ Seeps ☐ Location shown on site map Areal extent_____
- ☐ Soft subgrade ☐ Location shown on site map Areal extent_____

Remarks_____

9 **Slope Instability** ☐ Slides ☐ Location shown on site map ☐ No evidence of slope instability
Areal extent_____
Remarks_____

B Benches ☐ Applicable ☒ N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1 **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

2 **Bench Breached** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

3 **Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

C Letdown Channels ☐ Applicable ☒ N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1 **Settlement** ☐ Location shown on site map ☐ No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

2 **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

3 **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
Areal extent_____ Depth_____
Remarks_____

4	**Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting Areal extent_____ Depth_____ Remarks_____
5	**Obstructions** Type_____ ☐ No obstructions ☐ Location shown on site map Areal extent_____ Size_____ Remarks_____
6	**Excessive Vegetative Growth** Type_____ ☐ No evidence of excessive growth ☐ Vegetation in channels does not obstruct flow ☐ Location shown on site map Areal extent_____ Remarks_____
D	**Cover Penetrations** ☐ Applicable ☒ N/A
1	**Gas Vents** ☐ Active ☐ Passive ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A Remarks_____
2	**Gas Monitoring Probes** ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A Remarks_____
3	**Monitoring Wells** (within surface area of landfill) ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A Remarks_____
4	**Leachate Extraction Wells** ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A Remarks_____
5	**Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A Remarks_____

E Gas Collection and Treatment ☐ Applicable ☒ N/A

1 **Gas Treatment Facilities**
☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
☐ Good condition ☐ Needs Maintenance
Remarks_____

2 **Gas Collection Wells, Manifolds and Piping**
☐ Good condition ☐ Needs Maintenance
Remarks_____

3 **Gas Monitoring Facilities** (*e g* , gas monitoring of adjacent homes or buildings)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____

F Cover Drainage Layer ☐ Applicable ☒ N/A

1 **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
Remarks_____

2 **Outlet Rock Inspected** ☐ Functioning ☐ N/A
Remarks_____

G Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

1 **Siltation** Areal extent_____ Depth_____ ☐ N/A
☐ Siltation not evident
Remarks_____

2 **Erosion** Areal extent_____ Depth_____
☐ Erosion not evident
Remarks_____

3 **Outlet Works** ☐ Functioning ☐ N/A
Remarks_____

4 **Dam** ☐ Functioning ☐ N/A
Remarks_____

H Retaining Walls ☐ Applicable ☒ N/A

1 **Deformations** ☐ Location shown on site map ☐ Deformation not evident
Horizontal displacement_____ Vertical displacement_____
Rotational displacement_____
Remarks_____

2 **Degradation** ☐ Location shown on site map ☐ Degradation not evident
Remarks_____

I Perimeter Ditches/Off-Site Discharge ☐ Applicable ☒ N/A

1 **Siltation** ☐ Location shown on site map ☐ Siltation not evident
Areal extent_____ Depth_____
Remarks_____

2 **Vegetative Growth** ☐ Location shown on site map ☒ N/A
☐ Vegetation does not impede flow
Areal extent_____ Type_____
Remarks_____

3 **Erosion** ☐ Location shown on site map ☐ Erosion not evident
Areal extent_____ Depth_____
Remarks_____

4 **Discharge Structure** ☐ Functioning ☒ N/A
Remarks_____

VIII VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1 **Settlement** ☐ Location shown on site map ☐ Settlement not evident
Areal extent_____ Depth_____
Remarks_____

2 **Performance Monitoring** Type of monitoring_____
☐ Performance not monitored
Frequency_____ ☐ Evidence of breaching
Head differential_____
Remarks_____

IX GROUNDWATER/SURFACE WATER REMEDIES ☒ Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A

1 **Pumps, Wellhead Plumbing, and Electrical**

☒ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A

Remarks

2 ***Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances***

☒ Good condition ☐ Needs Maintenance

Remarks currently not operating while new injection remedy is ongoing

3 **Spare Parts and Equipment**

☒ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A

1 **Collection Structures, Pumps, and Electrical**

☐ Good condition ☐ Needs Maintenance

Remarks

2 **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**

☐ Good condition ☐ Needs Maintenance

Remarks

3 **Spare Parts and Equipment**

☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks

C. Treatment System ☒ Applicable ☐ N/A

1 **Treatment Train** (Check components that apply)
☒ Metals removal ☐ Oil/water separation ☐ Bioremediation
☐ Air stripping ☐ Carbon adsorbers
☐ Filters _____
☐ Additive (e.g., chelation agent, flocculent) _____
☐ Others _____
☐ Good condition ☐ Needs Maintenance
☐ Sampling ports properly marked and functional
☐ Sampling/maintenance log displayed and up to date
☐ Equipment properly identified
☐ Quantity of groundwater treated annually _____
☐ Quantity of surface water treated annually _____
Remarks _____

2 **Electrical Enclosures and Panels** (properly rated and functional)
☐ N/A ☒ Good condition ☐ Needs Maintenance
Remarks _____

3 **Tanks, Vaults, Storage Vessels**
☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
Remarks _____

4 **Discharge Structure and Appurtenances**
☐ N/A ☒ Good condition ☐ Needs Maintenance
Remarks _____

5 **Treatment Building(s)**
☒ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
☐ Chemicals and equipment properly stored
Remarks _____

6. **Monitoring Wells** (pump and treatment remedy)
☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☒ Good condition
☒ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks _____

D. Monitoring Data

1 Monitoring Data
☒ Is routinely submitted on time ☒ Is of acceptable quality

2 Monitoring data suggests
☒ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining

D Monitored Natural Attenuation

1 Monitoring Wells (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs Maintenance ☒ N/A

Remarks

X OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI OVERALL OBSERVATIONS

A Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The Groundwater Extraction System (GES; Oem) was operating effectively and functioning as designed throug August 2015. At that time the GES was shut down to allow the new injection remedy to be implemented. The GES is the contingency for re-activation if the new injection remedy is determine to be ineffective. The injection remedy is under evaluation through the next FYR in 2022.

B Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

The GES remedy is/was effective in the short term as there are no current exposure pathways and the remedy was functioning as designed.

Long term protectiveness will not fully be achieved until the final IC is in place and groundwater cleanup goals are met. The new injection remedy is anticipated to meet groundwater cleanup goals.

C.	Early Indicators of Potential Remedy Problems
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future
	None

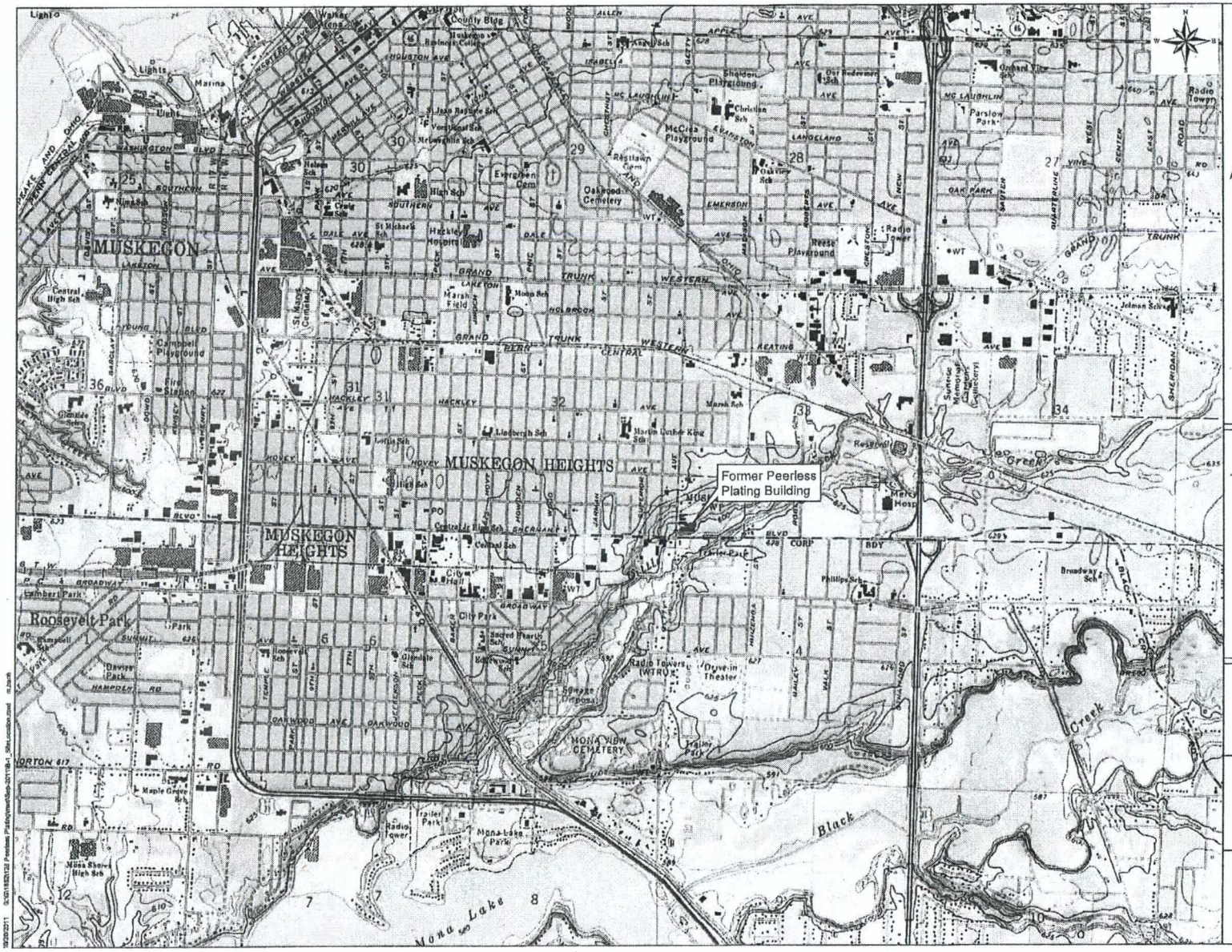
D.	Opportunities for Optimization
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy
	Second, focused In Situ Injection scheduled for April 2018, intended to further reduce metals contamination in source area under HDI building (especially cadmium)

PEERLESS PLATING 2017 FIVE YEAR REVIEW INSPECTION TEAM ROSTER

Sarah Rolfes (EPA)

David Franc (SulTrac)

Cindy Fairbanks (MDEQ)



APPENDIX B SITE LOCATION

MAP SOURCE:
U.S. Geological Survey (USGS) 7.5 Minute Topographic Map of Muskegon, Michigan, United States 01/01/1980

0 2,000 4,000 Feet

PEERLESS PLATING SUPERFUND SITE MUSKEGON, MICHIGAN

FIGURE 1
SITE LOCATION

SulTRAC

Legend

- BUILDING OUTLINE
- FENCE LINE
- STREAM

APPENDIX B SITE FEATURES

0 50 100 Feet

PEERLESS PLATING SUPERFUND SITE MUSKEGON, MICHIGAN

FIGURE 2
SITE LAYOUT

SulTRAC

APPENDIX J FILED RESTRICTIVE COVENANTS

Peerless Plating

DECLARATION OF RESTRICTIVE COVENANT AND GRANT OF ENVIRONMENTAL PROTECTION EASEMENT

This transfer is exempt from County and State transfer taxes pursuant to MCL 207 505(a) and MCL 207.526(a), respectively.

Peerless Plating Superfund Site, Muskegon County, Michigan
MDEQ Site ID No. 61000039
U.S. EPA Site No. MID 006031348/Superfund Site ID 05G2

MDEQ Reference No. **RC-RRC201-12-030**

This Declaration of Restrictive Covenant and Grant of Environmental Protection Easement ("Restrictive Covenant and Easement") is made on FEBRUARY 28, 2013 by the Michigan Land Bank Fast Track Authority, the Grantor, whose address is MEDC Building, 300 North Washington Square, Lansing Michigan 48913, for the benefit of the Grantee, the Michigan Department of Environmental Quality ("MDEQ"), whose address is Constitution Hall, 525 West Allegan Street, Lansing, Michigan 48933.

RECITALS

i. The Grantor is the title holder of the real property located in Muskegon County, Michigan (Tax ID No.10-033-300-0010-00) and legally described in Exhibit 1 attached hereto ("Property").

ii. The purpose of this Restrictive Covenant and Easement is to create restrictions that run with the land in the Grantor's real property rights; to protect the public health, safety, and welfare, and the environment; to prohibit or restrict activities that could result in unacceptable exposure to environmental contamination present at the Property; and to grant access to the Grantee, the United States Environmental Protection Agency ("U.S. EPA") as a Third Party Beneficiary, and either agency's representatives to monitor and conduct Response Activities.

iii. A Record of Decision ("ROD") was issued by the U.S. EPA on September 21, 1992, for the purpose of carrying out the Response Activities selected to address environmental contamination at the Site. The MDEQ concurred with the ROD in a letter dated September 30, 1992. The Response Activities summarized below are more fully described in the ROD and subsequent Explanations of Significant Differences ("ESDs") issued in 1997, 2001, and 2006 and are being implemented by U.S. EPA.

iv. The Property is known as the Peerless Plating Superfund Site (the "Site"), MDEQ Site ID No. 61000039. Hazardous substances associated with metal plating operations such as copper, nickel, chromium, cadmium and zinc, and other organic and inorganic contaminants, have been released and/or disposed of on the Site. The Site was placed on the National Priorities List ("NPL") in June 1990 and is a facility as that term is defined in Section 101(9) of the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601 *et seq.* ("CERCLA"); and Section 20101(1)(r) of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.20101 *et seq.* ("NREPA").

v. At the time of recording this Restrictive Covenant and Easement, soil and groundwater containing inorganic compounds (primarily cadmium) remain present at the Property. The U.S. EPA and the MDEQ have determined that the hazardous substances at the Property would present a threat to human health if the soils were disturbed or if any wells or other devices to extract groundwater for consumption, irrigation, or any other use were installed and that the land use and resource use restrictions set forth below are required to prevent potential unacceptable exposures.

vi. The restrictions contained in this Restrictive Covenant and Easement are based upon information available to the U.S. EPA and the MDEQ at the time the ROD and ESDs were issued. Failure of the Response Activities to achieve and maintain the criteria, exposure controls, and requirements specified in the ROD and ESDs; future changes in the environmental condition of the Property or changes in the applicable cleanup criteria; the discovery of environmental conditions at the Property that were not accounted for in the ROD and ESDs, regardless of the date of the release of hazardous substances contributing to those environmental conditions; or the use of the Property in a manner inconsistent with the restrictions described herein, may result in this Restrictive Covenant and Easement not being protective of public health, safety, and welfare, and the environment. Information pertaining to the environmental conditions at the Property and Response Activities undertaken at the Site is on file with the U.S. EPA and the MDEQ, Remediation and Redevelopment Division.

vii. The MDEQ recommends that prospective purchasers or users of the Property undertake appropriate due diligence prior to acquiring or using this Property, and undertake appropriate actions to comply with the applicable requirements of Section 20107a of the NREPA.

SUMMARY OF RESPONSE ACTIVITIES

Prior to the recording of this Restrictive Covenant and Easement, Response Activities were undertaken to remove or treat in-place some of the hazardous substances present at the Site. These Response Activities included air stripping and treatment of volatile organic compounds in the groundwater, and in-situ vapor extraction for the organic compounds and stabilization of inorganic compounds in the soil. The ROD established groundwater cleanup standards based on Safe Drinking Water Act Maximum Contaminant Levels, risk-based levels, and State of Michigan criteria for protection of groundwater quality and provided that all contaminated soils would be excavated and stabilized on Site for unrestricted use. In 1997, an ESD was issued that allowed certain contaminated soils to remain in place provided that deed restrictions were placed on the Site due to the cadmium levels present in the soil and groundwater.

DEFINITIONS

"Grantee" shall mean the MDEQ, its successor entities, and those persons or entities acting on its behalf;

"Grantor" shall mean the title holder of the Property at the time this Restrictive Covenant and Easement is executed or any future title holder of the Property or some relevant subportion of the Property;

"MDEQ" shall mean the Michigan Department of Environmental Quality, its successor entities, and those persons or entities acting on its behalf;

"NREPA" shall mean the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.101 *et seq.*;

"Part 201" shall mean Part 201, Environmental Remediation, of the NREPA, MCL 324.20101 *et seq.*;

"Property" shall mean the real property legally described in Exhibit 1;

"Response Activities" shall mean, consistent with Section 101(25) of CERCLA, 42 U.S.C. Section 9601(25), such actions as have been or may be necessary to conduct any removal, remedy or remedial action, as those terms are defined in Sections 101(23) and 101(24) of CERCLA, 42 U.S.C. Sections 9601(23) and 9601(24), on the Property and/or at the Site, including enforcement activities related thereto;

"Site" shall mean the Peerless Plating Superfund NPL Site (the "Site");

"U.S. EPA" shall mean the United States Environmental Protection Agency, its successor entities and those persons or entities acting on its behalf; and

All other terms used in this document which are defined in Part 3, Definitions, of the NREPA; Part 201; or the Part 201 Administrative Rules ("Part 201 Rules"), 2002 Michigan Register 24, effective December 21, 2002, shall have the same meaning in this document as in Parts 3 and 201 of the NREPA and the Part 201 Rules, as of the date of execution of this Restrictive Covenant and Easement

NOW THEREFORE,

The Grantor, on behalf of itself, its successors and assigns hereby covenants and declares that the Property shall be subject to the restrictions set forth below, for the benefit of the Grantee, and grants and conveys to the Grantee, and its assigns and representatives, the perpetual right to enforce said restrictions. The Grantor further, on behalf of itself, its successors and assigns does grant and convey to the Grantee and its representatives an environmental protection easement of the nature, character, and purposes set forth below with respect to the Property, and the right to enforce said easement.

1. **Restrictions on Land Use:** The Grantor shall:

Prohibit all residential uses of the Property. Permissible and impermissible uses compatible with nonresidential uses are generally described in Exhibit 3 (Allowable Uses).

2. **Restrictions on Activity:** The Grantor shall:

(a) Prohibit activities that cause existing contamination to migrate beyond the boundaries of the Property, increase the cost of Response Activities, or otherwise exacerbate the existing contamination located on the Property. The term "exacerbation" is more specifically defined in Section 20101(1)(q) of the NREPA, MCL 324.20101(1)(q).

(b) Prohibit and prevent use of the Property in a manner that may interfere with Response Activities at the Property, including interim response, remedial action, operation and maintenance, monitoring, or other measures necessary to assure the effectiveness and integrity of the remedial action.

(c) Not interfere with or damage the integrity of the extraction and monitoring wells U.S. EPA or the MDEQ have installed on the Property, including wells WT02A, PZ02B, M10413, M14014, and M1405A, as shown on Exhibit 2A.

(d) Prohibit the construction of and use of wells or other devices on the Property to extract groundwater for consumption, irrigation, or any other use, except for wells and devices that are necessary for Response Activities or testing and monitoring groundwater contamination in accordance with plans approved by the MDEQ and the U.S. EPA.

(e) Not permit any drilling, digging, building, or removal of any buildings, wells, pipes, roads, ditches or any other structures on the Property unless the written consent of U.S. EPA and the MDEQ to such use or activity is first obtained.

(f) Not disturbing the soil underneath the existing building on the Property unless the written consent of U.S. EPA or the MDEQ is first obtained.

3 **Management of Contaminated Soil, Media, and Debris:** The Grantor shall manage all soils, media and/or debris located on the Property in accordance with the applicable requirements of Section 20120c of Part 201, MCL 324.20120c and Part 111, Hazardous Waste Management, of the NREPA, MCL 324.11101 *et seq.*; the Resource Conservation and Recovery Act, 42 U.S.C. Section 6901 *et seq.*; the administrative rules promulgated thereunder; and all other relevant state and federal laws and regulations.

4. **Access**: The Grantor grants the MDEQ and their representatives the right to enter the Property at reasonable times for the purpose of determining and monitoring compliance with the ROD and subsequent ESDs for the Site and with this Restrictive Covenant and Easement, including the right to take samples, inspect the operation of the Response Activities, and, inspect any records relating thereto; and to perform any actions necessary to maintain compliance with Part 201 and the ROD and subsequent ESDs for the Site.

Nothing in this Restrictive Covenant and Easement shall limit or otherwise affect the MDEQ's right of entry and access, or authorities to take Response Activities as defined in this Restrictive Covenant and Easement, as well as in NREPA, and any successor statutory provisions, or other state or federal law.

5. **Term:** This Restrictive Covenant and Easement shall run with the land and shall be binding on the Grantor, including persons as set forth in Paragraph 12(e), Successors.

6. **Third Party Beneficiary**: The Grantor, on behalf of itself and its successors, transferees, and assigns, hereby agrees that the United States, acting by and through the U.S. EPA, its successors and assigns, shall be a third party beneficiary ("Third Party Beneficiary") of all the benefits and rights set out in the restrictions, covenants, easements, exceptions, notifications, conditions, and agreements herein, and that the Third Party Beneficiary shall have the right to enforce the restrictions described herein as if it was a party hereto. No other rights in third parties are intended by this Restrictive Covenant and Easement, and no other person or entity shall have any rights or authorities hereunder to enforce these restrictions, terms, conditions, or obligations beyond the Grantor, the MDEQ, their successors, assigns, and the Third Party Beneficiary.

7. **Enforcement**: The State of Michigan, through the MDEQ; and the United States of America, through the U.S. EPA as a Third Party Beneficiary, may enforce the restrictions and grant of easement set forth in this Restrictive Covenant and Easement by legal action in a court of competent jurisdiction.

8. **U.S. EPA Entry, Access, and Response Authority**: Nothing in this Restrictive Covenant and Easement shall limit or otherwise affect the U.S. EPA's right of entry and access, or authority to undertake Response Activities as defined in this Restrictive Covenant and Easement, as well as in CERCLA, the National Contingency Plan, 40 Code of Federal Regulations Part 300, and any successor statutory provisions, or other state or federal law. The Grantor consents to officers, employees, contractors, and authorized representatives of the U.S. EPA entering and having continued access to this Property for the purposes described in Paragraph 4, above.

9. **Modification/Release/Rescission**: The Grantor may request in writing to the U.S. EPA and the MDEQ, at the addresses provided in Paragraph 11, below, modifications to, or release or rescission of, this Restrictive Covenant and Easement. This Restrictive Covenant and Easement may be modified, released, or rescinded only with the written approval of the U.S. EPA and the MDEQ. Any approved modification to, or release or rescission of, this Restrictive Covenant and Easement shall be filed with the appropriate county Register of Deeds by the Grantor and a certified copy shall be returned to the MDEQ and the U.S. EPA at the addresses provided in Paragraph 11, below.

10. **Transfer of Interest**: The Grantor shall provide notice at the addresses provided in this document to the MDEQ and to the U.S. EPA of the Grantor's intent to transfer any interest in the Property, or any portion thereof, at least fourteen (14) business days prior to consummating the conveyance. A conveyance of title, easement, or other interest in the Property shall not be consummated by the Grantor without adequate and complete provision for compliance with the terms and conditions of this Restrictive Covenant and Easement and the applicable provisions of Section 20116 of the NREPA. The Grantor shall include in any instrument conveying any interest in any portion of the Property, including, but not limited to, deeds, leases, and mortgages, a notice which is in substantially the following form:

NOTICE: THE INTEREST CONVEYED HEREBY IS SUBJECT TO A DECLARATION OF RESTRICTIVE COVENANT AND ENVIRONMENTAL PROTECTION EASEMENT, DATED *[month, day, year]*, AND RECORDED WITH THE MUSKEGON COUNTY REGISTER OF DEEDS, LIBER _____, PAGE _____.

11. **Notices**: Any notice, demand, request, consent, approval, or communication that is required to be made or obtained under this Restrictive Covenant and Easement shall be made in writing; include a statement that the notice is being made pursuant to the requirements of this Restrictive Covenant and Easement; include the MDEQ Site ID number and reference number;

and shall be served either personally, or sent via first class mail, postage prepaid, as follows:

For the U.S. EPA:

Director
Superfund Division (SR-6J)
U.S. Environmental Protection Agency, Region 5
77 West Jackson Blvd.
Chicago, IL 60604

with a copy to:

Office of Regional Counsel (C-14J)
U.S. Environmental Protection Agency, Region 5
77 West Jackson Blvd.
Chicago, IL 60604

For the MDEQ:

Chief
Remediation and Redevelopment Division
Michigan Department of Environmental Quality
P.O. Box 30426
Lansing, MI 48909-7926

12. **Miscellaneous:**

(a) **Controlling Law.** The interpretation and performance of this Restrictive Covenant and Easement shall be governed by the laws of the United States as to the obligations referred to in the ROD and subsequent ESDs for the Site, and by the laws and regulations of the State of Michigan for all other purposes hereunder (without reference to choice of laws and principles thereof). The right to enforce the conditions and restrictions in this Restrictive Covenant and Easement are in addition to other rights and remedies that may be available, including, but not limited to, administrative and judicial remedies under CERCLA or Part 201 of the NREPA.

(b) **Construction.** Any general rule of construction to the contrary notwithstanding, this Restrictive Covenant and Easement shall be liberally construed to achieve the purpose of this Restrictive Covenant and Easement and the policy and purpose of CERCLA and the land use restrictions and prospective use limitations required by Part 201. If any provision of this Restrictive Covenant and Easement is found to be ambiguous, an interpretation consistent with the purpose of this Restrictive Covenant and Easement that would render the provision valid shall be favored over any interpretation that would render it invalid.

(c) **Severability.** If any provision of this Restrictive Covenant and Easement is held to be invalid by any court of competent jurisdiction, the invalidity of such provision shall not affect the validity of any other provision hereof, and all other provisions shall continue unimpaired and in full force and effect.

(d) **Entire Agreement.** This Restrictive Covenant and Easement and its attachments and appendices supersedes all prior discussions, negotiations, understandings, or agreements between the undersigned relating to the matters addressed herein, all of which are merged herein.

(e) **Successors.** The covenants, terms, conditions, and restrictions of this Restrictive Covenant and Easement shall be binding upon, and inure to the benefit of, the Grantor and Grantee and their agents, successors, lessees, and assigns and any subsequent title holders, occupants or other persons acquiring an interest in the Property or a relevant sub-portion of the Property, and their respective agents, successors and assigns. The rights, but not the obligations or authorities, of the U.S. EPA are freely assignable to any public entity, subject to the notice to the Grantor, its successors and assigns, as their interests appear in the public title records kept and maintained by the Muskegon County Register of Deeds.

13. **Exhibits:** The following exhibits are incorporated into this Restrictive Covenant and Easement:

Exhibit 1 – Legal Description of the Property

Exhibit 2 – Survey of the Property

Exhibit 2A – General Location of Monitoring and Extraction Wells

Exhibit 3 – Description of Allowable Uses

14. **Authority to Execute Restrictive Covenant and Easement:** The undersigned person executing this Restrictive Covenant and Easement represents and certifies that he or she is duly authorized and has been empowered to execute this Restrictive Covenant and Easement.

IN WITNESS WHEREOF, the Michigan Land Bank Fast Track Authority, the Grantor, has caused this Restrictive Covenant and Easement to be executed on this 28th day of February 2013.

Signature

Kim L. Homes

Printed Name

Executive Director

Title

STATE OF Michigan)

)ss

COUNTY OF Ingham)

Acknowledged before me in Ingham County, Michigan, on February 28, 2013 by Jeffrey M Huntington.

Notary Public, State of Michigan
County of Eaton
My commission expires: 07/20/2018
Acting in the County of Ingham

The MDEQ approves the form and content of this Restrictive Covenant and Easement on this 21 day of February 2013

BY: Jo Ann Merrick
JoAnn Merrick, Assistant Division Chief
Remediation and Redevelopment Division
Department of Environmental Quality

STATE OF Michigan)
)ss
COUNTY OF Ingham)

Acknowledged before me in Ingham County, Michigan, on February 21, 2013 by Kathleen J. Sruba.

Kathleen J. Sruba
Kathleen J. Sruba
Notary Public, State of Michigan
County of Eaton
My commission expires: 9/15/18
Acting in the County of Ingham

This document prepared by
Bradley J. Ermisch
Michigan Department of Environmental Quality
Remediation and Redevelopment Division
525 West Allegan Street
Lansing, Michigan 48933-2125

Kathleen J. Sruba, Notary Public
State of Michigan, County of Eaton
My Commission Expires 9/15/2018
Acting in the County of Ingham

5446321
L-3944 P-642
03/22/2013 12:22P
Page: 9 of 15
Mark Fairchild, Muskegon Co ROD 044

Exhibit 1 – Legal Description of the Property

The north 119.00 Feet of the West 383.00 Feet of the South ¼ of the Southwest ¼ of the Southwest ¼ of Section 33, Town 10 North, Range 16 West, Muskegon Township, Muskegon County, Michigan.

Exhibit 2 – Survey of the Property

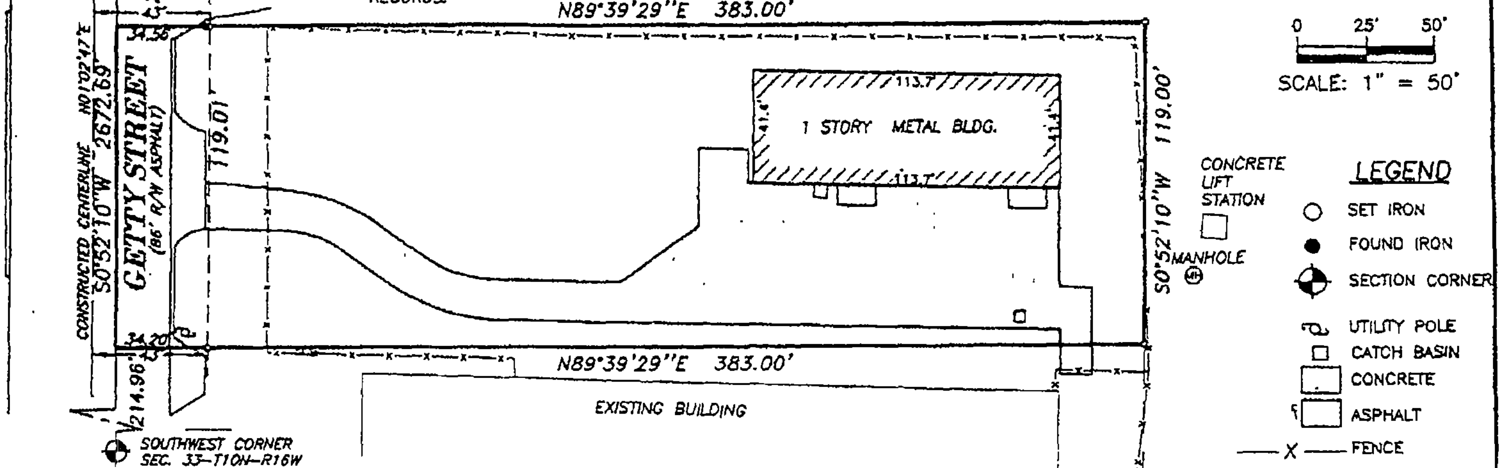
ETRA TECH

WESTSHORE CONSULTING

Engineers • Scientists • Surveyors • Planners

CERTIFICATE OF SURVEY

FURNISHED DESCRIPTION: THE NORTH 119.00 FEET OF THE WEST 383.00 FEET OF THE SOUTH 1/4 OF THE SOUTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 33, TOWN 10 NORTH, RANGE 16 WEST, MUSKEGON TOWNSHIP, MUSKEGON COUNTY, MICHIGAN. RESERVING FOR ROAD PURPOSES THAT PART THEREOF WHICH LIES 43.00 FEET EAST OF THE SURVEY CENTERLINE OF GETTY STREET, AS DESCRIBED IN AS HIGHWAY EASEMENT RELEASE RECORDED IN LIBER 982, PAGE 760, MUSKEGON COUNTY RECORDS.



AS A PROFESSIONAL LAND SURVEYOR OF THE STATE OF MICHIGAN, I DO HEREBY CERTIFY THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE AND BELIEF, I HAVE SURVEYED THE PROPERTY AS DESCRIBED AND SHOWN HEREIN AND THAT THERE EXISTS NO VISIBLE ENCROACHMENTS ON SAID PROPERTY UNLESS NOTED AND THAT THIS SURVEY WAS PREPARED IN ACCORDANCE WITH A DESCRIPTION FURNISHED BY OTHERS AND SHOULD BE COMPARED TO THE ABSTRACT OF TITLE OR TITLE POLICY FOR ACCURACY, EASEMENTS, OR EXCEPTIONS. THIS SURVEY DOES NOT EXTEND TO ANY UNNAMED PERSON WITHOUT AN EXPRESSED RECERTIFICATION BY THE SURVEYOR.

Stanley J. Kass

STANLEY J. KASS
P.S. NO. 34972
2534 BLACK CREEK ROAD
MUSKEGON, MI. 49444
PHONE : (231)777-3447
FAX : (231)773-3453

STATE OF MICHIGAN — STANLEY KASS LAND SURVEYOR No. 34972 — LICENSED LAND SURVEYOR

DATE: 08/14/12
SHEET 1 OF 1

FILE NO: 12-0097
SCALE: 1" = 50'
SURVEYED BY SJK
DRN BY: BJA

Exhibit 2A – General Location of Monitoring and Extraction Wells

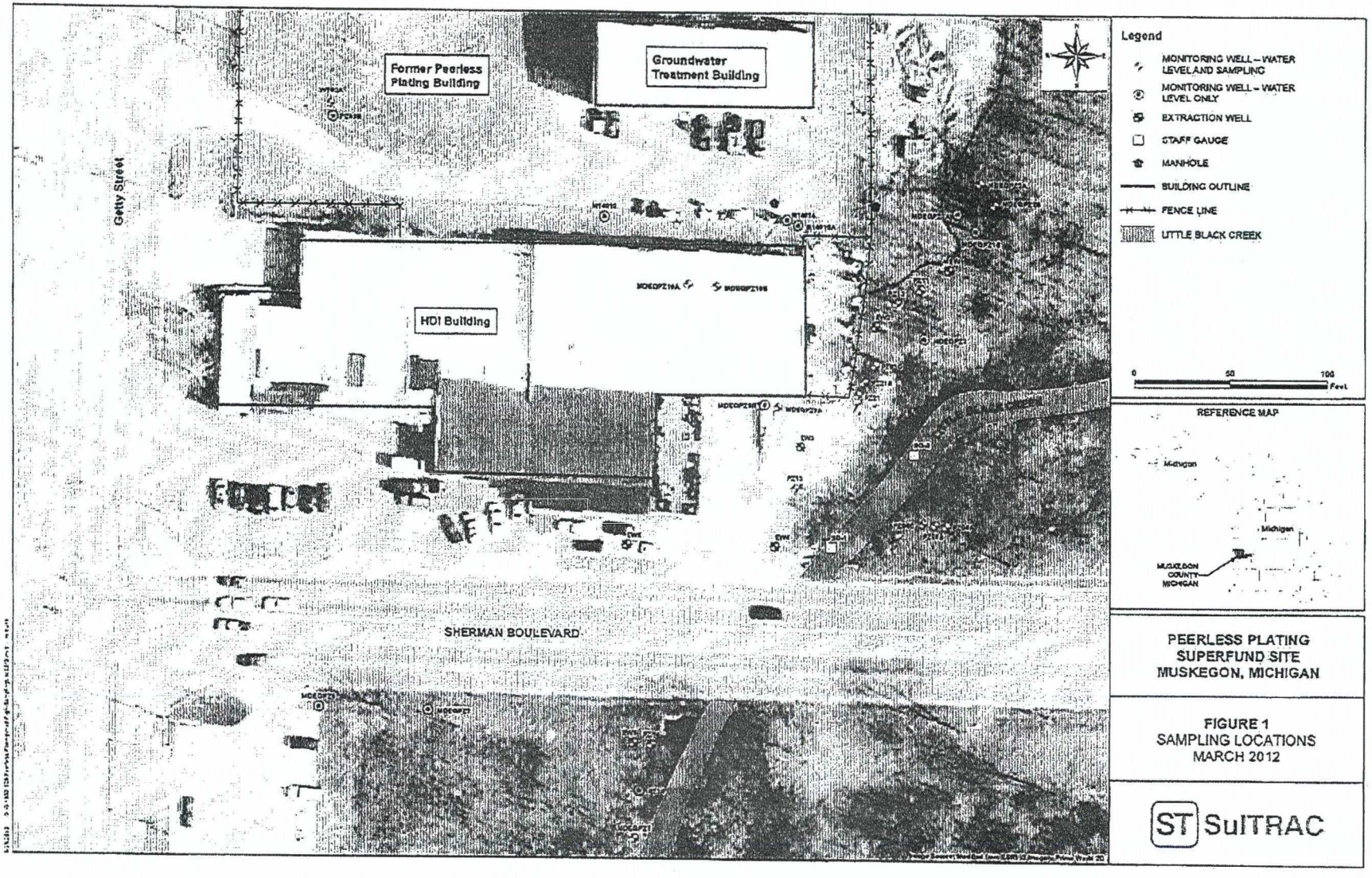
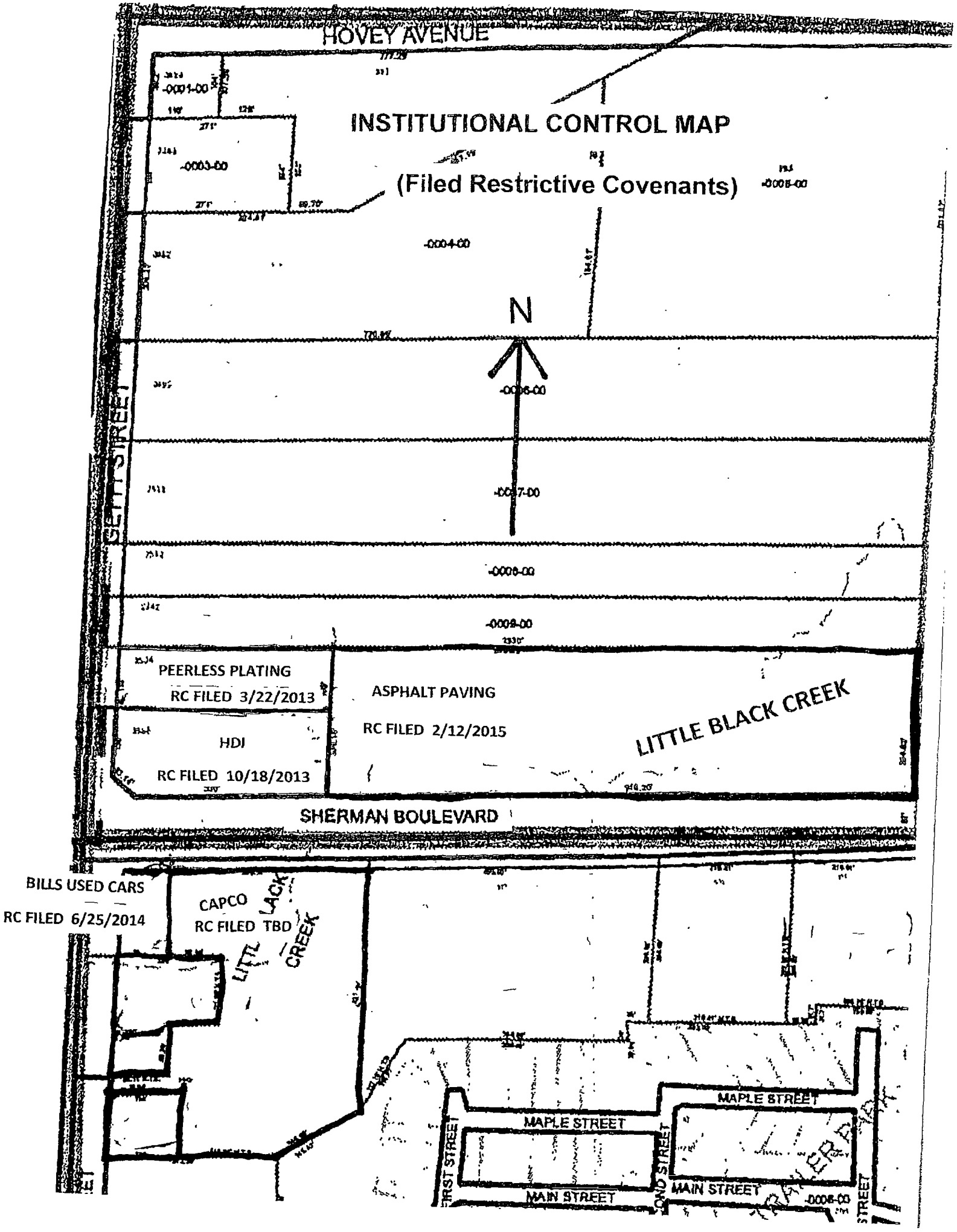


Exhibit 3 – Description of Allowable Uses

Nonresidential Land Use: This land use is characterized by any use which is not residential in nature and is primarily characterized by industrial and commercial uses. Industrial uses typically involve manufacturing operations engaged in processing and manufacturing of materials or products. Other examples of industrial uses are utility companies, industrial research and development, and petroleum bulk storage. Commercial uses include any business or income-producing use such as commercial warehouses, lumber yards, retail gas stations, auto dealerships and service stations, as well as office buildings, banks, and medical/dental offices (not including hospitals). Commercial uses also include retail businesses whose principal activity is the sale of food or merchandise within an enclosed building and personal service establishments which perform services indoors such as health clubs, barber/beauty salons, photographic studios, etc.

Any residential use is specifically prohibited from the nonresidential land use category. This would include the primary use of the property for human habitation and includes structures such as single family dwellings, multiple family structures, mobile homes, condominiums, and apartment buildings. Residential use is also characterized by any use which is intended to house, educate, or provide care for children, the elderly, the infirm, or other sensitive populations, and therefore could include day care centers, educational facilities, hospitals, elder care facilities, and nursing homes. The use of any accessory building or portion of an existing building as a dwelling unit permitted for a proprietor or storekeeper and their families, located in the same building as their place of occupation, or for a watchman or caretaker is also prohibited. Any authority that allows for residential use of the Property as a legal non-conforming use is also restricted per the prohibitions contained in this restrictive covenant.


HOVEY AVENUE
INSTITUTIONAL CONTROL MAP
(Filed Restrictive Covenants)
-0004-00
N
-0006-00
-0007-00
-0008-00
-0009-00
SCOTT STREET
PEERLESS PLATING
RC FILED 3/22/2013
ASPHALT PAVING
RC FILED 2/12/2015
HDJ
RC FILED 10/18/2013
LITTLE BLACK CREEK
SHERMAN BOULEVARD
BILLS USED CARS
RC FILED 6/25/2014
CAPCO
RC FILED TBD
LITTLE BLACK CREEK
MAPLE STREET
MAPLE STREET
MAIN STREET
MAIN STREET
FIRST STREET
SECOND STREET
-0006-00