U.S. ENVIRONMENTAL PROTECTION AGENCY
EPA REGION 1 – NEW ENGLAND

RECORD OF DECISION
CHLOR-ALKALI FACILITY (FORMER) SUPERFUND SITE
BERLIN, NEW HAMPSHIRE

SEPTEMBER 2020

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PART 1: THE DECLARATION FOR THE RECORD OF DECISION

A. SITE NAME AND LOCATION

Chlor-Alkali Facility (former) Superfund Site
Berlin, Coos County, New Hampshire
CERCLIS # NHN000103313

B. STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Chlor-Alkali Facility (former) Superfund Site (Site), in Berlin, New Hampshire, which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, also commonly referred to as "Superfund"), 42 U.S.C. § 9601 *et seq*., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300 *et seq*., as amended. The Region 1 Director of the Superfund and Emergency Management Division (SEMD) has been delegated the authority to approve this Record of Decision (ROD).

This decision was based on the Administrative Record for the Site, which has been developed in accordance with § 113(k) of CERCLA, 42 U.S.C. § 9601 *et seq.*, and which is available for review at the Berlin Public Library, located at 270 Main Street in Berlin, New Hampshire, at the U.S. Environmental Protection Agency (EPA) Region 1 Superfund and Emergency Management Division Records Center located at 5 Post Office Square, Boston, Massachusetts, and online at: www.epa.gov/superfund/chloralkali. The Administrative Record Index (Appendix G to the ROD) identifies each of the items comprising the Administrative Record upon which the selection of the remedial action is based.

The State of New Hampshire, through its Department of Environmental Services (NHDES) as the support agency, concurs with the selected remedy. A copy of the concurrence letter is in Appendix A.

C. ASSESSMENT OF SITE

The remedial action selected in this ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances, pollutants, or contaminants into the environment. The March 2014 Remedial Investigation Report[1] (RIR) and the October 2018 Supplemental Remedial Investigation Report[2] (SRIR) summarize the nature and extent of contamination at the Site. The RIR and SRIR were used to prepare an April 2020 Feasibility Study (FS) Report that identified all the remedial options considered for cleanup of the Site.[3]

[1] Nobis Engineering, Inc., Remedial Investigation, Volumes I, II, and III, March 2014.
[2] Kennedy/Jenks Consultants, Final Supplemental Remedial Investigation, October 2018.
[3] Kennedy/Jenks Consultants, Final Feasibility Study, April 2020.

D. DESCRIPTION OF SELECTED REMEDY

This ROD sets forth the selected remedy for the Site, which is a comprehensive cleanup approach that addresses all current and potential future risks caused by a landfill, contaminated soil, groundwater, the vapor intrusion pathway, and the appearance of mercury in the Androscoggin River. The selected remedy utilizes soil excavation with off-site disposal; *in-situ* treatment of groundwater; collection of mercury as it appears in the river; land use and access restrictions; and long-term operation, maintenance and monitoring to address unacceptable exposure to these risks posed by the Site. The selected remedy is based on a combination of remedial alternatives set out in a Proposed Plan issued for public comment in June 2020.

The Proposed Plan divided the remedial actions into Operable Units (OUs) intended to distinguish each action based on the media addressed. The Proposed Plan proposed remedies for each of the three OUs: OU-1, the Cell House Parcel Landfill (CHP Landfill), OU-2, contaminated soil outside the landfill, and OU-3, which was subdivided into three areas that address groundwater and a section of the Androscoggin River adjacent to the CHP Landfill discussed below. The Proposed Plan then compared a range of alternatives developed in the FS for each OU. The remedial alternatives selected in this ROD incorporates all three OUs and include the following:

1. SOIL AND DEBRIS IN THE CELL HOUSE PARCEL LANDFILL

The 4-acre CHP Landfill at the Site contains construction debris as well as hazardous substances. EPA's selected remedy for the CHP Landfill is OU-1-2 in the FS and Proposed Plan which consists of the following components:

- Engineering Controls (ECs): maintaining the existing fence and containment system. The containment system consists of the CHP Landfill cap, monitoring wells, a retaining wall along the River, and a slurry wall along the east and south sides of the landfill to prevent groundwater infiltration. Maintenance will consist of removing woody vegetation on the cap, as required; inspections; and repairs to the infrastructure, as needed.
- Institutional Controls (ICs) (in effect as long as wastes remain in place): legally-enforceable restrictions that will prohibit the construction of buildings on the CHP Landfill, disturbance of the existing landfill cap and other remedial infrastructure (including monitoring wells, the retaining wall and slurry wall), prohibit use of the property for residential and other unrestricted uses, and prohibit the use of groundwater for anything other than monitoring.
- Monitoring of ICs and ECs, both on the landfill, in downstream groundwater, and in the River will ensure that the containment system will continue to isolate the waste within the CHP Landfill and prevent its release to the River and adjacent drinking water aquifers.

2. SOIL IN AREAS SURROUNDING THE CELL HOUSE PARCEL LANDFILL

In the areas of the Site surrounding the CHP Landfill, that EPA has designated the Southern Facility Study Area (SFSA) and the Eastern Facility Study Areas (EFSA), EPA found discreet occurrences of contaminants in soil that posed a risk to human health and the environment. EPA's selected remedy for contaminated soil occurring in hotspots in the SFSA and EFSA, as well as in areas of the CHP Landfill property not covered by the landfill cap, is OU-2-4 which consists of the following actions:

- Additional testing to refine the extent of contamination in those areas identified by the Human Health Risk Assessment.
- Excavation of soils that exceed Cleanup Levels that pose unacceptable risks for commercial/industrial exposure. A current estimate is 150 cubic yards of soil will require excavation.
- Disposal of excavated soils, either beneath the CHP Landfill cap or at appropriate off-site facilities.
- Institutional Controls that will consist of legally enforceable restrictions to prohibit residential and other unrestricted uses.

3. GROUNDWATER

Groundwater contamination exists in two areas with different remedial actions selected. Beneath the CHP Landfill EPA will continue to monitor groundwater in remedy OU-3-CHP-2 as well as maintaining ECs and ICs. The objective is to ensure that the landfill containment system prevents contaminated groundwater from migrating outside of the CHP Landfill. Outside of the CHP Landfill EPA selected remedy OU-3-GW-3, *in situ* treatment of groundwater with chemical oxidants or amendments designed to destroy or immobilize contaminants. OU-3-CHP-2 and OU-3-GW-3 will also maintain ICs to prevent the use of groundwater for drinking water and prevent exposure to indoor groundwater vapors. The ICs will be permanent in the OU-3-CHP-2 area and temporary in the OU-3-GW-3 area, until groundwater Cleanup Levels are achieved.

4. ANDROSCOGGIN RIVER

The disposal of mercury used at the Chemical Plant contaminated the riverbed of the Androscoggin River in the segment of the River adjacent to the CHP Landfill designated Reach AR-3. EPA's preferred alternative for the mercury and mercury-contaminated material in the River is described in the FS and Proposed Plan as Alternative OU-3-AR-3-2. The remedy will consist of liquid mercury, hardened metal amalgams and mercury-contaminated debris removals (based on visual inspection) performed on at least an annual basis with accompanying inspections to map the trend of mercury appearance and the effectiveness of the remedy.

5. FIVE-YEAR REVIEWS

Because all of the remedial alternatives selected will leave contamination in place either permanently or for an extended period of time, statutorily-required five-year reviews will be conducted at a minimum every five years to assess the ongoing protectiveness of the remedy.

E. STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with federal and State requirements that are applicable or relevant and appropriate to the remedial action (see Appendix D), is cost-effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

- OU-1-2, as the presumptive remedy for the continued monitoring and maintenance of the landfill, did not need to assess treatment of the landfilled waste, in accordance with EPA guidance. The remedy will leave wastes in-place and untreated but isolated from the environment by the existing landfill cap, retaining wall, and slurry wall.
- OU-2-4, due to the relatively small volume and scattered nature of the contaminated soil it was determined treatment was not practicable. Excavation of the soil and disposal at an off-site facility or, if none are available, inside the CHP Landfill, will isolate those wastes from the environment.
- OU-3-CHP-2, in accordance with the NCP preamble, contaminated groundwater beneath a waste management (i.e., landfill) unit does not require active cleanup if migration of the contaminated groundwater is controlled. Groundwater beneath the CHP Landfill will not be treated but will be monitored to ensure that those wastes are isolated from the environment by the CHP Landfill containment system.
- OU-3-AR-3-2, due to the relatively small volume of waste generated it was determined that on-site treatment of the mercury and mercury-contaminated debris was not practicable. Mercury recovery in the Androscoggin River will send the wastes to a facility for disposal or off-site treatment/recovery.

The remedies for OU-1-2, OU-2-4, OU-3-CHP-2, and OU-3-AR-3-2 do not meet the statutory preference for treatment as a principle element of the remedy for the reasons described above. The remedy for OU-3-GW-3, *in situ* treatment of groundwater with chemical oxidants satisfies the statutory preference for treatment as a principle element of the remedy reducing the toxicity and volume of the VOCs present in groundwater and immobilizing dissolved metals.

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that would allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial actions to ensure that the remedy continues to provide adequate protection of human health and the environment. Five-year reviews will continue as long as waste remains at the Site and unlimited use is restricted.

F. SPECIAL FINDINGS

Issuance of this ROD embodies the following specific determinations:

Wetlands Impacts
Pursuant to Section 404 of the Clean Water Act (CWA), EPA has determined that the selected remedy is the Least Environmentally Damaging Practicable Alternative (LEDPA) for protecting federal jurisdictional wetlands and aquatic ecosystems at the Site under these standards. EPA will minimize potential harm and avoid adverse impacts to wetlands by using best management practices during excavation and by restoring or replicating, if necessary, these areas consistent with federal and New Hampshire's wetlands protection laws. Any wetlands affected by remedial work will be restored (or replicated, if necessary) with native wetland vegetation and any restoration efforts will be monitored. Mitigation measures will be used to protect wildlife and aquatic life during remediation, as necessary. EPA solicited public comment through its Proposed Plan on its LEDPA determination and did not receive any negative comments (see Part 3 of this ROD).

EPA's selected remedy balances the need to address the contamination that poses an ecological risk to the wetlands and waterways and its ability to restore any (temporarily or permanently) altered wetland resources and aquatic habitats impacted by the remediation. As required under relevant and appropriate federal wetlands regulations at 44 C.F.R. Part 9 and Executive Order 11990 (Protection of Wetlands), EPA solicited public comment through its Proposed Plan regarding the remedy's potential impacts on wetland resources and received no comments adverse to the proposed remedies regarding this issue (see Part 3 of this ROD).

Floodplain Impacts
Pursuant to Executive Order 11988 (Floodplain Management) and federal regulations at 44 C.F.R. Part 9, EPA has determined that the selected remedy will cause temporary impacts to 100-year and 500-year floodplains but will not result in the occupancy and modification of floodplains, except for limited periods during remedy implementation or potentially Operation and Maintenance (O&M) of the CHP Landfill. Best management practices will be used during the remedial activities to minimize temporary impacts to floodplains and any excavations within floodplain will be returned to original grade to avoid diminishing flood storage capacity. Remedial infrastructure within the floodplain (*i.e.* monitoring wells, the CHP Landfill retaining wall) will be installed/maintained to prevent any release of contamination in the event of a 500-year flood/storm. Restoration and monitoring activities are included in the response actions. As required under relevant and appropriate federal wetlands regulations at 44 C.F.R. Part 9, EPA solicited public comment in its Proposed Plan regarding the remedy's potential impacts on floodplain resources and received no negative comments regarding this issue (see Part 3 of this ROD).

TSCA PCB Determination
In this ROD EPA finds that polychlorinated biphenyl (PCB) contaminated soil and landfill debris at the Site meets the definition of a PCB remediation waste, as defined under 40 C.F.R. § 761.3 of regulations promulgated under the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2601 et seq., and thus are regulated for cleanup and disposal under 40 C.F.R. Part 761. Under 40 C.F.R.

§ 761.61(c), EPA may authorize disposal of PCBs in a manner not otherwise specified, provided EPA determines that the disposal will not pose an unreasonable risk of injury to health or the environment. EPA has determined that the selected remedy meets this standard (see Part 2, Section L.2). EPA solicited public comment in its Proposed Plan regarding EPA's draft determination and received one comment concerning EPA's determination. That comment is addressed in this ROD (see Part 3, Comment #1) and EPA maintains its determination regarding this issue.

G. DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this Record of Decision. Additional information can be found in the Administrative Record file for this Site.

1. Contaminants of Concern (COCs) and their respective concentrations;
2. Baseline risk represented by the COCs;
3. Cleanup levels established for COCs and the basis for the levels;
4. How source materials constituting principal threats are addressed
5. Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD;
6. Potential land and groundwater use that will be available at the Site as a result of the selected remedy;
6. Estimated capital, annual Operation & Maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected; and
7. Decisive factors that led to selecting the remedy.

H. AUTHORIZING SIGNATURES

This ROD documents the selected remedy for the landfill, soil, groundwater, and the Androscoggin River at the Chlor-Alkali Facility (former) Superfund Site.

Human health and ecological risk assessments were conducted using CERCLA risk assessment methods and guidance. Accordingly, and based on the provisions of 40 CFR § 761.61 (c), EPA has determined that the risk-based cleanup levels for PCBs in soil developed for the Site and the remedial alternatives selected to address risks posed by PCB-contaminated soil will meet the no unreasonable risk of injury standard in accordance with § 761.61(c) as described in Part 2, Section L.2 of this ROD. EPA reserves its right to modify this § 761.61(c) determination and/or to require additional remedial measures in the event of changes in site conditions or use, review of long-term monitoring results, or if any new information is presented that indicates these measures are no longer effective, including the discovery of additional PCB contamination or previously unknown conditions.

This remedy was selected by EPA with concurrence of the New Hampshire Department of Environmental Services. A copy of the State of New Hampshire's concurrence letter is attached to this ROD in Appendix A.

BRYAN OLSON

Digitally signed by BRYAN OLSON
Date: 2020.09.23 19:07:02 -04'00'

Bryan Olson, Director
Superfund and Emergency Management Division
U.S. Environmental Protection Agency, Region 1

Date

PART 2: THE DECISION SUMMARY

A. SITE NAME, LOCATION, AND BRIEF DESCRIPTION

The Chlor-Alkali Facility (former) Superfund Site (the "Site") lies on the east bank of the Androscoggin River in Berlin, New Hampshire. It is bound on the east by Hutchins Street and a closed industrial landfill, the Dummer Yard. To the south lies a small residential area and the Burgess Biomass power plant, which is located on a portion of a former Brown Company paper mill property. North of the Site is Bridge Street, a small recreational area, and a large residential area. West of the Androscoggin River and directly across the river from the Site is the Sawmill Dam power station with residential and commercial areas located further west, south of which is the larger part of downtown Berlin. The Androscoggin River is dammed for hydroelectric power adjacent to the Site by Sawmill Dam. Sawmill Dam meets the east bank at the northern end of the Cell House Parcel Landfill (CHP Landfill) and Riverside Dam, the next down-stream dam, meets the east bank at the southern end of the Site. Figure 1 in Appendix C shows the general location of the Site relative to these features.

The Site is the location of a former chlor-alkali chemical plant that commenced operations in the late 1890's to provide chlorine for the manufacture of bleached pulp and paper. Chemical production ceased in the mid-1960's and portions of the former chemical plant were either demolished or used for other purposes. The last Chemical Plant building was demolished and the building debris and presumably other waste materials were interred in an on-site landfill that was capped by the owners of the paper plant at that time and closed under the oversight of the State of New Hampshire Department of Environmental Services (NHDES).

The CHP Landfill property has an area of 4.6-acres. Presently this area is maintained as a 4-acre capped landfill with a slurry wall on the east and south to prevent groundwater infiltration and a retaining wall on the west and north separating the contents of the landfill from the Androscoggin River that flows southward less than 10-feet away from the retaining wall.

Although the initial focus of the investigation was on the former chlor-alkali process, which had been housed in a number of cell houses located at or in close proximity to the CHP Landfill, EPA's 2014 Remedial Investigation Report (RIR) revealed that the former Chemical Plant operated over an area wider than the 4.6-acre CHP parcel. Accordingly, a Southern Facility Study Area (SFSA) that lay largely south of the CHP Landfill and an Eastern Facility Study Area (EFSA), east of the CHP Landfill, were designated for investigation so that possible releases from the Chemical Plant could be characterized, and the nature and extent of contamination at the Site defined. The SFSA contained many of the Chemical Plant buildings that were demolished. A rail line traversing the EFSA indicated the potential for spills and other wastes in this area. At the time of the Remedial Investigation (RI) and to the present, the SFSA and EFSA have been vacant parcels that are partially wooded with scattered wetlands. Figures 1 and 2 in Appendix C show the location of the CHP Landfill, the SFSA and EFSA.

The Site has been divided into three Operable Units (OUs). The CHP Landfill, OU-1, contains contaminated soils beneath the 4-acre capped area as well as a 0.6-acre uncapped area of native soils. The SFSA and EFSA, OU-2, have isolated hotspots of contaminated soils. OU-3 consists

of two units: contaminated groundwater beneath the CHP Landfill and SFSA, and liquid and amalgam mercury that periodically appears on the banks, in debris, and in the Androscoggin River between Sawmill and Riverside Dams. Appendix C, Figure 2, shows the location and general features of these areas, Figure 3 shows the general features of the Site in photographs, and Figure 4 shows the location of groundwater contaminant plumes.

A more complete description of the Site and its history are in Section 2 of the Supplemental Remedial Investigation Report (SRIR) and Feasibility Study (FS).

B. SITE HISTORY AND ENFORCEMENT ACTIVITIES

1. SITE HISTORY

Chemical Plant operations at the Site continued from the late 1890s through the mid-1960s and perhaps (in some manner) until the landfill was capped in 1999.[4] Wastes and hazardous materials are observed now in Site soils, groundwater and in the Androscoggin River adjacent to the CHP Landfill. Between September and December 1999, Crown Vantage, Inc., the owner at the time of the Site property, conducted closure activities in the CHP under the oversight of NHDES. At that time, the Chemical Plant was an undivided portion of the larger paper mill known as the Burgess Paper Mill, which in turn had been a part of Brown Company's extensive paper mill operations in Berlin.

2. HISTORY OF FEDERAL AND STATE INVESTIGATIONS AND ACTIONS

EPA used the results of environmental investigations conducted by the successive owners of the paper mill (including what is now the Site property) between 1999 and 2001, as well as environmental investigation activities and mercury removals in the river conducted by NHDES beginning in December 2001, to develop the Preliminary Assessment/Site Inspection (PA/SI) under CERCLA.[5] In January 2004, EPA added the Site to the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database (EPA 2004a). In April 2005, EPA conducted a Hazard Ranking System (HRS) evaluation (EPA 2004a). Based on the HRS score, the Site was proposed for listing to the National Priorities List (NPL) on April 27, 2005. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the NPL, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on September 14, 2005, 70 Fed. Reg. 54286.

Between 2009 and 2012, EPA conducted RI activities at the Site. These activities included investigation of a 24-mile reach of the Androscoggin River because mercury had been found within the river adjacent to the CHP. EPA's contractor, Nobis collected and analyzed samples of soil, building debris, air, groundwater and biota from the CHP Landfill, SFSA and EFSA. For the

[4] Aerial Photographic and Fracture Trace Analyses of Chlor-Alkali Facility, TS-PIC-20801101S. U.S. Environmental Protection Agency. February 2008.

[5] Final Combined Preliminary Assessment/Site Investigation Report for Chlor-Alkali Facility (Former) Berlin, New Hampshire. Weston, Inc., January 2005.

river investigation Nobis, along with the U.S. Geologic Survey, U.S. Fish & Wildlife Service, and Dartmouth College, collected sediment, porewater, surface water, and biota (both terrestrial and aquatic) (Nobis 2014). This investigation resulted in the three volume RIR released to the public in March 2014 that also contained a human health and ecological risk assessment as separate volumes.

3. HISTORY OF CERCLA ENFORCEMENT ACTIVITIES

EPA commenced the RI activities at the Site with funding from the Superfund. Subsequently, EPA identified two Georgia-Pacific (G-P) entities that the Agency believed were successors to Brown Company, and its successors, as operators of the Site at the time hazardous substances were disposed. EPA issued notice letters to Fort James LLC and Georgia-Pacific Consumer Products, LP on June 21, 2013 (also referred to as the Potentially Responsible Parties (PRPs)). Following negotiations, on April 21, 2015, EPA and G-P executed an Administrative Settlement Agreement and Scope of Work to perform a Supplemental Remedial Investigation (SRI) to address data gaps and the FS to select potential remedies for contamination at the Site.

G-P began SRI activities in 2015 with further investigation of mercury-containing material identified in test pit TP-6, a foundation/retaining wall assessment, and liquid elemental mercury and hardened metal amalgam collection in Reach AR-3 (the area adjacent to the Site) of the River. SRI activities continued in 2016 and 2017 that involved groundwater assessment, additional foundation/retaining wall monitoring, assessment and improvements, and continued collection of liquid elemental mercury, hardened metal amalgams, and mercury-containing debris from Reach AR-3. These efforts resulted in the 2018 SRIR[6] and the 2020 FS.[7]

A detailed history and timeline of Site activities is presented in Section 2 of the SRIR.

C. COMMUNITY PARTICIPATION

Throughout the Site's history, community concern, interest, and involvement have been consistent. EPA has kept the community and other interested parties apprised of Site activities through informational meetings, fact sheets, press releases, and public meetings. Below is a brief chronology of the most recent public outreach efforts for the Chlor-Alkali Superfund Site:

- EPA has met with Municipal Officials, principally the City Manager and City Planner, throughout the years on at least an annual basis to discuss plans for that year as well as listen to any concerns.
- EPA held a series of charettes in 2008 to talk to the community about future uses of the CHP Landfill.
- EPA also held a public meeting in Berlin to present the results of the 2014 RIR. The PRPs and NHDES held a public meeting in September 2017 to discuss progress with the SRI.

[6] Final Supplemental Remedial Investigation Report. Kennedy/Jenks Consultants, Inc. October 19, 2018.
[7] Final Feasibility Study. Kennedy/Jenks Consultants, Inc. April 7, 2020.

- On May 29, 2020, EPA published a news release which announced the start of the public comment period and upcoming public information meeting and public hearing for the Proposed Plan. EPA also produced and mailed postcards of this meeting information to nearby property owners. A public notice was completed to announce the release of a link on EPA's website to the Proposed Plan, which identified EPA's proposed remedy, and also to announce EPA would be holding a virtual public meeting/public hearing on June 10, 2020.
- On June 3, 2020, EPA completed the Administrative Record (AR) for the Proposed Plan, including the 2020 Feasibility Study report, and made them available for public review on-line as well as at EPA's office in Boston, MA, and at the Berlin Public Library, 79 Main Street, Berlin, NH. The AR file is the primary Site information repository for residents and has been kept up to date by EPA.
- On June 8, 2020, EPA held a virtual briefing for the City of Berlin Officials running through the presentation prepared for the June 10th public meeting.
- On June 10, 2020, EPA held a virtual public information meeting on-line, immediately followed by an on-line public hearing, to describe and then discuss the Proposed Plan, and to accept any oral or written comments. No comments were received during the public hearing. The transcript of the public hearing is in the AR.
- From June 3, 2020 through July 3, 2020, EPA held a public comment period to accept public comments on EPA's proposed remedy for the Site presented in the Proposed Plan. EPA also made available a dedicated voice-mail box to receive verbal comments throughout the comment period. EPA received one set of written comments that are in the AR. EPA's responses to those comments are included in the Responsiveness Summary, which is Part 3 of this ROD.

D. SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION

EPA has determined that there are both current and future threats to human health and the environment at the Site due to historic chemical and waste disposal and defined three Operable Units (OUs) to facilitate the Site investigation and the development of remedial alternatives. Those OUs and their general actions include:

OU-1, CHP Landfill: Monitor and maintain the CHP Landfill containment system. The containment system consists of the landfill cover system, a slurry wall that prevents groundwater from entering the landfill, and a retaining wall that prevents groundwater from leaving the landfill. During the SRI, G-P maintained the landfill cover system, and repaired and augmented the retaining wall with shotcrete.

OU-2, the SFSA and EFSA: The SFSA and EFSA contain isolated areas of contaminated soil that will be excavated and disposed at a permitted off-site facility or, if necessary, beneath the CHP Landfill cover system.

OU-3 consists of two divisions: groundwater and the Androscoggin River. Groundwater is further divided into two areas of contamination:

OU-3, Groundwater beneath the CHP Landfill: Although contaminated, it is within the limits of the CHP Landfill and under federal guidance standards, contaminated groundwater beneath a waste management (i.e., landfill) unit does not require active cleanup if migration of the contaminated groundwater is controlled. EPA has determined that presently migration is prevented by the landfill containment system.

OU-3, Groundwater beneath the SFSA: Contaminated groundwater in this area will be treated *in situ* to destroy or immobilize the contaminants and restore the groundwater to its beneficial use as a potential source of drinking water.

OU-3, Androscoggin River: Liquid, elemental mercury and solid mercury amalgams periodically appear in the riverbed, in river debris, and on the banks. The remedy will include periodic inspections and removals of mercury, mercury amalgams, and mercury-contaminated debris that appears.

The selected remedy, comprised of the above remedial alternatives, is a comprehensive remedial approach for the Site. Figure 2 in Appendix C depicts the areal extent of OU-1, OU-2, and the river portion of OU-3. The groundwater portion of OU-3 is shown as a transparent brown overlay bordered by a dashed line.

E. SITE CHARACTERISTICS

1. DESCRIPTION OF THE SITE

The Site is a former industrial area on the east bank of the Androscoggin River. The area of the former Chemical Plant is level and, except for the CHP Landfill, reverting to forest and forested wetlands. When the paper company was operating, this was a singular approximately 200-acre property. The paper company closed at the end of the Twentieth Century and the property was subsequently subdivided. The southern portion of the paper mill property was demolished, sold, and is now an operating biomass power plant. The properties constituting the Superfund Site are:

- The Cell House Parcel (CHP): Lot 262 on the Berlin Tax Assessor Map No. 128 is a 4.6-acre property that includes the 4-acre CHP Landfill, closed in 1999, and contains construction and demolition debris from former Site structures. The property also contains a 0.6-acre uncapped area with a thin cover of soil that is forested. This lot is OU-1, the vertical limits of which extend from ground surface to the top of competent bedrock. The last title owner of the lot was Pulp of America LLC. Pulp of America LLC entered bankruptcy and this lot, together with certain other property of Pulp of America was "abandoned" in 2002 in the bankruptcy proceeding pursuant to Section 544(a) of the Bankruptcy Code 11 U.S.C §544(a).
- The SFSA and EFSA, together OU-2, cover 37-acres of Lot 54.001 on Berlin Tax Assessor Map No. 129. These two parcels are currently owned by North American Dismantling Corp. OU-2 includes Site-related waste materials found within isolated "hotspots" within the 19-acre EFSA located between Hutchins Street to the east and the 17-acre SFSA to the west. The SFSA is surrounds the southern, eastern, and northern

sides of the CHP Landfill. The EFSA, at one time a log storage area for the paper mill, now consists of connected, wooded wetland areas.

- The Androscoggin River: specifically, the 1,400-foot stretch of river that borders the CHP Landfill and SFSA and lies between Sawmill Dam to the north and south to Riverside Dam has been designated AR-3.

The CHP Landfill has an engineered cover system consisting of an approximately 18-inch thick layer of sand underlying a 40-mil high-density polyethylene (HDPE) geomembrane, a geo-composite drainage net, and approximately 2 feet of bark mulch/wood chips at the landfill surface. A slurry wall, also constructed in 1999, isolates the landfilled wastes from the intrusion of groundwater on the east and south of the landfill, while a retaining wall, the original foundation wall for the cell house constructed in the late 1890's, contains the waste on the west and northern bounds of the landfill. The retaining wall also separates the landfill from the Androscoggin River.

Debris materials from former Site structures disposed in the CHP Landfill include brick, concrete, wood, ceramic, piping, ash, metal, conduit, and asbestos-containing material (ACM). Below the water table, near the retaining wall, isolated occurrences of mercury beads, generally 1mm in size, were found. Beneath the CHP, the bedrock has an irregular surface that varies in depth below ground surface but generally lies 12 to 20 feet below the surface.

Topography at the Site resembles a large flood-plain with the Androscoggin River in the middle. The River flows over solid rock with no fine-grained sediment. Adjacent to the CHP Landfill the River lies 10 to 20-feet below the surface of the CHP separated by either the retaining wall for the landfill or bedrock. A short distance downstream the steep bedrock face deepens to over 100-feet adjacent to the River. Soils at the Site are disturbed and affected by more than a century of industrial use. Much of the unconsolidated soils and gravels in the CHP Landfill and the SFSA appear to be fill. These overburden deposits vary from 5 to 20 feet in thickness and are underlain by fractured, crystalline bedrock. The bedrock fractures trend generally north-south with steep dips to the east.

The Androscoggin River is the overwhelming hydrologic feature at the Site. The dam just upstream of the Site, Sawmill Dam, is the first of 5 closely spaced hydroelectric dams that are in the City of Berlin. Over the past 10 years the flow of the Androscoggin River has varied from a low of 400 cubic feet per second (cfs) to a high of 18,000 cfs. Generally, in winter (frozen) and summer (dry) periods, flows averaged 1,000 cfs and during the wetter periods between 3,000 and 6,000 cfs. Operation of the hydroelectric dams make the flow of the river even more varied.

Photos of these features are contained in Appendix C as Figure 3.

2. CONTAMINATION AND THE CONCEPTUAL SITE MODEL

Contamination at the Site includes:

- Elemental liquid mercury, mercury-lead amalgams, and mercury-contaminated debris that is continually found on the banks and riverbed of the Androscoggin River that originates from past releases.
- Dioxins, furans, PCBs, polyaromatic hydrocarbons (PAHs), and metals, including mercury and lead, beneath the cover and interred with the construction debris in the CHP Landfill.
- The same contaminants found in the CHP Landfill are also found in isolated hotspots of soil in the SFSA and EFSA and in the uncapped area of the CHP Landfill property.
- Volatile Organic Compounds (VOCs) and dissolved metals in groundwater beneath the SFSA and CHP Landfill.

The Site came to the attention of NHDES, and subsequently EPA, due to the periodic, continuing appearance of elemental liquid mercury, solid mercury amalgams, and mercury-contaminated debris on the banks of, and in the riverbed, of the Androscoggin River. The liquid beads of elemental mercury range from between 0.5 millimeter in diameter to elongated forms that are 1 centimeter in diameter and up to 3 centimeters in length. Amalgam mercury occurs as coatings on pebbles and solid metal forms that range up to the size of chicken eggs. Debris-associated mercury consists of isolated liquid beads of mercury contained within scrap metal and solidified masses resembling concrete or plaster.

The SRIR developed and presented a Conceptual Site Model (CSM) in Section 6, clarified by EPA in its clarification letter attached to the SRIR, to describe the contaminant sources, release mechanisms, exposure pathways, migration routes, and potential human and ecological receptors. It documents current and potential future Site conditions and discusses what is known about human and environmental exposure through contaminant release and migration to potential receptors. The risk assessment and response action described in this ROD for the Site is based on this CSM.

The present contamination at the Site resulted from improper handling of hazardous wastes and materials containing those wastes at the Chemical Plant during the period beginning in the late 19th Century. The production of bleach and various chlorinated products at the Chemical Plant released hazardous wastes into the environment that subsequently entered Site soils and groundwater.[8] Hazardous wastes and debris appear to have also been released into the river during Chemical Plant operations.[9]

The CSM for the RIR posited that the source of the mercury in the Androscoggin River was the CHP Landfill and that several possible transport mechanisms were responsible for the migration. The SRIR developed and added an additional, potential source of the mercury. The modified CSM now posits that most of the mercury and mercury-lead amalgams are the result of direct disposal into the river while the Chemical Plant was operating. The heavy mercury drifted into

[8] Kennedy-Jenks, October 2018.
[9] Kennedy-Jenks, April 2020.

the metallic debris in the river and into fractures and crevices in the bedrock surface of the river. The variable, periodic high flows in the river described above, create lift that causes mercury to "float" out of the debris and fractures. This mercury is then found on the River bottom and east bank. Photos of mercury occurrences are in Appendix C, Figure 3.

Soil contamination at the Site is likely due to ongoing operations and disposal activities while the Chemical Plant was operating. The use of ash as dry fill material at the Site, a typical practice over the years, is also assumed. Isolated pockets of contaminated ash remain scattered in the EFSA and SFSA. These isolated pockets are estimated to contain a total of approximately 150 cubic yards of contaminated soil.

Groundwater inside the CHP Landfill is contaminated above State and Federal standards, yet no groundwater has been found leaving the bounds of the CHP Landfill with the character or appearance of groundwater found in the CHP Landfill. Groundwater within the CHP Landfill has an oil-sheen and a distinct coal-tar odor. The contaminated CHP Landfill groundwater appears to be perched on bedrock, prevented from westward flow by a retaining wall, and insulated from groundwater flowing in the overlying overburden by a thick layer of paper pulp.[10]

Contaminants of Concern (COCs) in groundwater beneath the SFSA and CHP include VOCs such as trichloroethene (TCE), carbon tetrachloride, chloroform and carbon disulfide, as well as dissolved metals including mercury. These contaminants occur in tight bedrock fractures. Groundwater monitoring did find contamination in the EFSA, that include manganese and perfluoroalkyl substances (PFAS); however, NHDES concluded that the up-gradient Dummer Yard Landfill is the likely source of the PFAS, based on groundwater sampling conducted at that site. The Dummer Yard Landfill is also the likely source of manganese groundwater contamination based on the manganese contamination distribution and the presence of what appears to be dissolved iron breakout occurring in the EFSA.

F. CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

1. LAND USES

The CHP, the SFSA and the EFSA are within areas the City of Berlin has zoned for Industrial and Business use. Residential use may be allowed through Special Exception by the City. Currently the land is vacant and re-vegetating with birch, poplar and various shrubs.
From 2007 to 2008 EPA hosted meetings in Berlin with residents of the City and Berlin public officials to solicit future use preferences for the CHP, an abandoned property. The EFSA and SFSA, part of a larger property owned by North American Dismantling Corp., were not discussed. The resulting document outlined the community preference that the CHP area be retained for future recreation, primarily for hiking and historic interpretation uses. To the extent that portions of the EFSA and SFSA have been used in the more recent past, that use has been consistent with the industrial and business zone designation, and it is assumed that future use would remain industrial/commercial.

[10] Chlor-Alkali analysis of groundwater contamination beneath the CHP Landfill, U.S. EPA, May 20, 2020.

The southern half of the former papermill property now has an operating biomass power plant. The owners of that power plant have expressed an interest in using some portions of the SFSA for storing woodchips for the powerplant and for installing green houses. Currently, the biomass power plant is negotiating with third parties regarding the potential use of the waste heat from power generation for green houses that would produce food for the local area.

2. GROUNDWATER AND SURFACE WATER USES

The groundwater at the Site has been designated by the State as a medium use aquifer and although there are no current uses of this groundwater, the State requires all groundwater to be suitable for drinking water purposes. The State has designated the Androscoggin River as recreational use and allows fishing downstream of the Site as catch-and-release only due to elevated levels of contamination from Berlin to the Maine border from various sources. From Sawmill Dam, just upstream of the Site, to Riverside Dam, a stretch of river the EPA designated as AR-3 in the RIR, there is no public access to the river and the river is maintained solely for hydroelectric generation. Further downstream of the Site, particularly in the lower reaches in Gorham, the river is used for recreational boating and swimming.

G. SUMMARY OF SITE RISKS

During the RI from 2009 to 2014 EPA sampled environmental media that included surface soil, subsurface soil, soil invertebrates, groundwater, surface water and CHP Landfill debris to perform a Human Health Risk Assessment (HHRA) and a Terrestrial Screening-Level Ecological Risk Assessment (TSLERA). These efforts resulted in Volumes II and IIIb, respectively, in the RIR. EPA also sampled surface water, sediments, sediment pore water and biota in the Androscoggin River as part of a Baseline Ecological Risk Assessment (BERA) that is presented in the RIR as Volume IIIa. A summary of the results of these assessments follow.

1. HUMAN HEALTH RISK ASSESSMENT

The exposure assessment in the HHRA examined the physical setting of the Site and evaluated the potential exposures to people. The factors for exposure are the source of contamination, how people may contact those contaminants in different media such as surface water, soils, and sediment, and the current and potential future uses of the contaminated areas.

Tables 3a and 3b in Appendix B describe the risks that are generated by various types of exposure. These exposures included:

- Adult and child residents that may be exposed to contaminants over a long-term;
- Adult and child recreational visitors as well as adolescent trespassers that may be exposed to contaminants over a shorter-term;
- Industrial and Commercial Workers that may be exposed to more contamination but over a short-term; and
- Day-care children because day-care use might be considered a potential use for the area in the future.

Below, summary tables characterize each exposure route for age-adjusted residents, the greatest risk with the exception of exposure to children. The other exposure routes are discussed regarding the overall risk which is characterized in Tables 3a and 3b in Appendix B. Based on the results of the HHRA, EPA found that the following exposure routes pose unacceptable human health risks because the calculated risks exceed EPA's acceptable cancer risk range of 10^{-6} to 10^{-4}, the non-cancer Hazard Index (HI) of 1, or EPA's risk-based standard for lead or some combination of these risks:

Future residents, workers, and trespassers in the CHP Landfill could be exposed to dioxin, furan, mercury, and benzo(a)pyrene in the landfilled materials that would create an unacceptable risk if the existing cover system, slurry wall or retaining wall, the containment system, were to fail to contain the wastes (see Table 3a in Appendix B). The primary contaminants that create risk from CHP Landfill soil and debris are summarized below for an age-adjusted adult resident:

Summary of Contaminants of Concern in Soil and Debris in the CHP Landfill

Contaminant of Concern[1]	Maximum Concentration[2]	Frequency	Risk[3]	
			Cancer	Non-Cancer[6]
PCB (high risk = Aroclor 1254)[4]	12.1 mg/kg	10/13	2.2×10^{-4}	2.3
PCDD/PCDF (TEQ)[5]	94.8 mg/kg	12/12	1.6×10^{-2}	160
Benzo(a)anthracene	16 mg/kg	8/12	7.1×10^{-4}	
Benzo(a)pyrene	8.7 mg/kg	8/12	5.1×10^{-3}	
Benzo(b)fluoranthene	12 mg/kg	8/12	6.2×10^{-4}	
Dibenz(a,h)anthracene	3.2 mg/kg	4/12	2.7×10^{-4}	
Arsenic (inorganic)	828 mg/kg	10/10	4.7×10^{-4}	3.1
Mercury (elemental)	1410 mg/kg	13/16		488
Total Risk			5.8×10^{-1}	126

[1] This summary table includes only those contaminants listed as COCs.
[2] Maximum Concentrations and Frequencies were derived from Figures 4-1 to 4-25 in Volume 1 of the 2014 Remedial Investigation.
[3] Risk values are taken from Table 6.2-1 from 2014 Remedial Investigation, Volume II – Human Health Risk Assessment. Unacceptable risks are those that exceed 1×10^{-4} for cancer risks and HI=1 for non-cancer risks.
[4] Polychlorinated biphenyls.
[5] Polychlorinated dibenzodioxins / Polychlorinated dibenzofurans, toxicity equivalent.
[6] Exposure was changed to Adult Resident (age-adjusted resident was not evaluated). Child resident non-cancer risk was 1023.

There is no current risk to people or the environment because the wastes are isolated by the CHP Landfill containment system.

Current workers and trespassers, and future residents in the SFSA and EFSA. In both the SFSA and EFSA contamination is widespread but with generally low concentrations. The highest concentrations were in isolated hotspots perhaps due to past spills or discreet releases. In the SFSA, which includes the uncapped areas of the CHP property, dioxin, furans, mercury lead, and arsenic in soils may pose unacceptable risk in the hotspots. The contaminants in the SFSA and the risk are summarized below:

Summary of Contaminants of Concern in Soils in the Southern Facility Study Area				
	Maximum		Risk[3]	
Contaminant of Concern[1]	Concentration[2]	Frequency	Cancer	Non-Cancer[6]
PCB (high risk = Aroclor 1254)[4]	15.8 mg/kg	18/23	$1.2x10^{-5}$	1.4
PCDD/PCDF (TEQ)[5]	0.00469 mg/kg	37/56	$2.0x10^{-5}$	1.8
Benzo(a)anthracene	5 mg/kg	29/56	$1.3x10^{-5}$	
Benzo(a)pyrene	4.3 mg/kg	36/56	$1.2x10^{-4}$	
Benzo(b)fluoranthene	4.5 mg/kg	30/56	$1.3x10^{-5}$	
Dibenz(a,h)anthracene	1.6 mg/kg	22/56	$3.0x10^{-5}$	
Arsenic (inorganic)	281 mg/kg	77/80	$1.6x10^{-4}$	2.9
Mercury (elemental)	125 mg/kg	26/80		5
Lead	24438 mg/kg	13/80		
Total Risk			$4x10^{-4}$	5.6

[1] This summary table includes only those contaminants listed as COCs and present unacceptable risk.
[2] Maximum Concentrations and Frequencies were derived from Figures 4-1 to 4-25 in Volume 1 of the 2014 Remedial Investigation.
[3] Risk values are taken from Table 6.2-1 from 2014 Remedial Investigation, Volume II – Human Health Risk Assessment.
[4] Polychlorinated biphenyls.
[5] Polychlorinated dibenzodioxins / Polychlorinated dibenzofurans, toxicity equivalent.
[6] Exposure was changed to Adult Resident (age-adjusted resident was not evaluated). Child resident non-cancer risk was 22.

In the EFSA, COCs in soil that pose unacceptable risk include SVOCs such as benzo(a)pyrene and benzo(a)anthracene, as well as dioxin/furans, arsenic and mercury.

Summary of Contaminants of Concern in Soils in the Eastern Facility Study Area				
	Maximum		Risk[3]	
Contaminant of Concern[1]	Concentration[2]	Frequency	Cancer	Non-Cancer[6]
PCDD/PCDF (TEQ)[5]	0.003370 mg/kg	8/17	$6.1 x10^{-4}$	6
Benzo(a)anthracene	37 mg/kg	12/17	$1.2 x10^{-4}$	
Benzo(a)pyrene	27 mg/kg	13/17	$8.7 x10^{-4}$	
Benzo(b)fluoranthene	23 mg/kg	14/17	$7.9 x10^{-5}$	
Dibenz(a,h)anthracene	4.9 mg/kg	14/17	$1.3 x10^{-5}$	
Arsenic (inorganic)	54.7 mg/kg	20/20	$4.7 x10^{-5}$	
Mercury (elemental)	34.4 mg/kg	6/23		2.2
Lead	1117 mg/kg	1/20		
Total Risk			$1.9 x 10^{-3}$	8.4

[1] This summary table includes only those contaminants listed as COCs and create unacceptable risk.
[2] Maximum Concentrations and Frequencies were derived from Figures 4-1 to 4-25 in Volume 1 of the 2014 Remedial Investigation.
[3] Risk values are taken from Table 6.2-1 from 2014 Remedial Investigation, Volume II – Human Health Risk Assessment.
[4] Polychlorinated biphenyls.
[5] Polychlorinated dibenzodioxins / Polychlorinated dibenzofurans, toxicity equivalent.
[6] Exposure was changed to Adult Resident (age-adjusted resident was not evaluated). Child resident non-cancer risk was 59.

Future Residents in the SFSA and EFSA would be also be exposed to lead in soil at concentrations that would create unacceptable risk to children.[11]

Future residents exposed to contaminated groundwater through drinking water and groundwater vapors would incur unacceptable risk due to exposure to chloroform, carbon tetrachloride, chromium, arsenic and dioxin in drinking water (See Table 3b in Appendix B).

Summary of Contaminants of Concern in Groundwater as Drinking Water for an Age-adjusted Resident				
Contaminant of Concern[1]	**Maximum Concentration (µg/l)**[2]		**Risk**[3]	
	CHP Landfill	**SFSA**	**Cancer**	**Non-Cancer**[6]
Chloroform	1,500	100,000	$5.3x10^{-1}$	1190
Carbon tetrachloride	A	16,000	$4.1x10^{-2}$	400
Arsenic	105	37	$3.0x10^{-3}$	29
PCDD/PCDF (TEQ)[4]	1390	ND	$2.7x10^{-3}$	127
Trichloroethene	130	A	$3.0x10^{-4}$	50
Carbon disulfide	23,000	260,000		361
Mercury	134	ND		213
Total Risk			$5.8x10^{-1}$	2510

[1] This summary table includes only those contaminants listed as COCs that exceed $1x10^{-4}$ Cancer Risk.
[2] Maximum Concentrations were derived from Figures 4-25 to 4-90 in Volume 1 of the 2014 Remedial Investigation.
[3] Risk values are taken from Table 6.2-1 from 2014 Remedial Investigation, Volume II – Human Health Risk Assessment.
[4] Polychlorinated dibenzodioxins / Polychlorinated dibenzofurans, toxicity equivalent.

Future structures that may be built on either the CHP Landfill or the SFSA may expose occupants to carbon tetrachloride, chloroform and mercury groundwater vapors (see Table 3c in Appendix B).[12]

The RIR found no contamination in the Androscoggin surface water and therefore no unacceptable risk. The HHRA found that sediment in the Androscoggin River did contain COCs (mercury, PCBs, dioxins/furans and PAHs) but the RIR could not determine if these contaminants originated from the Site. Berlin, especially along the banks of the Androscoggin River was formerly industrialized and many past sources of contaminants existed. Regardless, the HHRA found that downstream sediment, including that with COCs, did not pose an unacceptable risk to adult or child recreator visitors.

EPA found many of the COCs, including mercury, in fish sampled downstream of the Site. Consumption of fish was found to pose a risk to human health. But with many other potential upstream and downstream sources for mercury, the RIR could not attribute those contaminants as

[11] Memorandum: Estimated Risks of Soil Exposure Point Concentrations (EPCs) for Contaminants of Concern to Hypothetical Residents, Courtney Carroll, EPA Risk Assessor, November 20, 2019.
[12] Memorandum: Potential Vapor Intrusion Risk to Workers Due to VOCs in Groundwater at Chlor Alkali Superfund Site, Rick Sugatt, EPA Risk Assessor, January 2, 2020.

originating from the Site. Mercury was determined to pose a risk to anglers that consumed the fish; however, the concentrations of mercury in fish were not statistically different from the background areas upstream of the Site. In accordance with the NCP preamble, CERCLA remedial actions do not generally cleanup below background or include measures to address background contamination. The State of New Hampshire prohibits the taking and consumption of fish from Sawmill Dam downstream to the Maine State line due to the presence of contamination in those fish. The risk to the public from sediments, surface water and fish in the Androscoggin River is displayed in Table 3b of Appendix B.

2. ECOLOGICAL RISK ASSESSMENT

EPA assessed risk to the environment through two analyses: Terrestrial Screening Level Ecological Risk Assessment (TSLERA) for exposure to biota in the area of the EFSA, SFSA, and CHP, and a Baseline Ecological Risk Assessment (BERA) for biota in the Androscoggin River. In the EFSA and SFSA the TSLERA found little to no potential for current adverse effects to plant and soil invertebrate communities.

The CHP is capped and therefore there is only a future risk to bird and mammal populations if the cap were to fail. EPA did determine that there was potential ecological risk from exposure to contamination in the CHP landfill if the containment system were to fail and result in exposure of contamination to ecological receptors on land or in the River. The TSLERA is Volume IIIb of the 2014 RIR. A potential for adverse effects to bird and mammal populations was found to exist in the EFSA and SFSA from the presence of dioxins, furans, PCBs, lead and PAHs. However, the TSLERA identified comparable risk to avian and mammalian receptors in background soils. In accordance with the NCP preamble, CERCLA does not generally cleanup below background. EPA determined that the risk to ecological receptors at the CHP Landfill, as well as the SFSA and EFSA, at present, did not warrant a remedial action.

Because of the presence of mercury and mercury amalgams in the Androscoggin River adjacent to the CHP Landfill, EPA considered the potential for adverse effects over a greater length of the river in the BERA. EPA believed that examining only the stretches of the River near the Site would neglect the potential for changes in risk from mercury further downstream. From Sawmill Dam, adjacent to the Site, to Smith Hydro Dam, approximately 4,000-feet downstream, the Androscoggin River falls over 100-feet. This steep hydraulic gradient prevents the accumulation of fine-grained sediments. Through this stretch the river can be very turbulent and bedrock is exposed over much of the riverbed. Mercury would remain in elemental form and not be readily mobile in the environment in that portion of the River. Fine-grained, organic-rich sediments that are found further downstream of Smith Hydro Dam, create conditions for mercury methylation, a process that increases the mobility and toxicity of mercury.

Therefore, EPA collected data over a long length of the Androscoggin River from Wheeler Bay, north of Milan, New Hampshire to Shelburne on the New Hampshire-Maine state line, over 20-miles in length. The river is segmented over much of this area by a series of hydro-electric dams that create impoundments behind them.

For the BERA, EPA sampled the sediment, sediment pore-water, surface water, aquatic invertebrates, and fish (white sucker and small-mouth bass). EPA also obtained samples from songbirds, swallows and their nestlings, bats, and Bald Eagle chicks. The BERA found that, excepting mercury in bats foraging in the vicinity of the Shelburne Reservoir, that risk from mercury, PCB, and dioxin/furan exposure, to the flora and fauna inhabiting the river, is of limited ecological significance. None of the evaluations conducted as part of the assessment provided evidence that the levels of contaminants in sediments (surface water was uncontaminated) in the Androscoggin River from Sawmill Dam, downstream to Shelburn Dam in Shelburne, were sufficiently high to induce effects above the regional variability in reproduction, maintenance, and survival of the flora and fauna in the river. It was not possible to determine the source or impact of the mercury present in the Shelburne Reservoir bats because no other impacts from site-related contamination was identified in the River.

Volumes 3a and 3b of the RIR describe ecological risk at the Site and associated with the Androscoggin River.

3. BASIS FOR REMEDIAL ACTION

OU-1, CHP Landfill: EPA has determined that there are no current exposures to contaminants in the CHP Landfill but that if the containment system were to be compromised unacceptable risk to human health and the environment would occur. Groundwater was found to pose a hazard to future groundwater users and that there was no current evidence for migration from the CHP Landfill. EPA has also determined that vapor intrusion from the capped area may occur. Therefore, to prevent risk to human health and the environment it will be necessary to:

- Monitor the containment of wastes.
- Prohibit structures that may compromise the containment system or allow exposure to groundwater vapors.
- Prohibit activities and uses that will impair remedy infrastructure.
- Prohibit the use of groundwater for anything other than monitoring and remediation.

OU-2, the SFSA and EFSA: EPA determined that there is unacceptable risk to human health through exposure to discreet hotspots of soil contamination in both the SFSA and EFSA. Concentrations of lead in soil in these areas also exceed standards for exposure to future residents. In the SFSA EPA determined that future structures may expose occupants to groundwater vapors that create an unacceptable risk. To prevent risk to human health it will be necessary to:

- Prevent human exposure to contaminated soils.
- Prohibit residential or day-care uses in the EFSA or SFSA.
- Prohibit structures that may allow exposure to groundwater vapors.

OU-3, Groundwater: EPA determined that the future use of groundwater in either the CHP or SFSA would create an unacceptable risk to human health from drinking water. To prevent risk to human health it will be necessary to:

- Ensure that contaminated groundwater inside the CHP Landfill is contained and does not migrate.
- Restore groundwater outside the CHP Landfill for drinking water purposes.
- Until groundwater is restored in the SFSA, prevent the use of groundwater for drinking water purposes.
- Prevent use of groundwater in the CHP for any use other than monitoring and remediation.

OU-3, Androscoggin River: The appearance of visible, liquid elemental mercury and mercury amalgams in the Androscoggin River creates the opportunity for exposure by the public and environment. To prevent such exposure, inspections of the river and removals will be needed on a yearly basis, until it is determined that inspections can be conducted less frequently.

H. REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) describe, in general terms, what a remedial action should accomplish to be protective of human health and the environment. RAOs are statements that specify the environmental media of concern, contaminant type, potential exposure pathways to be addressed by remedial actions, receptors to be protected, and cleanup levels (40 CFR Section 300.430[e][2][i]). The RAOs for each OU is listed below.

The RAOs for OU-1, contaminated debris in the CHP Landfill:

- Prevent direct human contact, ingestion or inhalation of COCs within the CHP Landfill that exceed Applicable or Relevant and Appropriate Requirements (ARARs) or risk-based criteria.
- Prevent exposure of ecological receptors to landfill contents that present an unacceptable ecological risk.
- Control CHP Landfill runoff and erosion.
- Prevent the release and migration of COCs through leaching from the CHP Landfill to groundwater outside the CHP Landfill groundwater compliance boundary and the Androscoggin River.
- Prevent infiltration and washout during flooding, up to a 500-year event.

2. The RAO for contaminated soils in OU-2, the SFSA, the EFSA, and the uncapped contaminated soils on the CHP property within OU-1:

- Prevent exposure to COCs in soil that exceed ARARs or risk-based criteria for human health.

3. The RAOs for OU-3, contaminated groundwater, consist of two divisions, beneath the CHP Landfill and outside the CHP Landfill. The RAOs for each:

a. Groundwater beneath the CHP Landfill are:

- Prevent potential human exposure to COC concentrations in groundwater in excess of ARARs or risk-based criteria within the compliance boundary for the CHP Landfill.
- Prevent migration of Site COCs in groundwater from beyond the edge of the compliance boundary of the waste management area (i.e., landfill).
- Prevent exposure by future building occupants to indoor air vapors, via a vapor intrusion pathway, containing Site contaminants that would result in a total excess lifetime cancer risk greater than the target risk range of 10^{-6} to 10^{-4}, or a non-cancer HI greater than 1.

b. Groundwater beyond the CHP Landfill compliance boundary:

- Return the groundwater to its beneficial use as a source of drinking water.
- Prevent use of groundwater with COC concentrations greater than ARARs or risk-based standards until groundwater cleanup standards are achieved.
- Prevent exposure by future building occupants to indoor air vapors, via a vapor intrusion pathway, containing Site contaminants that would result in a total excess lifetime cancer risk greater than the target risk range of 10^{-6} to 10^{-4}, or a non-cancer HI greater than 1, until groundwater cleanup standards are achieved.

4. The RAO for OU-3, Androscoggin River, the recovery of liquid and amalgam mercury appearing on the banks and in the riverbed of the Androscoggin River. The RAO for the Androscoggin River:

- Reduce the presence of liquid elemental mercury, hardened metal amalgams, and mercury-containing debris in Reach AR-3 of the River adjacent to the CHP to protect designated use and comply with ARAR standards.

I. DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES

1. STATUTORY REQUIREMENTS & RESPONSE OBJECTIVES

Under its legal authorities, EPA's primary responsibility at Superfund sites is to undertake remedial actions that are protective of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences, including: a requirement that EPA's remedial action, when complete, must comply with all federal and more stringent state environmental and facility siting standards, requirements, criteria or limitations, unless a waiver is invoked; a requirement that EPA select a remedial action that is cost-effective and that utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and a preference for remedies in which treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances is a principal element over remedies not involving such treatment. Response alternatives were developed to be consistent with these Congressional mandates.

2. TECHNOLOGY AND ALTERNATIVE DEVELOPMENT & SCREENING

CERCLA and the National Contingency Plan (NCP) set forth the process by which remedial actions are evaluated and selected. In accordance with these requirements, a range of alternatives were developed for the Site. Section 5 of the FS identified and screened technologies capable of meeting the RAOs. Tables 1 through 6 of the FS describe, evaluate and screen to determine if they should be retained for development into remedial alternatives based on the following criteria:

- Effectiveness;
- Implementability; and
- Relative cost.

Representative process options were selected for each remedial technology type that are well-established, proven and reliable over a range of conditions. The FS identified, screened, and evaluated over 30 remedial technologies and over 80 process options for OUs 1, 2, and 3. This range included alternatives that remove or destroy hazardous substances to the maximum extent feasible, eliminating or minimizing to the degree possible the need for long term management. The result that is further developed into remedial alternatives in Section 6 of the FS include:

- OU-1, CHP Landfill: Four general response actions were identified that included No-Action, ICs, ECs and containment.
- OU-2, contaminated soil in the EFSA and SFSA: Eight general response actions were identified including No-Action, ICs, ECs, removal and disposal were retained for development. *In situ* and *ex situ* treatments, containing six and nine process options, respectively, were evaluated but not retained because each of the technologies were ineffective against some COCs.
- OU-3, Groundwater: Seven general response actions were identified that included No-Action, ICs, MNA, containment, *in situ* treatment, *ex situ* treatment, and discharge. In Table 6 of the FS, Process Screening, the *ex situ* and many of the *in situ* technologies were screened out due to cost or, in the case of the *in situ* treatments, the technology was incompatible with the contaminants.
- OU-3, mercury in Reach AR-3: Two general response actions were identified, No-Action and manual removal.

Section 6 of the FS then combined the technologies into remedial alternatives to address the RAOs for each of the OUs. The combined technologies were then evaluated in Section 7 of the FS to evaluate the ability of the alternatives to meet the Threshold and Balancing Criteria in the NCP.

J. DESCRIPTION OF ALTERNATIVES

To address the risk posed by contaminated media at the Site remedial alternatives were developed and evaluated in the FS. The alternatives selected in the FS and Proposed Plan are believed those most likely to protect the public and environment from exposure to the contaminants found in Site media. These media include 1) wastes beneath the CHP Landfill cover system; 2) contaminated soils in the SFSA, the EFSA, and the uncapped areas of the CHP property; 3) contaminated groundwater; and 4) mercury and mercury amalgams that periodically appear on the banks, in debris, and in the riverbed, of the Androscoggin River.

A No Action alternative is required by the NCP for each of the contaminated media as a baseline of effects against the performance of an active remedy. For each of the contaminated media the No Action alternative would leave contaminants in place or allow them to migrate exposing the public and environment to contamination that exceeds EPA's risk range or that may adversely affect the environment. As such, the No Action alternative for each of the four media described above may result in the exposure of contaminants to the public and environment.

In the Proposed Plan EPA presented the following alternatives for each of the operable units:

The CHP Landfill is currently isolated from the environment by a 40-mil HDPE cap, a slurry wall on the east and south, a retaining wall on the north and west and bedrock beneath. The alternatives developed in the FS and presented in the Proposed Plan for OU-1 include:

- OU-1-1: No Action. Contaminants isolated from the environment may become exposed if the cap is not maintained or if monitoring and maintenance of the slurry wall are not continued.
- OU-1-2: Monitoring and maintenance of the landfill cap, foundation/retaining wall and slurry wall, ECs and ICs to prevent actions that may damage the containment system.

Contaminated soil in hotspots located in the SFSA, EFSA, and uncapped areas of the CHP property had three alternatives presented in the Proposed Plan along with the No Action alternative. The four alternatives evaluated for OU-2, contaminated soil:

- OU-2-1: No Action. Contaminants would remain and no monitoring would be performed.
- OU-2-2: Contaminated soils would remain undisturbed. Engineering Controls (ECs) consisting of fencing and signage would limit access to soils exceeding commercial/industrial cleanup levels. ECs would require permanent O&M and enforcement measures. ICs, established pursuant to applicable requirements, would be implemented to prohibit disturbance of the ECs and exposure to soils exceeding both commercial/industrial and residential cleanup levels.
- OU-2-3: A soil cap with a vegetative soil cover would be constructed over OU-2 surface soil where the HHRA and post-ROD sampling identify soil exceeding commercial/industrial cleanup levels. A soil cap with vegetative cover would eliminate potential direct contact exposure to COCs that pose a risk to commercial/industrial workers in soil. The soil COCs are all immobile constituents with low water solubility

and strong tendencies to partition to the solid phase or on the surfaces of particulate matter. The alternative includes implementation of ICs established pursuant to a selected remedy under CERCLA and long-term maintenance and monitoring to ensure ongoing compliance with ICs and protectiveness requirements for the soil cap. ICs would be implemented to prevent disturbance of the soil cap. Over the broader area, ICs would restrict residential land uses where there is an exceedance of residential cleanup levels.

- OU-2-4: This alternative involves excavation of soil to address locations where the HHRA and post-ROD sampling identify potential unacceptable risk/hazard to human commercial/industrial workers related to exceedances of commercial/industrial cleanup levels. Excavated soil not meeting the cleanup levels for OU-2 in Table 1, Appendix B, would be disposed offsite at a licensed landfill or onsite beneath the CHP landfill engineered cover system, and the excavation backfilled with clean fill and vegetation restored. ICs, established pursuant to a selected remedy under CERCLA and applicable requirements, would be implemented to restrict residential land uses in areas exceeding residential cleanup levels. Excavation and off-Site or on-Site disposal removes soils that pose potential commercial/industrial risk related to soil COCs.

Contaminated groundwater at the Site is divided into two areas: beneath the CHP Landfill and outside the CHP Landfill. The Proposed Plan presented two alternatives for each of these areas. Groundwater beneath the CHP Landfill:

- OU-3-CHP-1: No Action. Groundwater contamination would not be monitored and could potentially migrate.
- OU-3-CHP-2: Groundwater monitoring, ICs to prevent the use of groundwater and ECs to ensure that the landfill containment system continues to isolate contaminated groundwater.

For groundwater outside of the CHP Landfill:

- OU-3-GW-1: No Action. Groundwater contamination would remain and able to migrate.
- OU-3-GW-3: *In Situ* Chemical Oxidation (ISCO), groundwater monitoring, ICs to prevent groundwater use and building structures that may be subject to vapor intrusion from the contaminated groundwater.

OU-3 includes the riverbed and banks of the Androscoggin river where mercury continually appears. The Proposed Plan presented two alternatives:

- OU-3-AR-3-1: No Action. Mercury would be allowed to accumulate and be transported further downstream.
- OU-3-AR-3-2: Monitoring the appearance of mercury and periodic removals of liquid mercury, solid mercury amalgams, and mercury-containing debris from the Androscoggin River.

The alternatives selected for each of these media/areas of contamination are described fully in Section L: The Selected Remedy. Following an analysis of the remedies developed in the FS,

EPA selected proposed remedies in the Proposed Plan for each of the areas of contamination that best meet seven of nine criteria set forth by the NCP for selecting a remedy. Following the comment period, EPA then examined the two modifying criteria, community and state acceptance, to determine if the alternatives required reconsideration in whole or part. A description of that process is provided in Section K that follows.

K. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

Section 121(b)(1) of CERCLA presents several factors that, at a minimum, EPA is required to consider in its assessment of remedial alternatives. Building upon these specific statutory mandates, the NCP articulates nine evaluation criteria to be used in assessing the individual remedial alternatives. A detailed analysis of each developed alternative using the first seven of the nine evaluation criteria to select a Site remedy is set forth in in the FS and further developed by EPA in the Proposed Plan. The comparative analysis of alternatives was presented in Section 5.0 of the FS as well as EPA's evaluation in the Proposed Plan. The remaining two evaluation criteria, State Acceptance and Community Acceptance, are evaluated in this ROD after evaluating comments received on EPA's Proposed Plan. Below is a description of these criteria followed by a summary comparing each alternative's strength and weakness with respect to the nine evaluation criteria.

Threshold Criteria

The two threshold criteria described below must be met for the alternatives to be eligible for selection in accordance with the NCP.

1. **Overall protection of human health and the environment** addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.
2. **Compliance with applicable or relevant and appropriate requirements (ARARs)** addresses whether or not a remedy will meet all Federal environmental laws and more stringent State environmental and facility siting laws, unless a waiver is invoked.

Primary Balancing Criteria

For those alternatives that meet the threshold criteria, the following five criteria are utilized to compare and evaluate the elements of one alternative to another:

3. **Long-term effectiveness and permanence** addresses the criteria that are utilized to assess alternatives for the long-term effectiveness and permanence they afford, along with the degree of certainty that they will prove successful.
4. **Reduction of toxicity, mobility, or volume through treatment** addresses the degree to which alternatives employ recycling or treatment that reduces toxicity, mobility, or volume, including how treatment is used to address the principal threats posed by the site.

5. **Short term effectiveness** addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until cleanup goals are achieved.
6. **Implementability** addresses the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement an alternative.
7. **Cost** includes estimated capital and O&M costs, as well as present-worth costs.

Modifying Criteria
Two modifying criteria are used as the final evaluation of remedial alternatives, generally after EPA has received public comment on the RI/FS and Proposed Plan:

8. **State acceptance** addresses the State's position and key concerns related to the preferred alternative and other alternatives described in the Proposed Plan and RI/FS, and the State's comments on ARARs or the proposed use of waivers.
9. **Community acceptance** addresses the public's general response to the alternatives described in the Proposed Plan and RI/FS.

Following the detailed analysis of each individual alternative, a comparative analysis, focusing on the relative performance of each alternative against the nine criteria, was conducted. The following presents a narrative summary of the alternatives and a comparison of their strengths and weaknesses with respect to the two threshold criteria, five balancing criteria, and two modifying criteria. Table 4 in Appendix B summarizes how each of the alternatives meet each of the nine criteria.

CHP Landfill. The No Action alternative, OU-1-1, would not be protective of human health and the environment under CERCLA because no actions would be taken to maintain the cap or ensure that exposure was controlled. OU-1-2 (Monitoring and maintenance of the landfill cap, foundation/retaining wall and slurry wall, ECs and ICs) will be protective of human health and the environment through maintenance of existing containment infrastructure, ECs, implementation and enforcement of legally enforceable ICs established pursuant to a selected remedy under CERCLA, and construction and O&M of additional ECs (*i.e.*, fencing and signage). Maintenance of the CHP Landfill engineered cover system, slurry wall, and foundation/retaining wall will prevent potential exposure to soil/debris beneath the CHP Landfill engineered cover system. Implementation and enforcement of ICs as well as installation and O&M of additional ECs as part of alternative OU-1-2 will further minimize potential future exposure via land use and access restrictions.

Alternative OU-1-2 is a presumptive remedy for landfill sites under EPA guidance standards and complies with ARARs. This alternative is effective in the short term since the engineered cap system is currently in place and would meet the relevant and appropriate requirements for a hazardous waste landfill cap. Long-term effectiveness of landfill capping has been demonstrated broadly at many Superfund remedial sites. Alternative OU-1-2 is readily implementable, the cap is already in place, the technology is reliable, and the ability to monitor the effectiveness of the alternative as a remedy is easily accomplished. Note that under Alternative OU-2-4 the landfill cap may need to be opened to receive contaminated soil excavated as part of the alternative (unless the contaminated soil is disposed of off-site). If the on-site disposal option is

implemented the landfill would need to be modified to receive the excavated soil and the cap reconfigured and resealed.

Alternative OU-1-1 has no cost except the cost to conduct statutorily required five-year reviews. Alternative OU-1-2 has relatively low capital and O&M costs. Part of the cost of monitoring is also covered under OU-3 alternatives, which address groundwater monitoring and surface water monitoring in the Androscoggin River in Reach AR-3. Alternative OU-1-2 would not reduce the toxicity, mobility, or volume of the contamination through treatment, but represents an effective alternative that may incorporate previously implemented ECs with implementation of ICs and additional ECs (fencing and signage) to restrict and prohibit future activities by which exposure could occur.

Soil Contamination in the Eastern and Southern Facility Study Areas and in the uncapped area of the CHP property. The No Action alternative, OU-2-1, would not protect human health and the environment because COCs would remain in soil at concentrations greater than industrial/commercial and residential remediation goals (cleanup levels)[13] and no measures would exist to prevent exposure. Alternatives OU-2-2 (Installation/maintenance of ECs and ICs to protect the ECs and prohibit residential and unrestricted uses), OU-2-3 (a soil cover, monitoring/maintenance and ICs to protect the cover and prohibit residential and unrestricted uses), and OU-2-4 (excavation and disposal with ICs to prohibit residential and unrestricted uses) are protective of human health and the environment. Alternative OU-2-2 relies on on-going maintenance of fencing and enforcement of ICs, and Alternative OU-2-3 relies on maintenance of soil covers to prevent access to contaminated material that exceeds commercial/industrial standards, along with ICs to protect the cover and prohibit residential and unrestricted uses. Alternative OU-2-4 is protective because it removes contaminated soil exceeding commercial/industrial cleanup levels and disposes of the soil off-site at a licensed disposal facility or under the CHP Landfill cap. ICs would prohibit residential and unrestricted uses.

The No Action Alternative, OU-2-1, would not meet ARARs or risk-based cleanup levels. Alternative OU-2-2 would only meet ARARs and risk-based cleanup levels if ECs are maintained and ICs are enforced. Alternatives OU-2-3 and OU-2-4 would meet ARARs and risk-based cleanup levels by either covering or removal and off-site or on-site disposal of contaminated soils exceeding commercial/industrial cleanup levels, and ICs to prohibit residential and unrestricted exposure.

Alternatives OU-2-2 and OU-2-3 provide short- and long-term effectiveness maintenance and monitoring of ECs or soil covers, respectively, and through legally enforceable ICs established pursuant to a selected remedy under CERCLA. However, Alternative OU-2-3 is more effective because it isolates soil contaminants under a cover rather than relying on maintaining fences to restrict contaminant exposure. Alternative OU-2-4 provides long-term effectiveness and permanence through excavation and disposal of soil exceeding commercial/industrial cleanup levels either at an off-site facility or on-site in the CHP Landfill. OU-2-2, OU-2-3, and OU-2-4 all use ICs to prohibit residential and unrestricted use exposure. Alternative OU-2-4 poses

[13] Preliminary Remediation Goals (PRGs) are presented in the FS and Proposed Plan. As part of ROD the goals are finalized and are referred to as Remedial Goals (RGs).

potential short-term hazards to workers since contaminated soil will require excavation and management prior to disposal. On-site disposal adds short-term hazards related to opening, regrading, and re-sealing the CHP Landfill engineered cover system; however, proper use of best management practices will prevent short-term hazards.

None of the OU-2 Alternatives will reduce toxicity, mobility, or volume through treatment.

Alternatives OU-2-2 and OU-2-3 have implementability challenges with monitoring and maintaining ECs and soil covers, respectively. For Alternative OU-2-4, on-site disposal in the CHP Landfill presents greater implementability challenges than off-site disposal, owing to technical requirements for CHP Landfill disruption and repair. However, there may be implementability issues with off-site disposal since the number of licensed disposal facilities that can accept the waste generated from the Site may be limited due to the presence of dioxin and furans in the waste. The availability of disposal at licensed facilities will likely be the deciding factor in whether soils are disposed on-site or off-site. Alternatives OU-2-3 and OU-2-4 add implementability challenges related to access and potential engineering constraints on cover installation and maintenance related to ponding of precipitation/runoff and wetlands in the area requiring a cover.

Alternative OU-2-1 has no cost except the cost to conduct statutorily-required five-year reviews. Excluding the No Action alternative, Alternative OU-2-2 has the lowest estimated cost: $285,000. Alternative OU-2-3 has an estimated cost of approximately $700,000, while estimated costs for Alternative OU-2-4 are approximately $500,000 for off-site disposal and $560,000 for on-site disposal beneath the existing landfill cap.

Groundwater Contamination Beneath the CHP Landfill. The No Action alternative, OU-3-CHP-1, does not protect human health and the environment and would not meet ARARs or risk-based standards. Alternative OU-3-CHP-2 would be protective of human health and the environment and would meet ARARs by ensuring groundwater does not migrate from the landfill and establishing ICs to prevent exposure to contaminated groundwater.

Alternative OU-3-CHP-2 will be effective in the short term, relying on ICs to prohibit potential exposure to groundwater vapor or from groundwater consumption within the groundwater compliance boundary established for the CHP Landfill. In conjunction with ICs, monitoring would be conducted to evaluate migration of COCs relative to the compliance boundary and groundwater and surface-water quality. Neither Alternative will reduce toxicity, mobility, or volume through treatment.

Alternative OU-3-CHP-1 is not effective in either the short-term or long-term. Alternative OU-3-CHP-2 is effective in the short term and maintenance and monitoring of groundwater ensures the long-term effectiveness and permanence of this alternative. ICs will be effective at restricting use of Site groundwater and exposure to soil vapor underlying the CHP Landfill and protecting remedial components of the alternative.

Alternative OU-3-CHP-1 is implementable because no action will be taken. Alternative OU-3-CHP-2 is implementable because long-term groundwater monitoring and establishment and

enforcement of ICs do not pose any significant implementability issues. The No Action alternative has no cost except the cost to conduct statutorily-required five-year reviews and the estimated cost of Alternative OU-3-CHP-2 is approximately $900,000 over 30 years.

Groundwater Contamination Outside of the CHP Landfill. No Action, OU-3-GW-1, would neither be protective of human health and the environment, nor meet ARARs or risk-based criteria. Alternative OU-3-GW-3, *in-situ* chemical oxidation (ISCO), ICs and monitoring, is protective of human health and the environment via ISCO treatment to reduce VOC concentrations. Alternative OU-3-GW-3 will achieve ARARs in approximately 20 years and implementation of ICs will prohibit groundwater use and exposure to groundwater vapor until groundwater cleanup levels are achieved.

Alternative OU-3-GW-1 does not reduce toxicity, mobility, or volume through treatment. Alternative OU-3-GW-3 reduces toxicity, mobility or volume through treatment through addition of *in situ* chemical reagents. Alternative OU-3-GW-1 is implementable because no action will be taken. Alternative OU-3-GW-3 is implementable because ISCO is a well-known treatment process, however site-specific factors can significantly impact treatment effectiveness (treatment effects may be localized in the vicinity of the injection point due the characteristics of deep bedrock at the Site).

Alternative OU-3-GW-1 will not be effective in the short-term because no action will be taken. Alternative OU-3-GW-3 is effective in the short term through monitoring to evaluate and confirm that COCs are not migrating into adjacent uncontaminated areas of groundwater or affecting surface water quality. Although Alternative OU-3-GW-3 may have short-term impact to workers implementing the treatment remedy, these impacts can be addressed through best management practices and health and safety requirements.

Alternative OU-3-GW-1 is not protective in the long-term because no action will be taken. Alternative OU-3-GW-3 is expected to be protective in the long-term because it permanently treats contaminated groundwater. Alternative OU-3-GW-3 also provides long-term protectiveness through ICs to prohibit groundwater use and exposure to groundwater vapor, until groundwater cleanup levels are achieved.

Alternative OU-3-GW-1 has no cost except the cost to conduct statutorily-required five-year reviews. Alternative OU-3-GW-3 has an estimated cost of approximately $1,600,000.

Mercury and Mercury-contaminated Material Appearing on the Banks, in Debris and in the Riverbed of the Androscoggin River. The OU-3 River remedy would be implemented in the stretch of river defined as AR-3, that is the run of River between Sawmill Dam and Riverside Dam and adjacent to the CHP. The No-Action alternative, OU-3-AR-3-1 would not comply with ARARs allowing mercury exceeding regulatory hazardous waste standards to remain in the River. The alternative would not include surface-water monitoring to ensure the protectiveness of Alternative OU-1-2 remedy.

Alternative OU-3-AR-3-2 includes the removal of liquid elemental mercury, hardened metal amalgams, and mercury-containing debris and ongoing removal of the same materials, as

required from Reach AR-3. The recovered materials will be transported to licensed facilities to recover the mercury for re-use or for disposal. The alternative also includes monitoring in the River for as long as contamination remains in the CHP Landfill. These actions would meet ARARs by removing improperly disposed hazardous waste and ensuring there is no future releases of contamination into the River from the CHP Landfill.

Alternative OU-3-AR-3-2 involves a phased work approach to continue and enhance removal of liquid elemental mercury, hardened metal amalgams, and mercury-containing debris from Reach AR-3 consistent with all previously implemented actions taken since 1999.

Neither alternative reduces the mobility, toxicity and volume of contamination through treatment (unless for Alternative OU-3-AR-3-2 some treatment of water generated from dewatering of the removed material is required prior to discharge of the water back to the River, although no such dewatering has been required to date).

Alternative OU-3-AR-3-1 is implementable because no action will be taken. Alternative OU-3-AR-3-2 is implementable as demonstrated in previously implemented actions by NHDES, EPA and others beginning in 1999, plus the adaptation of more appropriate collection efforts in the phased approach commenced by G-P in 2015. Inspections and recoveries will occur when water conditions in the River are safe during the period from May to September. The area where mercury appears is difficult to access, requiring some effort to descend over the ten to 20-foot rock face and then climb out. The bank consists of uneven rock that in some circumstances may pose a slip hazard due to recent increases in flow. The area to inspect is approximately 150-feet downstream of Sawmill Dam sluice gates that may need to be opened at any time. Coordination with Brookfield Power, the operator of Sawmill Dam, will be necessary to ensure notification if there is a need for a release.

Alternative OU-3-AR-3-1 will not be effective in the short-term or long-term because no action will be taken. Alternative OU-3-AR-3-2 is effective, both short-term and long-term, as demonstrated by mercury removal actions taken to date, with an estimated cost of $1,200,000. The No Action alternative has no cost except the cost to conduct statutorily-required five-year reviews.

State Acceptance

The State of New Hampshire, through its lead agency, NHDES, has expressed its support for EPA's preferred alternatives presented in the June 2020 Proposed Plan and concurs with the selected remedy outlined in this ROD (see Appendix A of this ROD for the State concurrence letter).

Community Acceptance

EPA's community engagement efforts at the Site included the publication of a Proposed Plan in June 2020, and the public meetings described in Part II, Section C of this ROD. A virtual public informational meeting was held on June 10, 2020 and was immediately followed with a virtual Public Hearing. A transcript was created for this hearing and has been made part of the

Administrative Record for this ROD. EPA also made available a dedicated voice-mail box to receive verbal comments throughout the comment period, although no comments were received. There were no oral comments. One written comment letter was submitted. A summary of the comments specific to the proposed alternatives for the Site and EPA's responses to the comments are included in the Responsiveness Summary, Part 3 of this ROD.

Principle Threat Wastes

No principle threat waste has been identified at the Site. The landfilled wastes are contained within the CHP landfill, with no evidence of migration to the adjacent groundwater or River.

L. THE SELECTED REMEDY

1. Summary of the Rationale for the Selected Remedy

The selected remedy components are protective of human health and the environment and meet the ARARs requirements identified in Appendix D.

The CHP Landfill is capped and has a containment system that isolates contaminated wastes from the environment preventing the exposure of the public and ecological receptors to contaminants in the landfill. The present containment system meets the criteria for an alternative cap design and satisfies the requirements of the New Hampshire hazardous waste landfill regulations that incorporate federal regulatory standards at 40 CFR 264 subparts G (closure and post-closure) and N (landfills) by reference, as discussed in Section 7.2.2 of the FS. Contaminated groundwater beneath the CHP Landfill has not been found to migrate. Therefore, monitoring and maintenance of the containment system of the CHP Landfill that includes the engineered cap, the slurry wall, and the retaining wall will attain the RAOs for the CHP Landfill cited in Part II, Section H.

Contaminated soils in the SFSA, EFSA, and uncapped areas of the CHP property consist of isolated, discreet occurances. The selected remedy will excavate soils exceeding commercial/industrial cleanup levels and dispose of them off-site at a licensed facility or on-site under the CHP Landfill cap. These actions will remove the contaminated soils exceeding these standards from the environment, utilize ICs to restrict residential exposure to soils exceeding residential cleanup levels, and address the RAO developed for soils. The other alternatives would leave the waste in-place and an enduring requirement to monitor and enforce the ICs and maintain the ECs for each of the isolated areas. The selected remedy for OU-2 would not require ECs and ICs to prevent commercial/industrial exposure and would only require ICs to prohibit residential or unrestricted uses in areas exceeding residential cleanup levels.

Groundwater inside and outside the landfill is contaminated with VOCs and metals at concentrations that exceed risk-based and regulatory standards. The selected remedy for inside the compliance boundary (which traces the footprint of the CHP landfill) will meet the RAOs through maintaining the current cap on the landfill and monitoring of the groundwater to ensure that contamination does not migrate beyond the compliance boundary into the River or adjacent drinking water aquifers and ICs to prevent exposure to contaminated groundwater or

contaminated vapors. The selected remedy for contaminated groundwater under the SFSA would treat the contaminants to achieve groundwater cleanup levels within approximately 20 years and meet the RAOs.

The selected remedy for the removal of mercury, mercury amalgams, and mercury-contaminated debris from Reach AR-3 in the Androscoggin River will address the RAO.

2. Description of the Selected Remedy

EPA has selected actions that represent a comprehensive remedy for the Site. The selected remedy consists of the following actions:

OU-1-2, CHP Landfill: The major components of this remedy include:

- Monitoring and maintenance of the existing CHP Landfill containment system (the CHP Landfill cap, monitoring wells, the retaining wall, and the slurry wall) that includes:
    - Annual inspections and maintenance of the CHP landfill engineered cover system. Maintenance will consist of removing woody vegetation on the cap, inspections, and repairs to the infrastructure, as needed.
    - Periodic groundwater and surface water monitoring (in conjunction with OU-3 Groundwater) to assess the effectiveness of the CHP Landfill containment system.
    - On-going monitoring of the foundation/retaining wall to determine if stability of the foundation/retaining wall may be compromised.
    - Pre-Design activities to determine the types and frequency of monitoring of the foundation/retaining wall, slurry wall, and groundwater monitoring wells, and monitoring points in, and on the banks of, the Androscoggin River adjacent to the CHP Landfill under different conditions to include the 500-year flood and potential seismic loading scenarios.
- ICs: To prevent exposure to contaminated groundwater and groundwater vapor, and to protect the components of the remedy, ICs (which are legally-enforceable restrictions), will be placed on the property. These ICs shall be established pursuant to CERCLA and applicable state requirements, that will prohibit the construction of buildings on the CHP Landfill, disturbance of the existing landfill cap and other remedial infrastructure (including monitoring wells, the retaining wall and slurry wall), use of the property for residential and other unrestricted uses, and prohibit the use of groundwater for anything other than monitoring.
- ECs: Construct additional ECs to augment existing access restrictions (*i.e.* fencing and signage) to deter trespassing. Monitoring and maintaining the fence and the containment system.

In conjunction with its work on the SRI, G-P has performed maintenance of the CHP Landfill, since 2015, removing woody vegetation and ensuring the integrity of the cap. G-P also undertook the monitoring and assessment of the 100-year old retaining wall (former foundation wall). Monitoring of wall stability has been on-going to ensure that waste is contained. Additionally, when the SRI began, portions of the wall were severely eroded. G-P used shotcrete to repair the

entire wall in addition to the eroded sections. Operation and Maintenance activities that may occur as part of the remedy include:

- Repair of the retaining wall.
- Replacement of 2,000 linear feet of fencing and associated signage.
- Repair of the cap.
- If contaminated soil from the OU-2 remedy component is disposed of on-site the cap will need to be opened, the new material regraded into the landfill, the cap reconfigured over the added material, and the opening in the cap resealed.

OU-2-4, Contaminated Soil in the SFSA, EFSA and the Uncapped Areas of the CHP Property: The selected remedy for contaminated soils in the SFSA, EFSA and the 0.6-acre area southwest of the CHP Landfill that is uncapped, consists of the following:

- Additional testing to refine the extent of contamination in those areas identified by the Human Health Risk Assessment in the EFSA, SFSA and the uncapped portion of the CHP Landfill.
- Excavation of soils that exceed cleanup levels to address unacceptable risks from commercial/industrial exposure.
- Disposal of excavated soils, at a permitted off-site facility or the contaminated soils will be placed inside the CHP Landfill containment system, if that option is more practicable.
- The excavated areas will be backfilled with clean soils and restored with native vegetation to resemble the surrounding habitat.
- Establish ICs, pursuant to CERCLA and applicable state requirements, that will prohibit residential and other unrestricted uses.

OU-3-CHP-2, Contaminated Groundwater beneath the CHP Landfill. The selected remedy will be monitoring and ICs. This remedy was selected because under federal guidance standards, contaminated groundwater beneath a designated waste management unit does not require active cleanup if migration of the contaminated groundwater is controlled. The components of this remedy are:

- Groundwater will be monitored to ensure that contaminated groundwater remains within a “compliance boundary,” which would be established around the footprint of the CHP Landfill. Monitoring would confirm that contaminated groundwater is neither migrating into the River nor contaminating adjacent aquifers. A pre-design investigation will determine the monitoring analytes, locations, methods and sampling frequencies.
- The River will also be monitored as part of the OU-3-AR-3-2 component of the remedy to ensure no groundwater contamination is migrating into the River.
- If groundwater or surface water monitoring finds that contaminant migration may be occuring, additional monitoring may be required to determine the source and a risk assessment conducted to determine if an unacceptable risk is present.
- If the river or groundwater outside the compliance boundary becomes impacted from the CHP Landfill and the remedy is deemed to no longer be protective of human health or the environment, EPA will make a determination regarding a modification of the

groundwater and CHP Landfill components of the remedy, as applicable, to address the remedy protectiveness.

- ICs will consist of legally enforceable restrictions to protect the containment system and other remedial infrastructures, prohibit the use of groundwater for drinking water, prohibit the building of structures on the landfill and prohibit any residential or other unrestricted uses. Groundwater monitoring performance standards for groundwater within the compliance boundary are listed in Table 2a of Appendix B.

OU-3-GW-3, *In-situ* treatment of Contaminated Groundwater outside the CHP Landfill: EPA's selected remedy for contaminated groundwater outside the CHP Landfill compliance boundary and beneath the SFSA is described in the FS as Alternative OU-3-GW-3, *In-Situ* Chemical Oxidation (ISCO), monitoring and ICs. The components of this remedy are:

- A pre-design study will determine the type of chemical oxidation compound and its application. ISCO will be designed and implemented to destroy VOC groundwater contaminants and immobilize metals, in-place.
- Conducting the ISCO treatment with treatments that destroy or immobilize groundwater contaminants.
- Monitoring will follow the treatment to assess the effectiveness of the treatment and to determine if additional treatments are required or if natural attenuation processes may address any remnant contamination above groundwater cleanup levels left after the implementation of the ISCO remedy.
- ICs will consist of legally enforceable restrictions to prohibit the use of groundwater as drinking water or any uses that may influence groundwater migration. ICs will also prohibit the building of structures without mitigation to prevent potential intrusion by groundwater vapors.

It is estimated that groundwater cleanup levels established in Table 2b, Appendix B will be attained in approximately 20 years.

OU-3-AR-3-2, Liquid elemental mercury, mercury amalgams, and mercury-contaminated debris in the Androscoggin River: The selected remedy for this OU involves continued, periodic inspections for, and removal of, liquid elemental mercury, hardened metal amalgams and mercury-containing debris from Reach AR-3 in the River adjacent to the CHP. Inspections and removals shall continue for as long as mercury can be visually located in the River, or on its banks, and contamination remains in the CHP Landfill that may migrate outside of the compliance boundary. The inspections shall record, describe and evaluate the locations, amounts and forms of mercury present.

Inspections and recoveries will occur when River conditions are safe for access during the period from May to September. The area to inspect is approximately 150-feet downstream of Sawmill Dam sluice gates and extends for approximately 370-feet. For the first five years of remedy implementation at least three inspections and one removal will be performed annually, as safety permits. The experience of past collection activities and an analysis of inspections and removals up to the first Five-Year Review will be used to adjust and target future collection actions.

Coordination with the operators of Sawmill Dam will be necessary to ensure notification if there is a need for a release of water from the dam sluice gates.

Coordination of all the above remedial components: It would be expected that all components of the Selected Remedy would be implemented as soon as possible: ICs, ECs, and a pre-design effort to perform the soil sampling and groundwater design work. Following the implementation of the pre-design investigations and implementation of the soil excavation and the OU-3-GW-3 remedy, the only remaining tasks will be ongoing monitoring, the periodic River inspections, and mercury removals.

Common to all these efforts will be a requirement for annual data reviews and reporting that describes the activities performed in the preceding year, an IC compliance assessment, and an assessment that evaluates the character of the landfill, groundwater, and the River. The assessment will also re-evaluate the assumptions regarding groundwater contamination, as well as the occurrence of mercury in the CHP Landfill and River. Because waste will remain in-place at concentrations that will not safely permit unlimited exposure and unrestricted use after the final remedy is implemented, EPA will perform statutory five-year reviews of environmental conditions within 5 years after the initiation of remedial action and continue at least every 5 years conducting reviews for as long as contamination is present on-site to determine cleanup progress and the protectiveness of the remedy.

3. Summary of the Estimated Remedy Costs

The overall cost for the selected remedy is $5 million. A summary of the costs for each of the OUs are explained in the summary table below. Additional details are in Table 5 in Appendix B.

Summary Table of Costs for the Selected Remedy[1]			
	Capital Costs	**Annual O&M Costs**	**Total Cost[2]**
OU-1: CHP Landfill Maintenance & Monitoring, ICs & ECs.	$44,550	$42,330	$807,975
OU-2: Soil excavation in the SFSA, EFSA, and uncapped areas of the CHP property, on-site or off-site disposal, and ICs.	$324,075	$5,000	$557,670
OU-3, CHP Landfill Groundwater: ICs and monitoring.	$58,800	$68,120	$904,101
OU-3, Groundwater: *In situ* chemical oxidation, monitoring & ICs.	$715,000	$47,160	$1,636,260
OU-3, River Mercury Monitoring and Removal	$0	$73,000	$1,186,672
Total for the Selected Remedy	**$1,142,425**	**$235,610**	**$5,092,678**

[1] Additional detail for the costs are provided in Appendix B in Table 5. Several of these remedies also contain estimates for contingencies that increase the overall costs, but those are factored into the Total Cost.
[2] Total Costs are at a 7% discount rate over a 30-year period and are accurate within the range of +50% to -30%.

The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. Major changes may be documented in the form of a memorandum in the Administrative Record file, an Explanation of Significant Differences, or a ROD amendment. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost.

The selected remedy may change to some degree as a result of pre-design studies, the remedial design, construction, or monitoring. To the extent there are any changes to the remedy described in this ROD, such changes would be documented through a technical memorandum added to the Administrative Record, an Explanation of Significant Differences (ESD), or a ROD amendment, as may be appropriate for the given change.

4. Expected Outcomes of the Selected Remedy

The expected outcome of the Selected Remedy at the Site for the three OU's will be:

OU-1, CHP Landfill, and OU-3, Groundwater beneath the CHP Landfill: The remedy for this area within the limits of the landfill and the groundwater beneath the landfill, will be monitoring, maintenance and ICs. The future use of the CHP Landfill will be limited by ICs that, for example, restrict the building of structures and that prohibit the use of groundwater for anything other than monitoring. The CHP Landfill is abandoned and there are no plans for reuse at this time. Therefore, it will be maintained as a capped landfill.

OU-2, the Southern and Eastern Facility Study Areas and the uncapped area of the CHP property: The remedy, soil excavation and ICs, will remove contaminated soil exceeding commercial and industrial cleanup levels. ICs will, for example, prohibit residential use due to exceedances of residential cleanup levels. The SFSA and EFSA are privately owned, are zoned for commercial/industrial use and the adjoining biomass power plant has expressed an interest in commercial use of those areas.

OU-3, Groundwater in the Southern Facility Study Area: Contaminated groundwater outside of the CHP Landfill exists in fractured bedrock just south of the CHP Landfill in the SFSA. The remedy, *in situ* chemical oxidation will require well drilling on portions of that property, an estimated singular treatment event, and future monitoring for a 20-year period, until groundwater cleanup levels are achieved. ICs will prohibit groundwater use for any purpose other than monitoring. ICs will also require that any buildings built over the groundwater contaminant plumes address the potential for soil vapors that exceed health-based standards. ICs will be maintained until groundwater cleanup levels are achieved; at which time the groundwater will be available as a drinking water source, if needed.

OU-3, Mercury removals in the Androscoggin River: Liquid, elemental mercury, solid mercury amalgams and mercury-contaminated debris appear in the riverbed from fractures and other structures in the river. Annual inspections and removals will occur until it is determined that mercury levels have been reduced to a point where the frequency of inspections and monitoring can be modified. The removal work will not alter the riverbed and there is no public access and no public use of this Reach of the river due to its inaccessibility and presence of dams up and down-stream of the Reach. The river is used solely for electric power generation in the area of AR-3.

Cleanup Levels

Cleanup levels were developed for the COCs identified in the HHRA. COCs are the chemicals found at the Site that, based on the results of the risk assessment, were determined to pose an Incremental Lifetime Cancer Risk (ILCR) greater than 1 in 1 million or an HI greater than 1 for target organs. COCs were identified for exposure areas that posed a cancer risk in excess of an ILCR of 1 in 10,000, an HI greater than 1 for any target organ, a child blood lead level greater than 5 µg/dL in more than 5% of the population exposed, or a significant ecological risk. The tables listing Cleanup Levels for soil and groundwater along with their basis are presented in Appendix B. Soil Cleanup Levels are in Table 1, while that for groundwater is in Table 2a for groundwater inside the CHP Landfill and Table 2b for groundwater outside the CHP Landfill.

M. STATUTORY DETERMINATIONS

The remedial action selected for implementation at the Chlor-Alkali Facility (Former) Superfund Site is consistent with CERCLA and, to the extent practicable, the NCP. The selected remedy is protective of human health and the environment, will comply will ARARs, and is cost-effective. In addition, the selected remedy utilizes permanent solutions and alternate treatment technologies or resource recovery technologies to the maximum extent practicable, and partially satisfies the statutory preference for treatment that permanently and significantly reduces the mobility,

toxicity, or volume of hazardous substances as a principal element to the maximum extent practicable.

1. The Selected Remedy is Protective of Human Health and the Environment

The selected remedy will adequately protect human health and the environment by eliminating, reducing, or controlling exposures to human and environmental receptors through excavation, treatment, engineering controls, long-term monitoring, and institutional controls. The selected remedy will reduce potential human health risk levels such that they do not exceed EPA's target risk range of a total excess lifetime cancer risk of 10^{-6} to 10^{-4} and/or a non-cancer HI greater than 1.0, or (for lead only) a target blood lead level greater than 5 µg/dL, and recover mercury released to the Androscoggin River from fractures and debris.

More specifically, for the source control component of the remedy, maintenance and monitoring of the existing CHP Landfill containment system coupled with soil excavation in isolated locations in the SFSA, EFSA, and uncapped areas of the CHP property and disposal either off-site or on-site, beneath the CHP Landfill cover system, will be protective of human health and the environment by preventing exposure. Monitoring of groundwater beneath the CHP Landfill to ensure that it remains isolated from the environment and Institutional Controls will prevent exposure to groundwater contaminants. *In situ* treatment of contaminated groundwater beneath the SFSA to destroy or immobilize contaminants and the use of ICs will prevent future exposure to drinking water until groundwater cleanup levels are achieved.

Long-term monitoring of groundwater, surface water, and the vapor intrusion pathway will ensure the remedy remains protective. Institutional Controls are necessary to: prohibit future unrestricted use at the Chlor-Alkali Site, including any residential uses; prevent future construction worker exposure to soil contamination in the SFSA and EFSA until contaminated soils are removed; prevent disturbance to the existing engineered cover system and other components of the remedy (*i.e.* monitoring and treatment wells); prevent contact with soil beneath the existing engineered cover system on the CHP Landfill; and require either a vapor intrusion evaluation or vapor mitigation system be installed if a new building is constructed over the CHP Landfill or areas where overburden groundwater is contaminated with VOCs in the SFSA. ICs prohibiting groundwater use will be in place permanently within the CHP compliance boundary, and temporarily, for approximately 20 years, outside of the compliance boundary until groundwater cleanup levels are achieved.

2. The Selected Remedy Complies with ARARs

The selected remedy will comply will all federal and any more stringent state ARARs identified for the Site. The selected remedy will also incorporate procedures and processes identified by policies, advisories, criteria, and guidance documents (To Be Considered). A detailed list of ARARs/To Be Considered requirements for the selected remedy is included in Appendix D of this ROD. A discussion of the more significant ARAR issues is include below.

Wetlands Impacts

Pursuant to Section 404 of the Clean Water Act (CWA), EPA has determined that the selected remedy is the least environmentally damaging practicable alternative (LEDPA) for protecting

federal jurisdictional wetlands and aquatic ecosystems at the Site under these standards. EPA will minimize potential harm and avoid adverse impacts to wetlands by using best management practices during excavation and by restoring or replicating, if necessary, these areas consistent with federal and New Hampshire's wetlands protection laws. Any wetlands affected by remedial work will be restored (or replicated, if necessary) with native wetland vegetation and any restoration efforts will be monitored. Mitigation measures will be used to protect wildlife and aquatic life during remediation, as necessary. EPA solicited public comment through its Proposed Plan on its LEDPA determination and did not receive any negative comments (see Part 3 of this ROD)

EPA's selected remedy balances the need to address the contamination that poses an ecological risk to the wetlands and waterways and its ability to restore any (temporarily or permanently) altered wetland resources and aquatic habitats impacted by the remediation. As required under relevant and appropriate federal wetlands regulations at 44 C.F.R. Part 9 and Executive Order 11990 (Protection of Wetlands), EPA solicited public comment through its Proposed Plan regarding the remedy's potential impacts on wetland resources and received no comments adverse to the proposed remedies (see Part 3 of this ROD).

Floodplain Impacts

Pursuant to Executive Order 11988 (Floodplain Management) and federal regulations at 44 C.F.R. Part 9, EPA has determined that the selected remedy will cause temporary impacts to 100-year and 500-year floodplains but will not result in the occupancy and modification of floodplains, except for limited periods during remedy implementation or potentially O&M of the CHP Landfill. Best management practices will be used during the remedial activities to minimize temporary impacts to floodplains and any excavations within floodplain will be returned to original grade to avoid diminishing flood storage capacity. Remedial infrastructure within the floodplain (*i.e.* monitoring wells, the CHP Landfill retaining wall) will be installed/maintained to prevent any release of contamination is up to a 500-year flood/storm event. Restoration and monitoring activities are included in the response actions. As required under relevant and appropriate federal wetlands regulations at 44 C.F.R. Part 9, EPA solicited public comment in its Proposed Plan regarding the remedy's potential impacts on floodplain resources and received no negative comments (see Part 3 of this ROD).

TSCA; PCB Determination

This ROD includes a finding by EPA that PCB-contaminated soil and landfill debris at the Site meets the definition of a PCB remediation waste, as defined under 40 C.F.R. Section 761.3 of regulations promulgated under the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2601 *et seq*., and thus are regulated for cleanup and disposal under 40 C.F.R. Part 761. Under 40 C.F.R. Section 761.61(c), EPA may authorize disposal of PCBs in a manner not otherwise specified, provided EPA determines that the disposal will not pose an unreasonable risk of injury to health or the environment. EPA is solicited public comment on EPA's draft TSCA finding through the Proposed Plan and addressed a comment on the Determination in the Responsiveness Summary (see Part 3 of this ROD). EPA has not modified its Determination based on the comment.

Consistent with the TSCA regulatory requirements at 40 C.F.R. Section 761.61(c), EPA has reviewed the Administrative Records for the proposed remedial action, which includes the following activities:

(1) Any PCB-contaminated debris or soil currently existing within the CHP landfill is currently covered with a landfill cap that meets the TSCA regulatory requirements of 40 C.F.R. Section 761.61(a)(7) and RCRA Subtitle C regulations (40 C.F.R. Section 264.310).

(2) PCB-contaminated soil from the EFSA with equal or greater than (≥) 10 parts per million (ppm) (measured *in situ*) will be excavated and disposed of at an off-site disposal facility or on-site under the CHP landfill cap. If the existing cap is opened to receive additional on-site wastes, the opening will be repaired to meet the TSCA regulatory requirements of 40 C.F.R. Section 761.61(a)(7) and RCRA Subtitle C regulations (40 C.F.R. Section 264.310). Removal and disposal of the ≥ 10 ppm PCB-contaminated soil from the EFSA will address potential human health risks posed to commercial/industrial workers from PCB-contaminated soil within the Site.

(3) The existing CHP Landfill containing PCB-contaminated waste will be monitored and maintained to prevent any release of and exposure to PCB-contaminated material within the landfill.

(4) Remaining uncapped areas of contaminated soil with PCB-contaminated soil at ≥ 1 ppm but less than 10 ppm PCBs that pose an unacceptable risk for residential and unrestricted use exposure will be addressed through institutional controls that will restrict residential development and other unrestricted uses.

The PCB cleanup standards are based on EPA human health and ecological risk assessments that have determined that the soil PCB cleanup levels established will not pose an unacceptable risk of injury to health or to the environment. EPA has determined that the proposed on-site disposal or excavation/off-site disposal of PCB-contaminated soil, as set out in the Administrative Record for the proposed remedy, will not pose an unacceptable risk of injury to health or the environment as long as the following conditions are met:

(1) any soil designated for either on-site or off-site disposal shall be tested for PCBs *in situ*, and depending on any PCB contamination identified, shall be managed as required under 40 C.F.R. § 761.61 and if required, disposed of in an off-site disposal facility licensed to accept the concentration of PCB-contaminated material identified.

(2) any water generated from excavations or dewatering of PCB-contaminated soils shall be tested for PCBs and, depending on any PCB contamination identified, managed, treated (if required) and disposed of in compliance with the TSCA requirements at 40 C.F.R. § 761.79(b).

(3) air monitoring and appropriate dust suppression measures shall be implemented and maintained to ensure that airborne PCB levels are below levels of concern as specified in

the ROD during any excavation, passive dewatering, and management of excavated soil conducted prior to off-site disposal and during site work prior to construction completion of the clean covers.

(4) the PCB marking and storage requirements for PCB waste under 40 C.F.R. §§ 761.40, 761.45, and 761.65 are implemented.

(5) land use restrictions shall be established to prohibit residential and other unrestricted use, to prohibit construction of buildings on the landfill cap, and to require maintenance of the landfill cap.

(6) a long-term monitoring and maintenance plan shall be developed and implemented for the landfill cap, with groundwater and River monitoring to ensure the effectiveness of the landfill containment in eliminating direct exposure and ensuring no migration of PCBs from the capped areas.

EPA makes the above findings based on all information contained in the Administrative Record for the Site. EPA reserves its right to modify this 40 C.F.R. § 761.61(c) determination and the right to require additional remedial measures in the event of changes in site conditions or use, review of long-term monitoring results, or if any new information is presented that indicates these measures are no longer effective, including the discovery of additional PCB contamination or previously unknown conditions.

3. The Selected Remedy is Cost-Effective

In EPA's judgement, the selected remedy is cost-effective because the remedy costs are proportional to its overall effectiveness (see 40 C.F.R. 300.430(f)(1)(ii)(D)). This determination was made by evaluating the overall effectiveness of those alternatives that satisfied the threshold criteria (*i.e.*, that are protective of human health and the environment and comply with all federal and any more stringent state ARARs, or as appropriate, waive ARARs). Overall effectiveness was evaluated by assessing three of the five balancing criteria—long-term effectiveness and permanence; reduction in toxicity, mobility, or volume through treatment; and short-term effectiveness, in combination. The overall effectiveness of each alternative then was compared to the alternative's cost to determine cost-effectiveness. The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its costs and hence represents a reasonable value for the money to be spent.

The estimated present worth cost of the components that comprise the selected remedy is approximately $5 million. The range in estimated cost for each of the areas of contamination are:

- CHP Landfill: $0 (OU-1-1: No Action) to $120,000 (OU-1-2: CHP Landfill maintenance and monitoring).
- For the four soil remediation alternatives for the SFSA, EFSA and uncapped area of the CHP property: $0 (OU-2-1: No Action) to $700,000 (OU-2-3: soil cover and ICs). The selected remedy for soil contamination in the SFSA, EFSA, and the uncapped area of the CHP property is $560,000 with no future costs.

- Groundwater beneath the CHP Landfill: $0 (OU-3-CHP-1: No Action) to $900,000 (OU-3-CHP-2: monitoring and ICs).
- Groundwater outside the CHP Landfill: $0 (OU-3-GW-1: No Action) to $1,600,000 (OU-3-GW-3: *in situ* treatment and ICs).
- Mercury in the Androscoggin River: $0 (OU-3-AR-3-1: No Action) to $1,200,000 (OU-3-AR-3-2: periodic recovery of mercury and mercury amalgams in the river).

Table 5 in Appendix B helps demonstrate the cost-effectiveness of the selected landfill, soil, groundwater, and river remedies.

4. The Selected Remedy Utilizes Permanent Solutions and Alternative Treatment or Resource Recovery Technologies to the Maximum Extent Practicable

Once the Agency identified those alternatives that attain or, as appropriate, waive ARARs and that are protective of human health and the environment, EPA identified which alternatives utilized permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. This determination was made by deciding which one of the identified alternatives provides the best balance of trade-offs among alternatives in terms of: 1) long-term effectiveness and permanence; 2) reduction of toxicity, mobility, or volume through treatment; 3) short-term effectiveness; 4) implementability; and 5) cost.

The balancing test emphasized long-term effectiveness and permanence and the reduction of toxicity, mobility, or volume through treatment. It considered the preference for treatment as a principal element; the bias against land disposal of untreated waste, to the extent practicable; and community and state acceptance. The selected remedy provides the best balance of trade-offs among the alternatives. The selected remedy is protective of human health and the environment, uses proven cleanup technologies such as excavation, off-site disposal, treatment, and institutional controls, and is cost effective, while achieving the Site-specific cleanup levels and RAOs in a reasonable timeframe.

This cleanup approach provides both short- and long-term protection of human health and the environment; attains all applicable or relevant and appropriate federal environmental laws and state environmental and facility siting laws; reduces the toxicity, mobility, or volume of contaminated groundwater through treatment, to the maximum extent practicable; utilizes permanent solutions and uses land use restrictions to prevent unacceptable exposures in the future to the contaminants that will remain at the Site.

5. The Selected Remedy Partially Satisfies the Preference for Treatment Which Permanently and Significantly Reduces the Toxicity, Mobility, or Volume of the Hazardous Substances as a Principal Element

Since no principle threat waste is present at the Site, treatment technologies to address the landfill debris, contaminated soil, and mercury contamination in the River were determined not to be practicable. Instead, the principal elements of the selected remedy for these media are

source control and management of migration. The remedy includes *in situ* treatment of groundwater outside the CHP Landfill to attain cleanup standards in groundwater.

6. Five-Year Reviews of the Selected Remedy are Required

At the conclusion of the remedy construction, hazardous substances, pollutants or contaminants will remain at the Site that will not allow unlimited use and unrestricted exposure. Therefore, as required by law, EPA will review the Site remedy to ensure that the remedial action continues to protect human health and the environment at least once every five years as part of the Agency's five-year reviews of the Site. These five-year reviews will evaluate the components of the Site remedy for as long as contaminated media above CERCLA risk levels remain in place.

N. DOCUMENTATION OF NO SIGNIFICANT CHANGES

EPA presented the Chlor-Alkali Proposed Plan for remediation of the Site to the public for review and comment on June 10, 2020. The Plan described the alternatives considered and EPA's preferred alternatives for the selected remedy.

As discussed in Part 3 below, EPA reviewed all comments submitted during the public comment period, which began on June 3, 2020, and ended on July 3, 2020. Based upon a review of the comments, EPA determined that no significant changes to the remedy, as originally identified in the June 2020 Proposed Plan were necessary.

O. STATE ROLE

The State of New Hampshire, through its lead agency, NHDES, concurs with the selected remedy for the Site. A copy of the declaration of NHDES's concurrence is attached as Appendix A of this ROD.

PART 3: THE RESPONSIVENESS SUMMARY

PUBLIC COMMENTS AND EPA RESPONSES

EPA published the notice of availability of the Proposed Plan and Administrative Record in the Berlin Sun on May 28, 2020 and released the Proposed Plan to the public by posting a publicly accessible link on EPA's website. In addition, EPA provided the Proposed Plan to the Berlin Public Library located at 290 Main Street, Berlin, New Hampshire.

From June 3, 2020, through July 3, 2020, EPA held a thirty-day public comment period to accept public comments on the alternatives presented in the Feasibility Study and Proposed Plan, and on any other documents previously released to the public. On June 10, 2020 at 7pm, EPA held a virtual public informational meeting on-line, immediately followed by a virtual Public Hearing that was also on-line, to describe EPA's Proposed Plan and to accept any oral or written comments. No comments were received during the virtual meeting. EPA made available a dedicated voice mailbox to receive oral comments during the 30-day comment period. No oral comments were received in the voice mailbox or via any other telephone message.

EPA did receive one comment letter from Georgia-Pacific Consumer Products LP (Georgia-Pacific) within the comment period. The comments are summarized here, and the full text of the written comment letter has been included in the Administrative Record for the Site.

Summary of the six written comments received from Georgia-Pacific on July 1, 2020 and EPA's responses:

Georgia-Pacific Comment #1

Georgia-Pacific criticizes EPA's finding that that polychlorinated biphenol (PCB) contaminated soil and landfill debris at the Site meets the definition of a PCB remediation waste, as defined under 40 C.F.R. Section 761.3 of regulations promulgated under the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2601 et seq., and thus are regulated for cleanup and disposal under 40 C.F.R. Part 761. EPA's finding is now memorialized in this Record of Decision.

Georgia-Pacific's criticism of the TSCA finding is that it is incongruous with the Administrative Record for the following reasons:

- Georgia-Pacific notes that throughout the sampling conducted for the RI and SRI, there was only one sample with a PCB detection greater than the OU-2 Cleanup Level (i.e., SFSA and EFSA) of 10 ppm.
- Georgia-Pacific notes a finding of EPA's human health risk assessment for the Site (the HHRA) that risks associated with non-residential exposure to PCBs in OU-2 are within the EPA target levels.
- Georgia-Pacific notes that TSCA-related guidance, as well as EPA/New Hampshire Department of Environmental Services (NHDES) practice at other sites have allowed soils with PCBs greater than 10 ppm to remain in place under certain circumstances, including in "low occupancy areas."

EPA Response to Comment #1: While, to date, there is only one soil sample identified that exceeds the PCB Cleanup Levels, other exceedances of the standard may be discovered during remedial design and implementation of the remedy. The sample grid for soil samples during the RI varied from 200-feet in the EFSA to 50-feet in the SFSA. A finer-grid utilized during RD\RA may find additional occurrences of PCB-contaminated soils. Since the RAO for the remedy is to prevent exposure to commercial/industrial receptors, the selected remedy calls for the excavation of all soils that pose a commercial/industrial risk. EPA's PCB Cleanup Level is a conservative, reasonable approach to address all potential commercial/industrial exposure risks present in the SFSA, EFSA and the uncapped areas of the CHP property, in light of anticipated potential future uses for the Site. The HHRA determined that PCBs in the SFSA area pose a significant non-cancer risk to construction workers, even though the predominant risk drivers are manganese, mercury, and arsenic (Table 6.2-1).

Georgia-Pacific suggests that a less conservative Cleanup Levels should be established here consistent with a "low occupancy area" because this approach has been utilized at another site in New Hampshire and is discussed in EPA guidance. Even assuming that all the requisite elements of the TSCA guidance could be fulfilled here (and this showing has not been established), taking this approach would also require establishing additional ICs to restrict commercial/industrial use of the property to meet the requirements for a "low occupancy area" under the TSCA regulations. The CERCLA remedy selection process is site-specific, by definition. While EPA's decision making at a given NPL site may be informed by guidance and approaches taken at other NPL sites, EPA is not bound to an inflexible adherence to an approach that may have been deemed appropriate for another situation at another site. For this Site, EPA has developed the soil remedy so that only ICs to restrict residential use would be necessary and no ICs restricting commercial/industrial use in the SFSA and EFSA would be required.

Georgia-Pacific Comment #2

This comment suggests that EPA's conclusion that lead in soil poses an unacceptable risk to current and future workers in the SFSA potion of the Site is not supported by the record and specifically that the HHRA does not support this finding.

EPA Response to Comment #2: According to the HHRA (page 62), "*Although the results of the Adult Lead Model (ALM) indicate that adverse effects are not anticipated for fetuses of pregnant workers at the SFSA, it should be noted that the maximum lead concentration in surface soils at the SFSA (24,438 mg/kg at FSA-168) is more than ten times the average concentration*." According to the HHRA, the average lead concentration in the SFSA surface soil data set was 1,068 mg/kg, while the average lead concentration in the aggregate soil data set was 655 mg/kg. These average concentrations were used in the ALM to calculate potential risks.

According to Figure 36 of the SRI, the maximum lead concentration of 24,438 mg/kg was detected in the top 1 foot of soil at FSA-168, and the lead concentrations detected in the adjacent surface soil (top 1 foot) samples were also elevated (*i.e.*, relative to the average concentrations used for the HHRA), ranging between 2,325 mg/kg and 4,096 mg/kg. Therefore, although the

average lead concentration does not result in significant risks at the SFSA area, the small area including FSA-168 had relatively high lead concentrations that would warrant additional delineation and characterization.

It should be noted that in its risk calculations documented in the HHRA, EPA has applied the updated ALM using the updated default parameters (https://semspub.epa.gov/work/HQ/196766.pdf). Using the updated values, the average surface soil lead concentration of 1,068 mg/kg would result in unacceptable risk to adult workers. The average lead concentration in the aggregate soil data set is still expected to result in a No Significant Risk conclusion.

Georgia-Pacific Comment #3

In this comment Georgia-Pacific states that Institutional Controls (ICs) are an important element of remedial alternatives described in the Proposed Plan and suggests that EPA take notice of two existing documents that purport to provide certain use restrictions for properties comprising the Site. The comment suggests, but does not expressly state, that reference to these documents be made in this decision document, and that the documents be included as the ICs to be selected for implementation of the remedial action.

EPA Response to Comment #3: No specific ICs are identified in the ROD. Rather, the ROD only establishes the substantive restrictions that are required to maintain the protectiveness of the remedy. As noted in EPA's "Clarification and Limitations to the Final Supplemental Remedial Investigation Report," the legal effect of the documents or instruments has described as "deed restrictions" in these comments and in a number of other reports and submissions to EPA by G-P has not yet been determined by EPA. The ICs to be implemented for this Site pursuant to this ROD will be determined by EPA to be effective in contributing to long-term protectiveness at the Site, in this case by restricting specific land and resource uses (i.e., groundwater), and by protecting engineered remedy components. The evaluation of whether ICs are effective is a site-specific determination. This determination is expected to be a part of the remedial design process.

Georgia-Pacific Comment #4

In this comment, G-P seeks to contrast EPA's determination that there is insufficient data at this time to evaluate Monitored Natural Attenuation (MNA) as a remedy component at this Site, with EPA's determination that *in-situ* chemical oxidation (ISCO) may be included as a component of the Selected Remedy. In the case of MNA, G-P's comment suggests that an adequate basis for the evaluation of MNA already exists for this Site, while in the case of the ISCO component, G-P's comment suggests that additional study would still be required to evaluate its implementability and effectiveness before it should be included in the Selected Remedy.

EPA Response to Comment #4: *In-Situ* Chemical Oxidation (ISCO) is a known effective remedy for contaminants at VOC-contaminated sites and, while details of implementation must

be evaluated, there is not a question that the remedy will be effective for remediating the contaminants if applied effectively. At this time, the limited site-specific evidence for MNA does not provide quantifiable information that the remedy will be effective at the site. Key measures include a sufficient period of monitoring of the well network, determination of metabolic products, how inorganic contaminants will be addressed, and a determination of a reasonable cleanup time. These requirements are discussed in the following EPA guidance documents:

- 1999 Use of Monitored Natural Attenuation Guidance April 1999, OSWER Directive 9200.4-17P, EPA 540/R-99/009
- 2015 Use of Monitored Natural Attenuation for Inorganic Contaminants in Groundwater, August 2015, OSWER Directive 9283.1-36.

As such, as more information is gathered, MNA could be evaluated in the future, including during the RD\RA; however, it cannot be presented as remedy alternative at this time.

Georgia-Pacific Comment #5

With respect to removal of debris, liquid elemental mercury, and hardened metal amalgams from Reach AR-3 adjacent to the CHP, G-P comments that it expects less mercury to be observed and collected in the future and, accordingly, the Selected Remedy may not require annual collection events in the river. G-P also notes that collection events are not anticipated to occur for 30 years. Thus, G-P suggests the Remedial Alternative should allow for less frequent collection based on occurrence of liquid elemental mercury and hardened metal amalgams.

EPA Response to Comment #5:

The recurring observations of liquid elemental mercury together with hardened metal amalgams is a key feature of this Site that has been of ongoing concern since the inception of the Site investigation activities in 2004. Through the RI and SRI activities, EPA and NHDES have sought to understand the fate and transport of mercury at the Site more fully. That work, however, has not conclusively established any one of a number of theories that have been proposed to explain the recurring occurrence of mercury in the river (i.e., conceptual site models or CSMs) to the exclusion of all other theories. Accordingly, in order to move forward with a cleanup plan, EPA has agreed at this time, and in light of the limitations on the data and evidence available, that the most plausible explanation for the occurrence of mercury in the River is that it is likely the result of direct disposal activities during operation and closure of the Chemical Plant facility (including, potentially, its demolition).

Nevertheless, at this time EPA remains uncertain that a pathway and mechanism for mercury migration from the landfill does not exist. Should such a pathway and mechanism for mercury migration exist, that would necessitate further measures be taken in order to ensure containment of the hazardous materials within the CHP landfill and the long-term protectiveness of the remedy. Accordingly, EPA believes that until the long-term trends for mercury occurrence are better understood, the yearly monitoring activity and removal should continue for as long as mercury, mercury amalgam, and mercury-contaminated debris appear in the River. The actual

period that monitoring/mercury removals will need to be continued will be contingent on the results of the monitoring as it goes forward.

Georgia-Pacific Comment #6

This comment addresses the selected remedial action for AR-3, which is the portion of the Androscoggin River adjacent to the CHP. G-P notes that the Selected Remedy provides that some treatment of water generated from dewatering of the material removed may be required prior to discharge of the water back to the river. G-P notes, however, that current practices in conducting the river investigation and pilot study work do not involve water extraction or collection. Accordingly, G-P's comment states that this portion of the remedy is not anticipated to include water treatment.

EPA Response to Comment #6: During previous mercury removal activities, dewatering of specific areas of the river did occur and simple water treatment in the form of bag filtering of the removed water prior to discharge back to the river was used. As with all elements of the Selected Remedy, the ongoing remedial action to be undertaken for AR-3 will be in accord with ARARs. The specific requirements for this action, including whether dewatering of any removed material is necessary, and whether further treatment of the removed water will also be necessary, will be determined in the remedial design.

End of Comments and Responses

APPENDICES

APPENDIX A: Letter of Concurrence from the State of New Hampshire Department of Environmental Services

APPENDIX B: Tables

APPENDIX C: Figures

APPENDIX D: Applicable and Relevant and Appropriate Requirement Tables

APPENDIX E: References

APPENDIX F: Acronyms and Abbreviations

APPENDIX G: Administrative Record and Guidance Documents

Appendix A: New Hampshire Department of Environmental Services Letter of Concurrence

The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Robert R. Scott, Commissioner

EMAIL ONLY

September 17, 2020

Bryan Olson, Director
Superfund and Emergency Management Division
Office of Site Remediation and Restoration
US EPA New England, Region I
5 Post Office Sq., Suite 100
Boston, MA 02109-3912

RE: Record of Decision – Operable Units 1, 2, and 3
Chlor-Alkali Facility (former) Superfund Site
Berlin, New Hampshire – DES #199709046, Project RSN #10137

SUBJECT: Declaration of Concurrence

Dear Mr. Olson:

The New Hampshire Department of Environmental Services (NHDES) has reviewed the Record of Decision (ROD), dated September 2020, for the Chlor-Alkali Facility (former) Superfund Site in Berlin, New Hampshire. The United States Environmental Protection Agency (EPA) prepared this ROD in accordance with the provisions of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986. The ROD addresses the remedial actions necessary under CERCLA, as amended, to manage potential threats to human health and the environment at the Site.

Rationale for the ROD

The Chlor-Alkali Facility (former) Superfund Site (Site) lies on the east bank of the Androscoggin River (River) in Berlin, New Hampshire. The Chlor-Alkali Facility commenced operations in the late 1890's and provided chlorine for the manufacture of paper at the Brown Company pulp and paper mill located just south of the Chemical Plant. Chemical production ceased in the mid-1960's and portions of the Chemical Plant were either demolished or used for other purposes. The last Chemical Plant building (a cell house located adjacent to the River) was demolished in 1999 and the building debris were interred in an on-site landfill that was capped by the owners of the paper mill at that time and closed under the oversight of NHDES.

The Site came to the attention of NHDES, and subsequently EPA, due to the continuing appearance of liquid elemental mercury, solid mercury amalgams, and mercury-containing debris on the banks of, and in the riverbed, of the Androscoggin River. The liquid beads of elemental mercury range from between 0.5 millimeter in diameter to elongated forms that are 1 centimeter in diameter and up to 3 centimeters in length. Amalgam mercury also occurs as coatings on pebbles and solid metal forms. Mercury-containing debris consists of isolated liquid beads of mercury contained within scrap metal and solidified masses. Evidence supports that these debris, and associated mercury, were disposed into the river during Chemical Plant operations.

The Site has been divided into three Operable Units (OUs). The Cell House Property (CHP) Landfill, OU-1, contains contaminated soils beneath the 4-acre capped landfill area as well as a 0.6-acre uncapped area of native soils. The Southern Facility Study Area (SFSA), approximately 19-acres in size, located largely south of the CHP Landfill and Eastern Facility Study Area (EFSA), approximately 17-acres, located east of the CHP Landfill, is designated as OU-2 and has isolated hotspots of contaminated soils. OU-3 consists of two units: contaminated groundwater beneath the CHP Landfill and SFSA, and mercury that appears in the Androscoggin River between Sawmill and Riverside Dams, known as Androscoggin River Reach 3, or AR-3.

The hypothesis presented in the 2014 Remedial Investigation Report (RIR) is that the source of the mercury in the River was the CHP Landfill. The current premise is that most of the mercury and mercury-lead amalgams are the result of direct disposal into the River while the Chemical Plant was operating. The mercury is often collocated with metallic debris and in fractures and crevices in the bedrock surface of the River. The variable flows in the River create hydraulic conditions that cause the mercury to emerge from the debris and fractures. This mercury is then found on the River bottom and east bank.

The exposure assessment in the Human Health Risk Assessment (HHRA) concluded that current exposure risk exists to contaminated soil in the EFSA and SFSA, and to mercury appearing in the River. People working or trespassing in the SFSA or EFSA may be exposed to soil contaminants. No current exposure exists at the CHP Landfill, due to the cap and other containment features. Workers or trespassers in AR-3 may be exposed to liquid elemental mercury or hardened metal amalgams.

Based on the results of the HHRA, EPA found that the following pathways pose unacceptable human health risks because the calculated risks exceed EPA's acceptable cancer risk range of 10^{6} to 10^{-4}, the non-cancer Hazard Index of 1, or EPA's risk-based standard for lead (or some combination of these):

- *Current trespassers and future residents and trespassers in the EFSA and SFSA*. In the EFSA Contaminants of Concern (COC) in soil that pose unacceptable risk include SVOCs such as benzo(a)pyrene and benzo(a)anthracene, as well as dioxin, furans, arsenic and mercury. In the SFSA, dioxin, furans, mercury and, arsenic in soils posed unacceptable risk.
- *Current and future workers in the EFSA and SFSA*. In the EFSA, dioxin, furans, and mercury in soil posed unacceptable risk. In the SFSA, mercury and lead in soil posed unacceptable risk.
- *Future residents, workers, and trespassers in the CHP Landfill* could be exposed to dioxin, furan, mercury, and benzo(a)pyrene in the landfilled materials that would create an unacceptable risk if the cap failed to contain the wastes.
- *Future use of groundwater inside the CHP Landfill as drinking water* would create an unacceptable exposure risk due to chloroform, carbon tetrachloride, chromium, arsenic and dioxin.
- *Future use of groundwater outside the CHP Landfill as drinking water* would create an unacceptable exposure risk due to chloroform, carbon tetrachloride, chromium, and arsenic.

- *Future use of portions of the CHP Landfill and SFSA for occupied structures* over those areas of the groundwater contaminant plume due to the potential for vapor intrusion into those structures.

The RI found no contamination in River surface water and therefore no unacceptable risk. The HHRA found that sediment in the River did contain COCs, but the RIR could not determine if the contaminants originated from the Site. However, the HHRA found that downstream sediment did not pose an unacceptable risk to adult or child recreators.

EPA found many of the COCs, including mercury, in fish sampled downstream of the Site. Consumption of fish was found to pose a risk to human health. But with many other potential upstream and downstream sources, the RIR could not attribute those contaminants as originating solely from the Site. Mercury was determined to pose a risk to anglers that consumed the fish. However, because the concentrations of mercury in fish were not statistically different from the background areas upriver of the Site, CERCLA prohibits taking remedial measures to address background contamination. The State of New Hampshire prohibits the taking and consumption of fish from Sawmill Dam downriver to the Maine State line due to the presence of contamination in those fish.

EPA assessed risk to the environment through two analyses: Terrestrial Screening Level Ecological Risk Assessment (TSLERA) for exposure to biota in the area of the EFSA, SFSA, and CHP, and a Baseline Ecological Risk Assessment (BERA) for biota in the Androscoggin River. In the EFSA and SFSA the TSLERA found little to no potential for current adverse effects to plant and soil invertebrate communities. A potential for adverse effects to bird and mammal populations was found to exist in these areas from the presence of dioxins, furans, PCBs, lead and PAHs. The CHP is capped and therefore there is only a future risk to bird and mammal populations if the cap were to fail. EPA did determine that there was potential ecological risk from exposure to contamination in the CHP landfill if the containment system were to fail and result in exposure of contamination to ecological receptors on land or in the River.

Summary of Selected Remedy

EPA has selected a comprehensive remedial strategy for the site. The selected remedial actions by OU are as follows:

<u>OU-1, CHP Landfill</u>, the remedy includes:

- Engineering Controls (ECs): Monitor and maintain the CHP Landfill containment system. The containment system consists of the landfill cover system, a slurry wall that minimizes groundwater entering the landfill footprint, and a retaining wall.
- Institutional Controls (ICs): Legally enforceable restrictions that prohibit certain uses on the property and manage the use of groundwater.
- Monitoring of ECs and ICs to ensure the remedy remains protective.

OU-2, the SFSA and EFSA, the remedy includes:

- Excavation of contaminated soil and disposal either beneath the CHP landfill cap or at a permitted off-site facility.
- Institutional Controls (ICs) will be used to prohibit certain uses on the property.

OU-3 consists of two divisions: groundwater and the AR-3-portion of the Androscoggin River.

- OU-3, Groundwater beneath the CHP Landfill: The selected remedy will monitor groundwater beneath the CHP Landfill to determine if the contaminated groundwater remains contained within a "compliance boundary," which would be established around the footprint of the CHP Landfill. ICs will be used to manage the use of groundwater.
- OU-3, Groundwater beneath the SFSA: The selected remedy for contaminated groundwater in this area will be in-situ chemical oxidation to destroy or immobilize the contaminants. ICs will be used to manage the use of groundwater.
- OU-3, Androscoggin River: The selected remedy will include periodic inspections to assess the presence of liquid, elemental mercury and solid mercury amalgams in the riverbed, in river debris, and on the banks. The remedy will also include periodic removals of mercury, mercury amalgams, and mercury-contaminated debris that appear in the river.

The selected remedy will combine these technologies in an effort to obtain a comprehensive approach for Site remediation in all three OUs.

State Concurrence

NHDES, in reviewing the referenced ROD, has determined that the selected remedy for all three operable units is consistent with NHDES' requirements for a remedial action plan and meets all of the criteria for remedial action plan approval. Ultimately, the remedy for all OUs will address the source of contamination, provide for institutional controls that will restrict the use of the Site and manage the use of groundwater, and provide for long-term monitoring and source removal actions at the Site and in the River that will be protective of human health and the environment. Therefore, NHDES, acting on behalf of the State of New Hampshire, concurs with the remedial actions described in the ROD.

Please contact the NHDES Site Project Manager, Andrew Hoffman, at (603) 271-4060 or andrew.hoffman@des.nh.gov, or me if you have questions or comments.

Sincerely yours,

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Appendix B: Tables

Table 1: Soil and Debris Standards and Cleanup Levels Chlor-Alkali Superfund Site, Berlin, New Hampshire		
	Commercial / Industrial Standards (mg/kg)[1]	
Contaminant of Concern	***OU-1 – CHP Cap Area Landfilled Soil/Debris, Performance Standards***	***OU-2 – EFSA and SFSA and OU-1 Uncapped Area Soil, Cleanup Levels***
PCB (high risk = Aroclor 1254)[2]	26	10
PCDD/PCDF (TEQ)[3]	1.17E-03	7.24E-04
Benzo(a)anthracene	307	207
Benzo(a)pyrene	31	21
Benzo(b)fluoranthene	308	211
Dibenz(a,h)anthracene	31	21
Arsenic (inorganic)	92	30
Mercury (elemental)	319	50
Mercuric Chloride and Other Salts	547	350
Lead[4]	1,000	1,000

[1] mg/kg: milligram per kilogram or parts per million.
The Cleanup Levels were developed using the RSL calculator and the Exposure Point Concentrations for all COCs for the two respective scenarios above, excepting lead.
[2] The RSL calculations incorporate potential non-carcinogenic risk and "high risk" Aroclor 1254 for PCB Cleanup Levels. The 10 mg/kg Cleanup Level for PCBs was developed using EPA's RSL calculator, consistent with procedures outlined in the Final SRI Report. The 10 mg/kg Cleanup Level is the more protective of the carcinogenic and non-carcinogenic screening levels developed via EPA RSL calculator. Attachment I of the Final SRI Report included the RSL output files.
[3] PCDD/PCDF (TEQ): Polychlorinated dibenzodioxin/polychlorinated dibenzofurans, toxicity equivalents.
[4] The Cleanup Level for lead is based on the Region 1 developed Regional Screening Level, developed using the updated Adult Lead Model and updated default parameters for Commercial and Industrial exposure with a targeted Blood Lead Level of 5 µg/dL.

Table 2
Groundwater Performance Standards
Chlor-Alkali Superfund Site, Berlin, New Hampshire

Table 2A: Groundwater Performance Standards for Groundwater Inside the CHP Landfill Boundary Chlor-Alkali Facility (Former) Superfund Site, Berlin, New Hampshire		
Contaminant	**Cleanup Level**	**Basis, Notes**
Carbon tetrachloride	5 µg/L	ARAR basis, MCL and AGQS
Chloroform	70 µg/L	ARAR basis, AGQS is lower than MCL (80).
cis-1,2-Dichloroethene	70 µg/L	ARAR basis, MCL and AGQS
Hexachlorobutadiene	0.5 µg/L	ARAR basis, AGQS. No MCL.
Tetrachloroethene	5 µg/L	ARAR basis, MCL and AGQS
Trichloroethene	5 µg/L	ARAR basis, MCL and AGQS
Vinyl Chloride	2 µg/L	ARAR basis, MCL and AGQS
Mercury	2 µg/L	ARAR basis, MCL and AGQS

Table 2B: Groundwater Cleanup Levels for Groundwater Outside the CHP Landfill Boundary Chlor-Alkali Facility (Former) Superfund Site, Berlin, New Hampshire		
Contaminant	**Cleanup Level**	**Basis, Notes**
1,3-Dichlorobenzene	600 µg/L	ARAR basis, MCL and AGQS
Carbon tetrachloride	5 µg/L	ARAR basis, MCL and AGQS
cis-1,2-Dichloroethene	70 µg/L	ARAR basis, MCL and AGQS
Trichloroethene	5 µg/L	ARAR basis, MCL and AGQS

Notes:
µg/L = micrograms per liter (parts per billion).
MCL = Maximum Contaminant Level in drinking water.
MCLG = Maximum Contaminant Level Goal in drinking water.
NHDES = New Hampshire Department of Environmental Services.
ARAR = Applicable and Relevant and Appropriate Requirements.
AGQS = NHDES Ambient Groundwater Quality Standard.

Table 3 Risk

Table 3A: Risk from exposure to Contaminated On-Site Soils at the Chlor-Alkali Superfund Site, Berlin, New Hampshire					
		Total Cancer Risk		Total Non-Cancer Hazard Index	
Area	Receptor	Surface Soil	Aggregate Soil	Surface Soil	Aggregate Soil
CHP	Adult Resident	1.3×10^{-2}	2.5×10^{-2}	126	654
	Child Resident			1023	2158
	Adult Recreational Visitor	1.1×10^{-3}	Not evaluated	34	Not evaluated
	Child Recreational Visitor	2.6×10^{-3}	Not evaluated	300	Not evaluated
	Adolescent Trespasser	7.3×10^{-4}	Not evaluated	50	Not evaluated
	Commercial/Industrial Worker	3.1×10^{-3}	4.9×10^{-3}	89	253
	Day-Care Child	5.2×10^{-3}	1.0×10^{-2}	724	1318
SFSA	Adult Resident	4.6×10^{-4}	3.3×10^{-4}	5.6	4.8
	Child Resident			22	22
	Adolescent Trespasser	2.4×10^{-5}	Not evaluated	1	Not evaluated
	Construction Worker	Not evaluated	5.2×10^{-6}	Not evaluated	3.9
	Commercial/Industrial Worker	6.7×10^{-5}	5.5×10^{-5}	2.4	2.3
	Day-Care Child	1.9×10^{-4}	1.4×10^{-4}	14	15
ESFA	Adult Resident	1.9×10^{-3}	1.8×10^{-3}	8.4	8.9
	Child Resident			59	67
	Adolescent Trespasser	1.0×10^{-4}	Not evaluated	2.9	Not evaluated
	Construction Worker	Not evaluated	1.6×10^{-5}	Not evaluated	9.5
	Commercial/Industrial Worker	2.4×10^{-4}	2.5×10^{-4}	5.3	5.9
	Day-Care Child	7.8×10^{-4}	7.5×10^{-4}	41	47

Notes: The merged Adult and Child resident represent an age-adjusted resident. Yellow highlighted cells exceed unacceptable risk levels.

Table 3B: Risk from exposure to Contaminated Groundwater at the Chlor-Alkali Superfund Site, Berlin, New Hampshire as well as Sediment and Fish in the Androscoggin River		
Media, Exposure and Receptor	**Total Cancer Risk**	**Total Non-Cancer Hazard Index**
Groundwater at the Site used as drinking water by an Age-Adjusted Resident	5.8×10^{-1}	2510
Sediment in the River exposure to an Adult Visitor*	5.8×10^{-6}	Less than 0.01
Sediment in the River exposure to a Child Visitor*	2.0×10^{-5}	0.41
Fish from the River, consumed by an Age-Adjusted Angler*	5.8×10^{-1}	Not evaluated
Fish from the River, consumed by an Adult Angler*	Not evaluated	126
Fish from the River, consumed by a Child Angler*	Not evaluated	238

* In the above instances of either "in the River" or "from the River," the risk value is from the Site downstream to the Maine State Line.
Yellow highlighting of a cell indicates an unacceptable risk in that particular media and for the noted receptor. For Fish consumption the main risk driver was PCBs that could not be directly attributed to the Site. Mercury did impart non-cancer risk, but again direct attribution was not possible as mercury concentrations in fish downstream of the site were not significantly different from those upstream of the Site.

Table 3C: Maximum Groundwater Concentrations of Contaminants of Concern compared to Vapor Intrusion Screening Levels and Incremental Lifetime Cancer Risk at the Chlor-Alkali Superfund Site, Berlin, New Hampshire

Contaminant of Concern	Maximum Concentration (µg/l)	Target Groundwater VISL (µg/l)	*ILCR of Maximum Concentration or **HQ of Maximum Concentration
Carbon Tetrachloride	2260	1.81	**1.25×10^{-3}***
Chloroform	1780	3.55	**5.01×10^{-4}***
Methylene Chloride	147	9230	1.59×10^{-8}*
Tetrachloroethylene	8.8	65.2	1.35×10^{-7}*
Mercury	119J	0.373	**32****

Notes: Values in **Yellow highlight and Bold Text** are those values that exceed EPA's cancer risk limit (Carbon Tetrachloride & Chloroform) or EPA's non-cancer risk limit (mercury).
The data in this table are extracted from Tables 1 & 2 of Technical Memorandum: *Potential Vapor Intrusion Risk to Workers Due to VOCs in Groundwater at Chlor Alkali Superfund Site,* Rick Sugatt, EPA Risk Assessor, January 2, 2020, Also included as Attachment D in the 2020 Feasibility Study Report.
ILCR = Interim Lifetime Cancer Risk.
VISL = Vapor Intrusion Screening Level for ILCR = 1x10-6 or HQ = 0.1.
J = estimated value.

Table 4: Summary of Alternative comparisons. The following set of tables will contrast the selected remedy with the other alternatives developed for that media in the 2020 Feasibility Study:
4A: OU-1, CHP Landfill;
4B: OU-2, Soils in the EFSA and SFSA;
4C: OU-3-CHP, Groundwater inside the CHP Landfill;
4D: OU-3-GW, Groundwater outside the CHP Landfill; and
4E: OU-3-AR-3, the Androscoggin River.

Table 4A: OU-1, CHP Landfill.
Chlor-Alkali Superfund Site, Berlin, New Hampshire

Evaluation Criteria	OU-X, No-Action	Selected Remedy[1]	Issues
Threshold Criteria			
Protects human health and the environment	✋	👍	The selected remedy will ensure the monitoring and maintenance of the Landfill cap, slurry wall and retaining wall to ensure no exposure of the public or environment.
Meets Federal & State requirements	✋	👍	The selected remedy complies with requirements for landfills that contain hazardous materials any repairs will meet these criteria.
Balancing Criteria			
Provides long-term protection	✋	👍	Continued maintenance and monitoring.
Reduces toxicity, mobility and volume through treatment	✋	✋	Neither remedy meet this criterion.
Provides short-term protection	✋	👍	The landfill cap will contain the wastes. Although the selected remedy in OU-2 may require that the landfill be opened, an adequate Health and Safety Plan should ensure continued protection of the public and environmental health.
Implementable	👍	👍	Both easily meet this criterion.
Capital costs	$0	$807,975	
Modifying Criteria			
Community Acceptance		👍	No comments were received from the community.
State Acceptance		👍	The State has supplied a letter concurring with the selected remedy.

Notes: The No-Action alternative is required by the NCP in the evaluation of all remedial alternatives.
[1] The selected remedy for OU-1, the CHP Landfill is continued monitoring and maaina.

👍 Meets the Criterion. 😐 Partially meets Criterion. ✋ Does not meet Criterion

Table 4B: OU-2, Soil Contamination in the Eastern and Southern Facility Study Areas. Chlor-Alkali Superfund Site, Berlin, New Hampshire					
Evaluation Criteria	**OU-2-1, No-Action**	**OU-2-2, ICs & EC[1]**	**OU-2-3, Soil cap[2]**	**Selected Remedy[3]**	**Issues**
Threshold Criteria					
Protects human health and the environment	✋	👍	👍	👍	The area of contaminated soils is privately-owned property with potential re-use issues. Both OU-2-2 and OU-2-3 would require on-going maintenance. The selected remedy would see the contaminants removed from that property and placed in a controlled disposal facility.
Meets Federal & State requirements	✋	👍	👍	👍	
Balancing Criteria					
Provides long-term protection	✋	👍	👍	👍	The selected remedy would consolidate the waste and place it in a monitored facility. OU-2-2 and OU-2-3 would require monitoring and maintenance.
Reduces toxicity, mobility and volume through treatment	✋	✋	✋	✋	
Provides short-term protection	✋	👍	👍	👍	The selected remedy may have greater short-term impacts due to the trucks required to move approximately 150 cubic yards of contaminated soil. OU-2-2 and OU-2-3 would leave the soil in-place.
Implementable	👍	👍	👍	👍	
Capital costs	$0	$285,000	$700,000	$557,670	
Modifying Criteria					
Community Acceptance				👍	No negative or modifying comments were received from the community.
State Acceptance				👍	The State has issued a concurrence letter.

Notes: The No-Action alternative is required by the NCP in the evaluation of all remedial alternatives.
[1] **OU-2-2** consists of Engineering Controls (ECs) such as fencing and signage, and Institutional Controls (ICs) such as deed restrictions to prevent access and exposure.
[2] **OU-2-3** also uses ICs and ECs to prevent access and exposure but also uses a soil cap to prevent contact.
[3] The selected remedy for OU-2 is excavating areas of soil that exceed the remediation goals and disposing at an approved facility.

👍 Meets the Criterion. 😐 Partially meets Criterion. ✋ Does not meet Criterion

Table 4C: OU-3-CHP, Groundwater inside the CHP Landfill. Chlor-Alkali Superfund Site, Berlin, New Hampshire			
Evaluation Criteria	**OU-3-CHP-1, No-Action**	**Selected Remedy[1]**	**Issues**
Threshold Criteria			
Protects human health and the environment	✋	👍	The landfill containment system, consisting of the cap, retaining wall, and slurry wall prevent the migration of contaminants. CERCLA does not require the restoration of groundwater beneath landfills.
Meets Federal & State requirements	✋	👍	
Balancing Criteria			
Provides long-term protection	✋	👍	Monitoring of groundwater will ensure the protection of human health and the environment.
Reduces toxicity, mobility and volume through treatment	✋	✋	
Provides short-term protection	✋	👍	
Implementable	👍	👍	
Capital costs	$0	$904,101	This includes the cost of monitoring. See Table 5 for more details.
Modifying Criteria			
Community Acceptance		👍	No negative or modifying comments were received from the community.
State Acceptance		👍	The State has issued a concurrence letter.

Notes: The No-Action alternative is required by the NCP in the evaluation of all remedial alternatives.

[1] The selected remedy for OU-3-CHP groundwater is continuing monitoring of groundwater to ensure that no contaminants migrate from the limits of the landfill. ICs and ECs will also be necessary to prevent future exposures.

👍 Meets the Criterion. 😐 Partially meets Criterion. ✋ Does not meet Criterion

Table 4D: OU-3-GW, Groundwater Outside the CHP Landfill. Chlor-Alkali Superfund Site, Berlin, New Hampshire			
Evaluation Criteria	**OU-3-GW-1 No-Action**	**Selected Remedy[1]**	**Issues**
Threshold Criteria			
Protects human health and the environment	✋	👍	In Situ Chemical Oxidation (ISCO) will meet this criterion by destroying and immobilizing contaminants.
Meets Federal & State requirements	✋	👍	Although it may not meet this criterion immediately, it will offer the greatest potential for contaminant reduction.
Balancing Criteria			
Provides long-term protection	✋	👍	
Reduces toxicity, mobility and volume through treatment	✋	👍	ISCO is a commonly used, effective remedy against VOC contaminants.
Provides short-term protection	✋	👍	ISCO compounds are relatively safe and an adequate Health & Safety plan will meet this criterion.
Implementable	👍	👍	Although commonly used, ISCO must be tailored to the contaminants and the environment that they are to be inserted.
Capital costs	$0	$1,636,260	This cost includes that for monitoring the contaminant plume in this area to evaluate compliance with ARARs.
Modifying Criteria			
Community Acceptance		👍	No negative or modifying comments were received from the community. One comment did express a preference for Monitored Natural Attenuation of groundwater.
State Acceptance		👍	The State has issued a concurrence letter.

Notes: The No-Action alternative is required by the NCP in the evaluation of all remedial alternatives.

[1] The selected remedy for OU-3-Groundwater outside the CHP Landfill is In Situ Chemical Oxidation.

👍 Meets the Criterion. 😐 Partially meets Criterion. ✋ Does not meet Criterion

Table 4E: OU-3-AR-3, Androscoggin River. Chlor-Alkali Superfund Site, Berlin, New Hampshire			
Evaluation Criteria	**OU-3, No-Action**	**Selected Remedy[1]**	**Issues**
Threshold Criteria			
Protects human health and the environment	✋	👍	Recovery and proper disposal of mercury will protect human health and the environment.
Meets Federal & State requirements	✋	👍	
Balancing Criteria			
Provides long-term protection	✋	👍	Will occur over 30-years.
Reduces toxicity, mobility and volume through treatment	✋	😐	Treatment will consist of ensuring that any water removed for dewatering purposes has sediment removed prior to discharging to the River.
Provides short-term protection	✋	👍	
Implementable	👍	👍	
Capital costs	$0	$1,186,672	
Modifying Criteria			
Community Acceptance		👍	No negative or modifying comments were received from the community.
State Acceptance		👍	The State has issued a concurrence letter.

Notes: The No-Action alternative is required by the NCP in the evaluation of all remedial alternatives.

[1] The selected remedy for OU-3-AR-3 is the continuing recovery of mercury, mercury amalgams and mercury-containing debris from the banks and riverbed of the Androscoggin River in the stretch of river termed AR-3 and specifically adjacent to the CHP Landfill.

👍 Meets the Criterion. 😐 Partially meets Criterion. ✋ Does not meet Criterion

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Table 5: Estimated Costs of the Selected Remedy for all Operable Units at the Chlor-Alkali Superfund Site, Berlin, New Hampshire	
Operable Unit, Type Cost: Summary[1]	**Cost / Contingency**
OU-1 Capital Costs: Implement ICs ($20,000). Fencing, signage maintenance ($28,000). Project Management ($14,850). **Contingency**-replace fence &signs ($60,000). Contingency Project Management (PM) ($40,100).	$44,550 / $148,350
OU-1 Annual Operation & Maintenance Costs: Vegetation clearing, monitoring and data interpretation ($42,300). **Contingencies** (assumed to occur in year 5): Wall repair ($112,500) + PM ($51,875). Cap repair ($22,500) + PM ($10,575).	$42,300 / $198,450
OU-1 Remedy Total Estimated Present Value[2]	$704,175 / $807,975[3]
OU-2 Remedy Capital Costs: Sampling, excavation of 400 ft2 to a depth of 5 feet, restoration, opening of CHP cap, restoring it, and generating a report ($324,075). Contingency: 10% out-of-scope ($152,315).	$324,075 / $476,390
OU-2 Annual Operation & Maintenance Costs: Inspections, Reports.	$5,000 / $6,550
OU-2 Remedy Total Estimated Present Value	$502,544 / $557,670[4]
OU-3 Cell House Groundwater Remedy Capital Costs: Implement ICs, permitting ($40,000) + Contingency ($18,800).	$58,800
OU-3 Annual Operation & Maintenance Costs: Sampling, analytical, IDW management, reporting ($52,000) + Contingency ($21,320).	$68,120
OU-3 Cell House Groundwater Remedy Total Estimated Present Value	$904,101[5]
OU-3 Groundwater Remedy Capital Costs: Implement ICs, permitting ($60,000). ISCO evaluation, monitoring, pre-design ($460,000). MNA evaluation ($195,000). Contingency ($336,050).	$715,000 / $1,051,050
OU-3 Annual Operation & Maintenance Costs: Monitoring, reporting.	$47,160
OU-3 Groundwater Remedy Total Estimated Present Value	$1,636,260[5]
OU-3 River Mercury Removal Capital Costs	$0[6]
OU-3 River Mercury Removal Operation & Maintenance Costs: Annual inspection and removal, reporting and evaluation.	$73,000
OU-3 River Mercury Removal Total Estimated Present Value	$1,186,672
Total Present Value for the Selected Remedy Chlor-Alkali Superfund Site, Berlin, New Hampshire	$5,092,673

Notes:
[1] Details of Costs are in Attachment F of the Final Feasibility Study (FS).
[2] All estimated present values use a 7% discount rate over a 30-year period.
[3] All Costs are accurate within the range of +50% and -30%.
[4] Attachment F in the FS broke the remedy into two alternatives: on-site disposal and off-site disposal. The costs presented here represent the more expensive alternative, on-site disposal OU-2-4B which is approximately $55,000 more expensive than off-site disposal. The total cost of OU-2 is for off-site disposal and the contingency is for on-site disposal beneath the CHP Landfill cap.
[5] Groundwater monitoring costs are segregated between CHP and SFSA areas.
[6] This category has no costs as much of the work: surveys, preparation of software for data analysis and other details was done during the conduct of the Supplemental Remedial Investigation from 2015 to 2019.

Appendix C: Figures

Figure 1: Location of Berlin, New Hampshire and the Chlor-Alkali Facility (Former) Superfund Site. **Source**: USGS 7.5 Minute Topographic Quadrangle obtained from NH GRANIT on-line GIS database, dated 1970, revised 1989.

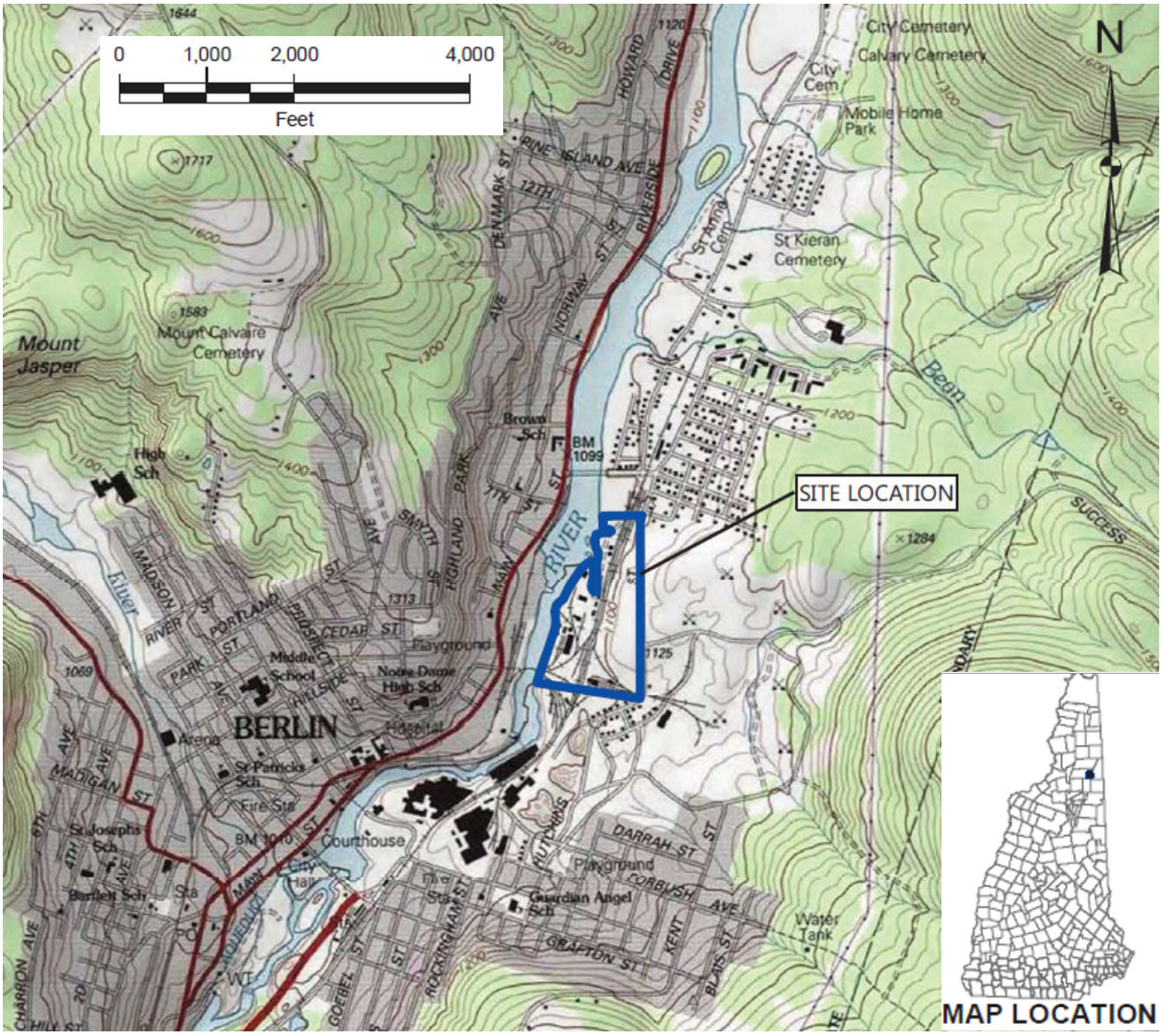

Figure 2: The Site consists of the Cell House Parcel Landfill (OU-1), the Eastern Facility Study Area and Southern Facility Study Areas (OU-2), and OU-3 which consists of both the banks and riverbed of the Androscoggin River between Sawmill and Riverside Dams but also contaminated groundwater beneath the Southern Facility Study Area and OU-1 (shown as a transparent brown overlay outlined by a dashed line). Groundwater is not contaminated by the Site on the Eastern Facility Study Area that is separated from the Southern Facility Study Area by the Yellow Line on the Figure.

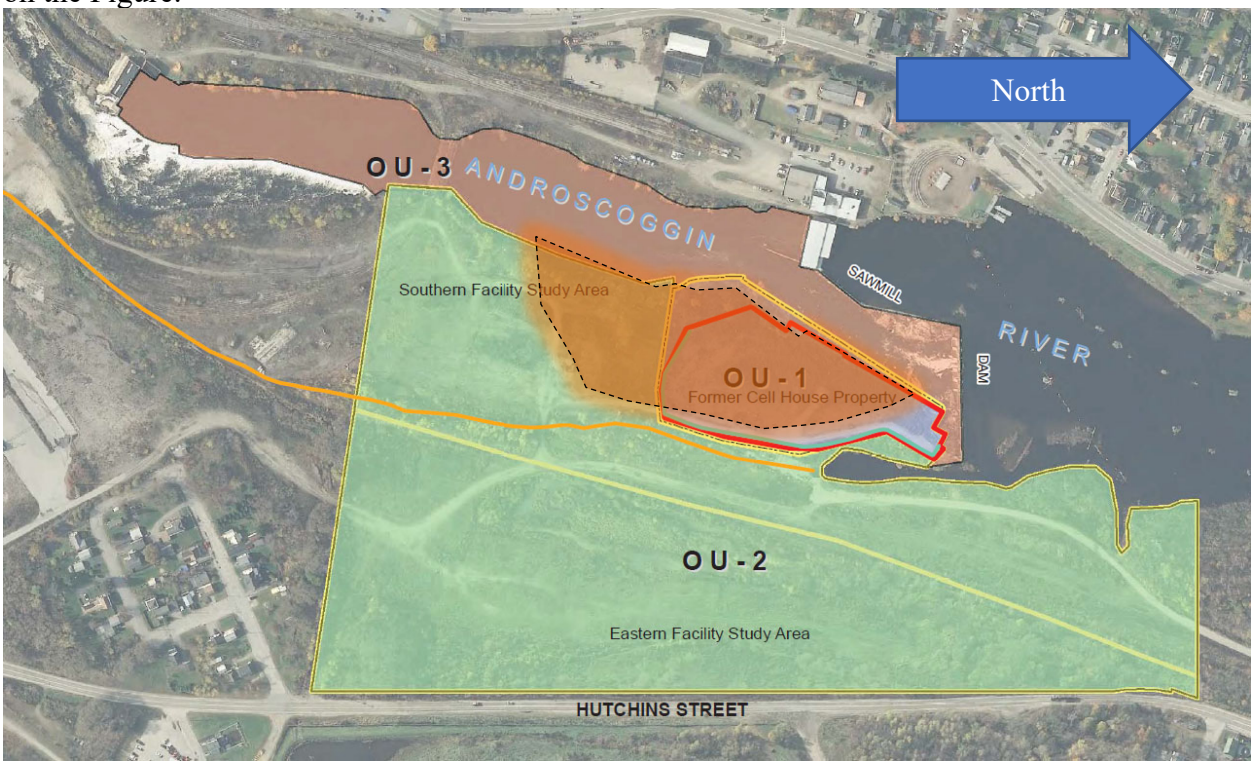

Figure 3: Photos of the area of the Site.

Photo 1, at right: A southward view of the Chemical Plant circa 1920. The Androscoggin River is running southward on the right of the photo and the Chemical Plant on the left (east) bank.

Photo 2: Looking southward. On the left is the capped CHP Landfill separated from the Androscoggin River (at low flow) by the retaining wall. The figure in a red shirt shows the scale. Liquid, elemental mercury, solid mercury amalgams, and mercury containing debris lie along the banks and riverbed from the rocky knoll the red-shirted figure is on, southward for approximately 250-feet.

Photo 3: Liquid, elemental mercury in 6-inches of water in the Androscoggin River along with gravel and metallic debris.

Figure 4: Closeup of the CHP Landfill and Southern Facility Study Area with the former locations of the Chemical Plant Buildings. The yellow-shaded, red-outlined shape includes the area for further investigation to implement the *in situ* chemical oxidation remedy. The area of investigation includes the areas beneath the former Chloroform Still House and Chloroform building shown on the figure. The yellow-shaded, dark blue-outlined shape is an approximation of the location of contaminated groundwater in overburden and bedrock.

Appendix D: ARARs Tables

Chlor-Alkali Superfund Site
Cell House Parcel Landfill, OU-1
Table D1: Action-Specific Applicable or Relevant and Appropriate Requirements (ARARs) / To Be Considered (TBC) Guidance
Table D2: Chemical Specific ARARs and TBC Guidance
Table D3: Location-Specific ARARs and TBC Guidance

Southern and Eastern Facility Study Areas, OU-2
Table D4: Action-Specific ARARs and TBC Guidance
Table D5: Chemical Specific ARARs and TBC Guidance
Table D6: Location-Specific ARARs and TBC Guidance

Groundwater beneath the Cell House Parcel Landfill, OU-3
Table D7: Action-Specific ARARs and TBC Guidance
Table D8: Chemical Specific ARARs and TBC Guidance
Table D9: Location-Specific ARARs and TBC Guidance

Groundwater beneath the Southern Facility Study Area, OU-3
Table D10: Action-Specific ARARs and TBC Guidance
Table D11: Chemical Specific ARARs and TBC Guidance
Table D12: Location-Specific ARARs and TBC Guidance

Androscoggin River mercury removal, OU-3
Table D13: Action-Specific ARARs and TBC Guidance
Table D14: Chemical Specific ARARs and TBC Guidance
Table D15: Location-Specific ARARs and TBC Guidance

Table D1: Action-Specific ARARs for CHP Landfill OU-1: Monitoring & maintenance of the CHP Landfill cap and foundation/retaining wall*, Engineering Controls and Institutional Controls					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action to Be Taken to Achieve ARAR**
Federal	Resource Conservation and Recovery Act (RCRA)	42 U.S.C. §§ 6901, *et seq.*, 40 C.F.R. Parts 261, 262 and 264	Applicable	New Hampshire has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations (Env-Hw 100-1100). These provisions have been adopted by the State.	Any wastes generated by remedial activity will be analyzed by appropriate test methods. If found to be hazardous wastes, then they will be managed in accordance with the substantive requirements of the State hazardous waste regulations. Wastes that may be generated include: investigation derived waste from monitoring activities and contaminated media produced during the operation and maintenance of the landfill engineered cover system and other components of the remedy. Federal regulations at 40 C.F.R. Part 264, including but not limited to Subpart G (closure/post closure) have been incorporated by reference into the State hazardous waste regulations.
	Design and Construction of RCRA/CERCLA Final Covers	EPA 625-4-91/025. May 1991.	To Be Considered	Guidance on design and construction of final covers for hazardous and non-hazardous waste landfills to comply with RCRA/CERCLA.	The existing landfill engineered cover system (cap and retaining wall) meets design and construction standards identified in this guidance.
	EPA Revised Alternative Cap Design Guidance Proposed for Unlined, Hazardous Waste Landfills in the EPA Region 1, February 5, 2001.		To Be Considered	Guidance for designer of a cover or cap system for unlined, hazardous waste landfills at Superfund landfill sites in New England.	The existing landfill engineered cover system (cap and retaining wall) meet design standards identified in this guidance.
	EPA Presumptive Remedy for CERCLA Municipal Landfill Sites Guidance	EPA 540F-93-035, Sept. 1993	To Be Considered	Guidance on developing a presumptive remedy for landfills under CERCLA	This guidance has been followed in developing the FS alternatives for the landfill.
	Toxic Substances Control Act (TSCA), PCB Remediation Waste	15 U.S.C. 2601 *et seq.*, 40 C.F.R. 761.61(c)	Applicable	This section of the TSCA regulations provides risk- based cleanup and disposal options for PCB remediation waste based on the risks posed by the concentrations at which the PCBs are found. Written approval for the proposed risk-based cleanup must be obtained from the Director, Superfund & Emergency Management Division, EPA Region 1.	Maintenance of the existing landfill engineered cover system meets TSCA protectiveness standards for capping PCBs present within the CHP landfill. If the cover system is re-opened to dispose of OU-2 waste, the opened landfill will be managed to prevent any unreasonable risk of exposure to PCBs and closed so as to re-establish the long-term protectiveness of the remedy. The disposal of the PCB-contaminated media under the CHP landfill engineered cover system will not pose an unreasonable risk to human health or the environment.
	Clean Air Act (CAA), Hazardous Air Pollutants, National Emission Standards for Hazardous Air Pollutants (NESHAPS)	42.U.S.C. § 112(b)(1), 40 C.F.R. Part 61	Applicable	The regulations establish emissions standards for 189 hazardous air pollutants. Standards set for dust and other release sources.	If maintenance/monitoring of the landfill engineered cover system, the re-opening of the cover system to dispose of OU-2 wastes, or the control of landfill gasses generate regulated air pollutants, then measures will be implemented to meet these standards.

Table D1: Action-Specific ARARs for CHP Landfill OU-1: Monitoring & maintenance of the CHP Landfill cap and foundation/retaining wall*, Engineering Controls and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action to Be Taken to Achieve ARAR
Federal	CAA, National Emission Standards for Hazardous Air Pollutants (NESHAPS), Standards tor Inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations	40 C.F.R. § 61.151	Relevant and Appropriate	NESHAPS standards for preventing air releases from inactive asbestos disposal sites, including cover standards, dust suppression, and land use controls.	Maintenance of the existing landfill engineered cover system will meet protectiveness standards for the covering of asbestos present in the CHP landfill. If the cover system is re-opened to dispose of OU-2 waste, the opened landfill will be managed to prevent any release of asbestos and closed so as to re-establish the long-term protectiveness of the remedy.
	Clean Water Act (CWA), Section 402, Discharge of Pollutants	33 U.S.C. § 1342; 40 C.F.R.122,125, 131, 136, 450	Applicable	These standards address water discharges which may be directed to surface water. Also establishes stormwater standards for construction and development projects that are over one acre.	Any remedial action, including maintenance of the landfill engineered cover system, that will result in the discharge of water to surface waters or that will disturb more than one acre will meet these discharge and stormwater standards.
	Clean Water Act, National Recommend Water Quality Criteria (NRWQC)	EPA-822-R-02-047, USEPA, Office of Water, Office of Science and Technology (Nov. 2002)	To Be Considered	NRWQC are health-based criteria developed for chemical constituents in surface water They have been developed to protect aquatic life and human health from harmful effects due to exposure to chemically impacted surface water. Standards to be used for monitoring surface water and sediment during remedial activities and long-term monitoring of the landfill.	Guidance on water quality standards used to develop monitoring performance standards for the long-term monitoring of the landfill's impact on the adjacent river.**
	Safe Drinking Water Act, National Primary Drinking Water Regulations, Maximum Contaminant Levels (MCLs)	42 U.S.C. §300f *et seq*.; 40 C.F.R. 141, Subparts B and G	Relevant and Appropriate	Establishes maximum contaminant levels (MCLs) for common organic and inorganic contaminants applicable to public drinking water supplies. Numeric values in the regulations used as groundwater monitoring standards and exceedances of the standards require the establishment of institutional controls to prevent groundwater use.	MCLs will be used to develop monitoring performance standards for monitoring the compliance boundary for the CHP landfill established where contamination is left in place under the landfill engineered cover system*. Monitoring will ensure that groundwater contamination within the compliance boundary does not migrate beyond the boundary and cause adjacent groundwater not to meet drinking water standards**. Exceedances of these standards within the compliance boundary will be addressed by institutional controls.
	Safe Drinking Water Act, National Primary Drinking Water Regulations, Maximum Contaminant Level Goals (MCLGs)	42 U.S.C. §300f *et seq*.; 40 C.F.R. 141, Subpart F	Relevant and Appropriate for non-zero MCLGs only; MCLGs set as zero are To Be Considered	Establishes maximum contaminant level goals (MCLGs) for public water supplies. MCLGs are health goals for drinking water sources. These unenforceable health goals are available for a number of organic and inorganic compounds. Numeric values in the regulations used as groundwater monitoring standards and exceedances of the standards require the establishment of institutional controls to prevent groundwater use.	Non-zero MCLGs will be used to develop monitoring performance standards for monitoring the compliance boundary for the CHP landfill established where contamination is left in place under the landfill engineered cover system*. Monitoring will ensure that groundwater contamination within the compliance boundary does not migrate beyond the boundary and cause adjacent groundwater not to meet drinking water standards**. Exceedances of these standards within the compliance boundary will be addressed by institutional controls.

Table D1: Action-Specific ARARs for CHP Landfill OU-1: Monitoring & maintenance of the CHP Landfill cap and foundation/retaining wall*, Engineering Controls and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action to Be Taken to Achieve ARAR
Federal	Health Advisories (EPA Office of Drinking Water)		To Be Considered	Health Advisories are estimates of risk due to consumption of contaminated drinking water; they consider non-carcinogenic effects only. To be considered for contaminants in groundwater that may be used for drinking water where the standard is more conservative than either federal or state statutory or regulatory standards. The Health Advisory standard for manganese is 0.3 mg/l. Guidance used to develop risk- based groundwater monitoring standards and exceedances of the standards require the establishment of institutional controls to prevent groundwater use.	The Health Advisory for manganese will be used to develop monitoring performance standards for monitoring the compliance boundary for the CHP landfill established where contamination is left in place under the landfill engineered cover system*. Monitoring will ensure that groundwater contamination within the compliance boundary does not migrate beyond the boundary and cause adjacent groundwater not to meet drinking water standards**. Exceedances of these standards (particularly for manganese) within the compliance boundary will be addressed by institutional controls.
	Guide to Management of Investigation-Derived Waste	USEPA OSWER 9345.303FS, January 1992	To Be Considered	Investigation-derived wastes (IDW) generated from remedial activities (*e.g.,* drilling muds, purged water, etc.) are required to be properly stored, managed, and disposed. Guidance given in the publication includes waste material containment, collection labeling, *etc.*	Investigation-derived wastes (IDW) generated from remedial activities (*e.g.*, drilling muds, purged water, *etc.* from installing, maintaining and sampling treatment/monitoring wells or material generated during O&M of the landfill) will be stored, managed, and disposed of based on these guidance standards.
State of New Hampshire	Identification and Listing of Hazardous Wastes	N.H. Admin. Code Env-Hw 400	Applicable	These standards list particular hazardous wastes and identify the maximum concentration of contaminants for which the waste would be a characteristic or listed hazardous waste. The analytical test set out in Appendix II of 40 C.F.R. Part 261 is referred to as the Toxicity Characteristic Leaching Procedure (TCLP). The federal regulations at 40 C.F.R. Part 261 are incorporated by reference.	Any wastes generated by remedial activity will be analyzed under these standards to determine whether they are listed or characteristic hazardous waste. Wastes that may be generated include investigation derived waste from monitoring activities and contaminated media produced during the O&M of the landfill and other components of the remedy. Materials that are listed waste or exceed TCLP hazardous waste thresholds will be disposed off-site in a RCRA Subtitle C facility. Non-hazardous materials will be disposed appropriately.
	Requirements for Hazardous Waste Generators	Env-Hw 500	Applicable	Requires a determination as to whether waste materials are hazardous (Env-Hw 502) and, if so, requirements for managing environmental and health requirements (Env-Hw 506), for accumulating hazardous wastes on-site (Env-Hw 507) prior to shipment off site, and for emergency actions (Env-Hw 513). The federal regulations at 40 C.F.R. Part 262 are incorporated by reference.	If remedial activity generates hazardous wastes, then they will be managed in accordance with the substantive requirements of these regulations.

Table D1: Action-Specific ARARs for CHP Landfill OU-1: Monitoring & maintenance of the CHP Landfill cap and foundation/retaining wall*, Engineering Controls and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action to Be Taken to Achieve ARAR
State of New Hampshire	Requirements for Owners and Operators of Hazardous Waste Facilities	Env-Hw 700	Relevant and Appropriate	Includes: General Design Requirements (Env-Hw 702.9); Groundwater Monitoring (Env-Hw 702.10); Other Monitoring (Env-Hw 702.11); Emergency/ Remedial Actions (Env-Hw 706); Operation Requirements (Env-Hw 708.2); and Technical Requirements (Env- Hw 708.3). Closure/post- closure requirements for hazardous waste landfills at Env-Hw 708.02(a) that incorporate federal regulations at 40 C.F.R. 264, Subpart G (closure and post-closure) and 40 C.F.R. 264, Subpart H (financial requirements).	It has been determined that the existing landfill engineered cover system (cap and retaining wall) meets hazardous waste landfill performance standards identified in these regulations. Long-term O&M, monitoring, institutional controls** and financial assurance requirements will be maintained for the capped landfill. If waste from OU-2 is disposed of on-site in the CHP landfill the landfill cover system will be re-opened, the waste deposited, and the cover system closed in compliance with these regulations.
	Management of Certain Wastes	Env-Sw 901	Applicable	Management of asbestos waste from the point of waste origination to the point of waste disposal.	Maintenance of the existing landfill engineered cover system or re-opening of the cover system if OU-2 waste is disposed of in the CHP landfill will meet protectiveness standards for the covering of asbestos present in the CHP landfill.
	Asbestos Management and Control	Env-A 1800	Applicable	Requirements for managing asbestos in a manner that prevents the release of asbestos fibers to the environment and human exposure thereto.	Maintenance of the existing landfill engineered cover system or re-opening of the cover system if OU-2 waste is disposed of in the CHP landfill will meet protectiveness standards for the covering of asbestos present in the CHP landfill.
	Drinking Water Quality Standards	Env-Dw 700	Relevant and Appropriate for MCLs and non-zero MCLGs only; MCLGs set as zero are To Be Considered	State MCLs and MCLGs establish maximum contaminant levels permitted in public water supplies and are the basis of State Ambient Groundwater Quality Standards (AGQS) that are applicable to site ground water. Numeric values in the regulations, when more stringent than federal standards, used as groundwater monitoring standards and exceedances of the standards require the establishment of institutional controls to prevent groundwater use.	State drinking water standards that are more stringent than federal standards will be used to develop groundwater monitoring performance standards** and exceedances of State drinking water standards will require the establishment of institutional controls to prevent groundwater consumption.
	New Hampshire Ambient Groundwater Quality Standards (NH AGQS)	Env-Or 603.03, Table 600-1	Applicable	Establishes maximum concentration levels for regulated contaminants in groundwater which result from human operations or activities. Numeric values in the regulations, when more stringent than federal standards, used as groundwater monitoring standards and exceedances of the standards require the establishment of institutional controls to prevent groundwater use.	State groundwater standards that are more stringent than federal standards will be used to develop groundwater monitoring performance standards** and exceedances of State groundwater standards will require the establishment of institutional controls to prevent groundwater consumption.

Table D1: Action-Specific ARARs for CHP Landfill OU-1: Monitoring & maintenance of the CHP Landfill cap and foundation/retaining wall*, Engineering Controls and Institutional Controls					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action to Be Taken to Achieve ARAR**
State of New Hampshire	Nondegradation of Groundwater to Protect Surface Water	Env-Or 603.01 (a), (b), and (c)	Applicable	Provides that groundwater shall be suitable for use as drinking water without treatment; shall not contain any regulated contaminant in concentrations greater than ambient groundwater quality standards established in Env- Or 603.03; and shall not contain any regulated contaminant at a concentration such that the natural discharge of that groundwater to surface water will cause a violation of a surface water quality standard established in Env-Wq 1700.	Groundwater and surface water monitoring will confirm that Site groundwater contamination is not impairing surface water quality in adjacent Androscoggin River**.
	Standards for the Construction, Maintenance and Abandonment of Wells	We 600	Applicable for drinking water wells; Relevant and Appropriate for monitoring wells	This provision requires that wells be constructed, maintained, relocated, and/or abandoned according to these regulations. We 602.05 address restrictions on locating wells in contaminated areas.	Wells used for the remedy will be created, operated, and closed in compliance with these standards. Deed notifications shall be recorded into the chain of title for all properties within the GMZ to prohibit groundwater use outside of the CHP compliance boundary.
	Surface Water Quality Standards	Env-Wq 1700	Applicable	Health-based criteria developed for chemical constituents in surface water. They have been developed to protect aquatic life and human health from harmful effects due to exposure to chemically impacted surface water. State standards to be used when more stringent than federal standards for monitoring surface water and sediment during remedial activities and long-term monitoring of the landfill.	Water quality standards used to develop monitoring performance standards for the long-term monitoring of the landfill's impact on the Androscoggin River**.
	Contaminated Site Management	Env-Or 600	Applicable	Establishes standards for managing contaminated groundwater (Env-607), monitoring (Env-Or 610) and managing contaminated soil (Env-Or 611).	Regulatory standards for managing contaminated groundwater and soil and Site monitoring will be applied to the implementation of this landfill alternative.
	Ambient Air Quality Standards	RSA Ch. 125-C, Env-A 300	Applicable	These regulations set primary and secondary ambient air quality standards (equivalent to federal standards). The standards do not allow significant deterioration of existing air quality.	If maintenance/monitoring of the landfill engineered cover system, the re-opening of the cover system to dispose of OU-2 wastes, or the control of landfill gasses generate regulated air pollutants, then measures will be implemented to meet these standards.
	Air Pollution Control, Fugitive Dust, N.H. Admin.	RSA Ch. 125-C, Env-A Part 1002	Applicable	Requires precautions to prevent, abate and control fugitive dust during specified activities, including excavation, maintenance, and construction.	If maintenance/monitoring of the landfill engineered cover system, the re-opening of the cover system to dispose of OU-2 wastes, or the control of landfill gasses generate regulated air pollutants, then measures will be implemented to meet these standards.

Table D1: Action-Specific ARARs for CHP Landfill OU-1: Monitoring & maintenance of the CHP Landfill cap and foundation/retaining wall*, Engineering Controls and Institutional Controls					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action to Be Taken to Achieve ARAR**
State of New Hampshire	Air Pollution Control, Regulated Toxic Air Pollutants	RSA Ch. 125-C, Env-A Part 1400	Applicable	Identifies toxic air pollutants discharge standards. These pollutants are also listed by EPA in 40 C.F.R. 261	If maintenance/monitoring of the landfill engineered cover system, the re-opening of the cover system to dispose of OU-2 wastes, or the control of landfill gasses generate regulated air pollutants, then measures will be implemented to meet these standards.
	New Hampshire Stormwater Manual Volume 3 Erosion and Sediment Controls During Construction		To Be Considered	This document provides guidance on installation and maintenance of erosion and sediment controls during remedial construction.	Guidance standards for preventing erosion and sediment controls will be implemented during the installation and maintenance of treatment/monitoring wells and O&M of the landfill or the re-opening of the cover system to dispose of OU-2 wastes.

Table D2: Chemical-Specific ARARs and TBCs, OU-1: Monitoring & maintenance of the CHP Landfill cap and foundation/retaining wall*, Engineering Controls and Institutional Controls					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action to Be Taken to Achieve ARAR**
Federal	EPA Risk Reference Dose (RfDs)		To Be Considered	Dose levels developed by EPA to protect sensitive individuals over the course of a life-time. RfDs reflect a daily exposure level likely to be without appreciable risk of adverse health effects. Guidance used to develop non-carcinogenic risk-based cleanup standards.	O&M, institutional controls and long-term monitoring** of the landfill engineered cover system/retaining wall will prevent exposure to contaminants that pose a risk calculated using this guidance.
	EPA Carcinogenic Slope Factor		To Be Considered	Slope factors are developed by EPA from Health Effects Assessments and present the most up-to-date information on cancer risk potency. Slope factors are developed by EPA from Health Effects Assessments by the Carcinogenic Assessment Group. Guidance used to develop carcinogenic risk-based cleanup standards	O&M, institutional controls and long-term monitoring** of the landfill engineered cover system/retaining wall will prevent exposure to contaminants that pose a risk calculated using this guidance.
	Guidelines for Carcinogen Risk Assessment	EPA/630/P-03/001F (March 2005)	To Be Considered	Guidance for assessing cancer risk. Guidance used to develop risk-based cleanup standards	O&M, institutional controls and long-term monitoring** of the landfill engineered cover system/retaining wall will prevent exposure to contaminants that pose a risk calculated using this guidance.
	Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA/630/R-03/003F (March 2005)	To Be Considered	Guidance for assessing cancer risks to children. Guidance used to develop risk-based cleanup standards for children.	O&M, institutional controls and long-term monitoring** of the landfill engineered cover system/retaining wall will prevent exposure to contaminants that pose a risk calculated using this guidance.

Table D2: Chemical-Specific ARARs and TBCs, OU-1:
Monitoring & maintenance of the CHP Landfill cap and foundation/retaining wall*, Engineering Controls and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action to Be Taken to Achieve ARAR
	Recommendations of the Technical Review Workgroup for Lead for an approach to Assessing Risks Associated with Adult Exposure to Lead in Soil	EPA-540-R-03-001 (January 2003)	To Be Considered	EPA Guidance for evaluating risks posed to adults by lead in soil. Guidance used to develop risk-based cleanup standards for lead.	O&M, institutional controls and long-term monitoring** of the landfill engineered cover system/retaining wall will prevent exposure to lead that poses a risk calculated using this guidance.
	Transmittal of Update to Adult Lead Methodology's Default Baseline Blood Lead Concentration and Geometric Standard Deviation Parameters	OLEM Directive 9285.6-56	To Be Considered	EPA Guidance for evaluating risks posed to adults by lead in soil. Guidance used to develop risk-based cleanup standards for lead.	O&M, institutional controls and long-term monitoring** of the landfill engineered cover system/retaining wall will prevent exposure to lead that poses a risk calculated using this guidance.
	EPA Carcinogenic Assessment Group Potency Factors		To Be Considered	These factors are used to evaluate an acceptable risk from a carcinogen (*i.e.* dioxin). Guidance used to develop risk-based cleanup standards for dioxin.	O&M, institutional controls and long-term monitoring** of the landfill engineered cover system/retaining wall will prevent exposure to contaminants that pose a risk calculated using this guidance.
	Recommended Toxicity Equivalence Factors (TEFs) for Human Health Risk Assessments of 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	EPA/600/R-10/005	To Be Considered	Guidance used to develop site-specific risk- based cleanup standards for dioxin.	O&M, institutional controls and long-term monitoring** of the landfill engineered cover system/retaining wall will prevent exposure to dioxins that pose a risk calculated using this guidance.
	Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments – Interim Final.	EPA 540-R-97-006	To Be Considered	Guidance used to develop ecological risk-based cleanup standards.	O&M, institutional controls and long-term monitoring** of the landfill engineered cover system/retaining wall will prevent release of contaminants that would pose ecological risks calculated using this guidance.
State of New Hampshire	Contaminated Site Management, Soil Remediation Criteria	Env-Or-606.19, Table 600-2	Applicable	Promulgated numeric soil remediation standards.	O&M, institutional controls and long-term monitoring** of the landfill engineered cover system/retaining wall will prevent exposure to contaminants that exceed State remediation standards if more stringent than federal risk-based standards.

Table D3: Location-Specific ARARs / TBC, OU-1: Monitoring & maintenance of the CHP Landfill cap and foundation/retaining wall[14], Engineering Controls and Institutional Controls[15]					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action to Be Taken to Achieve ARAR**
Federal	Floodplain Management and Protection of Wetlands	44 C.F.R. § 9	Relevant and Appropriate	FEMA regulations that set forth the policy, procedure and responsibilities to implement and enforce Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetlands). Prohibits activities that adversely affect a federally-regulated wetland unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use. Requires the avoidance of impacts associated with the occupancy and modification of federally-designated 100-year and 500-year floodplain and to avoid development within floodplain wherever there is a practicable alternative. An assessment of impacts to 500-year floodplain is required for critical actions – which includes siting contaminated sediment management facilities in a floodplain. Requires public notice when proposing any action in or affecting floodplain or wetlands.	If O&M of the landfill engineered cover system or installation/operation of monitoring wells or access to wells require altering federal jurisdictional wetlands or 500-year floodplain, mitigation measures will be taken, as required. No negative public comments were received.
	Clean Water Act, Section 404; Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material	33 U.S.C. § 1344, 40 C.F.R. Part 230, 231 and 33 C.F.R. Parts 320- 323	Applicable	For discharge of dredged or fill material into federal jurisdictional water bodies or wetlands, there must be no practical alternative with less adverse impact on aquatic ecosystem; discharge cannot cause or contribute to violation of state water quality standard or toxic effluent standard or jeopardize federal threatened and endangered species; discharge cannot significantly degrade waters of U.S.; must take practicable steps to minimize and mitigate adverse impacts; must evaluate impacts on flood level, flood velocity, and flood storage capacity. Sets standards for restoration and mitigation required as a result of unavoidable impacts to aquatic resources. EPA must determine which alternative is the "Least Environmentally Damaging Practicable Alternative" (LEDPA) to protect wetland and aquatic resources.	If O&M of the landfill engineered cover system or installation/operation of monitoring wells or access to wells require filling federal jurisdictional wetlands, mitigation measures will be taken, as required. No negative public comments were received concerning EPA's LEDPA determination.
Federal	Fish and Wildlife Coordination Act	16 U.S.C. §661 *et seq* .	Applicable	Any modification of a body of water or wetland requires consultation with the U.S. Fish and Wildlife Service and the appropriate state wildlife agency to develop measures to prevent, mitigate, or compensate for losses of fish and wildlife.	If O&M of the landfill engineered cover system or installation/operation of monitoring wells or access to wells require modifying any body of water or wetland consultation requirements addressing impacts to fish and wildlife resources will be followed.

[14] CHP landfill cap and foundation/retaining wall also referred to as engineered cover system.

[15] ARARs and TBCs required for long-term monitoring and institutional controls for groundwater under the landfill also addressed under the OU3-CHP alternatives and long-term monitoring of surface water in Reach AR-3 to assess protectiveness of the CHP landfill also identified under the OU3-AR-3 alternatives.

Table D3: Location-Specific ARARs / TBC, OU-1: Monitoring & maintenance of the CHP Landfill cap and foundation/retaining wall[14], Engineering Controls and Institutional Controls[15]					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action to Be Taken to Achieve ARAR**
	RCRA Floodplain Restrictions for Hazardous Waste Facilities	40 CFR 264.18(b)	Relevant and Appropriate	A hazardous waste treatment, storage, or disposal facility located in a 100-year floodplain must be designed, constructed, operated, and maintained to prevent washout or to result in no adverse effects on human health or the environment if washout were to occur.	The landfill engineered cover system will be maintained to prevent a release in the event of up to a 100-year flood event.
	National Historical Preservation Act and Regulations	16 U.S.C. 469 et seq.; 36 C.F.R. Part 65	Applicable	When a federal agency finds, or is notified, that its activities may cause irreparable loss or destruction of significant scientific, pre-historical, historical, archeological data, such agency shall consult with relevant federal and State officials to address the preservation of such data or other forms of mitigation, as necessary.	If it is determined that this alternative may cause irreparable loss or destruction of significant scientific, pre-historical, historical, or archaeological data (*i.e.* remaining historic mill structures), EPA will consult with federal and State officials and implement preservation and/or mitigation measures, as necessary.
State of New Hampshire	Criteria and Conditions for Fill and Dredge in Wetlands	RSA Ch. 482-A and NH Admin. Code Env-Wt Parts 100-900	Applicable	These standards regulate filling and other activities in or adjacent to wetland resource areas (including the 100-year floodplain), and buffer zones and establish criteria for the protection of wetlands from adverse impacts on fish, wildlife, commerce, and public recreation.	If O&M of the landfill engineered cover system or installation/operation of monitoring wells or access to wells require filling State jurisdictional wetlands or buffer zone, mitigation measures will be taken, as required.
	Shoreland Water Quality Protection	RSA 483-B and NH Admin, Code Env-Wq 1400	Applicable	These standards regulate activities conducted along shorelands to protect, restore and preserve these fragile natural resources.	If O&M of the landfill engineered cover system or installation/operation of monitoring wells or access to wells require work within regulated shoreland areas, mitigation measures will be taken, as required.
	Terrain Alteration	RSA 485-A:17 and NH Admin. Code Env-Wq 1500	Applicable	These rules establish criteria for the protection of surface water quality resulting from activities that occur in or on the border of surface water or within a distance of surface water such that direct or immediate degradation may result to water quality.	If O&M of the landfill engineered cover system or installation/operation of monitoring wells or access to wells alter terrain regulated under this standards, mitigation measures will be taken to protect water quality, as required.

Table D3: Location-Specific ARARs / TBC, OU-1: Monitoring & maintenance of the CHP Landfill cap and foundation/retaining wall[14], Engineering Controls and Institutional Controls[15]					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action to Be Taken to Achieve ARAR**
State of New Hampshire	Siting requirements for hazardous waste facilities and variances	Env-Hw 304.08 (Existing facilities) and 304.09 (New facilities)	Relevant and Appropriate for floodplain and seismic standards	Flood control measures must be identified for any facility within the 100 year floodplain. Similarly, new facilities located within 3,000 feet of faults displaced in Holocene times must show that no faults pass within 200 feet of the facility.	The landfill will be maintained to prevent a release in the event of up to a 100-year flood event.
	Historic Preservation Act	RSA 227-C	Applicable	When activities may cause irreparable loss or destruction of significant scientific, pre-historical, historical, archeological data, the project proponent shall consult with relevant State officials to address the preservation of such data or other forms of mitigation, as necessary.	If it is determined that this alternative may cause irreparable loss or destruction of significant scientific, pre-historical, historical, or archaeological data (*i.e.,* remaining historic mill structures), EPA will consult with State officials and implement preservation and/or mitigation measures, as necessary.
	Native Plant Protection Act	R.S.A. 217-A	Applicable	Prohibits damaging plant species listed as endangered in the State.	If implementation of this alternative may take state-listed species the remedial action will need to meet these standards.
	Endangered Species Conservation Act	R.S.A. 212-A	Applicable	Identifies endangered species in NH and requirements for protection of species of wildlife determined to be threatened or endangered, including prohibitions on taking, possessing, and transporting of endangered species.	If implementation of this alternative may take state-listed species the remedial action will need to meet these standards.

Table D4: Action-Specific ARARs / TBC, OU-2: Excavation, backfill and either on-site or off-site disposal of contaminated soils, and Institutional Controls					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
Federal	Resource Conservation and Recovery Act (RCRA)	2 U.S.C. §§ 6901, *et seq* ., 40 C.F.R. Parts 261, 262 and 264	Applicable	New Hampshire has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations (Env-Hw 100-1100). These provisions have been adopted by the State.	Any wastes generated by remedial activity will be analyzed by appropriate test methods. If found to be hazardous wastes, then they will be managed in accordance with the substantive requirements of the State hazardous waste regulations. Wastes that may be generated include contaminated media produced during the excavation and other components of the remedy.

Table D4: Action-Specific ARARs / TBC, OU-2: Excavation, backfill and either on-site or off-site disposal of contaminated soils, and Institutional Controls					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
	Toxic Substances Control Act (TSCA), PCB Remediation Waste	15 U.S.C. 2601 *et seq* ., 40 C.F.R. 761.61(c)	Applicable	This section of the TSCA regulations provides risk-based cleanup and disposal options for PCB remediation waste based on the risks posed by the concentrations at which the PCBs are found. Written approval for the proposed risk- based cleanup must be obtained from the Director, Superfund & Emergency Management Division, EPA Region 1.	PCB-contaminated soil exceeding commercial/ industrial standards will be excavated and disposed of off-site or on-site in the CHP landfill. PCB-contaminated soil exceeding residential standards will be subject to institutional controls restricting residential uses.
	Clean Air Act (CAA), Hazardous Air Pollutants, National Emission Standards for Hazardous Air Pollutants (NESHAPS)	42.U.S.C. § 112(b)(1), 40 C.F.R. Part 61	Applicable	The regulations establish emissions standards for 189 hazardous air pollutants. Standards set for dust and other release sources.	If soil excavation/on-site management generates regulated air pollutants, then measures will be implemented to meet these standards.
	Clean Water Act (CWA), Section 402, Discharge of Pollutants	33 U.S.C. § 1342; 40 C.F.R.122,125, 131, 136, 450	Applicable	These standards address water discharges which may be directed to surface water. Also establishes stormwater standards for construction and development projects that are over one acre.	Any remedial action, including any required dewatering associated with soil excavation, results in the discharge of water to surface waters or the excavation will disturb more than one acre, then the regulation's respective discharge and stormwater standards will be met.
	Clean Water Act, National Recommend Water Quality Criteria (NRWQC)	EPA-822-R-02-047, USEPA, Office of Water, Office of Science and Technology (Nov. 2002	To Be Considered	NRWQC are health-based criteria developed for chemical constituents in surface water. They have been developed to protect aquatic life and human health from harmful effects due to exposure to chemically impacted surface water. Performance standards to be used for monitoring surface water and sediment during remedial activities and long- term monitoring of the landfill.	Guidance on water quality standards that may be used to develop monitoring performance standards for monitoring of the excavation's impact on surface waters.
	Guide to Management of Investigation-Derived Waste	USEPA OSWER 9345.303FS, January 1992	To Be Considered	Investigation-derived wastes (IDW) generated from remedial activities (*e.g.*, drilling muds, purged water, etc.) are required to be properly stored, managed, and disposed. Guidance given in the publication includes waste material containment, collection labeling, *etc.*	Investigation-derived wastes (IDW) generated from remedial activities (*e.g.*, the soil excavation) will be stored, managed, and disposed of based on these guidance standards.

Table D4: Action-Specific ARARs / TBC, OU-2: Excavation, backfill and either on-site or off-site disposal of contaminated soils, and Institutional Controls					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
State of New Hampshire	Identification and Listing of Hazardous Wastes	N.H. Admin. Code Env-Hw 400	Applicable	These standards list particular hazardous wastes and identify the maximum concentration of contaminants for which the waste would be a characteristic or listed hazardous waste. The analytical test set out in Appendix II of 40 C.F.R. Part 261 is referred to as the Toxicity Characteristic Leaching Procedure (TCLP). The federal regulations at 40 C.F.R. Part 261 are incorporated by reference.	Any wastes generated by remedial activity will be analyzed under these standards to determine whether they are listed or characteristic hazardous waste, in particular during the excavation of contaminated soils. Materials that are listed waste or exceed TCLP hazardous waste thresholds will be disposed off-site in a RCRA Subtitle C facility. Non-hazardous materials will be disposed appropriately.
	Requirements for Hazardous Waste Generators	Env-Hw 500	Applicable	Requires a determination as to whether waste materials are hazardous (Env-Hw 502) and, if so, requirements for managing environmental and health requirements (Env-Hw 506), for accumulating hazardous wastes on-site (Env-Hw 507) prior to shipment off site, and for emergency actions (Env-Hw 513). The federal regulations at 40 C.F.R. Part 262 are incorporated by reference.	If remedial activity generates hazardous wastes, then they will be managed in accordance with the substantive requirements of these regulations.
	Standards for the Construction, Maintenance and Abandonment of Wells	We 600	Applicable for drinking water wells; Relevant and Appropriate for monitoring wells	This provision requires that wells be constructed, maintained, relocated, and/or abandoned according to these regulations. We 602.05 address restrictions on locating wells in contaminated areas.	Wells used for the remedy will be created, operated, and closed in compliance with these standards*.
	Surface Water Quality Standards	Env-Wq 1700	Applicable	Health-based criteria developed for chemical constituents in surface water. They have been developed to protect aquatic life and human health from harmful effects due to exposure to chemically impacted surface water. State standards to be used when more stringent than federal standards for monitoring surface water and sediment during remedial activities and long-term monitoring of the landfill.	Water quality standards may be used to develop monitoring performance standards to assess the impact of the soil excavation/backfilling on surface waters.
	Contaminated Site Management	Env-Or 600	Applicable	Establishes standards for managing contaminated groundwater (Env-607), monitoring (Env-Or 610) and managing contaminated soil (Env-Or 611).	Regulatory standards for managing contaminated groundwater* and soil and Site monitoring will be applied to the implementation of this remedial alternative.
	Ambient Air Quality Standards	RSA Ch. 125-C, Env-A 300	Applicable	These regulations set primary and secondary ambient air quality standards (equivalent to federal standards). The standards do not allow significant deterioration of existing air quality.	If the soil excavation/management generates regulated air pollutants, then measures will be implemented to meet these standards.

Table D4: Action-Specific ARARs / TBC, OU-2: Excavation, backfill and either on-site or off-site disposal of contaminated soils, and Institutional Controls					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
State of New Hampshire	Air Pollution Control, Fugitive Dust, N.H. Admin.	RSA Ch. 125-C, Env-A Part 1002	Applicable	Requires precautions to prevent, abate and control fugitive dust during specified activities, including excavation, maintenance, and construction.	If the soil excavation/management generates regulated air pollutants, then measures will be implemented to meet these standards.
	Air Pollution Control, Regulated Toxic Air Pollutants	RSA Ch. 125-C, Env-A Part 1400	Applicable	Identifies toxic air pollutants discharge standards. These pollutants are also listed by EPA in 40 CFR 261	If the soil excavation/ management generates regulated air pollutants, then measures will be implemented to meet these standards.
	New Hampshire Stormwater Manual Volume 3 Erosion and Sediment Controls During Construction		To Be Considered	This document provides guidance on installation and maintenance of erosion and sediment controls during remedial construction.	Guidance standards for preventing erosion and sediment controls will be implemented during the soil excavation work. Excavated areas will be backfilled and restored to meet these guidance standards.

Table D5: Chemical-Specific ARARs / TBC, OU-2: Excavation, backfill and either on-site or off-site disposal of contaminated soils, and Institutional Controls[16]					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
Federal	EPA Risk Reference Dose (RfDs)		To Be Considered	Dose levels developed by EPA to protect sensitive individuals over the course of a life-time. RfDs reflect a daily exposure level likely to be without appreciable risk of adverse health effects. Guidance used to develop non-carcinogenic risk-based cleanup standards.	Excavation of all soil exceeding commercial/industrial risk standards, disposal either off-site or on-site in the CHP landfill, and institutional controls to prevent residential development to address soils exceeding residential risk standards will prevent exposure to contaminants that pose a risk calculated using this guidance.
	EPA Carcinogenicity Slope Factor		To Be Considered	Slope factors are developed by EPA from Health Effects Assessments and present the most up-to-date information on cancer risk potency. Slope factors are developed by EPA from Health Effects Assessments by the Carcinogenic Assessment Group. Guidance used to develop carcinogenic risk based cleanup standards	Excavation of all soil exceeding commercial/industrial risk standards, disposal either off-site or on-site in the CHP landfill, and institutional controls to prevent residential development to address soils exceeding residential risk standards will prevent exposure to contaminants that pose a risk calculated using this guidance.

[16] ARARs and TBCs required for long-term monitoring and institutional controls for groundwater under the EFSA and SFSA area addressed under the OU3-GW alternatives.

Table D5: Chemical-Specific ARARs / TBC, OU-2: Excavation, backfill and either on-site or off-site disposal of contaminated soils, and Institutional Controls[16]					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
	Guidelines for Carcinogen Risk Assessment	EPA/630/P-03/001F (March 2005)	To Be Considered	Guidance for assessing cancer risk. Guidance used to develop risk-based cleanup standards	Excavation of all soil exceeding commercial/industrial risk standards, disposal either off-site or on-site in the CHP landfill, and institutional controls to prevent residential development to address soils exceeding residential risk standards will prevent exposure to contaminants that pose a risk calculated using this guidance.
	Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA/630/R-03/003F (March 2005)	To Be Considered	Guidance for assessing cancer risks to children. Guidance used to develop risk-based cleanup standards for children.	Excavation of all soil exceeding commercial/industrial risk standards, disposal either off-site or on-site in the CHP landfill, and institutional controls to prevent residential development to address soils exceeding residential risk standards will prevent child exposure to contaminants that pose a risk calculated using this guidance.
	Recommendations of the Technical Review Workgroup for Lead for an approach to Assessing Risks Associated with Adult Exposure to Lead in Soil	EPA-540-R-03-001 (January 2003)	To Be Considered	EPA Guidance for evaluating risks posed to adults by lead in soil. Guidance used to develop risk-based cleanup standards for lead.	Excavation of all soil exceeding commercial/industrial lead risk standards, disposal either off-site or on-site in the CHP landfill, and institutional controls to prevent residential development to address soils exceeding residential lead risk standards will prevent exposure to lead that poses a risk calculated using this guidance.
	Transmittal of Update to Adult Lead Methodology's Default Baseline Blood Lead Concentration and Geometric Standard Deviation Parameters	OLEM Directive 9285.6-56	To Be Considered	EPA Guidance for evaluating risks posed to adults by lead in soil. Guidance used to develop risk-based cleanup standards for lead.	Excavation of all soil exceeding commercial/industrial lead risk standards, disposal either off-site or on-site in the CHP landfill, and institutional controls to prevent residential development to address soils exceeding residential lead risk standards will prevent exposure to lead that poses a risk calculated using this guidance.
	EPA Carcinogenic Assessment Group Potency Factors		To Be Considered	These factors are used to evaluate an acceptable risk from a carcinogen (*i.e.* dioxin). Guidance used to develop risk-based cleanup standards for dioxin.	Excavation of all soil exceeding commercial/industrial risk standards, disposal either off-site or on-site in the CHP landfill, and institutional controls to prevent residential development to address soils exceeding residential risk standards will prevent exposure to contaminants that pose a risk calculated using this guidance.
	Recommended Toxicity Equivalence Factors (TEFs) for Human Health Risk Assessments of 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	EPA/600/R-10/005	To Be Considered	Guidance used to develop site-specific risk- based cleanup standards for dioxin.	Excavation of all soil exceeding commercial/industrial dioxin risk standards, disposal either off-site or on-site in the CHP landfill, and institutional controls to prevent residential development to address soils exceeding residential dioxin risk standards will prevent exposure to dioxins that pose a risk calculated using this guidance.
State of New Hampshire	Contaminated Site Management, Soil Remediation Criteria	Env-Or- 606.19, Table 600-2	Applicable	Promulgated numeric soil remediation standards.	Excavation of all soil exceeding commercial/industrial risk standards and institutional controls to prevent residential development to address soils exceeding residential risk standards will prevent exposure to contaminants that pose exceed State remediation standards if more stringent than federal risk-based standards.

Table D6: Location-Specific ARARs / TBC, OU-2: Excavation, backfill and either on-site or off-site disposal of contaminated soils, and Institutional Controls					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve**
Federal	Floodplain Management and Protection of Wetlands	44 C.F.R. § 9	Relevant and Appropriate	FEMA regulations that set forth the policy, procedure and responsibilities to implement and enforce Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetlands). Prohibits activities that adversely affect a federally-regulated wetland unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use. Requires the avoidance of impacts associated with the occupancy and modification of federally-designated 100-year and 500-year floodplain and to avoid development within floodplain wherever there is a practicable alternative. An assessment of impacts to 500-year floodplain is required for critical actions – which includes siting contaminated sediment management facilities in a floodplain. Requires public notice when proposing any action in or affecting floodplain or wetlands.	If excavation/backfilling requires altering federal jurisdictional wetlands or 500-year floodplain, mitigation measures will be taken, as required. No public comments were received.
	Clean Water Act, Section 404; Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material	33 U.S.C. § 1344, 40 C.F.R. Part 230, 231 and 33 C.F.R. Parts 320- 323	ApplicableT	For discharge of dredged or fill material into federal jurisdictional water bodies or wetlands, there must be no practical alternative with less adverse impact on aquatic ecosystem; discharge cannot cause or contribute to violation of state water quality standard or toxic effluent standard or jeopardize federal T&E species; discharge cannot significantly degrade waters of U.S.; must take practicable steps to minimize and mitigate adverse impacts; must evaluate impacts on flood level, flood velocity, and flood storage capacity. Sets standards for restoration and mitigation required as a result of unavoidable impacts to aquatic resources. EPA must determine which alternative is the “Least Environmentally Damaging Practicable Alternative” (LEDPA) to protect wetland and aquatic resources.	If excavation/backfilling requires filling federal jurisdictional wetlands, mitigation measures will be taken, as required. No public comments on EPA’s LEDPA finding were received.
	Fish and Wildlife Coordination Act	16 U.S.C. §661 *et seq*.	Applicable	Any modification of a body of water or wetland requires consultation with the U.S. Fish and Wildlife Service and the appropriate state wildlife agency to develop measures to prevent, mitigate, or compensate for losses of fish and wildlife.	If excavation/backfilling requires modifying any body of water or wetland consultation requirements addressing impacts to fish and wildlife resources will be followed.
Federal	Management of Undesirable Plants on Federal Lands	7 U.S.C. § 2814	Relevant and Appropriate	Regulations call for establishing "integrated management systems” for containing or controlling an undesirable plant species or group of species using all available methods, including: preventive measures; physical or mechanical methods; biological agents; herbicide methods; cultural methods; and general land management practices.	If any wetlands, floodplain or other habitats are altered by the remedial action restoration will include preventing invasive, non-native plant species from becoming established.

Table D6: Location-Specific ARARs / TBC, OU-2: Excavation, backfill and either on-site or off-site disposal of contaminated soils, and Institutional Controls					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve**
	National Historical Preservation Act and Regulations	16 U.S.C. 469 et seq.; 36 C.F.R. Part 65	Applicable	When a federal agency finds, or is notified, that its activities may cause irreparable loss or destruction of significant scientific, pre-historical, historical, archeological data, such agency shall consult with relevant federal and State officials to address the preservation of such data or other forms of mitigation, as necessary.	If it is determined that this alternative may cause irreparable loss or destruction of significant scientific, pre-historical, historical, or archaeological data (*i.e.* remaining historic mill structures), EPA will consult with federal and State officials and implement preservation and/or mitigation measures, as necessary.
State of New Hampshire	Criteria and Conditions for Fill and Dredge in Wetlands	RSA Ch. 482-A and NH Admin. Code Env-Wt Parts 100-900	Applicable	These standards regulate filling and other activities in or adjacent to wetland resource areas (including the 100-year floodplain), and buffer zones and establish criteria for the protection of wetlands from adverse impacts on fish, wildlife, commerce, and public recreation.	If excavation/backfilling requires filling State jurisdictional wetlands or buffer zone, mitigation measures will be taken, as required.
	Shoreland Water Quality Protection	RSA 483-B and NH Admin, Code Env-Wq 1400	Applicable	These standards regulate activities conducted along shorelands to protect, restore and preserve these fragile natural resources.	If excavation/backfilling requires work within regulated shoreland areas, mitigation measures will be taken, as required.
	Terrain Alteration	RSA 485-A:17 and NH Admin. Code Env-Wq 1500	Applicable	These rules establish criteria for the protection of surface water quality resulting from activities that occur in or on the border of surface water or within a distance of surface water such that direct or immediate degradation may result to water quality.	If excavation/backfilling alters terrain regulated under these standards, mitigation measures will be taken to protect water quality, as required.
	Historic Preservation Act	RSA 227-C	Applicable	When activities may cause irreparable loss or destruction of significant scientific, pre-historical, historical, archeological data, the project proponent shall consult with relevant State officials to address the preservation of such data or other forms of mitigation, as necessary.	If it is determined that this alternative may cause irreparable loss or destruction of significant scientific, pre-historical, historical, or archaeological data (i.e. remaining historic mill structures), EPA will consult with State officials and implement preservation and/or mitigation measures, as necessary.
	Native Plant Protection Act	R.S.A. 217-A	Applicable	Prohibits damaging plant species listed as endangered in the State.	If implementation of this alternative may take state-listed species the remedial action will need to meet these standards.
State of New Hampshire	Endangered Species Conservation Act	R.S.A. 212-A	Applicable	Identifies endangered species in NH and requirements for protection of species of wildlife determined to be threatened or endangered, including prohibitions on taking, possessing, and transporting of endangered species.	If implementation of this alternative may take state-listed species the remedial action will need to meet these standards.

Table D7: Action-Specific ARARs / TBC, OU-3: Groundwater beneath the CHP Landfill, Institutional Controls & Monitoring					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
Federal	Resource Conservation and Recovery Act (RCRA)	42 U.S.C. §§ 6901, *et seq* ., 40 C.F.R. Parts 261, 262 and 264	Applicable	New Hampshire has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations (Env- Hw 100-1100). These provisions have been adopted by the State.	Any wastes generated by remedial activity will be analyzed by appropriate test methods. If found to be hazardous wastes, then they will be managed in accordance with the substantive requirements of the State hazardous waste regulations. Wastes that may be generated include: investigation derived waste from monitoring activities and contaminated media produced during the O&M of the monitoring wells and other components of the remedy.
	Toxic Substances Control Act (TSCA), PCB Remediation Waste	15 U.S.C. 2601 *et seq.*, 40 C.F.R. 761.61(c)	Applicable	This section of the TSCA regulations provides risk- based cleanup and disposal options for PCB remediation waste based on the risks posed by the concentrations at which the PCBs are found. Written approval for the proposed risk-based cleanup must be obtained from the Director, Office of Site Remediation and Restoration, EPA Region 1.	Any PCB-contaminated material generated from well installation, maintenance, sampling will be managed and disposed of based so as to not pose an unreasonable risk of injury to health or the environment.
	Clean Air Act (CAA), Hazardous Air Pollutants, National Emission Standards for Hazardous Air Pollutants (NESHAPS)	42.U.S.C. § 112(b)(1), 40 C.F.R. Part 61	Applicable	The regulations establish emissions standards for 189 hazardous air pollutants. Standards set for dust and other release sources.	Any remedial actions, including installation/ maintenance of monitoring wells, that may generate contaminated dust will take measures to control releases.
	Clean Water Act (CWA), Section 402, Discharge of Pollutants	33 U.S.C. § 1342; 40 C.F.R.122,125, 131, 136, 450	Applicable	These standards address water discharges which may be directed to surface water. Also establishes stormwater standards for construction and development projects that are over one acre.	If a discharge from the remedial action, including construction and O&M of monitoring wells and accessways, is directed to surface water the discharge will be treated, if necessary, so that these standards will be achieved.
	Clean Water Act, National Recommend Water Quality Criteria (NRWQC)	EPA-822-R-02-047, USEPA, Office of Water, Office of Science and Technology (Nov. 2002	To Be Considered	NRWQC are health-based criteria developed for chemical constituents in surface water. They have been developed to protect aquatic life and human health from harmful effects due to exposure to chemically impacted surface water. Performance standards to be used for monitoring surface water and sediment during remedial activities and long- term monitoring of the landfill.	Guidance used to develop performance standards that may will be used to monitor the river to determine if groundwater contamination is impairing water quality.*

Table D7: Action-Specific ARARs / TBC, OU-3: Groundwater beneath the CHP Landfill, Institutional Controls & Monitoring					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
	Safe Drinking Water Act, National Primary Drinking Water Regulations, Maximum Contaminant Levels (MCLs)	42 U.S.C. §300f et seq.; 40 C.F.R. 141, Subparts B and G	Relevant and Appropriate	Establishes maximum contaminant levels (MCLs) for common organic and inorganic contaminants applicable to public drinking water supplies. Numeric values in the regulations used as groundwater monitoring standards and exceedances of the standards require the establishment of institutional controls to prevent groundwater use.	Used to establish Performance Standards for monitoring groundwater at the CHP landfill compliance boundary to ensure there is no migration of contaminated groundwater exceeding these standards beyond the boundary.* Inside of the compliance boundary, ICs will be required to prevent contact/ingestion of groundwater that exceeds these standards.
Federal	Safe Drinking Water Act, National Primary Drinking Water Regulations, Maximum Contaminant Level Goals (MCLGs)	42 U.S.C. §300f et seq.; 40 C.F.R. 141, Subpart F	Relevant and Appropriate for non-zero MCLGs only; MCLGs set as zero are To Be Considered	Establishes maximum contaminant level goals (MCLGs) for public water supplies. MCLGs are health goals for drinking water sources. These unenforceable health goals are available for a number of organic and inorganic compounds. Numeric values in the regulations used as groundwater monitoring performance standards and exceedances of the standards require the establishment of institutional controls to prevent groundwater use.	Used to establish performance standards for monitoring groundwater at the CHP landfill compliance boundary to ensure there is no migration of contaminated groundwater exceeding these standards beyond the boundary.* Inside of the compliance boundary, ICs will be required to prevent contact/ingestion of groundwater that exceeds these standards.
	Health Advisories (EPA Office of Drinking Water)		To Be Considered	Health Advisories are estimates of risk due to consumption of contaminated drinking water; they consider non-carcinogenic effects only. To be considered for contaminants in groundwater that may be used for drinking water where the standard is more conservative than either federal or state statutory or regulatory standards. The Health Advisory standard for manganese is 0.3 mg/l. Guidance used to develop risk- based groundwater monitoring performance standards and exceedances of the standards require the establishment of institutional controls to prevent groundwater use.	Health Advisories will be used to develop risk-based groundwater performance standards for monitoring groundwater at the CHP landfill compliance boundary to ensure there is no migration of contaminated groundwater exceeding these standards beyond the boundary.* Inside of the compliance boundary, ICs will be required to prevent contact/ingestion of groundwater that exceeds risk-based standards developed using this guidance.

Table D7: Action-Specific ARARs / TBC, OU-3: Groundwater beneath the CHP Landfill, Institutional Controls & Monitoring					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
	Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration	OSWER Directive 9283.1-33, June 26 2009	To Be Considered	Guidance on developing groundwater remedies at CERCLA sites.	Beyond the CHP landfill compliance boundary groundwater must achieve federal drinking water and risk-based standards or more stringent State groundwater standards.* Inside of the CHP landfill compliance boundary groundwater use restrictions will be in place for as contamination remains in place under the landfill. Groundwater monitoring using these standards will be used to make sure groundwater exceeding these standards does not migrate beyond the compliance boundary. Exceedance of these standards within the compliance boundary is a basis for establishing prohibitions on the use of groundwater within the compliance boundary. An additional buffer zone beyond the compliance boundary to prevent groundwater wells from being installed that would draw contaminated groundwater beyond the compliance boundary may also be established, if required.
	OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air	OSWER Publication 9200.2-154 (June 2015)	To Be Considered	EPA guidance for addressing vapor intrusion issues at CERCLA sites.	Under this alternative ICs will be established requiring either a vapor intrusion evaluation or vapor mitigation system be installed if a new building is constructed over the area of contaminated groundwater until groundwater cleanup standards are achieved.
	Guide to Management of Investigation-Derived Waste	USEPA OSWER 9345.303FS, January 1992	To Be Considered	Investigation-derived wastes (IDW) generated from remedial activities (*e.g.*, drilling muds, purged water, etc.) are required to be properly stored, managed, and disposed. Guidance given in the publication includes waste material containment, collection labeling, *etc.*	Investigation-derived wastes (IDW) generated from remedial activities (*e.g.*, drilling muds, purged water, *etc.* from installing, maintaining and sampling monitoring wells) will be stored, managed, and disposed of based on these guidance standards.
State of New Hampshire	Identification and Listing of Hazardous Wastes	N.H. Admin. Code Env-Hw 400	Applicable	These standards list particular hazardous wastes and identify the maximum concentration of contaminants for which the waste would be a RCRA characteristic waste. The analytical test set out in Appendix II of 40 C.F.R. Part 261 is referred to as the Toxicity Characteristic Leaching Procedure (TCLP). The federal regulations at 40 C.F.R. Part 261 are incorporated by reference.	Wastes generated by remedial activity will be analyzed under these standards to determine whether they are listed or characteristic hazardous waste. Wastes that may be generated include: investigation derived waste from monitoring activities and contaminated media produced during the construction or O&M of the monitoring wells and other components of the remedy. Materials that are listed waste or exceed TCLP hazardous waste thresholds will be disposed off-site in a RCRA Subtitle C facility. Non-hazardous materials will be disposed appropriately.

Table D7: Action-Specific ARARs / TBC, OU-3: Groundwater beneath the CHP Landfill, Institutional Controls & Monitoring					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
	Requirements for Hazardous Waste Generators	Env-Hw 500	Applicable	Requires a determination as to whether waste materials are hazardous (Env-Hw 502) and, if so, requirements for managing environmental and health requirements (Env-Hw 506), for accumulating hazardous wastes on-site (Env-Hw 507) prior to shipment off site, and for emergency actions (Env-Hw 513). The federal regulations at 40 C.F.R. Part 262 are incorporated by reference.	If remedial activity generates hazardous wastes, then they will be managed in accordance with the substantive requirements of these regulations.
	Drinking Water Quality Standards	Env-Dw 700	Relevant and Appropriate for MCLs and non-zero MCLGs only; MCLGs set as zero are To Be Considered	State MCLs and MCLGs establish maximum contaminant levels permitted in public water supplies and are the basis of State Ambient Groundwater Quality Standards (AGQS) that are applicable to site ground water. Numeric values in the regulations, when more stringent than federal standards, used as groundwater monitoring performance standards and exceedances of the standards require the establishment of institutional controls to prevent groundwater use.	State drinking water standards that are more stringent than federal standards will be used to establish performance standards for monitoring groundwater at the CHP landfill compliance boundary to ensure there is no migration of contaminated groundwater exceeding these standards beyond the boundary.* Inside of the compliance boundary, ICs will be required to prevent contact/ingestion of groundwater that exceeds these standards.
	New Hampshire Ambient Groundwater Quality Standards (NH AGQS)	Env-Or 603.03, Table 600-1	Applicable	Establishes maximum concentration levels for regulated contaminants in groundwater which result from human operations or activities. Numeric values in the regulations, when more stringent than federal standards, used as groundwater monitoring performance standards and exceedances of the standards require the establishment of institutional controls to prevent groundwater use.	NH AGQS that are more stringent than federal standards will be used to establish performance standards for monitoring groundwater at the CHP landfill compliance boundary to ensure there is no migration of contaminated groundwater exceeding these standards beyond the boundary.* Inside of the compliance boundary, ICs will be required to prevent contact/ingestion of groundwater that exceeds these standards.
State of New Hampshire	Nondegradation of Groundwater to Protect Surface Water	Env-Or 603.01 (a), (b), and (c)	Applicable	Provides that groundwater shall be suitable for use as drinking water without treatment; shall not contain any regulated contaminant in concentrations greater than ambient groundwater quality standards established in Env- Or 603.03; and shall not contain any regulated contaminant at a concentration such that the natural discharge of that groundwater to surface water will cause a violation of a surface water quality standard established in Env-Wq 1700.	Groundwater monitoring will confirm that Site groundwater contamination in not migrating beyond the compliance boundary and is not impairing surface water quality.*

Table D7: Action-Specific ARARs / TBC, OU-3: Groundwater beneath the CHP Landfill, Institutional Controls & Monitoring					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
	Standards for the Construction, Maintenance and Abandonment of Wells	We 600	Applicable for drinking water wells; Relevant and Appropriate for monitoring wells	This provision requires that wells be constructed, maintained, relocated, and/or abandoned according to these regulations. We 602.05 address restrictions on locating wells in contaminated areas.	Wells used for the remedy will be created, operated, and closed in compliance with these standards. Well restriction standards shall be incorporated into institutional controls to prevent groundwater use inside of the CHP compliance boundary. An additional buffer zone beyond the compliance boundary to prevent groundwater wells from being installed that would draw contaminated groundwater beyond the compliance boundary may also be established, if required.
	Surface Water Quality Standards	Env-Wq 1700	Applicable	Health-based criteria developed for chemical constituents in surface water. They have been developed to protect aquatic life and human health from harmful effects due to exposure to chemically impacted surface water. State standards to be used when more stringent than federal standards for monitoring surface water and sediment during remedial activities and long-term monitoring of the landfill.	Performance standards will be used to monitor the river to determine if groundwater contamination is impairing water quality.*
	Enforcement of Classification	R.S.A. 485-A:12	Applicable	Any discharge to groundwater or surface water that lowers the quality of the water below its classification is prohibited.	Groundwater/surface water monitoring will confirm that Site groundwater contamination is not impairing surface water quality.*
	Contaminated Site Management	Env-Or 600	Applicable	Establishes standards for managing contaminated groundwater (Env-607), monitoring (Env-Or 610) and managing contaminated soil (Env-Or 611).	Regulatory standards for managing contaminated groundwater and soil and Site monitoring will be applied to the implementation of this remedial alternative.*
	Ambient Air Quality Standards	RSA Ch. 125-C, Env- A 300	Applicable	These regulations set primary and secondary ambient air quality standards (equivalent to federal standards). The standards do not allow significant deterioration of existing air quality.	Any remedial actions, including installation/maintenance of monitoring wells, that may exceed ambient air quality measures will take measures to control releases.
State of New Hampshire	Air Pollution Control, Fugitive Dust, N.H. Admin.	RSA Ch. 125-C, Env- A Part 1002	Applicable	Requires precautions to prevent, abate and control fugitive dust during specified activities, including excavation, maintenance, and construction.	Any remedial actions, including installation/maintenance of monitoring wells that may generate contaminated dust will take measures to control releases.
	Air Pollution Control, Regulated Toxic Air Pollutants	RSA Ch. 125-C, Env- A Part 1400	Applicable	Identifies toxic air pollutants discharge standards. These pollutants are also listed by EPA in 40 CFR 261	Any remedial actions, including installation/maintenance of monitoring wells, that may exceed air discharge standards will take measures to control releases.

Table D7: Action-Specific ARARs / TBC, OU-3: Groundwater beneath the CHP Landfill, Institutional Controls & Monitoring					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
	New Hampshire Stormwater Manual Volume 3 Erosion and Sediment Controls During Construction		To Be Considered	This document provides guidance on installation and maintenance of erosion and sediment controls during remedial construction.	Guidance standards for preventing erosion and sediment controls will be implemented during the installation and maintenance of monitoring wells and accessways.

Table D8: Chemical-Specific ARARs / TBC, OU-3: Groundwater beneath the CHP Landfill, Institutional Controls & Monitoring					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Attain ARAR**
Federal	Safe Drinking Water Act, National Primary Drinking Water Regulations, Maximum Contaminant Levels (MCLs)	42 U.S.C. §300f *et seq.*; 40 C.F.R. 141, Subparts B and G	Relevant and Appropriate	Establishes maximum contaminant levels (MCLs) for common organic and inorganic contaminants applicable to public drinking water supplies. Numeric values in the regulations used as cleanup standards for aquifers outside of the compliance boundary for the CHP landfill.	Institutional controls will prevent use of groundwater exceeding these standards. Monitoring will ensure that groundwater contamination exceeding these standards does not migrate beyond the compliance boundary for the CHP landfill.*
	Safe Drinking Water Act, National Primary Drinking Water Regulations, Maximum Contaminant Level Goals (MCLGs)	42 U.S.C. §300f et seq.; 40 C.F.R. 141, Subpart F	Relevant and Appropriate for non-zero MCLGs only; MCLGs set as zero are To Be Considered	Establishes maximum contaminant level goals (MCLGs) for public water supplies. MCLGs are health goals for drinking water sources. These unenforceable health goals are available for a number of organic and inorganic compounds. Numeric values in the regulations used as cleanup standards for aquifers outside of the compliance boundary for the CHP landfill.	Institutional controls will prevent consumption of groundwater exceeding these standards. Monitoring will ensure that groundwater contamination exceeding these standards does not migrate beyond the compliance boundary for the CHP landfill.
	Health Advisories (EPA Office of Drinking Water)		To Be Considered	Health Advisories are estimates of risk due to consumption of contaminated drinking water; they consider non- carcinogenic effects only. To be considered for contaminants in groundwater that may be used for drinking water where the standard is more conservative than either federal or state statutory or regulatory standards. The Health Advisory standard for manganese is 0.3 mg/l. Guidance used to develop risk-based cleanup standards for aquifers outside of the compliance boundary for the CHP landfill.	Institutional controls will prevent consumption of groundwater exceeding standards developed using this guidance. Monitoring will ensure that groundwater contamination exceeding the risk-based standards developed using this guidance do not migrate beyond the compliance boundary for the CHP landfill.

Table D8: Chemical-Specific ARARs / TBC, OU-3: Groundwater beneath the CHP Landfill, Institutional Controls & Monitoring					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Attain ARAR**
	EPA Risk Reference Dose (RfDs)		To Be Considered	Dose levels developed by EPA to protect sensitive individuals over the course of a life-time. RfDs reflect a daily exposure level likely to be without appreciable risk of adverse health effects. Guidance used to develop non-carcinogenic risk-based cleanup standards.	Institutional controls will prevent consumption of groundwater exceeding standards developed using this guidance. Monitoring will ensure that groundwater contamination exceeding the risk-based standards developed using this guidance do not migrate beyond the compliance boundary for the CHP landfill.
	EPA Carcinogenicity Slope Factor		To Be Considered	Slope factors are developed by EPA from Health Effects Assessments and present the most up-to-date information on cancer risk potency. Slope factors are developed by EPA from Health Effects Assessments by the Carcinogenic Assessment Group. Guidance used to develop carcinogenic risk-based cleanup standards	Institutional controls will prevent consumption of groundwater exceeding standards developed using this guidance. Monitoring will ensure that groundwater contamination exceeding the risk-based standards developed using this guidance do not migrate beyond the compliance boundary for the CHP landfill.*
	Guidelines for Carcinogen Risk Assessment	EPA/630/P-03/001F (March 2005)	To Be Considered	Guidance for assessing cancer risk. Guidance used to develop risk-based cleanup standards	Institutional controls will prevent consumption of groundwater exceeding standards developed using this guidance. Monitoring will ensure that groundwater contamination exceeding the risk-based standards developed using this guidance do not migrate beyond the compliance boundary for the CHP landfill.*
Federal	Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPASup/630/R-03/003F (March 2005)	To Be Considered	Guidance for assessing cancer risks to children. Guidance used to develop risk-based cleanup standards for children.	Institutional controls will prevent consumption of groundwater exceeding standards developed using this guidance. Monitoring will ensure that groundwater contamination exceeding the risk-based standards developed using this guidance do not migrate beyond the compliance boundary for the CHP landfill.*
	EPA Carcinogenic Assessment Group Potency Factors		To Be Considered	These factors are used to evaluate an acceptable risk from a carcinogen (*i.e.* dioxin). Guidance used to develop risk-based cleanup standards for dioxin.	Institutional controls will prevent consumption of groundwater exceeding standards developed using this guidance. Monitoring will ensure that groundwater contamination exceeding the risk-based standards developed using this guidance do not migrate beyond the compliance boundary for the CHP landfill.*
State of New Hampshire	Drinking Water Quality Standards	NH Admin. Code Env-DW 700	Relevant and Appropriate for MCLs and non- zero MCLGs only; MCLGs set as zero are To Be Considered	State MCLs and MCLGs establish maximum contaminant levels permitted in public water supplies and are the basis of State Ambient Groundwater Quality Standards (AGQS) that are applicable to site groundwater. The regulations are generally equivalent to the Federal Safe Drinking Water Act (SDWA). Numeric values in the regulations that are more stringent than federal standards used as cleanup standards for aquifers outside of the compliance boundary for the CHP landfill.	Institutional controls will prevent consumption of groundwater exceeding these standards. Monitoring will ensure that groundwater contamination exceeding these standards does not migrate beyond the compliance boundary for the CHP landfill.*

Table D8: Chemical-Specific ARARs / TBC, OU-3: Groundwater beneath the CHP Landfill, Institutional Controls & Monitoring					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Attain ARAR**
	New Hampshire Ambient Groundwater Quality Standards (NH AGQS)	Env-Or 603.03, Table 600-1	Applicable	Establishes maximum concentration levels for regulated contaminants in groundwater which result from human operations or activities. NH AGQS are equivalent to MCLs for contaminants that have MCLs. NH AGQS have been established for site groundwater contaminants for which no MCLs are established, and are derived to be protective for drinking water uses. Numeric values in the regulations that are more stringent than federal standards used as cleanup standards for aquifers outside of the compliance boundary for the CHP landfill.	Institutional controls will prevent consumption of groundwater exceeding these standards. Monitoring will ensure that groundwater contamination exceeding these standards does not migrate beyond the compliance boundary for the CHP landfill.*

Table D9: Location-Specific ARARs / TBC, OU-3: Groundwater beneath the CHP Landfill, Institutional Controls & Monitoring					
Authority	**Law/Regulation/Regulation**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
Federal	Floodplain Management and Protection of Wetlands	44 C.F.R. § 9	Relevant and Appropriate	FEMA regulations that set forth the policy, procedure and responsibilities to implement and enforce Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetlands). Prohibits activities that adversely affect a federally-regulated wetland unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use. Requires the avoidance of impacts associated with the occupancy and modification of federally- designated 100-year and 500- year floodplain and to avoid development within floodplain wherever there is a practicable alternative. An assessment of impacts to 500-year floodplain is required for critical actions – which includes siting contaminated sediment management facilities in a floodplain. Requires public notice when proposing any action in or affecting floodplain or wetlands.	If installation/operation of monitoring wells or access to wells require altering federal jurisdictional wetlands or 500-year floodplain, mitigation measures will be taken, as required. No public comments were received.

Table D9: Location-Specific ARARs / TBC, OU-3: Groundwater beneath the CHP Landfill, Institutional Controls & Monitoring					
Authority	**Law/Regulation/Regulation**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
	Clean Water Act, Section 404; Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material	33 U.S.C. § 1344, 40 C.F.R. Part 230, 231 and 33 C.F.R. Parts 320-323	Applicable	For discharge of dredged or fill material into federal jurisdictional water bodies or wetlands, there must be no practical alternative with less adverse impact on aquatic ecosystem; discharge cannot cause or contribute to violation of state water quality standard or toxic effluent standard or jeopardize federal T&E species; discharge cannot significantly degrade waters of U.S.; must take practicable steps to minimize and mitigate adverse impacts; must evaluate impacts on flood level, flood velocity, and flood storage capacity. Sets standards for restoration and mitigation required as a result of unavoidable impacts to aquatic resources. EPA must determine which alternative is the "Least Environmentally Damaging Practicable Alternative" (LEDPA) to protect wetland and aquatic resources.	If installation/operation of monitoring wells or access to wells require filling federal jurisdictional wetlands, mitigation measures will be taken, as required. No public comments on EPA's LEDPA finding were received.
	Fish and Wildlife Coordination Act	16 U.S.C. §661 *et seq*.	Applicable	Any modification of a body of water or wetland requires consultation with the U.S. Fish and Wildlife Service and the appropriate state wildlife agency to develop measures to prevent, mitigate, or compensate for losses of fish and wildlife.	If installation/operation of monitoring wells or access to wells require modifying any body of water or wetland consultation requirements addressing impacts to fish and wildlife resources will be followed.
Federal	Management of Undesirable Plants on Federal Lands	7 U.S.C. § 2814	Relevant and Appropriate	Regulations call for establishing "integrated management systems" for containing or controlling an undesirable plant species or group of species using all available methods, including: preventive measures; physical or mechanical methods; biological agents; herbicide methods; cultural methods; and general land management practices.	If any wetlands, floodplain or other habitats are altered by the remedial action restoration will include preventing invasive, non-native plant species from becoming established.
	National Historical Preservation Act and Regulations	16 U.S.C. 469 *et seq*.; 36 C.F.R. Part 65	Applicable	When a federal agency finds, or is notified, that its activities may cause irreparable loss or destruction of significant scientific, pre-historical, historical, archeological data, such agency shall consult with relevant federal and State officials to address the preservation of such data or other forms of mitigation, as necessary.	If it is determined that this alternative may cause irreparable loss or destruction of significant scientific, pre-historical, historical, or archaeological data (*i.e.* remaining historic mill structures), EPA will consult with federal and State officials and implement preservation and/or mitigation measures, as necessary.

Table D9: Location-Specific ARARs / TBC, OU-3: Groundwater beneath the CHP Landfill, Institutional Controls & Monitoring					
Authority	**Law/Regulation/Regulation**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
State of New Hampshire	Criteria and Conditions for Fill and Dredge in Wetlands	RSA Ch. 482-A and NH Admin. Code Env-Wt Parts 100-900	Applicable	These standards regulate filling and other activities in or adjacent to wetland resource areas (including the 100-year floodplain), and buffer zones and establish criteria for the protection of wetlands from adverse impacts on fish, wildlife, commerce, and public recreation.	If installation/operation of monitoring wells or access to wells require filling State jurisdictional wetlands or buffer zone, mitigation measures will be taken, as required.
	Shoreland Water Quality Protection	RSA 483-B and NH Admin, Code Env-Wq 1400	Applicable	These standards regulate activities conducted along shorelands to protect, restore and preserve these fragile natural resources.	If installation/operation of monitoring wells or access to wells require work within regulated shoreland areas, mitigation measures will be taken, as required.
	Terrain Alteration	RSA 485-A:17 and NH Admin. Code Env-Wq 1500	Applicable	These rules establish criteria for the protection of surface water quality resulting from activities that occur in or on the border of surface water or within a distance of surface water such that direct or immediate degradation may result to water quality.	If installation/operation of monitoring wells or access to wells require alter terrain regulated under these standards, mitigation measures will be taken to protect water quality, as required.
	Historic Preservation Act	RSA 227-C	Applicable	When activities may cause irreparable loss or destruction of significant scientific, pre-historical, historical, archeological data, the project proponent shall consult with relevant State officials to address the preservation of such data or other forms of mitigation, as necessary.	If it is determined that this alternative may cause irreparable loss or destruction of significant scientific, pre-historical, historical, or archaeological data (i.e. remaining historic mill structures), EPA will consult with State officials and implement preservation and/or mitigation measures, as necessary.
	Native Plant Protection Act	R.S.A. 217-A	Applicable	Prohibits damaging plant species listed as endangered in the State.	If implementation of this alternative may take state- listed species the remedial action will need to meet these standards.
State of New Hampshire	Endangered Species Conservation Act	R.S.A. 212-A	Applicable	Identifies endangered species in NH and requirements for protection of species of wildlife determined to be threatened or endangered, including prohibitions on taking, possessing, and transporting of endangered species.	If implementation of this alternative may take state- listed species the remedial action will need to meet these standards.

Table D10: Action-Specific ARARs / TBC, OU-3: Groundwater beneath the SFSA, In Situ Chemical Oxidation, Monitoring, and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action To Be Taken To Achieve ARAR
Federal	Resource Conservation and Recovery Act (RCRA)	42 U.S.C. §§ 6901, *et seq* ., 40 C.F.R. Parts 261, 262 and 264	Applicable	New Hampshire has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations (Env-Hw 100-1100). These provisions have been adopted by the State.	Any wastes generated by remedial activity will be analyzed by appropriate test methods. If found to be hazardous wastes, then they will be managed in accordance with the substantive requirements of the State hazardous waste regulations. Wastes that may be generated include: investigation derived waste and contaminated media produced during the O&M of the monitoring/treatment wells and other components of the remedy.
	Toxic Substances Control Act (TSCA), PCB Remediation Waste	15 U.S.C. 2601 *et seq*, 40 C.F.R. 761.61(c)	Applicable	This section of the TSCA regulations provides risk-based cleanup and disposal options for PCB remediation waste based on the risks posed by the concentrations at which the PCBs are found. Written approval for the proposed risk-based cleanup must be obtained from the Director, Superfund & Emergency Management Division, EPA Region 1.	Any PCB-contaminated material generated from monitoring/treatment well installation, maintenance, and sampling will be tested and disposed of so as to not pose an unreasonable risk of injury to health or the environment.
	Clean Air Act (CAA), Hazardous Air Pollutants, National Emission Standards for Hazardous Air Pollutants (NESHAPS)	42.U.S.C. § 112(b)(1), 40 C.F.R. Part 61	Applicable	The regulations establish emissions standards for 189 hazardous air pollutants. Standards set for dust and other release sources.	Any remedial actions, including installation/maintenance of treatment/monitoring wells that may generate contaminated dust will take measures to control releases.
	RCRA, Interim Status Treatment, Storage, and Disposal Facility Standards, Chemical, Physical and Biological Treatment	40 C.F.R. Part 265 Subpart Q	Relevant and Appropriate	Standards for operating chemical, physical and biological treatment systems, including the proper handling of reagents, system maintenance, and closure procedures.	The ISCO treatment component to this alternative will be implemented, including the handling/management of treatment reagents, in compliance with these standards.
	Underground Injection Control Program	40 C.F.R. 144, 146, 147 (Subpart EE)	Applicable	Regulations established to assure that underground injection will not endanger drinking water sources.	The ISCO injection component to this alternative will be implemented in compliance with these standards to protect drinking water sources.
	Clean Water Act (CWA), Section 402, Discharge of Pollutants	33 U.S.C. § 1342; 40 C.F.R.122,125, 131, 136, 450	Applicable	These standards address water discharges which may be directed to surface water. Also establishes stormwater standards for construction and development projects that are over one acre.	If a discharge from the remedial action, including construction and O&M of treatment/monitoring wells and accessways, is directed to surface water the discharge will be treated, if necessary, so that these standards will be achieved.
	Clean Water Act, National Recommend Water Quality Criteria (NRWQC)	EPA-822-R-02-047, USEPA, Office of Water, Office of Science and Technology (Nov. 2002	To Be Considered	NRWQC are health-based criteria developed for chemical constituents in surface water. They have been developed to protect aquatic life and human health from harmful effects due to exposure to chemically impacted surface water. Performance standards to be used for monitoring surface water and sediment during remedial activities and long-term monitoring of the landfill.	Guidance used to develop performance standards that may be used to monitor the river to determine if groundwater contamination is impairing water quality.

Table D10: Action-Specific ARARs / TBC, OU-3: Groundwater beneath the SFSA, In Situ Chemical Oxidation, Monitoring, and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action To Be Taken To Achieve ARAR
	OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air	OSWER Publication 9200.2-154 (June 2015)	To Be Considered	EPA guidance for addressing vapor intrusion issues at CERCLA sites.	Under this alternative ICs will be established requiring either a vapor intrusion evaluation or vapor mitigation system be installed if a new building is constructed over the area of contaminated groundwater to remain in effect until groundwater cleanup standards are achieved.
	Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration	OSWER Directive 9283.1-33, June 26 2009	To Be Considered	Guidance on developing groundwater remedies at CERCLA sites.	ISCO will be used to attain beneficial reuse of Site groundwater. Institutional controls will prevent exposure to contaminated groundwater until cleanup standards are achieved. Groundwater monitoring using these standards will be used to determine where ICs are required and to document if cleanup standards are achieved.
	Guide to Management of Investigation-Derived Waste	USEPA OSWER 9345.303FS, January 1992	To Be Considered	Investigation-derived wastes (IDW) generated from remedial activities (*e.g.*, drilling muds, purged water, etc.) are required to be properly stored, managed, and disposed. Guidance given in the publication includes waste material containment, collection labeling, *etc*.	Investigation-derived wastes (IDW) generated from remedial activities (*e.g.*, drilling muds, purged water, *etc*. from installing, maintaining and sampling treatment/monitoring wells) will be stored, managed, and disposed of based on these guidance standards.
State of New Hampshire	Identification and Listing of Hazardous Wastes	N.H. Admin. Code Env-Hw 400	Applicable	These standards list particular hazardous wastes and identify the maximum concentration of contaminants for which the waste would be a listed or characteristic hazardous waste. The analytical test set out in Appendix II of 40 C.F.R. Part 261 is referred to as the Toxicity Characteristic Leaching Procedure (TCLP). The federal regulations at 40 C.F.R. Part 261 are incorporated by reference.	Any wastes generated by remedial activity will be analyzed under these standards to determine whether they are listed or characteristic hazardous waste. Wastes that may be generated include: investigation derived waste from monitoring activities and contaminated media produced during the construction or O&M of the treatment/monitoring wells and other components of the remedy. Materials that are listed waste or exceed TCLP hazardous waste thresholds will be disposed off-site in a RCRA Subtitle C facility. Non-hazardous materials will be disposed appropriately.

Table D10: Action-Specific ARARs / TBC, OU-3: Groundwater beneath the SFSA, In Situ Chemical Oxidation, Monitoring, and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action To Be Taken To Achieve ARAR
State of New Hampshire	Requirements for Hazardous Waste Generators	Env-Hw 500	Applicable	Requires a determination as to whether waste materials are hazardous (Env-Hw 502) and, if so, requirements for managing environmental and health requirements (Env-Hw 506), for accumulating hazardous wastes on-site (Env-Hw 507) prior to shipment off site, and for emergency actions (Env-Hw 513). The federal regulations at 40 C.F.R. Part 262 are incorporated by reference.	If remedial activity generates hazardous wastes, then they will be managed in accordance with the substantive requirements of these regulations.
	Protection of Groundwater	R.S.A. 485-A:13, Env-Wq 402	Applicable	These regulations establish substantive requirements for discharges to groundwater, including prohibited discharges (Env-q 402.07), water quality sampling (Env-Wq 402.8), and compliance criteria (Env-Wq 402.22).	The ISCO injection component to this alternative will be implemented in compliance with these standards to protect drinking water sources.
	Underground Injection Controls	Env-Wq 404	Applicable	State standards established to supplement federal underground injection standards that assure that underground injection will not endanger drinking water sources.	The ISCO injection component to this alternative will be implemented in compliance with these standards to protect drinking water sources.
	Nondegradation of Groundwater to Protect Surface Water	Env-Or 603.01 (a), (b), and (c)	Applicable	Provides that groundwater shall be suitable for use as drinking water without treatment; shall not contain any regulated contaminant in concentrations greater than ambient groundwater quality standards established in Env-Or 603.03; and shall not contain any regulated contaminant at a concentration such that the natural discharge of that groundwater to surface water will cause a violation of a surface water quality standard established in Env-Wq 1700.	Groundwater monitoring will confirm that Site groundwater contamination is not impairing surface water quality.
	Standards for the Construction, Maintenance and Abandonment of Wells	We 600	Applicable for drinking water wells; Relevant and Appropriate for monitoring wells	This provision requires that wells be constructed, maintained, relocated, and/or abandoned according to these regulations. We 602.05 address restrictions on locating wells in contaminated areas.	Wells used for the remedy will be created, operated, and closed in compliance with these standards. Well restriction standards shall be incorporated into institutional controls to prevent groundwater use outside of the CHP compliance boundary until groundwater cleanup standards are achieved.

Table D10: Action-Specific ARARs / TBC, OU-3: Groundwater beneath the SFSA, In Situ Chemical Oxidation, Monitoring, and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action To Be Taken To Achieve ARAR
State of New Hampshire	Surface Water Quality Standards	Env-Wq 1700	Applicable	Health-based criteria developed for chemical constituents in surface water. They have been developed to protect aquatic life and human health from harmful effects due to exposure to chemically impacted surface water. State standards to be used when more stringent than federal standards for monitoring surface water and sediment during remedial activities and long-term monitoring of the River.	Performance standards may be used to monitor the river to determine if groundwater contamination is impairing water quality.
	Enforcement of Classification	R.S.A. 485-A:12	Applicable	Any discharge to groundwater or surface water that lowers the quality of the water below its classification is prohibited.	Groundwater monitoring will confirm that Site groundwater contamination is not impairing surface water quality.
	Contaminated Site Management	Env-Or 600	Applicable	Establishes standards for managing contaminated groundwater (Env-607), monitoring (Env-Or 610) and managing contaminated soil (Env- Or 611).	Regulatory standards for managing contaminated groundwater and soil and Site monitoring will be applied to the implementation of this remedial alternative.
	Ambient Air Quality Standards	RSA Ch. 125-C, Env- A 300	Applicable	These regulations set primary and secondary ambient air quality standards (equivalent to federal standards). The standards do not allow significant deterioration of existing air quality.	Any remedial actions, including installation/maintenance of treatment/monitoring wells, that may exceed ambient air quality measures will take measures to control releases.
	Air Pollution Control, Fugitive Dust, N.H. Admin.	RSA Ch. 125-C, Env- A Part 1002	Applicable	Requires precautions to prevent, abate and control fugitive dust during specified activities, including excavation, maintenance, and construction.	Any remedial actions, including installation/maintenance of treatment/monitoring wells that may generate contaminated dust will take measures to control releases.
	Air Pollution Control, Regulated Toxic Air Pollutants	RSA Ch. 125-C, Env- A Part 1400	Applicable	Identifies toxic air pollutants discharge standards. These pollutants are also listed by EPA in 40 CFR 261	Any remedial actions, including installation/maintenance of treatment/monitoring wells, that may exceed air discharge standards will take measures to control releases.

Table D10: Action-Specific ARARs / TBC, OU-3: Groundwater beneath the SFSA, In Situ Chemical Oxidation, Monitoring, and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action To Be Taken To Achieve ARAR
State of New Hampshire	New Hampshire Stormwater Manual Volume 3 Erosion and Sediment Controls During Construction		To Be Considered	This document provides guidance on installation and maintenance of erosion and sediment controls during remedial construction.	Guidance standards for preventing erosion and sediment controls will be implemented during the installation and maintenance of treatment/monitoring wells and accessways.

Table D11: Chemical-Specific ARARs / TBC, OU-3: Groundwater beneath the SFSA, In Situ Chemical Oxidation, Monitoring, and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action To Be Taken To Attain ARAR
Federal	Safe Drinking Water Act, National Primary Drinking Water Regulations, Maximum Contaminant Levels (MCLs)	42 U.S.C. §300f *et seq.*; 40 C.F.R. 141, Subparts B and G	Relevant and Appropriate	Establishes maximum contaminant levels (MCLs) for common organic and inorganic contaminants applicable to public drinking water supplies. Numeric values in the regulations used as cleanup standards for aquifers outside of the compliance boundary for the CHP landfill.	ISCO will be used to treat contaminated groundwater to achieve these regulatory standards and monitoring will confirm when standards have been attained. Institutional controls will prevent exposure to contaminated groundwater until cleanup standards are achieved.
	Safe Drinking Water Act, National Primary Drinking Water Regulations, Maximum Contaminant Level Goals (MCLGs)	42 U.S.C. §300f et seq.; 40 C.F.R. 141, Subpart F	Relevant and Appropriate for non-zero MCLGs only; MCLGs set as zero are To Be Considered	Establishes maximum contaminant level goals (MCLGs) for public water supplies. MCLGs are health goals for drinking water sources. These unenforceable health goals are available for a number of organic and inorganic compounds. Numeric values in the regulations used as cleanup standards for aquifers outside of the compliance boundary for the CHP landfill.	ISCO will be used to treat contaminated groundwater to achieve these regulatory standards and monitoring will confirm when standards have been attained.Institutional controls will prevent exposure to contaminated groundwater until cleanup standards are achieved.

Table D11: Chemical-Specific ARARs / TBC, OU-3: Groundwater beneath the SFSA, In Situ Chemical Oxidation, Monitoring, and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action To Be Taken To Attain ARAR
	Health Advisories (EPA Office of Drinking Water)		To Be Considered	Health Advisories are estimates of risk due to consumption of contaminated drinking water; they consider non-carcinogenic effects only. To be considered for contaminants in groundwater that may be used for drinking water where the standard is more conservative than either federal or state statutory or regulatory standards. The Health Advisory standard for manganese is 0.3 mg/l. Guidance used to develop risk-based cleanup standards for aquifers outside of the compliance boundary for the CHP landfill.	ISCO will be used to treat contaminated groundwater to achieve risk-based standards calculated using Health Advisories and monitoring will confirm when standards have been attained..Institutional controls will prevent exposure to contaminated groundwater until cleanup standards are achieved.
	EPA Risk Reference Dose (RfDs)		To Be Considered	Dose levels developed by EPA to protect sensitive individuals over the course of a life-time. RfDs reflect a daily exposure level likely to be without appreciable risk of adverse health effects. Guidance used to develop non-carcinogenic risk- based cleanup standards.	ISCO will be used to treat contaminated groundwater to achieve risk-based standards calculated using this guidance and monitoring will confirm when standards have been attained. Institutional controls will prevent exposure to contaminated groundwater until cleanup standards are achieved.
Federal	EPA Carcinogenic Slope Factor		To Be Considered	Slope factors are developed by EPA from Health Effects Assessments and present the most up-to-date information on cancer risk potency. Slope factors are developed by EPA from Health Effects Assessments by the Carcinogenic Assessment Group. Guidance used to develop carcinogenic risk-based cleanup levels	ISCO will be used to treat contaminated groundwater to achieve risk-based standards calculated using this guidance and monitoring will confirm when standards have been attained. Institutional controls will prevent exposure to contaminated groundwater until cleanup standards are achieved.
	Guidelines for Carcinogen Risk Assessment	EPA/630/P-03/001F (March 2005)	To Be Considered	Guidance for assessing cancer risk. Guidance used to develop risk- based cleanup standards	ISCO will be used to treat contaminated groundwater to achieve risk-based standards calculated using this guidance and monitoring will confirm when standards have been attained. Institutional controls will prevent exposure to contaminated groundwater until cleanup standards are achieved.

Table D11: Chemical-Specific ARARs / TBC, OU-3: Groundwater beneath the SFSA, In Situ Chemical Oxidation, Monitoring, and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action To Be Taken To Attain ARAR
	Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA/630/R-03/003F (March 2005)	To Be Considered	Guidance for assessing cancer risks to children. Guidance used to develop risk-based cleanup standards for children.	ISCO will be used to treat contaminated groundwater to achieve risk-based standards calculated using this guidance and monitoring will confirm when standards have been attained. Institutional controls will prevent exposure to contaminated groundwater until cleanup standards are achieved.
	EPA Carcinogenic Assessment Group Potency Factors		To Be Considered	These factors are used to evaluate an acceptable risk from a carcinogen (*i.e.* dioxin). Guidance used to develop risk-based cleanup standards for dioxin.	ISCO will be used to treat contaminated groundwater to achieve risk-based standards calculated using this guidance and monitoring will confirm when standards have been attained. Institutional controls will prevent exposure to contaminated groundwater until cleanup standards are achieved.
State of New Hampshire	Drinking Water Quality Standards	NH Admin. Code Env-DW 700	Relevant and Appropriate for MCLs and non-zero MCLGs only; MCLGs set as zero are To Be Considered	State MCLs and MCLGs establish maximum contaminant levels permitted in public water supplies and are the basis of State Ambient Groundwater Quality Standards (AGQS) that are applicable to site groundwater. The regulations are generally equivalent to the Federal Safe Drinking Water Act (SDWA). Numeric values in the regulations that are more stringent than federal standards used as cleanup standards for aquifers outside of the compliance boundary for the CHP landfill.	ISCO will be used to treat contaminated groundwater to achieve these regulatory standards and monitoring will confirm when standards have been attained. Institutional controls will prevent exposure to contaminated groundwater until cleanup standards are achieved.
State of New Hampshire	New Hampshire Ambient Groundwater Quality Standards (NH AGQS)	Env-Or 603.03, Table 600-1	Applicable	Establishes maximum concentration levels for regulated contaminants in groundwater which result from human operations or activities. NH AGQS are equivalent to MCLs for contaminants that have MCLs. NH AGQS have been established for site groundwater contaminants for which no MCLs are established, and are derived to be protective for drinking water uses. Numeric values in the regulations that are more stringent than federal standards used as cleanup standards for aquifers outside of the compliance boundary for the CHP landfill.	ISCO will be used to treat contaminated groundwater to achieve these regulatory standards and monitoring will confirm when standards have been attained. Institutional controls will prevent exposure to contaminated groundwater until cleanup standards are achieved.

Table D12: Location-Specific ARARs / TBC, OU-3: Groundwater beneath the SFSA, In Situ Chemical Oxidation, Monitoring, and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action To Be Taken To Achieve ARAR
Federal	Floodplain Management and Protection of Wetlands	44 C.F.R. § 9	Relevant and Appropriate	FEMA regulations that set forth the policy, procedure and responsibilities to implement and enforce Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetlands). Prohibits activities that adversely affect a federally-regulated wetland unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use. Requires the avoidance of impacts associated with the occupancy and modification of federally-designated 100-year and 500-year floodplain and to avoid development within floodplain wherever there is a practicable alternative. An assessment of impacts to 500-year floodplain is required for critical actions – which includes siting contaminated sediment management facilities in a floodplain. Requires public notice when proposing any action in or affecting floodplain or wetlands.	If installation/operation of treatment/monitoring wells or access to wells require altering federal jurisdictional wetlands or 500-year floodplain, mitigation measures will be taken, as required. No public comments were received.
	Clean Water Act, Section 404; Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material	33 U.S.C. § 1344, 40 C.F.R. Part 230, 231 and 33 C.F.R. Parts 320- 323	Applicable	For discharge of dredged or fill material into federal jurisdictional water bodies or wetlands, there must be no practical alternative with less adverse impact on aquatic ecosystem; discharge cannot cause or contribute to violation of state water quality standard or toxic effluent standard or jeopardize federal T&E species; discharge cannot significantly degrade waters of U.S.; must take practicable steps to minimize and mitigate adverse impacts; must evaluate impacts on flood level, flood velocity, and flood storage capacity. Sets standards for restoration and mitigation required as a result of unavoidable impacts to aquatic resources. EPA must determine which alternative is the “Least Environmentally Damaging Practicable Alternative” (LEDPA) to protect wetland and aquatic resources.	If installation/operation of treatment/monitoring wells or access to wells require filling federal jurisdictional wetlands, mitigation measures will be taken, as required. No public comments on EPA’s LEDPA finding were received.

Table D12: Location-Specific ARARs / TBC, OU-3: Groundwater beneath the SFSA, In Situ Chemical Oxidation, Monitoring, and Institutional Controls

Authority	Law/Regulation/Guidance	Citation	ARAR/TBC Status	Requirement Synopsis	Action To Be Taken To Achieve ARAR
	Fish and Wildlife Coordination Act	16 U.S.C. §661 *et seq* .	Applicable	Any modification of a body of water or wetland requires consultation with the U.S. Fish and Wildlife Service and the appropriate state wildlife agency to develop measures to prevent, mitigate, or compensate for losses of fish and wildlife.	If installation/operation of treatment/monitoring wells or access to wells require modifying any body of water or wetland consultation requirements addressing impacts to fish and wildlife resources will be followed.
Federal	Management of Undesirable Plants on Federal Lands	7 U.S.C. § 2814	Relevant and Appropriate	Regulations call for establishing "integrated management systems" for containing or controlling an undesirable plant species or group of species using all available methods, including: preventive measures; physical or mechanical methods; biological agents; herbicide methods; cultural methods; and general land management practices.	If any wetlands, floodplain or other habitats are altered by the remedial action restoration will include preventing invasive, non-native plant species from becoming established.
	National Historical Preservation Act and Regulations	16 U.S.C. 469 et seq.; 36 C.F.R. Part 65	Applicable	When a federal agency finds, or is notified, that its activities may cause irreparable loss or destruction of significant scientific, pre-historical, historical, archeological data, such agency shall consult with relevant federal and State officials to address the preservation of such data or other forms of mitigation, as necessary.	If it is determined that this alternative may cause irreparable loss or destruction of significant scientific, pre-historical, historical, or archaeological data (*i.e.* remaining historic mill structures), EPA will consult with federal and State officials and implement preservation and/or mitigation measures, as necessary.
State of New Hampshire	Criteria and Conditions for Fill and Dredge in Wetlands	RSA Ch. 482-A and NH Admin. Code Env-Wt Parts 100-900	Applicable	These standards regulate filling and other activities in or adjacent to wetland resource areas (including the 100-year floodplain), and buffer zones and establish criteria for the protection of wetlands from adverse impacts on fish, wildlife, commerce, and public recreation.	If installation/operation of treatment/monitoring wells or access to wells require filling State jurisdictional wetlands or buffer zone, mitigation measures will be taken, as required.
	Shoreland Water Quality Protection	RSA 483-B and NH Admin, Code Env-Wq 1400	Applicable	These standards regulate activities conducted along shorelands to protect, restore and preserve these fragile natural resources.	If installation/operation of treatment/monitoring wells or access to wells require work within regulated shoreland areas, mitigation measures will be taken, as required.
	Terrain Alteration	RSA 485-A:17 and NH Admin. Code Env-Wq 1500	Applicable	These rules establish criteria for the protection of surface water quality resulting from activities that occur in or on the border of surface water or within a distance of surface water such that direct or immediate degradation may result to water quality.	If installation/operation of treatment/monitoring wells or access to wells require altering terrain regulated under these standards, mitigation measures will be taken to protect water quality, as required.

Table D12: Location-Specific ARARs / TBC, OU-3: Groundwater beneath the SFSA, In Situ Chemical Oxidation, Monitoring, and Institutional Controls					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
	Historic Preservation Act	RSA 227-C	Applicable	When activities may cause irreparable loss or destruction of significant scientific, pre-historical, historical, archeological data, the project proponent shall consult with relevant State officials to address the preservation of such data or other forms of mitigation, as necessary.	If it is determined that this alternative may cause irreparable loss or destruction of significant scientific, pre-historical, historical, or archaeological data (i.e. remaining historic mill structures), EPA will consult with State officials and implement preservation and/or mitigation measures, as necessary.
State of New Hampshire	Native Plant Protection Act	R.S.A. 217-A	Applicable	Prohibits damaging plant species listed as endangered in the State.	If implementation of this alternative may take state-listed species the remedial action will need to meet these standards.
	Endangered Species Conservation Act	R.S.A. 212-A	Applicable	Identifies endangered species in NH and requirements for protection of species of wildlife determined to be threatened or endangered, including prohibitions on taking, possessing, and transporting of endangered species.	If implementation of this alternative may take state-listed species the remedial action will need to meet these standards.

Table D13: Action-Specific ARARs / TBC, OU-3: Liquid Elemental Mercury, Hardened Metal Amalgam, and Mercury-Containing Debris Removal and Monitoring in Reach AR-3					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
Federal	Resource Conservation and Recovery Act (RCRA)	42 U.S.C. §§ 6901, *et seq*., 40 C.F.R. Parts 261, 262 and 264	Applicable	New Hampshire has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations (Env- Hw 100-1100). These provisions have been adopted by the State.	Any wastes generated by remedial activity will be analyzed by appropriate test methods. If found to be hazardous wastes, then they will be managed in accordance with the substantive requirements of the State hazardous waste regulations. Wastes that may be generated include: mercury and mercury-contaminated media removed from the river and investigation derived waste from monitoring activities. Federal regulations at 40 C.F.R. Part 264, including but not limited to Subpart G (closure/post closure) have been incorporated by reference into the State hazardous waste regulations.
	Toxic Substances Control Act (TSCA), PCB Remediation Waste	15 U.S.C. 2601 *et seq*., 40 C.F.R. 761.61(c)	Applicable	This section of the TSCA regulations provides risk-based cleanup and disposal options for PCB remediation waste based on the risks posed by the concentrations at which the PCBs are found. Written approval for the proposed risk-based cleanup must be obtained from the Director, Superfund & Emergency Management Division, EPA Region 1.	Monitoring for PCBs in the river will ensure that the existing CHP landfill engineered cover system continues to meet TSCA protectiveness standards for capping PCBs present within the CHP landfill*.

Table D13: Action-Specific ARARs / TBC, OU-3: Liquid Elemental Mercury, Hardened Metal Amalgam, and Mercury-Containing Debris Removal and Monitoring in Reach AR-3					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
	Clean Water Act (CWA), Section 402, Discharge of Pollutants	33 U.S.C. § 1342; 40 C.F.R.122,125, 131, 136, 450	Applicable	These standards address water discharges which may be directed to surface water. Also establishes stormwater standards for construction and development projects that are over one acre.	Any remedial action, including removal/dewatering of mercury and mercury-contaminated materials, that will result in the discharge of water to surface waters back to the river will meet these discharge standards.
	Clean Water Act, National Recommend Water Quality Criteria (NRWQC)	EPA-822-R-02-047, USEPA, Office of Water, Office of Science and Technology (Nov. 2002	To Be Considered	NRWQC are health-based criteria developed for chemical constituents in surface water. They have been developed to protect aquatic life and human health from harmful effects due to exposure to chemically impacted surface water. Performance standards to be used for monitoring surface water and sediment during remedial activities and long-term monitoring of the landfill.	Guidance used to develop performance standards for water quality/sediment monitoring to be conducted during the removal of contaminated material from the river. Long-term monitoring of surface water/ sediment in the river will confirm there is no contaminant migration beyond the landfill's compliance boundary into the river.*
	Guide to Management of Investigation-Derived Waste	USEPA OSWER 9345.303FS, January 1992	To Be Considered	Investigation-derived wastes (IDW) generated from remedial activities (*e.g.*, drilling muds, purged water, etc.) are required to be properly stored, managed, and disposed. Guidance given in the publication includes waste material containment, collection labeling, *etc*.	Investigation-derived wastes (IDW) generated from remedial activities will be stored, managed, and disposed of based on these guidance standards.
State of New Hampshire	Identification and Listing of Hazardous Wastes	N.H. Admin. Code Env-Hw 400	Applicable	These standards list particular hazardous wastes and identify the maximum concentration of contaminants for which the waste would be a characteristic or listed hazardous waste. The analytical test set out in Appendix II of 40 C.F.R. Part 261 is referred to as the Toxicity Characteristic Leaching Procedure (TCLP). The federal regulations at 40 C.F.R. Part 261 are incorporated by reference.	Any wastes generated by remedial activity will be analyzed under these standards to determine whether they are listed or characteristic hazardous waste. Wastes that may be generated include: mercury and mercury-contaminated media removed from the river and investigation derived waste from monitoring activities. Materials that are listed waste or exceed TCLP hazardous waste thresholds will be disposed off-site in a RCRA Subtitle C facility. Non-hazardous materials will be disposed appropriately.

Table D13: Action-Specific ARARs / TBC, OU-3: Liquid Elemental Mercury, Hardened Metal Amalgam, and Mercury-Containing Debris Removal and Monitoring in Reach AR-3					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
State of New Hampshire	Requirements for Hazardous Waste Generators	Env-Hw 500	Applicable	Requires a determination as to whether waste materials are hazardous (Env- Hw 502) and, if so, requirements for managing environmental and health requirements (Env-Hw 506), for accumulating hazardous wastes on- site (Env-Hw 507) prior to shipment off site, and for emergency actions (Env- Hw 513). The federal regulations at 40 C.F.R. Part 262 are incorporated by reference.	All mercury and mercury-contaminated media that meet hazardous waste standards will be removed from the river and managed in accordance with the substantive requirements of these regulations.
	Requirements for Owners and Operators of Hazardous Waste Facilities	Env-Hw 700	Relevant and Appropriate	Includes: Other Monitoring (Env-Hw 702.11); Emergency/ Remedial Actions (Env-Hw 706); Operation Requirements (Env-Hw 708.2). Closure/post-closure requirements for hazardous waste landfills at Env-Hw 708.02(a) that incorporate federal regulations at 40 C.F.R. 264, Subpart G (closure and post-closure) and 40 C.F.R. 264, Subpart H (financial requirements).	Mercury and mercury-contaminated media will be removed from the river and disposed of off-site. Long-term monitoring of the river will be performed to ensure protectiveness of the CHP landfill engineered cover system.*
	Surface Water Quality Standards	Env-Wq 1700	Applicable	Health-based criteria developed for chemical constituents in surface water. They have been developed to protect aquatic life and human health from harmful effects due to exposure to chemically impacted surface water. State standards to be used when more stringent than federal standards for monitoring surface water and sediment during remedial activities and long- term monitoring of the landfill.	Performance standards for water quality/sediment monitoring to be conducted during the removal of contaminated material from the river. Long-term monitoring of surface water/ sediment in the river will confirm there is no contaminant migration beyond the landfill's compliance boundary into the river.*
	Contaminated Site Management	Env-Or 600	Applicable	Env-Hw 610 establishes standards for long-term site monitoring.	Long-term monitoring of surface water/sediment in the river will confirm there is no contaminant migration beyond the landfill's compliance boundary into the river[17]
	New Hampshire Stormwater Manual Volume 3 Erosion and Sediment Controls During Construction		To Be Considered	This document provides guidance on installation and maintenance of erosion and sediment controls during remedial construction.	Guidance standards for preventing erosion and sediment controls will be implemented during the installation and maintenance of any onshore staging/storage used by the remedial action.

[17] ARARs and TBCs required for long-term monitoring of the river to assess potential future releases from the landfill also identified under the OU1 and OU3 CHP alternatives.

Table D14: Chemical-Specific ARARs / TBC, OU-3: Liquid Elemental Mercury, Hardened Metal Amalgam, and Mercury-Containing Debris Removal and Monitoring in Reach AR-3					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
Federal	EPA Risk Reference Dose (RfDs)		To Be Considered	Dose levels developed by EPA to protect sensitive individuals over the course of a life-time. RfDs reflect a daily exposure level likely to be without appreciable risk of adverse health effects. Guidance used to develop non-carcinogenic risk-based cleanup standards.	Removal of mercury and long-term monitoring of the river* will prevent exposure to mercury in the river and to any contaminants that may be released from the landfill in the future that pose a risk calculated using this guidance.
	EPA Carcinogenicity Slope Factor		To Be Considered	Slope factors are developed by EPA from Health Effects Assessments and present the most up-to-date information on cancer risk potency. Slope factors are developed by EPA from Health Effects Assessments by the Carcinogenic Assessment Group. Guidance used to develop carcinogenic risk based cleanup standards	Removal of mercury and long-term monitoring of the river* will prevent exposure to mercury in the river and to any contaminants that may be released from the landfill in the future that pose a risk calculated using this guidance.
	Guidelines for Carcinogen Risk Assessment	EPA/630/P-03/001F (March 2005)	To Be Considered	Guidance for assessing cancer risk. Guidance used to develop risk-based cleanup standards	Removal of mercury and long-term monitoring of the river* will prevent exposure to mercury in the river and to any contaminants that may be released from the landfill in the future that pose a risk calculated using this guidance.
	Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA/630/R-03/003F (March 2005)	To Be Considered	Guidance for assessing cancer risks to children. Guidance used to develop risk-based cleanup standards for children.	Removal of mercury and long-term monitoring of the river* will prevent exposure to mercury in the river and to any contaminants that may be released from the landfill in the future that pose a risk calculated using this guidance.
	EPA Carcinogenic Assessment Group Potency Factors		To Be Considered	These factors are used to evaluate an acceptable risk from a carcinogen (*i.e.* dioxin). Guidance used to develop risk-based cleanup standards for dioxin.	Removal of mercury and long-term monitoring of the river* will prevent exposure to mercury in the river and any contaminants that may be released from the landfill in the future that pose a risk calculated using this guidance.

Table D14: Chemical-Specific ARARs / TBC, OU-3: Liquid Elemental Mercury, Hardened Metal Amalgam, and Mercury-Containing Debris Removal and Monitoring in Reach AR-3					
Authority	**Law/Regulation/Guidance**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
	Recommended Toxicity Equivalence Factors (TEFs) for Human Health Risk Assessments of 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin and Dioxin-Like Compounds.	EPA/600/R-10/005	To Be Considered	Guidance used to develop site-specific risk-based cleanup standards for dioxin.	Long-term monitoring of the river* will prevent exposure to any dioxin that may be released from the landfill in the future that poses a risk calculated using this guidance.
	Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments – Interim Final	EPA 540-R-97-006	To Be Considered	Guidance used to develop ecological risk-based cleanup standards.	Removal of mercury and long-term monitoring of the river* will prevent ecological receptors from being exposed to mercury in the river and to any contaminants that may be released from the landfill in the future that pose an ecological risk calculated using this guidance.
State of New Hampshire	Contaminated Site Management, Soil Remediation Criteria	Env-Or-606.19, Table 600-2	Applicable	Promulgated numeric soil remediation standards.	Removal of mercury and long-term monitoring of the river* will prevent exposure to mercury in the river and to any contaminants that may be released from the landfill in the future that exceed State remediation standards if more stringent than federal risk-based standards.

Table D15: Location-Specific ARARs / TBC, OU-3: Liquid Elemental Mercury, Hardened Metal Amalgam, and Mercury-Containing Debris Removal and Monitoring in Reach AR-3					
Authority	**Law/Regulation**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
Federal	Floodplain Management and Protection of Wetlands	44 C.F.R. § 9	Relevant and Appropriate	FEMA regulations that set forth the policy, procedure and responsibilities to implement and enforce Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetlands). Prohibits activities that adversely affect a federally-regulated wetland unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use. Requires the avoidance of impacts associated with the occupancy and modification of federally-designated 100-year and 500-year floodplain and to avoid development within floodplain wherever there is a practicable alternative. An assessment of impacts to 500-year floodplain is required for critical actions – which includes siting contaminated sediment management facilities in a floodplain. Requires public notice when proposing any action in or affecting floodplain or wetlands.	If the removal of mercury and contaminated materials (including any staging/storage onshore) requires altering federal jurisdictional wetlands or 500-year floodplain, mitigation measures will be taken, as required. No public comments were received.
	Clean Water Act, Section 404; Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material	33 U.S.C. § 1344, 40 C.F.R. Part 230, 231 and 33 C.F.R. Parts 320- 323	Applicable	For discharge of dredged or fill material into federal jurisdictional water bodies or wetlands, there must be no practical alternative with less adverse impact on aquatic ecosystem; discharge cannot cause or contribute to violation of state water quality standard or toxic effluent standard or jeopardize federal T&E species; discharge cannot significantly degrade waters of U.S.; must take practicable steps to minimize and mitigate adverse impacts; must evaluate impacts on flood level, flood velocity, and flood storage capacity. Sets standards for restoration and mitigation required as a result of unavoidable impacts to aquatic resources. EPA must determine which alternative is the "Least Environmentally Damaging Practicable Alternative" (LEDPA) to protect wetland and aquatic resources.	If the removal of mercury and contaminated materials (including any staging/storage onshore) requires filling federal jurisdictional wetlands, mitigation measures will be taken, as required. No public comments on EPA's LEDPA finding were received.
	Fish and Wildlife Coordination Act	16 U.S.C. §661 *et seq*.	Applicable	Any modification of a body of water or wetland requires consultation with the U.S. Fish and Wildlife Service and the appropriate state wildlife agency to develop measures to prevent, mitigate, or compensate for losses of fish and wildlife.	If the removal of mercury and contaminated materials (including any staging/storage onshore) requires modifying any body of water or wetland consultation requirements addressing impacts to fish and wildlife resources will be followed.

Table D15: Location-Specific ARARs / TBC, OU-3: Liquid Elemental Mercury, Hardened Metal Amalgam, and Mercury-Containing Debris Removal and Monitoring in Reach AR-3					
Authority	**Law/Regulation**	**Citation**	**ARAR/TBC Status**	**Requirement Synopsis**	**Action To Be Taken To Achieve ARAR**
Federal	Management of Undesirable Plants on Federal Lands	7 U.S.C. § 2814	Relevant and Appropriate	Regulations call for establishing "integrated management systems" for containing or controlling an undesirable plant species or group of species using all available methods, including: preventive measures; physical or mechanical methods; biological agents; herbicide methods; cultural methods; and general land management practices.	If any wetlands, floodplain or other habitats are altered by the remedial action restoration will include preventing invasive, non-native plant species from becoming established.
	RCRA Floodplain Restrictions for Hazardous Waste Facilities	40 CFR 264.18(b)	Applicable	A hazardous waste treatment, storage, or disposal facility located in a 100-year floodplain must be designed, constructed, operated, and maintained to prevent washout or to result in no adverse effects on human health or the environment if washout were to occur.	Any staging of facilities that will handle hazardous waste or any storage of hazardous waste collected from the river within the 100-year floodplain must be managed to ensure no release of hazardous waste in the event of up to a 100-year flood event.
	National Historical Preservation Act and Regulations	16 U.S.C. 469 et seq.; 36 C.F.R. Part 65	Applicable	When a federal agency finds, or is notified, that its activities may cause irreparable loss or destruction of significant scientific, pre-historical, historical, archeological data, such agency shall consult with relevant federal and State officials to address the preservation of such data or other forms of mitigation, as necessary.	If it is determined that this alternative may cause irreparable loss or destruction of significant scientific, pre-historical, historical, or archaeological data (*i.e.* remaining historic mill structures), EPA will consult with federal and State officials and implement preservation and/or mitigation measures, as necessary.

END of ARAR / TBC Tables for the Selected Remedy

Appendix E: References

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Appendix F: Acronyms and Abbreviations

ACM	Asbestos-Containing Materials
AR	Administrative Record
ARARs	Applicable or Relevant and Appropriate Requirements
BERA	Baseline Ecological Risk Assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
C.F.R.	Code of Federal Regulations
CHP	Cell House Parcel
CHP Landfill	Cell House Parcel Landfill
COC	Contaminant of Concern
CSM	Conceptual Site Model
CWA	Clean Water Act
EC	Engineering Controls
EFSA	Eastern Facility Study Area
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
G-P	Georgia-Pacific
HDPE	High Density Polyethylene
HHRA	Human Health Risk Assessment
HI	Hazard Index
HRS	Hazard Ranking System
IC	Institutional Control
ILCR	Incremental Lifetime Cancer Risk
ISCO	*In Situ* Chemical Oxidation
LEDPA	Least Environmentally Damaging Practicable Alternative
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NHDES	New Hampshire Department of Environmental Services
NPL	National Priorities List
O&M	Operations and Maintenance
OU	Operable Unit
PA	Preliminary Assessment
PAH	Polyaromatic Hydrocarbons
PA/SI	Preliminary Assessment/Site Inspection
PCB	Polychlorinated biphenyls
PFAS	Perfluorinated alkyl substances
PFOA	Perfluorinated octanic acids
PRP	Potentially Responsible Party
RAO	Remedial Action Objectives

RI	Remedial Investigation conducted by EPA from 2009 to 2014
RI\FS	Remedial Investigation and Feasibility Study
RIR	Remedial Investigation Report of 2014
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act of 1986.
SEMD	Superfund and Emergency Management Division
SFSA	Southern Facility Study Area
SI	Site Inspection
Site	Chlor-Alkali Facility (former) Superfund Site in Berlin, NH.
SRI	Supplemental Remedial Investigation conducted by Georgia-Pacific from 2015 to 2018
SRIR	Supplemental Remedial Investigation Report of 2018.
TBC	To Be Considered
TCE	Trichloroethene
TSCA	Toxic Substances Control Act
TSLERA	Terrestrial Screening Level Ecological Risk Assessment
VOC	Volatile Organic Compound
µg/l	Micrograms per liter or parts per billion

Appendix G: Administrative Record Index

Chlor-Alkali Facility (Former)
NPL Site Administrative Record
Record of Decision (ROD)

Index

ROD signed: September 2020
ROD Released: September 2020

Prepared by
EPA Region 1
Superfund & Emergency Management Division

Introduction to the Collection

This is the administrative record for the Chlor-Alkali Facility (Former) Superfund Site, Berlin, New Hampshire, Record of Decision (ROD), dated September 2020. The file contains site-specific documents and a list of guidance documents used by EPA staff in selecting a response action at the site.

This record replaces the administrative record file for the Chlor-Alkali Facility (Former) Superfund Site, Berlin, New Hampshire, Proposed Plan released in June 2020. Documents listed as cited references in documents cited in this index are also considered part of the administrative record. Some cited references might also be listed separately in the index.

The administrative record file is available for review at:

Online: https://go.usa.gov/xwZTG

Additional information about the site is also available at www.epa.gov/superfund/chloralkali

SEMS Records & Information Center
U.S. EPA Region 1 - New England
5 Post Office Square, Suite 100 (mail code: 02-3)
Boston, MA 02109-3912
(617) 918-1440 (phone)
R1.Records-SEMS@epa.gov (email)

Berlin Public Library
270 Main Street
Berlin, NH 03570
(603) 752-5210 (phone)
(603) 752-8568 (fax)
https://www.berlinnh.gov/library

New Hampshire Department of Environmental Services
29 Hazen Drive
Concord, NH 03302
(603) 271-3503 (phone)
https://www.des.nh.gov/index.htm

An administrative record is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA).

Questions about this administrative record should be directed to the EPA New England site manager, Darryl Luce (617) 918-1336, luce.darryl@epa.gov.

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: (US EPA REGION 1)	RECORD OF DECISION (ROD)	9/23/2020	173	RPT / Report	649279
R01: (US EPA REGION 1)	RESPONSIVENESS SUMMARY	9/23/2020	5	RPT / Report	649280
R01: Wimsatt, Michael (NH DEPT OF ENVIRONMENTAL SERVICES (NHDES))	LETTER REGARDING STATE CONCURRENCE WITH RECORD OF DECISION (ROD)	9/17/2020	5	LTR / Letter	649281
R01: Luce, Darryl (US EPA REGION 1)	EPA APPROVAL OF FEASIBILITY STUDY (FS) REPORT	7/15/2020	1	LTR / Letter	100014278
R01: Montney, Paul A (GEORGIA-PACIFIC)	COMMENTS ON PROPOSED PLAN	7/1/2020	4	LTR / Letter	100014174
R01: (APEX REPORTING)	PUBLIC HEARING TRANSCRIPT	6/10/2020	8	MTG / Meeting Document	100014324
R01: (US EPA REGION 1)	VIDEO OF PUBLIC MEETING AND HEARING	6/10/2020	1	MTG / Meeting Document	647094
R01: Luce, Darryl (US EPA REGION 1)	PUBLIC MEETING AND HEARING PRESENTATION	6/10/2020	21	MTG / Meeting Document	647020
R01: (US EPA REGION 1)	NEWS RELEASE: EPA ANNOUNCES A PROPOSED PLAN TO CLEAN UP THE CHLOR-ALKALI FACILITY SUPERFUND SITE IN BERLIN, NH	6/4/2020	3	PUB / Publication	647017
R01: (BERLIN SUN)	NEWS ARTICLE: EPA WILL HOLD HEARING ON CHLOR ALKALI CLEAN UP PLAN	6/3/2020	4	PUB / Publication	647007
R01: Gonzalez, Ronald (US EPA REGION 1)	MEMO REGARDING PROPOSED PLAN PUBLIC COMMENT PERIOD - VIRTUAL PUBLIC PARTICIPATION MEASURES (EXCERPTS FROM PERTINENT NEW HAMPSHIRE ORDERS ATTACHED)	6/1/2020	24	LTR / Letter	646197
R01: (US EPA REGION 1)	PROPOSED PLAN	6/1/2020	35	RPT / Report	643481
R01: Luce, Darryl (US EPA REGION 1)	MEMO REGARDING ANALYSIS OF GROUNDWATER CONTAMINATION BENEATH THE CELL HOUSE PARCEL	5/20/2020	7	MEMO / Memorandum	100013800

Author	Title	Document Date	Page Count	Resource Type	Document ID
R11: (U.S. EPA)	For Regional Superfund Site Teams: CERCLA Interim Guidance on Public Engagement During COVID-19	4/28/2020	2	LAWS / Laws/Regulations/Guidance	100002469
R11: (Office of General Counsel)	Memorandum on Virtual Public Hearings and Meetings	4/16/2020	2	LAWS / Laws/Regulations/Guidance	100002476
R01: (KENNEDY/JENKS CONSULTANTS)	FINAL FEASIBILITY STUDY (FS) REPORT (TRANSMITTAL LETTER ATTACHED)	4/7/2020	278	RPT / Report	100013366
	DRAFT PROPOSED PLAN WITH CONTRACTOR COMMENTS	2/24/2020	29	WP / Work Plan	100013825
R01: Luce, Darryl (US EPA REGION 1)	LETTER PROVIDING EPA APPROVAL OF FEASIBILITY STUDY (FS) (DRAFT REDLINE STRIKEOUT (RLSO) FS, DRAFT FS, 11/20/2019 AND 01/02/2020 MEMOS AND 5 TABLES ATTACHED)	1/7/2020	208	LTR / Letter	100012870
R01: Hoffman, Andrew (NH DEPT OF ENVIRONMENTAL SERVICES (NHDES))	EMAIL REGARDING PFAS SAMPLING RESULTS (EMAIL HISTORY ATTACHED)	12/23/2019	3	EML / Email	100012823
R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING AGENCY COMMENTS ON SAMPLING PLAN FOR PFAS COMPOUNDS 10/14/2019	11/4/2019	2	LTR / Letter	100012767
R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING AGENCY EVALUATION OF 2019 REACH AR-3 CONCEPTUAL SITE MODEL (CSM) IMPLEMENTATION PLAN	6/26/2019	1	LTR / Letter	100011848
R01: Hoffman, Andrew (NH DEPT OF ENVIRONMENTAL SERVICES (NHDES))	SITE VISIT OBSERVATIONS 08/21/2018	5/10/2019	5	MEMO / Memorandum	100011304
R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING EPA COMMENTS ON AR-3 CSM STUDY CONCEPTUAL SITE MODEL ACTIVITIES	3/21/2019	4	LTR / Letter	100011051
R01: Luce, Darryl (US EPA REGION 1)	LETTER PROVIDING COMMENTS ON THE DRAFT FEASIBILITY STUDY (FS) DATED 11/15/2018	3/7/2019	28	LTR / Letter	100011052

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Luce, Darryl (US EPA REGION 1)	MEMO REGARDING REPORT OF 09/19/2018 SITE VISIT AND INSPECTION OF AR-3 OF THE ANDROSCOGGIN RIVER	2/27/2019	3	MEMO / Memorandum	100010987
R01: Luce, Darryl (US EPA REGION 1)	COMMENTS ON AR-3 CONCEPTUAL SITE MODEL FIELD REPORT	11/15/2018	2	LTR / Letter	100010580
R01: (KENNEDY/JENKS CONSULTANTS)	REACH AR-3 CONCEPTUAL SITE MODEL STUDY - 2018 FIELD REPORT	11/12/2018	45	RPT / Report	100010579
R01: Montney, Paul A (GEORGIA-PACIFIC)	LETTER WITH MONTHLY PROGRESS REPORT	11/7/2018	2	RPT / Report	100010548
R01: (KENNEDY/JENKS CONSULTANTS)	FINAL SUPPLEMENTAL REMEDIAL INVESTIGATION (RI) REPORT (COMMENTS ATTACHED)	10/19/2018	7939	RPT / Report	100010592
R01: Montney, Paul A (GEORGIA-PACIFIC)	LETTER WITH MONTHLY PROGRESS REPORT - SEPTEMBER 2018	10/9/2018	2	LTR / Letter	100010552
R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING APPROVAL OF THE REVISED DRAFT SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT	10/9/2018	1	LTR / Letter	100010434
R01: Montney, Paul A (GEORGIA-PACIFIC)	MONTHLY PROGRESS REPORT - AUGUST 2018	9/7/2018	7	RPT / Report	100010242
R01: Montney, Paul A (GEORGIA-PACIFIC)	LETTER WITH MONTHLY PROGRESS REPORT - JULY 2018	8/9/2018	2	LTR / Letter	100010551
R01: Luce, Darryl (US EPA REGION 1)	EPA APPROVAL OF DRAFT SAMPLING AND ANALYSIS PLAN (SAP) DATED 07/27/2018 FOR THE AR-3 RIVER INVESTIGATION	8/9/2018	1	LTR / Letter	625443
R01: Montney, Paul A (GEORGIA-PACIFIC)	MONTHLY PROGRESS REPORT - JUNE 2018	7/5/2018	2	RPT / Report	100009871
R01: Montney, Paul A (GEORGIA-PACIFIC)	MONTHLY PROGRESS REPORT - MAY 2018	6/5/2018	2	RPT / Report	100009622
R01: Luce, Darryl (US EPA REGION 1)	LETTER APPROVING REACH AR-3 CONCEPTUAL SITE MODEL IMPLEMENTATION PLAN	5/2/2018	1	LTR / Letter	100009153

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING EPA AND NH DEPT OF ENVIRONMENTAL SERVICES (NHDES) APPROVAL OF THE REACH AR-3 CONCEPTUAL SITE MODEL IMPLEMENTATION PLAN DATED 04/26/2018	5/2/2018	1	LTR / Letter	100009383
R01: Montney, Paul A (GEORGIA-PACIFIC)	MONTHLY PROGRESS REPORT	5/2/2018	2	LTR / Letter	100009372
R01: (KENNEDY/JENKS CONSULTANTS)	REACH AR-3 CONCEPTUAL SITE MODEL IMPLEMENTATION PLAN (04/26/2018 LETTER REGARDING RESPONSE TO COMMENTS ATTACHED)	4/26/2018	42	WP / Work Plan	100009152
R01: Montney, Paul A (GEORGIA-PACIFIC)	REACH AR-3 CONCEPTUAL SITE MODEL STUDY IMPLEMENTATION PLAN	4/26/2018	42	RPT / Report	100009382
R01: Luce, Darryl (US EPA REGION 1)	CONFERENCE CALL NOTES, COVERING RECAP OF 03/28/2018 AND 04/10/2018 MEETINGS, COMMENTS ON DRAFT SUPERFUND REDEVELOPMENT INITIATIVE (SRI) REPORT AND DEVELOPMENT AND INITIAL SCREENING OF ALTERNATIVES REPORT (DISAR), AND NEAR-TERM PROJECT SCHEDULE	4/17/2018	3	MTG / Meeting Document	100011990
R01: Montney, Paul A (GEORGIA-PACIFIC)	MONTHLY PROGRESS REPORT	3/5/2018	2	RPT / Report	100002313
R01: Luce, Darryl (US EPA REGION 1)	EPA COMMENTS ON DRAFT SUPPLEMENTAL REMEDIAL INVESTIGATION (RI) REPORT	2/15/2018	14	LTR / Letter	623181
R01: Luce, Darryl (US EPA REGION 1)	EMAIL TRANSMITTAL OF COMBINED EPA AND NH DEPT OF ENVIRONMENTAL SERVICES (NH DES) COMMENTS ON DRAFT SUPPLEMENTAL REMEDIAL INVESTIGATION (RI) REPORT	2/15/2018	1	EML / Email	100002082

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Luce, Darryl (US EPA REGION 1), R01: (KENNEDY/JENKS CONSULTANTS)	EPA COMMENTS ON DRAFT SUPPLEMENTAL REMEDIAL INVESTIGATION (RI) REPORT, 11/30/2017 [HIGHLIGHTED]	2/6/2018	151	RPT / Report	623183
R01: Luce, Darryl (US EPA REGION 1), R01: (KENNEDY/JENKS CONSULTANTS)	EPA COMMENTS ON DRAFT SUPPLEMENTAL REMEDIAL INVESTIGATION (RI) REPORT, 11/30/2017, ATTACHMENTS K-L [MARGINALIA]	2/6/2018	21	RPT / Report	623184
R01: Luce, Darryl (US EPA REGION 1)	EPA COMMENTS TO ACCOMPANY ATTACHMENTS K AND L TO DRAFT SUPPLEMENTAL REMEDIAL INVESTIGATION (RI) REPORT, 11/30/2017	2/6/2018	2	NOTE / Notes	623185
R01: Montney, Paul A (GEORGIA-PACIFIC)	MONTHLY PROGRESS REPORT LETTER	1/5/2018	2	RPT / Report	100001419
R01: Montney, Paul (GEORGIA-PACIFIC CONSUMER PRODUCTS LP)	MONTHLY PROGRESS REPORT - NOVEMBER 2017	12/5/2017	2	LTR / Letter	631279
R01: Montney, Paul (GEORGIA-PACIFIC CONSUMER PRODUCTS LP)	MONTHLY PROGRESS REPORT - OCTOBER 2017	11/3/2017	2	LTR / Letter	100000662
R01: Montney, Paul A (GEORGIA-PACIFIC)	MONTHLY PROGRESS REPORT - SEPTEMBER 2017	10/4/2017	2	RPT / Report	622999
R01: (GEORGIA-PACIFIC)	PUBLIC MEETING PRESENTATION REGARDING PROJECT STATUS UPDATE	9/19/2017	47	MTG / Meeting Document	622908
R01: Massengill, David G (GEORGIA-PACIFIC)	LETTER PROVIDING NOTIFICATION OF PROJECT COORDINATOR CHANGE	9/18/2017	2	LTR / Letter	621178
R01: (US EPA REGION 1)	FACT SHEET	9/1/2017	2	PUB / Publication	606183
R01: (US EPA REGION 1)	FACT SHEET: SITE UPDATE	9/1/2017	2	PUB / Publication	622907
R01: Johnson, Shannon (GEORGIA-PACIFIC CONSUMER PRODUCTS LP)	MONTHLY PROGRESS REPORT FOR AUGUST 2017	9/1/2017	7	RPT / Report	621422
R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING AGENCY EVALUATIONS OF PROPOSED REVISIONS REGARDING DRAFT GROUNDWATER ASSESSMENT AND CONSTITUENT	8/21/2017	8	LTR / Letter	620990

Author	Title	Document Date	Page Count	Resource Type	Document ID
	MIGRATION REPORT AND DRAFT CONCEPTUAL SITE MODEL				
R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING APPROVAL OF PROPOSED REVISIONS TO PROJECT SCHEDULE	8/15/2017	2	LTR / Letter	561366
R01: Johnson, Shannon (GEORGIA-PACIFIC CONSUMER PRODUCTS LP)	MONTHLY PROGRESS REPORT FOR JULY 2017	8/8/2017	2	LTR / Letter	595678
R01: Luce, Darryl (US EPA REGION 1)	COMMENTS ON DRAFT CONCEPTUAL SITE MODEL REPORT, KENNEDY/JENKS 03/31/2017	5/17/2017	6	LTR / Letter	598568
R01: Johnson, Shannon (GEORGIA-PACIFIC CONSUMER PRODUCTS LP)	LETTER REGARDING REQUEST FOR APPROVAL OF A PROPOSED REVISION TO PROJECT SCHEDULE	5/11/2017	2	LTR / Letter	598560
R01: Johnson, Shannon (GEORGIA-PACIFIC CONSUMER PRODUCTS LP)	MONTHLY PROGRESS REPORT - APRIL 2017	5/9/2017	2	RPT / Report	598951
R01: Luce, Darryl (US EPA REGION 1)	COMMENTS ON DRAFT GROUNDWATER ASSESSMENT AND CONSTITUENT MIGRATION REPORT, 02/14/2017	4/26/2017	8	LTR / Letter	597137
R01: Luce, Darryl (US EPA REGION 1)	COMMENTS ON DRAFT GROUNDWATER ASSESSMENT AND CONSTITUENT MIGRATION REPORT	4/26/2017	8	LTR / Letter	598546
R01: (KENNEDY/JENKS CONSULTANTS)	TEST PIT 6 (TP-6) STUDY COMPLETION REPORT (TRANSMITTAL LETTER ATTACHED)	4/24/2017	2059	RPT / Report	598902
R01: Johnson, Shannon (GEORGIA-PACIFIC CONSUMER PRODUCTS LP)	MONTHLY PROGRESS REPORT - MARCH 2017	4/10/2017	2	RPT / Report	597124
R01: (KENNEDY/JENKS CONSULTANTS)	DRAFT CONCEPTUAL SITE MODEL REPORT	3/31/2017	82	RPT / Report	597891

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R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING AGENCY COMMENTS CONCERNING DRAFT SOIL AND DEBRIS CHARACTERIZATION REPORT (CHARTS ATTACHED)	3/28/2017	17	LTR / Letter	597730
R01: Hoffman, Andrew (NH DEPT OF ENVIRONMENTAL SERVICES (NHDES))	LETTER REGARDING WORK SCOPE APPROVAL (WSA) NO. 1 TO PROVIDE SUPPORT/REVIEW SERVICES (SUMMARY OF WORK SCOPE APPROVAL FORM ATTACHED)	3/17/2017	2	LTR / Letter	598327
R01: Johnson, Shannon (GEORGIA-PACIFIC CONSUMER PRODUCTS LP)	MONTHLY PROGRESS REPORT FOR FEBRUARY 2017	3/6/2017	2	RPT / Report	597843
R01: (KENNEDY/JENKS CONSULTANTS)	DRAFT GROUNDWATER ASSESSMENT AND CONSTITUENT MIGRATION REPORT	2/14/2017	4179	RPT / Report	596870
R01: Johnson, Shannon (GEORGIA-PACIFIC CONSUMER PRODUCTS LP)	MONTHLY PROGRESS REPORT FOR JANUARY 2017	2/6/2017	2	RPT / Report	594599
R01: Inglis, Holly (US EPA REGION 1)	LETTER TRANSMITTING BINDER WITH INSTRUCTION ON USING SITE PROFILE PAGES (SPP) TO ACCESS RECORDS VIA INTERNET AND REPOSITORY LETTERS TO FIELD REPOSITORY	1/24/2017	2	LTR / Letter	597433
R01: Hoffman, Andrew J (NH DEPT OF ENVIRONMENTAL SERVICES (NHDES))	SUPPLEMENTAL REMEDIAL INVESTIGATION AND FEASIBILITY STUDY (RI/FS) OVERSIGHT V-96199601-1, 3RD QUARTER 2016 REPORT - 04/01/2016 - 06/30/2016	8/31/2016	2	CORR / Correspondence	591999
R01: Romaine, Kathleen (KENNEDY/JENKS CONSULTANTS)	TEST PIT-6 (TP-6) STUDY BENCH-SCALE TREATABILITY STUDY AND OPTIONS ANALYSIS TECHNICAL MEMORANDUM	8/23/2016	144	MEMO / Memorandum	591998
R01: Johnson, Shannon (GEORGIA-PACIFIC CONSUMER PRODUCTS LP)	MONTHLY PROGRESS REPORT FOR JULY 2016	8/9/2016	2	RPT / Report	590968
R01: (KENNEDY/JENKS CONSULTANTS)	Supplemental Remedial Investigation/Feasibility Study (RI/FS) Work Plan Addendum	8/5/2016	451	WP / Work Plan	590967

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R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING APPROVAL OF DRAFT TP-6 STUDY BENCH-SCALE TREATABILITY STUDY AND OPTIONS ANALYSIS TECHNICAL MEMORANDUM AND REQUEST FOR DETERMINATION OF FACILITY ACCEPTABILITY	8/3/2016	1	CORR / Correspondence	591697
R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING APPROVAL OF 07/07/2016 DRAFT SUPPLEMENTAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) WORK PLAN ADDENDUM	7/19/2016	2	CORR / Correspondence	591691
R01: (BOSCARDIN CONSULTIING ENGINEERS INC)	FOUNDATION/RETAINING WALL STABILITY AND SUITABILITY ASSESSMENT REPORT (08/23/2016 TRANSMITTAL LETTER ATTACHED)	6/17/2016	147	RPT / Report	591343
R01: Luce, Darryl (US EPA REGION 1)	EPA APPROVAL OF 05/25/2016 GROUNDWATER RECOMMENDATIONS REPORT AND 05/26/2016 SUPPLEMENTAL REMEDIAL INVESTIGATIONS (SRI) WORK PLAN	6/2/2016	1	CORR / Correspondence	587760
R01: (KENNEDY/JENKS CONSULTANTS)	FINAL SUPPLEMENTAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) WORK PLAN	5/26/2016	646	WP / Work Plan	588554
R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING DRAFT 2016 WORK PLAN	5/24/2016	1	CORR / Correspondence	591621
R01: (KENNEDY/JENKS CONSULTANTS)	MONITORING WELL ASSESSMENT REPORT	12/18/2015	90	RPT / Report	584078
R01: Romaine, Kathleen (KENNEDY/JENKS CONSULTANTS)	WORK PLAN FOR T-P STUDY BENCH-SCALE TREATABILITY	12/14/2015	44	WP / Work Plan	581359
R01: Luce, Darryl (US EPA REGION 1)	COMMENTS ON DRAFT MONITORING WELL ASSESSMENT	12/9/2015	1	LTR / Letter	581358
R01: Luce, Darryl (US EPA REGION 1)	COMMENTS ON DRAFT MONITORING WELL ASSESSMENT REPORT	12/9/2015	1	CORR / Correspondence	591620

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Massengill, David G (GEORGIA-PACIFIC)	LETTER REGARDING NOTIFICATION OF PROJECT COORDINATOR CHANGE	12/1/2015	2	LTR / Letter	581355
R01: Luce, Darryl (US EPA REGION 1)	COMMENTS ON REVISED TP-06 BENCH SCALE TREATABILITY STUDY PLAN	11/23/2015	2	LTR / Letter	581356
R01: (YORK LAND SERVICES LLC)	BASEMAP	11/6/2015	2	FIG / Figure/Map/ Drawing	100011985
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	11/3/2015	6	PUB / Publication	600440
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	10/30/2015	6	PUB / Publication	600470
R01: (KENNEDY/JENKS CONSULTANTS)	ADDENDUM 1, SAMPLING AND ANALYSIS PLAN (SAP) FOR 2015 SUPPLEMENTAL REMEDIAL INVESTIGATION (SRI) ACTIVITIES (TRANSMITTAL LETTER ATTACHED)	10/28/2015	97	WP / Work Plan	584046
R01: Romaine, Kathleen (KENNEDY/JENKS CONSULTANTS)	FINAL TEST PIT 6 (TP-6) STUDY MATERIALS MANAGEMENT PLAN	10/27/2015	21	CORR / Correspondence	588553
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	10/21/2015	6	PUB / Publication	600441
	PHOTOGRAPHS OF SITE EXCAVATION FROM 08/27/2015-08/31/2015	8/31/2015	72	PHT / Photograph	581674
R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING APPROVAL OF SUPPLEMENTAL REMEDIAL INVESTIGATION (RI) WORK PLAN	8/11/2015	1	LTR / Letter	572830
R01: (KENNEDY/JENKS CONSULTANTS)	COMMUNITY INVOLVEMENT PLAN	7/31/2015	19	WP / Work Plan	581215
R01: (KENNEDY/JENKS CONSULTANTS)	SUPPLEMENTAL REMEDIAL INVESTIGATION (RI) WORK PLAN	7/31/2015	717	WP / Work Plan	581214
R01: Hoffman, Andrew (NH DEPT OF ENVIRONMENTAL SERVICES (NHDES))	LETTER REGARDING SUPPLEMENTAL REMEDIAL INVESTIGATION (RI) AND FEASIBILITY STUDY (FS) OVERSIGHT, THIRD QUARTER 2015 REPORT (04/01/2015 - 06/30/2015)	7/30/2015	2	LTR / Letter	581213

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Luce, Darryl (US EPA REGION 1)	COMMENTS ON DRAFT COMMUNITY INVOLVEMENT PLAN	7/28/2015	2	LTR / Letter	578392
R01: Luce, Darryl (US EPA REGION 1)	COMMENTS ON REVISED DRAFT SUPPLEMENTAL REMEDIAL INVESTIGATION (RI) WORK PLAN	7/24/2015	2	LTR / Letter	578393
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	7/14/2015	6	PUB / Publication	600442
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	7/10/2015	6	PUB / Publication	600443
R01: Montney, Paul A (GEORGIA-PACIFIC)	MONTHLY PROGRESS REPORT	7/8/2015	2	RPT / Report	576487
R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING APPROVAL OF REVISED DRAFT SITE PREPARATION WORK PLAN	5/21/2015	1	LTR / Letter	576478
R01: (KENNEDY/JENKS CONSULTANTS)	SITE PREPARATION WORK PLAN	5/21/2015	18	WP / Work Plan	576596
R01: Massengill, David G (GEORGIA-PACIFIC)	LETTER REGARDING NOTIFICATION OF A DESIGNATED PROJECT COORDINATOR FOR THE RESPONDENTS	5/20/2015	2	LTR / Letter	576479
R01: Montney, Paul (INTERNATIONAL PAPER CO)	LETTER REGARDING NOTIFICATION OF CONTRACTORS SELECTED BY GEORGIA-PACIFIC CONSUMER PRODUCTS LP (JANUARY 2012 QUALITY MANAGEMENT MANUAL ATTACHED)	5/20/2015	58	LTR / Letter	576480
R01: Barmakian, Nancy (US EPA REGION 1)	LETTER DESIGNATING RESPONDENTS AS AUTHORIZED REPRESENTATIVES	5/5/2015	2	LTR / Letter	574597
R11: Mccarthy, Gina (NONE), R11: (US ENVIRONMENTAL PROTECTION AGENCY)	Guidance on Considering Environmental Justice During the Development of Regulatory Actions	5/1/2015	56	LAWS / Laws/Regulations/Guidance	199543
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	4/30/2015	6	PUB / Publication	600444
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	4/23/2015	6	PUB / Publication	600445

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Barmakian, Nancy (US EPA REGION 1)	ADMINISTRATIVE SETTLEMENT AGREEMENT (ASA) AND ORDER ON CONSENT (AOC) FOR SUPPLEMENTAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) - US EPA REGION 1 CERCLA DOCKET NO. 01-2015-0043	4/16/2015	71	LGL / Legal Instrument	574617
R01: Southworth, George R (OAK RIDGE NATIONAL LABORATORY), R01: Watson, David (OAK RIDGE NATIONAL LABORATORY), R01: Lester, Brian (OAK RIDGE NATIONAL LABORATORY), R01: Lowe, Kenneth (OAK RIDGE NATIONAL LABORATORY), R01: Bogle, Mary, Anna (OAK RIDGE NATIONAL LABORATORY), R01: Miller, Carrie (OAK RIDGE NATIONAL LABORATORY), R01: Liang, Liyuan (OAK RIDGE NATIONAL LABORATORY), R01: Pierce, Eric (OAK RIDGE NATIONAL LABORATORY)	MERCURY SOURCE ZONE IDENTIFICATION USING SOIL VAPOR SAMPLING AND ANALYSIS, FRONTIERS IN ENVIRONMENTAL SCIENCE AND ENGINEERING	4/2/2015	9	PUB / Publication	100011988
R01: Chen, Celia Y (DARTMOUTH COLLEGE), R01: Chalmers, Ann, T (US GEOLOGICAL SURVEY), R01: Taylor, Vivien, F (DARTMOUTH COLLEGE), R01: Marvin-dipasquale, Mark, C (US GEOLOGICAL SURVEY), R01: Agee, Jennifer, L (US GEOLOGICAL SURVEY), R01: Buckman, Kate, L (DARTMOUTH COLLEGE), R01: Broadley, Hannah, J (DARTMOUTH COLLEGE), R01: Jackson, Brian, P (DARTMOUTH COLLEGE)	INFLUENCE OF A CHLOR-ALKALI SUPERFUND SITE ON MERCURY BIOACCUMULATION IN PERIPHYTON AND LOW-TROPHIC LEVEL FAUNA, ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY	3/2/2015	10	PUB / Publication	100011989
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	2/6/2015	6	PUB / Publication	600446

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING NOTIFICATION OF PLANNED NEGOTIATIONS WITH POTENTIALLY RESPONSIBLE PARTIES (PRP)	11/25/2014	1	LTR / Letter	567636
R01: Owens, James T (US EPA REGION 1)	LETTER REGARDING NOTIFICATION OF PLANNED NEGOTIATIONS WITH POTENTIALLY RESPONSIBLE PARTIES (PRP)	11/25/2014	1	LTR / Letter	567637
R01: Luce, Darryl (US EPA REGION 1)	LETTER REGARDING NOTIFICATION OF PLANNED NEGOTIATIONS WITH POTENTIALLY RESPONSIBLE PARTIES (PRP)	11/25/2014	1	LTR / Letter	567638
R01: (US EPA REGION 1)	NEWS RELEASE: UPDATED INFORMATION ON CHLOR-ALKALI SUPERFUND SITE IN BERLIN, NH, PUBLIC COMMUNITY MEETING WILL BE THURSDAY 05/29/2014	5/22/2014	2	PUB / Publication	557099
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	3/25/2014	5	PUB / Publication	600447
R01: (NOBIS ENGINEERING INC)	REMEDIAL INVESTIGATION (RI) VOLUME 3A OF 3: BASELINE ECOLOGICAL RISK ASSESSMENT (BERA) - RIVER STUDY AREA	3/1/2014	1314	RPT / Report	541620
R01: (NOBIS ENGINEERING INC)	REMEDIAL INVESTIGATION (RI) VOLUME 1 OF 3	3/1/2014	3060	RPT / Report	550298
R01: Xu, Jingying (LULEA UNIVERSITY OF TECHNOLOGY), R01: Biester, Harald (UNIVERSITY OF BRAUNSCHWEIG), R01: Lagerkvist, Anders (LULEA UNIVERSITY OF TECHNOLOGY), R01: Kupiene, Jurate (LULEA UNIVERSITY OF TECHNOLOGY), R01: Kleja, Dan, B (SWEDISH GEOTECHNICAL INSTITUTE)	INFLUENCE OF PARTICLE SIZE DISTRIBUTION, ORGANIC CARBON, PH AND CHLORIDES ON WASHING OF MERCURY CONTAMINATED SOIL, CHEMOSPHERE	2/28/2014	7	PUB / Publication	100011987
R01: (NOBIS ENGINEERING INC)	REMEDIAL INVESTIGATION (RI) VOLUME 3B OF 3: SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT (SLERA) - TERRESTRIAL	2/1/2014	483	RPT / Report	541621
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	1/29/2014	5	PUB / Publication	600448

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: (NOBIS ENGINEERING INC)	REMEDIAL INVESTIGATION (RI) VOLUME 2 OF 3: HUMAN HEALTH RISK ASSESSMENT (HHRA) REVISION 2	1/1/2014	801	RPT / Report	550299
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	9/27/2013	5	PUB / Publication	600449
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	7/24/2013	5	PUB / Publication	600450
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	2/7/2013	5	PUB / Publication	600451
R01: Burack, Thomas S (NH DEPT OF ENVIRONMENTAL SERVICES (NHDES))	LETTER REGARDING GROUNDWATER USE AND VALUE DETERMINATION (FIGURE AND TABLES ATTACHED)	1/22/2013	9	LTR / Letter	551662
R01: Luce, Darryl (US EPA REGION 1), R01: Coles, James (US GEOLOGICAL SURVEY), R01: Degnan, James R (US GEOLOGICAL SURVEY), R01: Chalmers, Ann, T (US GEOLOGICAL SURVEY), R01: Marvin-dipasquale, Mark, C (US GEOLOGICAL SURVEY), R01: Agee, Jennifer, L (US GEOLOGICAL SURVEY)	CHARACTERIZATION OF MERCURY CONTAMINATION IN THE ANDROSCOGGIN RIVER	1/1/2013	68	PUB / Publication	100011986
R01: Chu, Liyang (NOBIS ENGINEERING)	EMAIL FORWARDING THE ASSESSMENT OF GROUNDWATER RESULTS (EMAIL HISTORY ATTACHED)	11/30/2012	4	EML / Email	70007046
R01: Luce, Darryl (US EPA REGION 1)	EMAIL CONCERNING SITE DEFINITION (EMAIL HISTORY ATTACHED)	10/24/2012	2	EML / Email	70005173
R01: Peary, Robert (TECHLAW INC)	DATA VALDIATION REPORT FOR CASE NO. 41380, SDG NO. C0668 (03/13/2012 DATA VALIDATION COMPLETE FORM ATTACHED)	3/14/2012	1159	ADD / Analytical Data Document	507574
R01: Peary, Robert (TECHLAW INC)	DATA VALDIATION REPORT FOR CASE NO. 41380, SDG NO. F0668 (03/12/2012 DATA VALIDATION COMPLETE FORM ATTACHED)	3/12/2012	745	ADD / Analytical Data Document	507573

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Yang, Yunru (WESTON SOLUTIONS INC), R01: Quigley, Diane (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 3 ORGANIC DATA VALIDATION REPORT FOR CASE #41770, SDG #A4600 AND A4612	2/1/2012	106	ADD / Analytical Data Document	505554
R01: Downey, Leslie (TECHLAW INC), R01: Macri, Louis (TECHLAW INC)	STAGE 4 ELECTRONIC AND MANUAL DATA VALIDATION REPORT FOT CASE #41389, SDG #C0651 (01/23/2012 TRANSMITTAL MEMO ATTACHED)	1/20/2012	1527	ADD / Analytical Data Document	505242
R01: (TECHLAW INC)	CRAYFISH, WHITE SUCKER AND SMALLMOUTH BASS TISSUE PROCESSING AND DMA-80 MILESTONE MERCURY ANALYSIS (TRANSMITTAL LETTER ATTACHED)	1/20/2012	9	ADD / Analytical Data Document	536098
R01: Zapisek, Izabela (WESTON SOLUTIONS INC), R01: Quigley, Diane (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 3 INORGANIC DATA VALIDATION REPORT FOR CASE #41770, SDG #A4600 AND A4612	1/16/2012	75	ADD / Analytical Data Document	505555
R01: Macri, Louis (TECHLAW INC), R01: Peary, Robert (TECHLAW INC)	STAGE 4 ELECTRONIC AND MANUAL DATA VALIDATION REPORT FOR CASE #41380, SDG #F0651	1/10/2012	933	ADD / Analytical Data Document	501686
R01: Downey, Leslie (TECHLAW INC), R01: Macri, Louis (TECHLAW INC)	DATA VALIDATION REPORT FOR CASE NO. 41380, SDG NO. F0648 (10/26/2011 DATA VALIDATION COMPLETE FORM ATTACHED)	10/27/2011	403	ADD / Analytical Data Document	497619
R01: Insley, Erin (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE NO. 41488, SDG NO. A45F1	10/24/2011	90	ADD / Analytical Data Document	497689
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Cox, Lori (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE NO. 41448, SDG NO. MA45W3	10/13/2011	44	ADD / Analytical Data Document	497637

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Cox, Lori (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE NO. 41448, SDG NO. MA45A9	10/13/2011	64	ADD / Analytical Data Document	497640
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Cox, Lori (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE NO. 41448, SDG NO. MA45A1	10/12/2011	51	ADD / Analytical Data Document	497634
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Cox, Lori (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE NO. 41448, SDG NO. MA45Z5	10/12/2011	38	ADD / Analytical Data Document	497635
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Cox, Lori (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE NO. 41448, SDG NO. MA45D3	10/12/2011	41	ADD / Analytical Data Document	497638
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Cox, Lori (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE NO. 41448, SDG NO. MA45B2	10/12/2011	47	ADD / Analytical Data Document	497639
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Cox, Lori (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE NO. 41448, SDG NO. MA45A2	10/12/2011	63	ADD / Analytical Data Document	497642
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Cox, Lori (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE NO. 41448, SDG NO. MA45W9	10/11/2011	42	ADD / Analytical Data Document	497636
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Cox, Lori (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE NO. 41448, SDG NO. MA45A8	10/11/2011	54	ADD / Analytical Data Document	497641
R01: Downey, Leslie (TECHLAW INC), R01: Macri, Louis (TECHLAW INC)	DATA VALIDATION REPORT FOR CASE #41380, SDG #C0616 (10/06/2011 TRANSMITTAL MEMO ATTACHED)	10/6/2011	1191	ADD / Analytical Data Document	496247
R01: Peary, Robert (TECHLAW INC)	DATA VALIDATION REPORT FOR CASE #41380, SDG #C0610 (10/04/2011 TRANSMITTAL MEMO ATTACHED)	10/3/2011	1409	ADD / Analytical Data Document	496223

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R01: Insley, Erin (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE NO. 41448, SDG NO. A45D9	9/26/2011	97	ADD / Analytical Data Document	497632
R01: Downey, Leslie (TECHLAW INC), R01: Macri, Louis (TECHLAW INC)	DATA VALIDATION REPORT FOR CASE #41380, SDG # F0616 (09/20/2011 TRANSMITTAL MEMO TO REMEDIAL PROJECT MANAGER ATTACHED)	9/20/2011	940	ADD / Analytical Data Document	495040
R01: Macri, Louis (TECHLAW INC), R01: Peary, Robert (TECHLAW INC)	DATA VALIDATION REPORT FOR CASE #41380, SDG # F0610 (09/20/2011 TRANSMITTAL MEMO TO REMEDIAL PROJECT MANAGER ATTACHED)	9/20/2011	1105	ADD / Analytical Data Document	495041
R01: Insley, Erin (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE NO. 41448, SDG NO. A45B1	9/16/2011	79	ADD / Analytical Data Document	497633
R01: Insley, Erin (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE NO. 41448, SDG #A45B8	9/1/2011	37	ADD / Analytical Data Document	492787
R01: Insley, Erin (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE NO. 41448, SDG #A45A9	9/1/2011	53	ADD / Analytical Data Document	492788
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Cox, Lori (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE #41448, SDG #A45B9	7/29/2011	53	ADD / Analytical Data Document	492711
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Cox, Lori (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE #41448, SDG #A45D3	7/29/2011	48	ADD / Analytical Data Document	492712
R01: (NOBIS ENGINEERING INC)	QUALITY ASSURANCE PROJECT PLAN (QAPP)	7/27/2011	1481	WP / Work Plan	100013826
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	5/31/2011	5	PUB / Publication	600452

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Czerepak, Erica (TECHLAW INC)	SAMPLE PROCESSING AND ANALYSIS OF MARSH BIRD FEATHERS AND INFAUNA WORMS COLLECTED DURING THE 2010 FIELD SEASON	3/31/2011	7	ADD / Analytical Data Document	536096
R01: Macri, Louis (TECHLAW INC), R01: Peary, Robert (TECHLAW INC)	STAGE 2A MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #C0590 (03/16/2011 TRANSMITTAL MEMO ATTACHED)	3/16/2011	1996	ADD / Analytical Data Document	481437
R01: Downey, Leslie (TECHLAW INC), R01: Macri, Louis (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	STAGE 2A MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #C0544 (03/11/2011 TRANSMITTAL MEMO ATTACHED)	3/11/2011	819	ADD / Analytical Data Document	481430
R01: Macri, Louis (TECHLAW INC), R01: Dimattei, Paula L (TECHLAW INC), R01: Peary, Robert (TECHLAW INC)	STAGE 2A MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #F0519 (03/011/2011 TRANSMITTAL MEMO ATTACHED)	3/9/2011	1188	ADD / Analytical Data Document	481429
R01: Downey, Leslie (TECHLAW INC), R01: Macri, Louis (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	STAGE 2A ELECTRONIC AND MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #C0519 (03/11/2011 TRANSMITTAL MEMO ATTACHED)	3/9/2011	1648	ADD / Analytical Data Document	481433
R01: Macri, Louis (TECHLAW INC), R01: Peary, Robert (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	STAGE 2A ELECTRONIC AND MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #C0518 (03/08/2011 TRANSMITTAL MEMO ATTACHED)	3/8/2011	1810	ADD / Analytical Data Document	481428
R01: Macri, Louis (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	STAGE 2A MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #F0544 (03/08/2011 TRANSMITTAL MEMO ATTACHED)	3/7/2011	618	ADD / Analytical Data Document	481427
R01: Chen, Jim (METCALF & EDDY), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Peary, Robert (LOCKHEED ENVIRONMENTAL)	STAGE 2A ELECTRONIC AND MANUAL DATA VALIDATION FOR CASE #40445, SDG #F0419 (03/02/2011 TRANSMITTAL MEMO ATTACHED)	3/2/2011	1593	ADD / Analytical Data Document	481424

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Macri, Louis (TECHLAW INC), R01: Peary, Robert (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	STAGE 2A MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #C0590 (03/04/2011 TRANSMITTAL MEMO ATTACHED)	3/2/2011	1198	ADD / Analytical Data Document	481431
R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Peary, Robert (LOCKHEED ENVIRONMENTAL), R01: Tobin, Steffanie (LOCKHEED ENVIRONMENTAL)	STAGE 2A ELECTRONIC AND MANUAL DATA VALIDATION FOR CASE #40445, SDG #F0436 (03/02/2011 TRANSMITTAL MEMO ATTACHED)	2/28/2011	1561	ADD / Analytical Data Document	481402
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Zapisek, Izabela (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG #MA41D9	2/23/2011	64	ADD / Analytical Data Document	481496
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Zapisek, Izabela (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG #MA41E5	2/23/2011	52	ADD / Analytical Data Document	481497
R01: Tobin, Steffanie (TECHLAW INC), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Peary, Robert (LOCKHEED ENVIRONMENTAL)	STAGE 2A ELECTRONIC AND MANUAL DATA VALIDATION FOR CASE #40445, SDG #F0400 (02/17/2011 TRANSMITTAL MEMO ATTACHED)	2/17/2011	2447	ADD / Analytical Data Document	481425
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG #A41E5	2/17/2011	88	ADD / Analytical Data Document	481498
R01: Chen, Jim (METCALF & EDDY), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Peary, Robert (LOCKHEED ENVIRONMENTAL)	STAGE 2A ELECTRONIC AND MANUAL DATA VALIDATION FOR CASE #40445, SDG #F0400 (02/16/2011 TRANSMITTAL MEMO ATTACHED)	2/16/2011	1622	ADD / Analytical Data Document	481403
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Yang, Yunru (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 3 ORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG #A41E3	2/8/2011	86	ADD / Analytical Data Document	479593

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R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Yang, Yunru (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG #MA41E1	2/8/2011	42	ADD / Analytical Data Document	479595
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Yang, Yunru (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG #MA41E3	2/8/2011	36	ADD / Analytical Data Document	479598
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG #MA41E6	2/8/2011	47	ADD / Analytical Data Document	481401
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Yang, Yunru (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG #A41J0	2/7/2011	97	ADD / Analytical Data Document	479594
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG #MA41J1	2/4/2011	52	ADD / Analytical Data Document	481400
R01: Chen, Jim (METCALF & EDDY), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Dimattei, Paula L (LOCKHEED ENVIRONMENTAL)	DATA VALIDATION FOR CASE NO. 40445, SDG NO. C0529	2/3/2011	1817	ADD / Analytical Data Document	478734
R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Baca, Marie E (LOCKHEED ENVIRONMENTAL), R01: Peary, Robert (LOCKHEED ENVIRONMENTAL)	DATA VALIDATION FOR CASE NO. 40445, SDG NO. F0529	2/3/2011	1270	ADD / Analytical Data Document	478735
R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Tobin, Steffanie (LOCKHEED ENVIRONMENTAL)	DATA VALIDATION FOR CASE NO. 40445, SDG NO. F0493	2/3/2011	514	ADD / Analytical Data Document	478736

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R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Peary, Robert (LOCKHEED ENVIRONMENTAL), R01: Chen, Jim (TECHLAW, INC)	STAGE 2A MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #C0419	2/3/2011	2508	ADD / Analytical Data Document	479558
R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Tobin, Steffanie (LOCKHEED ENVIRONMENTAL)	DATA VALIDATION FOR CASE NO. 40445, SDG NO. C0494	2/1/2011	526	ADD / Analytical Data Document	478731
R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Peary, Robert (LOCKHEED ENVIRONMENTAL), R01: Tobin, Steffanie (LOCKHEED ENVIRONMENTAL)	DATA VALIDATION FOR CASE NO. 40445, SDG NO. C0474	2/1/2011	620	ADD / Analytical Data Document	478732
R01: Chen, Jim (METCALF & EDDY), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL)	DATA VALIDATION FOR CASE NO. 40445, SDG NO. F0508	1/31/2011	482	ADD / Analytical Data Document	478733
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG #MA41E0	1/31/2011	48	ADD / Analytical Data Document	479596
R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Chen, Jim (TECHLAW, INC)	STAGE 2A ELECTRONIC AND MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #C0508 (02/01/2011 TRANSMITTAL MEMO ATTACHED)	1/28/2011	995	ADD / Analytical Data Document	479560
R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Chen, Jim (TECHLAW, INC)	STAGE 2A ELECTRONIC AND MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #C0436 (01/28/2011 TRANSMITTAL MEMO ATTACHED)	1/28/2011	2464	ADD / Analytical Data Document	479561
R01: Bentley, Robert, E (WESTON SOLUTIONS INC), R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG #MA41H8	1/27/2011	52	ADD / Analytical Data Document	479599

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Quigley, Diane (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG # MA41E4	1/25/2011	47	ADD / Analytical Data Document	479564
R01: Bentley, Robert, E (WESTON SOLUTIONS INC), R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG #MA41J0	1/24/2011	52	ADD / Analytical Data Document	479597
R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Peary, Robert (LOCKHEED ENVIRONMENTAL)	STAGE 4 ELECTRONIC AND MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #F0462 (01/25/2011 TRANSMITTAL MEMO ATTACHED)	1/21/2011	1893	ADD / Analytical Data Document	479559
R01: Downey, Leslie (LOCKHEED ENVIRONMENTAL), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL)	STAGE4 ELECTRONIC AND MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #C0461 (01/25/2011 TRANSMITTAL MEMO ATTACHED)	1/21/2011	2912	ADD / Analytical Data Document	479573
R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 1 MODIFIED INORGANIC DATA VALIDATION FOR CASE NO. 0067S, SDG NO. D02469, LAB NO. C0J040494	1/20/2011	16	ADD / Analytical Data Document	478728
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40784, SDG # MA41E2	1/19/2011	45	ADD / Analytical Data Document	479565
R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 1 DATA VALIDATION FOR CASE NO. 0066S, SDG NO. D02331	1/18/2011	22	ADD / Analytical Data Document	478729
R01: Dimattei, Paula L (TECHLAW INC), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL)	STAGE 2A ELECTRONIC AND MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #F0474 (01/25/2011 TRANSMITTAL MEMO ATTACHED)	1/18/2011	508	ADD / Analytical Data Document	479562
R01: Insley, Erin (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION FOR CASE NO. 40784; SDG NO. A41E1	1/14/2011	59	ADD / Analytical Data Document	476993

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R01: Insley, Erin (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION FOR CASE NO. 40784; SDG NO. A41H8	1/14/2011	57	ADD / Analytical Data Document	476994
R01: Yang, Yunru (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE #40517, SDG # A0499	1/14/2011	99	ADD / Analytical Data Document	479567
R01: Yang, Yunru (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 3 INORGANIC DATA VALIDATION REPORT FOR CASE #40517, SDG # MA0499	1/12/2011	51	ADD / Analytical Data Document	479563
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 3 ORGANIC DATA VALIDATION REPORT FOR CASE #40517, SDG # A41C2	1/7/2011	103	ADD / Analytical Data Document	479566
R01: Czerepak, Erica (TECHLAW INC)	SAMPLE PROCESSING AND ANALYSIS OF OLIGOCHAETES, TREE SWALLOW BLOOD, FEATHERS AND EGGS, MARSH BIRD BLOOD AND FEATHERS, BAT FUR, AND EISENIA FETIDA FROM THE IN-SITU TOXICITY TESTING OF SOIL, ALL COLLECTED AT THE FORMER CHLOR-ALKALI FACILITY	1/6/2011	34	ADD / Analytical Data Document	536097
R01: Luce, Darryl (US EPA REGION 1), R01: Johnston, Craig M (US DOI/US GEOLOGICAL SURVEY), R01: Degnan, James R (US GEOLOGICAL SURVEY), R01: Teeple, Andrew, P (US GEOLOGICAL SURVEY), R01: Marvin-dipasquale, Mark, C (US GEOLOGICAL SURVEY)	GEOPHYSICAL BED SEDIMENT CHARACTERIZATION OF THE ANDROSCOGGIN RIVER FROM THE FORMER CHLOR-ALKALI FACILITY SUPERFUND SITE, BERLIN, NH, TO THE STATE BORDER WITH ME, AUGUST 2009	1/1/2011	40	RPT / Report	100011984
R01: Insley, Erin (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION FOR CASE NO. 40784; SDG NO. A41D9	12/30/2010	55	ADD / Analytical Data Document	476986
R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 1 MODIFIED INORGANIC DATA VALIDATION FOR CASE NO. 0076S, SDG NO. D02582, LAB NO. J2448	12/30/2010	33	ADD / Analytical Data Document	478730

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R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 1 MODIFIED INORGANIC DATA VALIDATION FOR CASE NO. 0067S, SDG NO. D02446, LAB NO. J1897	12/28/2010	24	ADD / Analytical Data Document	478723
R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 1 MODIFIED INORGANIC DATA VALIDATION FOR CASE NO. 0067S, SDG NO. D02354, LAB NO. J1819	12/28/2010	24	ADD / Analytical Data Document	478724
R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 1 MODIFIED INORGANIC DATA VALIDATION FOR CASE NO. 0067S, SDG NO. D02389, LAB NO. J1853	12/28/2010	21	ADD / Analytical Data Document	478725
R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 1 MODIFIED INORGANIC DATA VALIDATION FOR CASE NO. 0067S, SDG NO. D02421, LAB NO. J1854	12/28/2010	24	ADD / Analytical Data Document	478726
R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 1 MODIFIED INORGANIC DATA VALIDATION FOR CASE NO. 0076S, SDG NO. D02530, LAB NO. J2419	12/28/2010	30	ADD / Analytical Data Document	478727
R01: (TECHLAW INC)	28-DAY EISENIA FETIDA IN-SITU SOIL CHRONIC TOXICITY TEST USING SOILS FROM THE FORMER CHLOR-ALKALI FACILITY	12/20/2010	39	ADD / Analytical Data Document	536095
R01: Yang, Yunru (WESTON SOLUTIONS INC), R01: Quigley, Diane (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORAGANIC DATA VALIDATION REPORT FOR CASE #40517; SDG NO. A4151	12/13/2010	102	ADD / Analytical Data Document	476953
R01: Yang, Yunru (WESTON SOLUTIONS INC), R01: Quigley, Diane (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 3 ORAGANIC DATA VALIDATION REPORT FOR CASE #40517; SDG NO. A41A9	12/13/2010	100	ADD / Analytical Data Document	476954
R01: Yang, Yunru (WESTON SOLUTIONS INC), R01: Quigley, Diane (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORAGANIC DATA VALIDATION REPORT FOR CASE #40517; SDG NO. A4130	12/8/2010	102	ADD / Analytical Data Document	476955

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R01: Quigley, Diane (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION FOR CASE NO. 40517; SDG NO. A4160	12/7/2010	84	ADD / Analytical Data Document	476987
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Zapisek, Izabela (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40517; SDG NO. MA4160	12/5/2010	49	ADD / Analytical Data Document	476958
R01: Zapisek, Izabela (WESTON SOLUTIONS INC), R01: Quigley, Diane (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40517; SDG NO. MA41C5	12/3/2010	58	ADD / Analytical Data Document	476956
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE #40556; SDG NO. A4156	11/29/2010	76	ADD / Analytical Data Document	476962
R01: Zapisek, Izabela (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40556; SDG NO. MA4156	11/24/2010	50	ADD / Analytical Data Document	476957
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Zapisek, Izabela (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40517; SDG NO. MA41B3	11/19/2010	55	ADD / Analytical Data Document	476959
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Zapisek, Izabela (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40517; SDG NO. MA4171	11/19/2010	81	ADD / Analytical Data Document	476961
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	11/10/2010	5	PUB / Publication	600453
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Zapisek, Izabela (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40517; SDG NO. MA4130	11/1/2010	65	ADD / Analytical Data Document	476960

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R01: (TECHLAW INC)	TWO SPECIES, 96 HOUR, ACUTE TOXICITY TESTING RESULTS USING PORE WATER SAMPLES COLLECTED FROM THE ANDROSCOGGIN RIVER IN AREAS ASSOCIATED WITH FORMER CHLOR-ALKALI FACILITY IN BERLIN, NH (INCLUDES TRANSMITTAL LETTER)	10/15/2010	74	ADD / Analytical Data Document	536054
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40422; SDG NO. MA40H7	10/4/2010	65	ADD / Analytical Data Document	476964
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #40422; SDG NO. MA40G7	10/1/2010	65	ADD / Analytical Data Document	476963
R01: Fodor, Gretchen, M (WESTON SOLUTIONS INC), R01: Downey, Leslie (LOCKHEED ENVIRONMENTAL), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL)	TIER 3 DATA VALIDATION REPORT FOR CASE #CB005, SDG #C0261 (08/18/2010 TRANSMITTAL MEMO ATTACHED)	8/18/2010	1522	ADD / Analytical Data Document	479574
R01: Macri, Louis (TECHLAW INC), R01: Dimattei, Paula L (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB004, SDG NO. C0151, PART 1 OF 6	8/9/2010	566	ADD / Analytical Data Document	474381
R01: Macri, Louis (TECHLAW INC), R01: Dimattei, Paula L (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB004, SDG NO. C0151, PART 2 OF 6	8/9/2010	488	ADD / Analytical Data Document	474382
R01: Macri, Louis (TECHLAW INC), R01: Dimattei, Paula L (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB004, SDG NO. C0151, PART 3 OF 6	8/9/2010	609	ADD / Analytical Data Document	474383
R01: Macri, Louis (TECHLAW INC), R01: Dimattei, Paula L (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB004, SDG NO. C0151, PART 4 OF 6	8/9/2010	477	ADD / Analytical Data Document	474384

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R01: Macri, Louis (TECHLAW INC), R01: Dimattei, Paula L (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB004, SDG NO. C0151, PART 5 OF 6	8/9/2010	549	ADD / Analytical Data Document	474385
R01: Macri, Louis (TECHLAW INC), R01: Dimattei, Paula L (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB004, SDG NO. C0151, PART 6 OF 6	8/9/2010	583	ADD / Analytical Data Document	474386
R01: Dimattei, Paula L (TECHLAW INC), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL)	TIER 3 DATA VALIDATION REPORT FOR CASE #CB005, SDG #C0270 (08/03/2010 TRANSMITTAL MEMO ATTACHED)	8/2/2010	2343	ADD / Analytical Data Document	479577
R01: Truini, Deborah (TECHLAW INC), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Peary, Robert (LOCKHEED ENVIRONMENTAL)	TIER 3 DATA VALIDATION REPORT FOR CASE #CB005, SDG #C0250	7/30/2010	2171	ADD / Analytical Data Document	481404
R01: Peary, Robert (TECHLAW INC), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL), R01: Chen, Jim (TECHLAW, INC)	TIER 3 DATA VALIDATION FOR CASE #CB005, SDG #C0283 (07/21/2010 TRANSMITTAL MEMO ATTACHED)	7/21/2010	1307	ADD / Analytical Data Document	479570
R01: Truini, Deborah (TECHLAW INC), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL)	TIER 3 DATA VALIDATION FOR CASE #CB004, SDG #C0300 (07/20/2010 TRANSMITTAL MEMO ATTACHED)	7/20/2010	803	ADD / Analytical Data Document	479569
R01: Macri, Louis (TECHLAW INC), R01: Tobin, Steffanie (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0122, PART 1 OF 8 (07/15/2010 TRANSMITTAL MEMO ATTACHED)	7/14/2010	126	ADD / Analytical Data Document	474373
R01: Macri, Louis (TECHLAW INC), R01: Tobin, Steffanie (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0122, PART 2 OF 3	7/14/2010	134	ADD / Analytical Data Document	474374
R01: Macri, Louis (TECHLAW INC), R01: Tobin, Steffanie (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0122, PART 3 OF 8	7/14/2010	241	ADD / Analytical Data Document	474375

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R01: Macri, Louis (TECHLAW INC), R01: Tobin, Steffanie (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0122, PART 4 OF 8	7/14/2010	508	ADD / Analytical Data Document	474376
R01: Macri, Louis (TECHLAW INC), R01: Tobin, Steffanie (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0122, PART 5 OF 8	7/14/2010	707	ADD / Analytical Data Document	474377
R01: Macri, Louis (TECHLAW INC), R01: Tobin, Steffanie (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0122, PART 6 OF 8	7/14/2010	593	ADD / Analytical Data Document	474378
R01: Macri, Louis (TECHLAW INC), R01: Tobin, Steffanie (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0122, PART 7 OF 8	7/14/2010	493	ADD / Analytical Data Document	474379
R01: Macri, Louis (TECHLAW INC), R01: Tobin, Steffanie (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0122, PART 8 OF 8	7/14/2010	526	ADD / Analytical Data Document	474380
R01: Peary, Robert (TECHLAW INC), R01: Dellamia, Scout (TECHLAW INC), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL)	TIER 3 DATA VALIDATION REPORT FOR CASE #DF010, SDG #F0123 (07/08/2010 TRANSMITTAL MEMO ATTACHED)	7/7/2010	2075	ADD / Analytical Data Document	479576
R01: Macri, Louis (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0115, PART 1 OF 8 (07/07/2010 TRANSMITTAL MEMO ATTACHED)	6/22/2010	158	ADD / Analytical Data Document	474365
R01: Macri, Louis (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0115, PART 2 OF 8	6/22/2010	482	ADD / Analytical Data Document	474366
R01: Macri, Louis (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0115, PART 3 OF 8	6/22/2010	347	ADD / Analytical Data Document	474367

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R01: Macri, Louis (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0115, PART 4 OF 8	6/22/2010	286	ADD / Analytical Data Document	474368
R01: Macri, Louis (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0115, PART 5 OF 8	6/22/2010	312	ADD / Analytical Data Document	474369
R01: Macri, Louis (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0115, PART 6 OF 8	6/22/2010	346	ADD / Analytical Data Document	474370
R01: Macri, Louis (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0115, PART 7 OF 8	6/22/2010	331	ADD / Analytical Data Document	474371
R01: Macri, Louis (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. CB002, SDG NO. C0115, PART 8 OF 8	6/22/2010	334	ADD / Analytical Data Document	474372
R01: Fodor, Gretchen, M (WESTON SOLUTIONS INC), R01: Downey, Leslie (LOCKHEED ENVIRONMENTAL), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL)	TIER 3 DATA VALIDATION REPORT FOR CASE #DF011, SDG #F0300 (06/30/2010 TRANSMITTAL MEMO ATTACHED)	6/16/2010	441	ADD / Analytical Data Document	479575
R01: Fodor, Gretchen (TECHLAW INC), R01: Macri, Louis (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT FOR CASE #DF012, SDG #F0270 (06/14/2010 TRANSMITTAL MEMO ATTAACHED)	6/3/2010	1152	CONTR / Contract Documentation	491257
R01: Macri, Louis (TECHLAW INC), R01: Dellamia, Scout (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. DF012, SDG NO. F0250, PART 1 OF 5 (06/01/2010 TRANSMITTAL MEMO ATTACHED)	5/25/2010	273	ADD / Analytical Data Document	474355
R01: Macri, Louis (TECHLAW INC), R01: Dellamia, Scout (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. DF012, SDG NO. F0250, PART 2 OF 5	5/25/2010	306	ADD / Analytical Data Document	474356

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R01: Macri, Louis (TECHLAW INC), R01: Dellamia, Scout (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. DF012, SDG NO. F0250, PART 3 OF 5	5/25/2010	257	ADD / Analytical Data Document	474357
R01: Macri, Louis (TECHLAW INC), R01: Dellamia, Scout (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. DF012, SDG NO. F0250, PART 4 OF 5	5/25/2010	253	ADD / Analytical Data Document	474358
R01: Macri, Louis (TECHLAW INC), R01: Dellamia, Scout (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. DF012, SDG NO. F0250, PART 5 OF 5	5/25/2010	316	ADD / Analytical Data Document	474359
R01: Macri, Louis (TECHLAW INC), R01: Dellamia, Scout (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT FOR CASE #DF012, SDG #F0289 (05/21/2010 TRANSMITTAL MEMO ATTAACHED)	5/21/2010	621	CONTR / Contract Documentation	491258
R01: Truini, Deborah (TECHLAW INC), R01: Macri, Louis (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. DF010, SDG NO.F0107, PART 1 OF 5 (05/18/2010 TRANSMITTAL MEMO ATTACHED)	5/18/2010	240	ADD / Analytical Data Document	474360
R01: Truini, Deborah (TECHLAW INC), R01: Macri, Louis (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. DF010, SDG NO.F0107, PART 2 OF 5	5/18/2010	234	ADD / Analytical Data Document	474361
R01: Truini, Deborah (TECHLAW INC), R01: Macri, Louis (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. DF010, SDG NO.F0107, PART 3 OF 5	5/18/2010	286	ADD / Analytical Data Document	474362
R01: Truini, Deborah (TECHLAW INC), R01: Macri, Louis (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. DF010, SDG NO.F0107, PART 4 OF 5	5/18/2010	245	ADD / Analytical Data Document	474363
R01: Truini, Deborah (TECHLAW INC), R01: Macri, Louis (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT AND LABORATORY DATA PACKAGE, CASE NO. DF010, SDG NO.F0107, PART 5 OF 5	5/18/2010	225	ADD / Analytical Data Document	474364
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 DATA VALIDATION REPORT, CASE NO. DAS 0038S, SDG NO. 500-21559-1 AND 500-21559-2	4/27/2010	13	ADD / Analytical Data Document	474354

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 DATA VALIDATION REPORT, CASE NO. DAS 0032S, SDG NO. 500-20558-1 AND 500-20558-2	4/26/2010	13	ADD / Analytical Data Document	474352
R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Quigley, Diane (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 DATA VALIDATION REPORT, CASE NO. DAS 0038S, SDG NO. 500-21708-1 AND 500-21708-2	4/26/2010	14	ADD / Analytical Data Document	474353
R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE #0030S, SDG #D02007	4/20/2010	9	CONTR / Contract Documentation	491250
R01: Truini, Deborah (TECHLAW INC), R01: Macri, Louis (TECHLAW INC)	TIER 3 DATA VALIDATION REPORT FOR CASE #DF011, SDG: F02020 (05/07/2010 TRANSMITTAL MEMO ATTACHED)	4/19/2010	86	ADD / Analytical Data Document	465620
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 DATA VALIDATION REPORT, CASE NO. DAS 0032S, SDG NO. 500-20588-1 AND 500-20588-2	4/19/2010	17	ADD / Analytical Data Document	474349
R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Quigley, Diane (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 DATA VALIDATION REPORT, CASE NO. DAS 0038S, SDG NO. 500-21790-1 AND 500-21790-2	4/19/2010	11	ADD / Analytical Data Document	474350
R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Quigley, Diane (NOBIS ENGINEERING INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 DATA VALIDATION REPORT, CASE NO. DAS 0038S, SDG NO. 500-21712-1 AND 500-21712-2	4/19/2010	16	ADD / Analytical Data Document	474351
R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #0044S, SDG #D02290	4/15/2010	9	CONTR / Contract Documentation	491253
R01: Dimattei, Paula L (TECHLAW INC), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL)	TIER 3 DATA VALIDATION FOR CASE #CB004, SDG #C0174 (04/15/2010 TRANSMITTAL MEMO ATTACHED)	4/14/2010	2523	ADD / Analytical Data Document	479571

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 DATA VALIDATION REPORT, CASE NO. DAS 0038S, SDG NO. 500-21599-1 AND 500-21599-2	4/13/2010	11	ADD / Analytical Data Document	474347
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 DATA VALIDATION REPORT, CASE NO. DAS 0038S, SDG NO. 500-21761-1 AND 500-21761-2	4/13/2010	10	ADD / Analytical Data Document	474348
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 DATA VALIDATION REPORT FOR CASE NO. 38780, SDG NO. A3107	4/10/2010	54	ADD / Analytical Data Document	465661
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 DATA VALIDATION REPORT, CASE NO. DAS 0032S, SDG NO. 500-20308-1 AND 500-20308-2	4/9/2010	10	ADD / Analytical Data Document	474345
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 DATA VALIDATION REPORT, CASE NO. DAS 0032S, SDG NO. 500-20487-1 AND 500-20487-2	4/8/2010	11	ADD / Analytical Data Document	474346
R01: Stodola, Steven (US EPA REGION 1)	DATA VALIDATION REPORT--CASE: CB002, SDG: C0100	3/30/2010	44	ADD / Analytical Data Document	465118
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Cox, Lori (NOBIS ENGINEERING INC)	TIER 2 DATA VALIDATION REPORT FOR CASE NO. 38780, SDG NO. A3127	3/29/2010	45	ADD / Analytical Data Document	465662
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE #38780, SDG NO. A3138	3/29/2010	8	ADD / Analytical Data Document	465683
R01: Stodola, Steven (US EPA REGION 1)	DATA VALIDATION REPORT--CASE: DF011, SDG: F0163	3/26/2010	45	ADD / Analytical Data Document	465117
R01: Truini, Deb (COLUMBIA ANALYTICAL SERVICES, INC.), R01: Macri, Louis (COLUMBIA ANALYTICAL SERVICES, INC.)	TIER 3 DATA VALIDATION REPORT, CASE NO. CB002, SDG NO. C0107 (TRANSMITTAL MEMO ATTACHED) PART 1 OF 5	3/25/2010	491	ADD / Analytical Data Document	474340

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Truini, Deb (COLUMBIA ANALYTICAL SERVICES, INC.), R01: Macri, Louis (COLUMBIA ANALYTICAL SERVICES, INC.)	TIER 3 DATA VALIDATION REPORT, CASE NO. CB002, SDG NO. C0107 (TRANSMITTAL MEMO ATTACHED) PART 2 OF 5	3/25/2010	413	ADD / Analytical Data Document	474341
R01: Truini, Deb (COLUMBIA ANALYTICAL SERVICES, INC.), R01: Macri, Louis (COLUMBIA ANALYTICAL SERVICES, INC.)	TIER 3 DATA VALIDATION REPORT, CASE NO. CB002, SDG NO. C0107 (TRANSMITTAL MEMO ATTACHED) PART 3 OF 5	3/25/2010	461	ADD / Analytical Data Document	474342
R01: Truini, Deb (COLUMBIA ANALYTICAL SERVICES, INC.), R01: Macri, Louis (COLUMBIA ANALYTICAL SERVICES, INC.)	TIER 3 DATA VALIDATION REPORT, CASE NO. CB002, SDG NO. C0107 (TRANSMITTAL MEMO ATTACHED) PART 4 OF 5	3/25/2010	327	ADD / Analytical Data Document	474343
R01: Truini, Deb (COLUMBIA ANALYTICAL SERVICES, INC.), R01: Macri, Louis (COLUMBIA ANALYTICAL SERVICES, INC.)	TIER 3 DATA VALIDATION REPORT, CASE NO. CB002, SDG NO. C0107 (TRANSMITTAL MEMO ATTACHED) PART 5 OF 5	3/25/2010	349	ADD / Analytical Data Document	474344
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC DATA VALIDATION REPORT FOR CASE #0031S, SDG #D02007	3/25/2010	10	CONTR / Contract Documentation	491251
R01: Stodola, Steven (US EPA REGION 1)	DATA VALIDATION--CASE: CB004, SDG: C0155	3/24/2010	35	ADD / Analytical Data Document	465121
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC & ORGANIC DATA VALIDATION REPORT FOR CASE 0036S, SDG #D02164 (K0908787)	3/16/2010	89	ADD / Analytical Data Document	466281
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC & ORGANIC DATA VALIDATION REPORT FOR CASE 0036S, SDG #D02147 (K0908728)	3/16/2010	53	ADD / Analytical Data Document	466282
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC & ORGANIC DATA VALIDATION REPORT FOR CASE 0036S, SDG #D02082 (K0907965)	3/11/2010	54	ADD / Analytical Data Document	466284

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC & ORGANIC DATA VALIDATION REPORT FOR CASE 0036S, SDG #D02120 (K0908057)	3/10/2010	27	ADD / Analytical Data Document	466283
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 INORGANIC & ORGANIC DATA VALIDATION REPORT FOR CASE 0036S, SDG #K0910174	3/10/2010	26	ADD / Analytical Data Document	466285
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER 2 ORGANIC DATA VALIDATION REPORT FOR CASE DAS 0036S, SDG #K0909100	3/8/2010	12	ADD / Analytical Data Document	466280
R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #38780, SDG #MA30Z8, METALS	3/4/2010	9	LTR / Letter	463250
R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #38780, SDG #MA3129, METALS	3/3/2010	15	LTR / Letter	463251
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	3/2/2010	5	PUB / Publication	600454
R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #38780, SDG #MA3107, METALS	3/1/2010	17	LTR / Letter	463252
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER III ORGANIC DATA VALIDATION FOR CASE #39067, SDG #A31H3, VOLATILES	2/22/2010	15	LTR / Letter	463247
R01: Swift, Paul (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #39067, SDG #MA31M4, METALS	2/18/2010	9	LTR / Letter	463249
R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II ORGANIC DATA VALIDATION FOR CASE #39067, SDG #A31J2, SEMIVOLATILES	2/15/2010	30	LTR / Letter	463245

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II ORGANIC DATA VALIDATION FOR CASE #39067, SDG #A31D0, VOLATILES	2/15/2010	16	LTR / Letter	463246
R01: Swift, Paul (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #39067, SDG #MA31D2, METALS	2/15/2010	9	LTR / Letter	463248
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC AND ORGANIC DATA VALIDATION FOR CASE #0036S, SDG #D02124 (K0908609)	2/15/2010	31	LTR / Letter	463253
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #0036S, SDG #D02124 (K0908557)	2/12/2010	8	LTR / Letter	463254
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC AND ORGANIC DATA VALIDATION FOR CASE #0036S, SDG #D02145 (K0908678)	2/12/2010	18	LTR / Letter	463255
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Zapisek, Izabela (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #39173, SDG #MA31N8 MA31N9, METALS	2/8/2010	7	LTR / Letter	463263
R01: Swift, Paul (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #38974, SDG #MA3156, METALS	2/8/2010	9	LTR / Letter	463264
R01: Zapisek, Izabela (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #39067, SDG #MA31D0, METALS	2/8/2010	10	LTR / Letter	463267
R01: Swift, Paul (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #39067, SDG #MA31M5, METALS	2/8/2010	8	LTR / Letter	463268
R01: Bentley, Robert, E (WESTON SOLUTIONS INC), R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #39067, SDG #MA31D1, METALS	2/3/2010	9	LTR / Letter	463260

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Bentley, Robert, E (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #39067, SDG #MA31M6, METALS	2/3/2010	30	LTR / Letter	463265
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II ORGANIC DATA VALIDATION FOR CASE #39067, SDG #A31D2, SEMIVOLATILES	2/1/2010	29	LTR / Letter	463266
R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #39067, SDG #MA31G1, METALS	1/30/2010	12	LTR / Letter	463261
R01: Switalski, Gloria J (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #39067, SDG #MA31G2, METALS	1/30/2010	12	LTR / Letter	463262
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Stewart, Joshua (NOBIS ENGINEERING INC)	TIER 1 DATA VALIDATION REPORT FOR CASE #0042S, SDG #D02154	1/29/2010	19	CONTR / Contract Documentation	491252
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Stewart, Joshua (NOBIS ENGINEERING INC)	TIER 1 DATA VALIDATION REPORT FOR CASE #0042S, SDG #D02310	1/29/2010	13	CONTR / Contract Documentation	491254
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #39067, SDG #MA31M7, METALS	1/26/2010	8	LTR / Letter	463269
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #39067, SDG #A31M4, VOLATILES	1/26/2010	10	LTR / Letter	463270
R01: Biles, Darren (COLUMBIA ANALYTICAL SERVICES, INC.)	AMENDED/ADDITIONAL DATA FOR REGION 1 PCBS/CB002/C0100	1/26/2010	61	ADD / Analytical Data Document	465120
R01: Swift, Paul (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #38974, SDG #MA3159, METALS	1/22/2010	9	LTR / Letter	463275

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II ORGANIC AND INORGANIC DATA VALIDATION FOR CASE #0036S, SDG #D02100 (K0908058)	1/21/2010	45	LTR / Letter	463256
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II ORGANIC AND INORGANIC DATA VALIDATION FOR CASE #0036S, SDG #D02066 (K0907964)	1/21/2010	36	LTR / Letter	463257
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	1/20/2010	5	PUB / Publication	600455
R01: Truini, Deborah (TECHLAW INC), R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL)	TIER 3 DATA VALIDATION FOR CASE #40784, SDG #MA41H9	1/14/2010	47	ADD / Analytical Data Document	479568
R01: Quigley, Diane (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II ORGANIC AND INORGANIC DATA VALIDATION FOR CASE #0036S, SDG #D02051 (K0907942)	1/11/2010	50	LTR / Letter	463258
R01: Bentley, Robert, E (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #38974, SDG #MA31A1, METALS	1/8/2010	8	LTR / Letter	463271
R01: Bentley, Robert, E (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #38974, SDG #MA3199, METALS	1/8/2010	8	LTR / Letter	463272
R01: Bentley, Robert, E (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #38974, SDG #MA3178, METALS	1/8/2010	10	LTR / Letter	463273
R01: Bentley, Robert, E (WESTON SOLUTIONS INC), R01: Deruzzo, Gail (NOBIS ENGINEERING INC)	TIER II INORGANIC DATA VALIDATION FOR CASE #38974, SDG #MA3182, METALS	1/8/2010	10	LTR / Letter	463274
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	12/29/2009	5	PUB / Publication	600456

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: Deruzzo, Gail (NOBIS ENGINEERING INC), R01: Cox, Lori (NOBIS ENGINEERING INC)	TIER II ORGANIC DATA VALIDATION FOR CASE #38780, SDG #A30Z8, VOLATILES	12/10/2009	22	LTR / Letter	463276
R01: Stodola, Steven (US EPA REGION 1)	LAB'S RESPONSE FOR G773-13; SDG F0163	12/7/2009	126	ADD / Analytical Data Document	465119
R01: Macri, Louis (TECHLAW INC), R01: Peary, Robert (LOCKHEED MARTIN ENVIRONMENTAL SYSTEMS & TECHNOLOGY CO)	TIER III DATA VALIDATION FOR CASE #DF010, SDG #F0100, WITH US EPA APPROVAL DATED1/7/2010 AND TRANSMITTAL MEMO TO DARRYL LUCE FROM STEVE STODOLA, EPA REGION 1 DATED 1/8/2010	11/24/2009	169	LTR / Letter	463259
R01: (TECHLAW INC)	TWO SPECIES, CHRONIC TOXICITY TESTING RESULTS USING SURFACE WATER SAMPLES COLLECTED FROM THE ANDROSCOGGIN RIVER IN AREAS ASSOCIATED WITH FORMER CHLOR-ALKALI FACILITY IN BERLIN, NH (INCLUDES TRANSMITTAL LETTER)	11/20/2009	47	ADD / Analytical Data Document	536056
R01: Baca, Maria E (TECHLAW INC), R01: Macri, Louis (LOCKHEED ENGINEERING AND SCIENCES CO)	TIER 3 DATA VALIDATION REPORT FOR CASE #DF011, SDG#F0174 (01/08/2010 TRANSMITTAL MEMO AND APPROVAL ATTACHED)	11/16/2009	236	ADD / Analytical Data Document	463280
R01: (TECHLAW INC)	TWO SPECIES, 96 HOUR, ACUTE TOXICITY TESTING RESULTS USING PORE WATER SAMPLES COLLECTED FROM THE ANDROSCOGGIN RIVER IN AREAS ASSOCIATED WITH FORMER CHLOR-ALKALI FACILITY IN BERLIN, NH (INCLUDES TRANSMITTAL LETTER)	11/2/2009	58	ADD / Analytical Data Document	536055
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	10/15/2009	5	PUB / Publication	600457

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: (UNITED STATES OF AMERICA), R01: (PULP & PAPER OF AMERICA), R01: (PULP OF AMERICA)	ACCESS ORDER - CIVIL ACTION NO. 1:09-CV-00269-JD	8/11/2009	3	LGL / Legal Instrument	574596
R01: Pauwels, Stan (TECHLAW INC)	NARRATIVES OF DATA QUALITY OBJECTIVES, DATA QUALITY INDICATORS, FIELD SAMPLING PLANS, AND STANDARD OPERATING PROCEDURES (SOPS) IN SUPPORT OF THE ECOLOGICAL RISK ASSESSMENT (ERA) (INCLUDES TRANSMITTAL LETTER)	7/17/2009	21	ADD / Analytical Data Document	536059
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	6/22/2009	5	PUB / Publication	600458
R01: Pauwels, Stan (TECHLAW INC)	MEETING NOTES FOR THE 06/10/2009 MEETING WITH EPA AND AVATAR ENVIRONMENTAL IN SUPPORT OF THE BASELINE ECOLOGICAL RISK ASSESSMENT (BERA)	6/18/2009	7	CORR / Correspondence	536058
R01: Pauwels, Stan (TECHLAW INC)	MEETING NOTES FOR THE 06/02/2009 CONFERENCE CALL WITH EPA AND US GEOLOGICAL SURVEY (USGS) REGARDING FIELD WORK IN SUPPORT OF THE ECOLOGICAL RISK ASSESSMENT (ERA)	6/4/2009	2	CORR / Correspondence	536057
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	6/1/2009	6	PUB / Publication	600459
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	1/8/2009	6	PUB / Publication	600460
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	1/7/2009	6	PUB / Publication	600461
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	12/23/2008	5	PUB / Publication	600462
R01: (E2 INC)	REUSE PLANNING REPORT FOR THE CELL HOUSE PROPERTY	12/1/2008	69	RPT / Report	297569

Author	Title	Document Date	Page Count	Resource Type	Document ID
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	3/12/2008	5	PUB / Publication	600463
	Future Use Goals for Chlor-Alkali and Surrounding Mill Site Based on Reuse Planning Discussion, Community Visioning Session, CLIN: 8.2.1b	3/5/2008	22	MTG / Meeting Document	151463
R01: (US EPA REGION 1)	EPIC BOOK: AERIAL PHOTOGRAPHIC AND FRACTURE TRACE ANALYSES	2/1/2008	40	PHT / Photograph	284800
R01: Walvoord, Michelle, A (US GEOLOGICAL SURVEY), R01: Andraski, Brian, J (US GEOLOGICAL SURVEY), R01: Krabbenhoft, David, P (US GEOLOGICAL SURVEY), R01: Striegl, Robert, G (US GEOLOGICAL SURVEY)	TRANSPORT OF ELEMENTAL MERCURY IN THE UNSATURATED ZONE FROM A WASTE DISPOSAL SITE IN AN ARID REGION, APPLIED GEOCHEMISTRY	1/1/2008	12	PUB / Publication	100011983
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	12/14/2007	5	PUB / Publication	600464
	Revised Work Plan, Chlor-Alkali Superfund Site, Berlin, NH, CLIN: 0.2.1b	9/1/2007	6	WP / Work Plan	151458
	Overview of Community Planning Considerations for Berlin, NH, CLIN: 2.1.2b	9/1/2007	8	RPT / Report	151460
	Chlor-Alkali Superfund Site Memo Summary, Photos, CLIN: 2.1.3b	5/11/2007	18	PHT / Photograph	151827
R01: (AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY (ATSDR))	PUBLIC HEALTH ASSESSMENT FOR FORMER CHLOR ALKALI FACILITY BELOW SAW MILL DAM	2/7/2007	45	RPT / Report	100011982
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	2/1/2007	4	PUB / Publication	600465
R01: (AXYS ANALYTICAL SERVICES LTD)	DIOXIN/FURAN ANALYSIS ELECTRONIC DELIVERABLES	11/1/2006	1	ADD / Analytical Data Document	560199
R01: (US EPA)	NATIONAL PRIORITIES LIST (NPL) SITE LISTING NARRATIVE	9/1/2006	1	PUB / Publication	75001024

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R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	4/19/2006	4	PUB / Publication	600466
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	4/19/2006	4	PUB / Publication	600467
R01: (US EPA REGION 1)	COMMUNITY UPDATE FEBRUARY 2006	2/1/2006	4	PUB / Publication	457356
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	2/1/2006	4	PUB / Publication	600468
R01: Pfingst, Amanda (WESTERN WASHINGTON UNIVERSITY), R01: Kushima, Goro (WESTERN WASHINGTON UNIVERSITY), R01: Landis, Wayne, G (WESTERN WASHINGTON UNIVERSITY), R01: Chen, Valerie (WESTERN WASHINGTON UNIVERSITY)	ANDROSCOGGIN RIVER WATERSHED ECOLOGICAL RISK ASSESSMENT (ERA), FINAL REPORT	1/31/2006	184	RPT / Report	100011981
R01: (US EPA REGION 1)	SITE INVESTIGATION (SI) CLOSURE MEMORANDUM	1/12/2006	4	MEMO / Memorandum	633490
R01: (US EPA REGION 1)	NATIONAL PRIORITIES LIST PUBLIC ACCESS DATABASE (NPL PAD) WEB PAGE	11/23/2005	4	PUB / Publication	600469
R01: (FEDERAL REGISTER)	FEDERAL REGISTER FINAL RULE ADDING SITE TO NATIONAL PRIORITIES LIST (NPL) - VOL 70, NO 177	9/14/2005	8	PUB / Publication	70005181
	FACT SHEET REGARDING NATIONAL PRIORITIES LIST (NPL) SITE NARRATIVE SUMMARY	9/1/2005	1	PUB / Publication	579495
R01: (US EPA REGION 1)	PRESS RELEASE: VERMONT SITE ADDED TO EPA SUPERFUND LIST; NEW HAMPSHIRE SITE PROPOSED FOR INCLUSION	4/27/2005	2	PUB / Publication	593299
R01: Varney, Robert W (US EPA REGION 1)	LETTER REGARDING PROPOSAL OF SITE TO NATIONAL PRIORITIES LIST (NPL)	4/5/2005	2	LTR / Letter	555164

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R01: Lynch, John H (NH GOVERNOR)	LETTER REGARDING REQUEST TO NOMINATE SITE TO NATIONAL PRIORITIES LIST (NPL) (03/23/2005 FAX TRANSMITTAL)	3/15/2005	2	LTR / Letter	555165
R01: (US EPA)	NATIONAL PRIORITIES LIST (NPL) SUMMARY	2/1/2005	1	PUB / Publication	555166
R01: (WESTON SOLUTIONS INC)	FINAL COMBINED PRELIMINARY ASSESSMENT/SITE INSPECTION (PA/SI) REPORT	1/13/2005	366	RPT / Report	557857
R01: (US EPA REGION 1)	FINAL COMBINED PRELIMINARY ASSESSMENT / SITE INSPECTION (PA/SI) REPORT FOR CHLOR-ALKALI FACILITY (FORMER) BERLIN, NEW HAMPSHIRE	1/13/2005	365	RPT / Report	284849
R01: Giunta, Anthony P (NH DEPT OF ENVIRONMENTAL SERVICES (NHDES))	LETTER CONCERNING THE REGULATORY STATUS OF CONTAMINATED SOIL CUTTINGS, FORMER CELL HOUSE SITE	12/17/2004	5	LTR / Letter	288763
R01: (NORMANDEAU ASSOCIATES INC)	WETLAND DELINEATION REPORT	11/8/2004	24	RPT / Report	288764
R01: (WESTON SOLUTIONS INC)	TRIP REPORT FOR CHLOR-ALKALI FACILITY	10/26/2004	48	RPT / Report	288770
R01: Siegel, Lori S (NH DEPT OF ENVIRONMENTAL SERVICES (NHDES))	MEMO REGARDING SUMMARY OF MERCURY DATA AT BERLIN SITE COMPARED TO AT OTHER LOCATIONS IN NH	10/5/2004	8	MEMO / Memorandum	100011980
R01: Gralenski, Lt Douglas J (NEW HAMPSHIRE FISH & GAME DEPARTMENT)	MEMO CONCERNING FISHING IN THE ADROSCOGGIN RIVER	9/11/2004	2	MEMO / Memorandum	288783
R01: Kahn, Peter (US EPA REGION 1)	MEMO CONCERNING MERCURY SAMPLING RESULTS (CHAIN OF CUSTODY FORMS ATTACHED)	9/2/2004	5	MEMO / Memorandum	288784
R01: Clark, Stewart F (US GEOLOGICAL SURVEY)	TRANSMITTAL EMAIL FORWARDING SAMPLING RESULTS (NOTES ATTACHED)	9/2/2004	8	MEMO / Memorandum	288786
R01: Miskiman, Alison (WESTON SOLUTIONS INC), R01: Kelly, John F (WESTON SOLUTIONS INC)	MEMO CONCERNING PRELIMINARY ASSESSMENT/SITE INSPECTION (PA/SI)	8/9/2004	5	MEMO / Memorandum	288787

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R01: Stodola, Steven (US EPA REGION 1)	MEMO CONCERNING DATA VALIDATION REPORT FOR CASE DF002 SDG A1C37	7/14/2004	1	MEMO / Memorandum	288788
R01: Bartels, Janine (LOCKHEED ENVIRONMENTAL), R01: Macri, Louis (LOCKHEED ENVIRONMENTAL)	TIER 3 DATA VALIDATION REPORT FOR CASE #DF002, SDG NO. A1C37	7/14/2004	15	ADD / Analytical Data Document	288789
R01: Gauthier, Carol W (GORHAM (NH) PROPERTY OWNER), R01: Gauthier, Kevin D (GORHAM (NH) PROPERTY OWNER), R01: Gauthier, Peter (GORHAM (NH) PROPERTY OWNER)	SIGNED CONSENT FOR ACCESS TO PROPERTY AT 2 CASCADE FLATS, GORHAM, NH	7/12/2004	1	FRM / Form	288790
R01: Cairns, Sara (NEW HAMPSHIRE NATURAL HERITAGE BUREAU)	MEMO WITH ATTACHED REVIEW OF ALL KNOWN RARE SPECIES AND EXEMPLARY NATURAL COMMUNITIES WITHIN A FOUR MILE RADIUS OF THE SITE	6/3/2004	23	MEMO / Memorandum	524870
R01: (NH DEPT OF HEALTH & HUMAN SERVICES)	FISH CONSUMPTION ADVISORY FOR FRESHWATER FISH, OCEANFISH AND SHELLFISH	5/20/2004	4	PUB / Publication	541285
R01: (NORTHEAST LABORATORY SERVICES)	NARRATIVE - NORTHEAST LABORATORY SERVICES - WESTON SOLUTIONS - SDG WS041504	4/29/2004	490	RPT / Report	557864
	Sample Management Office (SMO) Case Folder, Case # 32635, Folder 3 (III) - Invoice Information, SDG # A1C37	4/23/2004	6	ADD / Analytical Data Document	142061
	Sample Management Office (SMO) Case Folder, Case # 32635, Folder 3 (III) - Invoice Information, SDG # A1C59	4/23/2004	6	ADD / Analytical Data Document	142062
	Sample Management Office (SMO) Case Folder, Case # 32635, Folder 3 (III) - Invoice Information, SDG # A1C53	4/20/2004	6	ADD / Analytical Data Document	142059
	Sample Management Office (SMO) Case Folder, Case # 32635, Folder 3 (III) - Invoice Information, SDG # MA1C63	4/16/2004	7	ADD / Analytical Data Document	142058

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	Sample Management Office (SMO) Case Folder, Case # 32635, Folder 3 (III) - Invoice Information, SDG # MA1C37	4/15/2004	6	ADD / Analytical Data Document	142057
	Sample Management Office (SMO) Case Folder, Case # 32635, Folder 3 (III) - Invoice Information, SDG # MA1C40	4/15/2004	7	ADD / Analytical Data Document	142060
	Sample Management Office (SMO) Case Folder, Case # 32635, Folder 3 (III) - Invoice Information, SDG # MA1C59	4/13/2004	6	ADD / Analytical Data Document	142056
R01: Cairns, Sara (NEW HAMPSHIRE NATURAL HERITAGE BUREAU)	MEMO CONCERNING RESULTS OF DATABASE SEARCH FOR RARE SPECIES AND EXEMPLARY NATURAL COMMUNITIES NEAR THE SITE (03/10/2004 TRANSMITTAL MEMO ATTACHED)	3/4/2004	5	MEMO / Memorandum	524871
	Sample Management Office (SMO) Case Folder, Case # 32635, Folder 5 (Vs) - Sample Data Package, SDG # A1C53, A1C59, A1C37	3/1/2004	278	ADD / Analytical Data Document	142053
	Sample Management Office (SMO) Case Folder, Case # 32635, Folder 2 (II) - CCS/DAT Information, SDG # MA1C59, MA1C40, A1C59, A1C53, A1C37	3/1/2004	283	ADD / Analytical Data Document	142055
	Sample Management Office (SMO) Case Folder, Case # 32635, Folder 1 (I) - Scheduling/Shipping Information	2/1/2004	101	ADD / Analytical Data Document	142054
R01: Mcduffee, Mark J (WESTON SOLUTIONS INC)	E-MAIL CONCERNING A POTENTIAL CONFLICT OF INTEREST (COI) NOTIFICATION (E-MAIL HISTORY ATTACHED)	1/13/2004	3	MEMO / Memorandum	289921

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R01: Harte, Philip T (US DOI/US GEOLOGICAL SURVEY), R01: Mack, Thomas J (US DOI/US GEOLOGICAL SURVEY), R01: Degnan, James R (US GEOLOGICAL SURVEY), R01: Clark, Stewart F (US GEOLOGICAL SURVEY), R01: (NH DEPT OF ENVIRONMENTAL SERVICES (NHDES))	GEOLOGY AND PRELIMINARY HYDROGEOLOGIC CHARACTERIZATION OF THE CELL-HOUSE SITE, BERLIN, NH, 2003-04	1/1/2004	65	PUB / Publication	100011979
R01: (NH FISH AND GAME)	ARTICLE: NEW HAMPSHIRE WEEKLY FISHING REPORT	8/21/2003	18	PUB / Publication	541293
R01: (NH FISH AND GAME)	ARTICLE: IS IT SAFE TO EAT THE FISH? REMIINDER ABOUT FISH CONSUMPTION GUIDELINES	6/18/2003	3	PUB / Publication	541292
R01: (TIGHE AND BOND)	SITE INVESTIGATION (SI) REPORT - T-1 TRANSFORMER	3/1/2002	271	RPT / Report	557858
R01: (HALEY & ALDRICH INC)	REPORT ON AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) PHASE 1 ENVIRONMENTAL SITE ASSESSMENT - PULP AND PAPER OF AMERICA BURGESS MILL	2/1/2002	508	RPT / Report	557856
R01: (RESOURCE LABORATORIES LLC)	CHAIN OF CUSTODY DOCUMENTATION -- BERLIN	12/6/2001	1	SHP / Shipping Manifest	557861
R01: (FRONTIER GEOSCIENCES)	CHAIN OF CUSTODY RECORD AND LABORATORY ANALYSIS REQUEST -- BERLIN SEDIMENT SAMPLING	12/6/2001	2	SHP / Shipping Manifest	557862
R01: Larson, David B (NH DEPT OF ENVIRONMENTAL SERVICES (NHDES)), R01: Harp, Paul R (NH DEPT OF ENVIRONMENTAL SERVICES (NHDES))	MEMO CONCERNING FISH COLLECTION/MERCURY DETERMINATION FROM THE ANDROSCOGGIN RIVER IN AREA OF FORMER CHLOR ALKALI CELL HOUSE SITES (05/08/2001 ANALYTICAL REPORT AND 10/27/2004 FAX TRANSMITTAL DATED ATTACHED)	4/12/2001	18	MEMO / Memorandum	288766

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R01: (RESOURCE LABORATORIES LLC)	CHAIN OF CUSTODY DOCUMENTATION -- PPA/BERLIN	1/18/2001	1	SHP / Shipping Manifest	557860
R01: Danforth, Raymond H (CROWN PAPER CO)	LETTER CONCERNING CELL HOUSE WASTE STATUS (10/28/2004 FAX TRANMITTAL MEMO AND SUPPORTING DOCUMENTS ATTACHED)	11/24/1999	20	LTR / Letter	288765
	A GUIDE TO PREPARING SUPERFUND PROPOSED PLANS, RECORDS OF DECISION, AND OTHER REMEDY SELECTION DECISION DOCUMENTS, OSWER DIRECTIVE 9200.1-23P	7/1/1999	182	LAWS / Laws/Regulations/Guidance	500009392
	ARTICLE: MILL CLEANS UP OLD CHEMICAL SITE; TRACES OF MERCURY FOUND IN 1950S CONSTRUCTION DEBRIS	5/29/1999	2	PUB / Publication	541287
R01: (TIGHE AND BOND CONSULTING)	MERCURY CONTAMINATION IN SOIL SAMPLING	1/1/1999	5	FIG / Figure/Map/ Drawing	623186
	TECHNICAL APPROACH FOR SAMPLING FISH FOR MERCURY ANALYSIS	6/19/1998	20	RPT / Report	557859
R01: (ENVIRONMENTAL SCIENCE AND TECHNOLOGY)	ARTICLE: ISOMER SPECIFIC ANALYSIS AND TOXIC EVALUATION OF POLYCHLORINATED NAPHTHALENES IN SOIL SEDIMENT AND BIOTA COLLECTED NEAR THE SITE OF A FORMER CHLOR-ALKALI PLANT [FIRST PAGE ONLY]	1/1/1998	1	PUB / Publication	289926
	EPA RULES OF THUMB FOR SUPERFUND REMEDY SELECTION	8/1/1997	26		157968
R01: (US DEPT OF AGRICULTURE)	BLACK & WHITE AERIAL PHOTOGRAPH, 1994_134797, FRAME #46, SCALE 1:40,000	5/14/1994	1	PHT / Photograph	283224
R01: (US DEPT OF AGRICULTURE)	BLACK & WHITE AERIAL PHOTOGRAPH, FRAME #46, SCALE 1 INCH = 320 FEET	5/14/1994	1	PHT / Photograph	283225
R01: (USGS)	AERIAL SURVEY PHOTOS, 1955 - 1994	5/14/1994	16	PHT / Photograph	474208

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	Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, OSWER Directive 9355.3-01	10/1/1988	186	LAWS / Laws/Regulations/Guidance	128301
R01: Eichholz, Geoffrey, G (GEORGIA INSTITUTE OF TECHNOLOGY), R01: Petelka, M, Frank (GEORGIA INSTITUTE OF TECHNOLOGY), R01: Kury, Robert, L (GEORGIA INSTITUTE OF TECHNOLOGY)	MIGRATION OF ELEMENTAL MERCURY THROUGH SOIL FROM SIMULATED BURIAL SITES, WATER RESEARCH JOURNAL	1/1/1988	6	PUB / Publication	100011978
R01: (US DEPT OF AGRICULTURE)	AERIAL PHOTOGRAPH, FRAME #126, APPROXIMATE SCALE 1 INCH = 320 FEET	5/13/1986	1	PHT / Photograph	283234
R01: (US DEPT OF AGRICULTURE)	BLACK & WHITE AERIAL PHOTOGRAPH, FRAME #107, APPROXIMATE SCALE 1 INCH = 320 FEET	10/11/1982	1	PHT / Photograph	283233
R01: (US EPA)	AERIAL PHOTOGRAPH, FRAME #031, APPROXIMATE SCALE 1 INCH = 320 FEET	8/23/1977	1	PHT / Photograph	283232
R01: (US EPA)	AERIAL PHOTOGRAPH, 1976_76_216_078, FRAME #78, SCALE UNKNOWN	8/19/1976	1	PHT / Photograph	283220
R01: (US EPA)	COLOR AERIAL PHOTOGRAPH, FRAME #078, APPROXIMATE SCALE 1 INCH = 325 FEET	8/19/1976	1	PHT / Photograph	283231
R01: (US DEPT OF AGRICULTURE)	BLACK & WHITE AERIAL PHOTOGRAPH, 1970_134789, FRAME #3, SCALE 1:20,000	10/21/1970	1	PHT / Photograph	283218
R01: (US DEPT OF AGRICULTURE)	BLACK & WHITE AERIAL PHOTOGRAPH, FRAME #3, APPROXIMATE SCALE 1 INCH = 320 FEET	10/21/1970	1	PHT / Photograph	283230
R01: (US GEOLOGICAL SURVEY)	AERIAL PHOTOGRAPH, FRAME 1585, APPROXIMATE SCALE 1 INCH = 400 FEET	9/14/1969	1	PHT / Photograph	283229
R01: (USGS)	AERIAL SURVEY PHOTOS	9/14/1969	3	PHT / Photograph	474207
R01: (US GEOLOGICAL SURVEY)	BLACK & WHITE AERIAL PHOTOGRAPH, FRAME 125, APPROXIMATE SCALE 1 INCH = 400 FEET	5/6/1965	1	PHT / Photograph	283228

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R01: (AVPT)	BLACK & WHITE AERIAL PHOTOGRAPH, FRAME 7396, APPROX IMATE SCALE 1 INCH = 405 FEET	11/4/1964	1	PHT / Photograph	283227
R01: (USGS)	AERIAL SURVEY PHOTOS	5/6/1964	2	PHT / Photograph	474206
R01: (US DEPT OF AGRICULTURE)	BLACK & WHITE AERIAL PHOTOGRAPH, FRAME #51, SCALE 1 INCH = 320 FEET	8/4/1955	1	PHT / Photograph	283226
R01: Tetreault, Barbara (BERLIN (NH) DAILY SUN)	ARTICLE: STATE AWAITS MERCURY TESTING RESULTS ON ANDROSCOGGIN RIVER SEDIMENT	Undated	2	PUB / Publication	541289
R01: Rule, John (METCALF & EDDY)	HISTORY OF THE BROWN COMPANY: FROM NORTH COUNTRY SAWMILL TO WORLD'S LEADING PAPER PRODUCER	Undated	27	RPT / Report	556500
R01: Macri, Louis (TECHLAW INC), R01: Chen, Jim (TECHLAW, INC)	STAGE 2A MANUAL DATA VALIDATION REPORT FOR CASE #40445, SDG #C0518 (03/07/2011 TRANSMITTAL MEMO ATTACHED)	Undated	1186	ADD / Analytical Data Document	481432
R01: (WESTON SOLUTIONS INC)	FAX TRANSMITTAL OF THREE MAPS (SITE PLAN AND 2 PROPERTY MAPS)	Undated	3	FIG / Figure/Map/ Drawing	289904
R01: (TOPOZONE)	TOPOGRAPHIC MAP OF THE BERLIN, NH QUADRANGLE	Undated	1	FIG / Figure/Map/ Drawing	289910
	MAP OF BERLIN, NH	Undated	1	FIG / Figure/Map/ Drawing	289920
	PHOTOGRAPH: LOOKING SOUTH OVER THE TOP OF THE CAPPED DISPOSAL AREA	Undated	2	PHT / Photograph	452940
	PHOTOGRAPH: FRACTURED BEDROCK THAT UNDERLIES THE DISPOSAL AREA ADJACENT TO THE ANDROSCOGGIN RIVER	Undated	2	PHT / Photograph	452941