Preliminary Close Out Report

Dover Municipal Landfill Superfund Site

September 2012

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I. INTRODUCTION

This Preliminary Close Out Report (PCOR) documents the completion of all physical, remedial construction activities which were performed at the Dover Municipal Landfill Superfund Site (the "Site"). These remedial construction activities were performed in accordance with the approved design plans and specifications for implementation of the requirements specified in the 1991 Record of Decision (ROD), 2004 ROD Amendment and 2009 Explanation of Significant Differences. This PCOR was prepared in accordance with *Close Out Procedures for National Priorities List Sites* (OSWER Directive 9320.2-22, dated May 2011). The final construction activity was the building and continuing operation of an 80+ gallon-per-minute groundwater extraction system that discharges the contaminated water for treatment at the City of Dover sewage treatment plant.

EPA and the State of New Hampshire conducted a pre-final inspection of the Site and groundwater extraction system on April 10, 2012. The pre-final inspection found that only minor punch-list items required completion. The primary element requiring completion was the stabilization of construction staging areas on top the landfill and near the extraction system. EPA and the State of New Hampshire conducted a final inspection of the Site on July 5, 2012. At that time all construction areas were stable and no outstanding construction items were identified. Therefore, no additional construction is anticipated at the Site.

II. SUMMARY OF SITE CONDITIONS

Background

The Dover Municipal Landfill is situated in southeastern New Hampshire, Strafford County, Dover, New Hampshire. The property lies to the south of Tolend Road where it joins Glen Hill Road. Other landmarks include the Cocheco River that lies less than 1000 feet to the north and east, the Bellamy Reservoir that lies less than 2000 feet to the south, and the Calderwood Municipal Well that lies approximately ½ mile to the north. The Bellamy Reservoir is a regional drinking water reservoir serving several communities in southeastern New Hampshire.

The landfill is located in an area of extensive wetlands on a plateau above the Cocheco River. The topography of the surrounding area is generally low. The local stratigraphy consists of interbedded glacial sands and silt that vary in thickness up to 100 feet deep, an underlying 10-foot thick layer of marine clay, and ultimately bedrock. The most significant topographic feature is the Cocheco River which is incised 30 to 40 feet below the glacial plateau. Surface water flow near the landfill is collected in two ditches that were dug around the landfill when it closed. Both ditches collected surface water and leachate breakout from the landfill and directed that water to a swale that discharged to the Cocheco River. The landfill covers approximately 47 acres, and because the landfill was constructed by filling low-areas and wetlands, there is no typical landfill profile that rises above the terrain. The location of the Site and surrounding features is shown on Figure 1. The character of the landfill surface is shown in Photo 1.

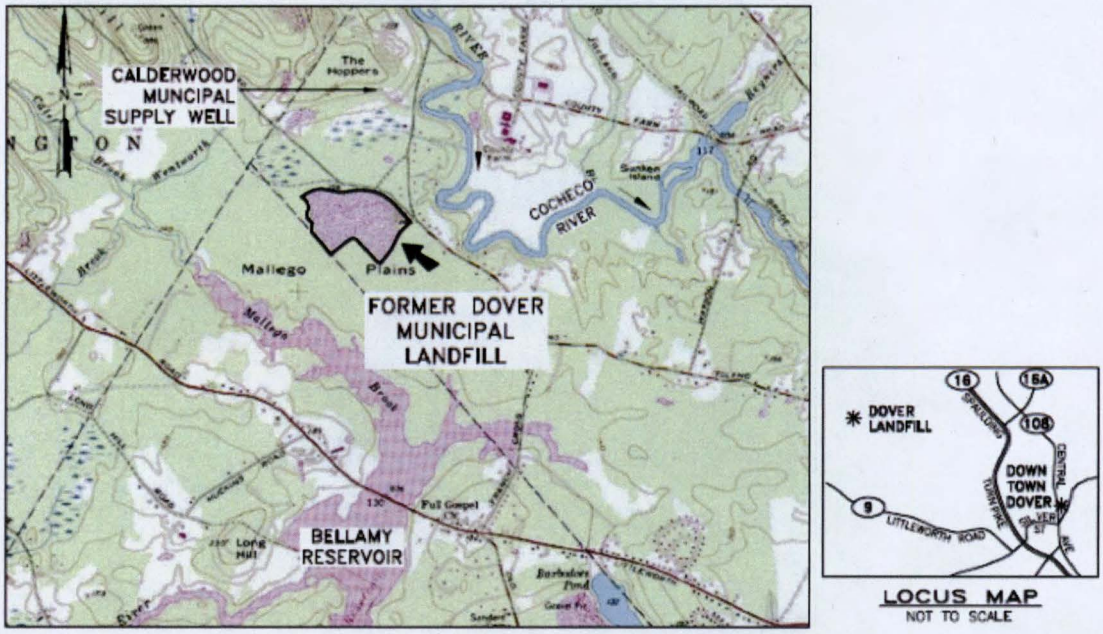

Figure 1: The location and character of the Dover Municipal Landfill.

Photo 1: Standing at the southwest corner of the landfill looking northeast.

The Dover Municipal Landfill began accepting wastes in 1961 and closed in 1979. The landfill accepted household wastes as well as wastes from local industries that included liquid hazardous wastes. The liquid hazardous wastes included chlorinated solvents and tanning solutions. Although disposal practices may have varied, in the later years of operation, the liquid hazardous wastes were poured into surface water impoundments on the landfill surface for disposal.[1,2]

In the early 1980's ground water and surface water contamination were found in wells and surface water bodies located both on and off the landfill. The Site was placed on the National Priorities List on September 8, 1983. Remedial Investigations begun by EPA and completed by a number of the parties that formed the *Executive Committee of the Group of Work Settling Defendants, Dover Municipal Landfill* (the Group) in the late 1980's found pervasive ground water, surface water and air contamination. In addition to wastes within the footprint of the landfill, two plumes of contaminated groundwater were found to be migrating from the landfill. One groundwater plume was migrating eastward to the Cocheco River while another plume was found to be migrating southward from the Site toward the Bellamy Reservoir.[3]

1991 Record of Decision

Based on the Remedial Investigations, EPA issued a ROD in 1991 that selected a number of actions to address unacceptable risk to human health.[4] The 1991 ROD selected the following remedial actions:

1. Cap the 50-acre landfill to prevent contact with wastes and prevent infiltration of uncontaminated water.
2. Install a 25-foot deep groundwater interception/diversion trench to intercept contaminated groundwater migrating from the landfill and prevent clean groundwater from entering the waste with discharge to the Cocheco River or pretreatment and discharge to the POTW.
3. Allow natural attenuation to reduce the concentration of the groundwater contamination in the Eastern Plume.
4. Pump-and-treat contaminated groundwater in the Southern Plume.
5. Re-contouring and construction of a landfill cap with methane gas collection and passive venting.
6. Limited drainage swale sediment removal and disposal of those materials under the cap.

After the 1991 ROD was issued, the Group agreed in a 1992 Amended Administrative Order on Consent (AOC) to further characterize the horizontal and vertical extent of the Southern Plume contamination and determine whether the contamination had reached, or would reach, the Bellamy Reservoir.

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[1] GeoInsight, *Revised Focused Feasibility Study*, January 30, 2004.
[2] USEPA, Environmental Monitoring Systems Laboratory, *Site Analysis Dover Landfill*, TS-PIC-85010, Las Vegas, NV, March 1985.
[3] USEPA, *Addendum to Revised Focused Feasibility Study*, pages 10 – 17, June 18, 2004.
[4] USEPA, *Record of Decision*, September 1991.

A Consent Decree to implement the provisions of the 1991 ROD was signed in 1992. However, since the Southern Plume was relatively undefined, it was agreed that the cleanup of the Southern Plume would be suspended while the Southern Plume Pre-Design Investigation (SP-PDI) was proceeding. Therefore, the Consent Decree demurred on implementing the pump-and-treat remedy in the Southern Plume. The SP-PDI was completed in 1994.

The 1994 SP-PDI found that the leading edge of the Southern Plume in the most contaminated portion of the aquifer, the interbedded zone, had not significantly changed from the 1991 Remedial Investigation and was still located near the southern toe of the landfill. The SP-PDI concluded that groundwater flow is ultimately towards the Cocheco River in the interbedded layer and that the contaminated groundwater in the interbedded aquifer of the Southern Plume would not pose a threat to the Bellamy Reservoir if the landfill were capped. The MODPATH modeling analysis found that even in the no-cap scenario the contaminants in the interbedded zone migrate very slowly and will have only migrated 350 feet beyond the landfill toe at the end of forty years. The SP-PDI concluded that the Bellamy Reservoir would not be impacted by the Southern Plume and that groundwater extraction and treatment in the Southern Plume was not necessary.[5] EPA did not accept these findings as sufficient to amend the 1991 ROD and to change the remedy for the Southern Plume. EPA maintained that further monitoring and investigation was necessary to determine the fate of contaminated groundwater south of the landfill.

In February 1995 the Group submitted a Pre-Design Investigation report for constructing a cap over the landfill, the Source Control Pre-Design Investigation (SC-PDI), as required by the 1992 Consent Decree Scope of Work. The SC-PDI examined the consolidation of contaminated sediment in the ditches, detailed the elements of capping the landfill, described the details of installing and operating the ground water interceptor/diversion trench, characterized the wetlands, and determined a background concentration for arsenic in ground water at the Site of less than 10 parts per billion.[6]

A number of subsequent studies, performed independently by the Group, followed the SC-PDI and were issued in May 1996. These reports further described the hydrogeology of the Site and discussed treatability studies to address ground water contamination using *in situ* bioremediation and air stripping. The results of these studies were offered by the Group as an alternative to the 1991 ROD remedy for the Southern Plume.[7] EPA

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[5] SEA Consultants, Inc., *Pre-Design Study, Southern Plume*, Executive Summary, page ix, Cambridge, MA, July 1994.

[6] Golder Associates, Inc., *Pre-Design Investigation Report, Dover Municipal Landfill, Dover, New Hampshire*, Manchester, New Hampshire, February 1995.

[7] GeoInsight, Inc., Attachment A, Updated Hydrogeologic Information; Attachment B, Treatability Study Report; Attachment C, Limited Field Sparging Test Summary Report; Attachment D, Treatability Study Work Plan; Attachment E, Focused Feasibility Study; Attachment F, Field Demonstration Work Plan. Londonderry, New Hampshire, May 17, 1996.

reviewed these documents and found several deficiencies in the proposed alternative and ultimately did not approve further action with respect to these studies.[8]

The SC-PDI served as the basis of the remedial design for the cap and the ground water interceptor/diversion trench. A 100% remedial design was submitted by the Group in December 1996; however, it was not approved pending consideration of a new approach to Source Control remediation. In 1996, based on communication between the Agencies and the Group, a new, *in situ* bioremediation approach was developed for consideration as an alternative to the Source Control component of the 1991 ROD.

The Group conducted a pilot test of this new, *in situ* bioremediation approach under a 1997 Administrative Order on Consent (1997 AOC). The 1997 AOC held the approval and implementation of the 1996 remedial design of the landfill cap and implementation of the 1992 Consent Decree in abeyance until the conclusion of a Bioremediation Pilot Project. Accompanying the 1997 AOC was a Memorandum of Understanding establishing NHDES as the lead agency for oversight of the Bioremediation Pilot Project.

The Bioremediation Pilot Project began in 1997. The project sought to mineralize or immobilize Site contaminants by injecting amendments into the ground water. The Pilot Project concluded in 2001 with the NHDES and EPA determining that this alternative approach had failed to prove superior to the 1991 ROD for the Source Control component. The Pilot Project failed primarily because low values of dispersion in the aquifer prevented the homogeneous and predictable distribution of amendments needed to ensure the destruction or immobilization of contaminants.[9,10]

2004 Record of Decision Amendment

The Agencies believed that despite the failure of the bioremediation pilot, that the remedy proposed by the Group would be viable if the delivery of the amendments was by a continuous source, such as a porous media trench. The Group therefore developed a remedy using a trench that spanned the aquifer to distribute the amendments which could ensure complete mixing. The Group then prepared a Revised Focused Feasibility Study (RFFS), completed on January 30, 2004. EPA responded to that document by issuing EPA's Addendum on June 18, 2004 which clarified several issues that the Agencies believed were not appropriately addressed.

The RFFS and EPA's Addendum served as the basis of the 2004 Record of Decision Amendment (2004 AROD). The 2004 AROD retained all the components of the 1991 ROD but replaced capping the landfill and capturing leachate with a treatment trench that surrounded the landfill. Because of the innovative nature of this remedy, a number of pre-design investigations were mandated to better define conditions at the Site.[11]

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[8] Comment letter from A. F. Beliveau, EPA QA office, to EPA Project Manager Cheryl Sprague, February 13, 1996. Comment letter from Don Draper, EPA Ada Lab, to EPA Project Manager Cheryl Sprague, October 7, 1996.

[9] Agency Response to the Draft Final Bioremediation Pilot Assessment, Dover Municipal Landfill. Comment letter from Andrew Hoffman, NHDES to Dean Peschel, City of Dover, April 23, 2002.

[10] USEPA, *Addendum to Revised Focused Feasibility Study*, Appendix A, June 18, 2004.

[11] USEPA, *Amended Record of Decision*, Dover Municipal Landfill, September 30, 2004.

2009 Explanation of Significant Differences

The Pre-Design Investigations found that site-specific conditions would present significant challenges to the treatment trench described in the 2004 AROD. More specifically, heterogeneities in the subsurface strata would create conditions in the treatment wall that would overwhelm the air-sparging/treatment wall. Therefore, an Explanation of Significant Differences was issued in 2009 (2009 ESD) that changed the treatment trench selected in the 2004 AROD to ground water extraction within the same foot-print where the treatment trench was to be deployed.[12]

The complete Site remedy ultimately became a combination of the three decision documents described above: the 1991 ROD, 2004 AROD, and 2009 ESD, which addressed the sources of contamination within the landfill (Source Control) and the migration of contaminants in groundwater and surface water from the landfill (Management of Migration). Table 1 outlines the key elements and differences of each of the remedial actions as set forth by the decision documents.

[12] USEPA, *Explanation of Significant Differences, Dover Municipal Landfill Superfund Site, Dover, New Hampshire*, June 30, 2009.

Table 1: Comparison of decision documents at the Dover Municipal Landfill, Source Control components.

1991 ROD REMEDY	Change from 1991 ROD to 2004 AROD	Change from 2004 AROD to 2009 ESD
	SOURCE CONTROL COMPONENTS	
Landfill Cap • Contour the existing landfill to attain grades for drainage. • Place a RCRA type-C cap over the entire landfill. • Construct a leachate collection / groundwater diversion system. • Collect methane gas through passive venting.	**Air Sparging Trench** • Install > 3,000 feet of trenching and sheet piles to depths of up to 100 feet. • Inject air sufficient to precipitate arsenic, biodegrade THF, and entrain VOCs. • Discharge recovered VOCs to the atmosphere. • RCRA C cap is deleted but retained as a contingent remedy; the existing, natural surface will be maintained. • Install sheet piling on northern and southern edges of landfill.	**Groundwater Extraction** *(selected to replace Air-Sparging Trench)* • Install multi-depth wells along the toe of the landfill. • Pump contaminated groundwater and discharge it to sewer pipe to convey to Dover Publically-Owned Treatment Works (POTW). • RCRA C cap is maintained as a contingency. • No sheet piling used.
Not included in 1991 ROD	**Southwest Landfill Hotspot** • Pump-and-treat THF contaminated groundwater and recharge to aquifer.	Recovery wells of the Groundwater Extraction system were sited to speed recovery in this area.
Not included in 1991 ROD	**Northwest Landfill Hotspot** • Air Sparging and Vacuum Extraction of contaminants from subsurface to reduce concentrations.	No change from 2004 AROD.
Not included in 1991 ROD	**Institutional Controls** • Impose Institutional controls to restrict the use of the landfill surface to those activities that do not create a risk to human health or the environment or that interfere with the integrity of the remedy.	No change from 2004 AROD.

Table 1 (Continued): Comparison of decision documents at the Dover Municipal Landfill, Management of Migration components.

1991 ROD	Change from 1991 ROD to 2004 AROD	Change from 2004 AROD to 2009 ESD
	MANAGEMENT OF MIGRATION	
Southern Plume • Pump-and-treat contaminated groundwater. • Treated groundwater to be discharged to wetlands at the Site or the Dover POTW	No change from 1991 ROD.	No change from 1991 ROD.
Eastern Plume • Monitored natural attenuation of contaminated groundwater. • Contingent, active remedy if no progress 5 – 7 years after SC remedy begins operation.	No change from 1991 ROD.	No change from 1991 ROD.
Sediment in Ditches & Swale • Monitoring and remedial action to reduce risk if > 50 mg/kg of arsenic in sediment of ditch or swale.	No change from 1991 ROD.	No change from 1991 ROD.
Not included in 1991 ROD	**Cocheco River Sediment Investigation added…** • Monitor to determine if a risk is posed to human health or environment. • Conduct remedial action if an unacceptable risk is determined.	No change from 2004 AROD.
Not included in 1991 ROD	**Vapor Intrusion** • Monitor near surface groundwater adjacent to homes on Tolend Road to determine risk. • Conduct mitigation measures if the potential of an unacceptable risk is determined.	No change from 2004 AROD.
Institutional Controls • Established to prevent the use of groundwater.	No change from 1991 ROD.	No change from 1991 ROD.

Response Actions

Subsequent to each of the decision documents, actions were taken to assess or address contamination in or surrounding the landfill. In 1997 the sediments in the perimeter ditch and drainage swale were evaluated against the standards in the 1991 ROD.[13] Based on that report, an interim remedial action removed sediment contaminated with arsenic above 50 parts per million from the perimeter ditch in conformance with the 1991 ROD.[14]

[13] GeoInsight, *Trench and Swale Characterization Report*, October 1998.

[14] GeoInsight, *Remedial Action Summary Report - Interim Remedial Action Perimeter Trench and Swale*, 2001.

In 2008 the Group constructed and began operating the Southern Plume groundwater extraction system.[15] This system was operated on a seasonal basis recovering contaminated groundwater from the Southern Plume. Over approximately 4 seasons of operation the system removed 15.9 pounds of VOCs from the groundwater. Operation was discontinued in 2012 to better assess groundwater extraction from the toe of the landfill.

A component of the 2004 ROD Amendment was allowing infiltration through the landfill to drive contaminants to the treatment wall. The RCRA C type cap was retained as a contingent remedy. This contingency hasn't been invoked because it never became necessary.

Based on the results of a pre-design investigation described in the 2004 AROD, the Dover Group designed and built an AS/SVE system to address an area of concentrated volatile organic contaminants (VOCs) in the Northwest Landfill Hot Spot.[16] The AS/SVE system was constructed in 2008 and 2009 and became operational in August 2009. The system operated on a seasonal basis between 2009 and 2011 and during that time removed approximately 43,342 pounds of VOCs.[17] The Northwest Landfill Hot Spot RA was suspended in 2012 to evaluate for rebound conditions and in anticipation of start-up of the groundwater extraction system.

Institutional controls consist of fencing designed to prevent access and zoning overlay districts established by municipal ordinances to prevent the use of groundwater. The City of Dover provided drinking water to residences surrounding the Site in 1981. A municipal ordinance to prevent the use of groundwater was subsequently enacted by the City in 1987.[18] The contaminated groundwater plume also has affected areas in the neighboring community of Madbury. Although no residences are located in Madbury, a similar ordinance was enacted by the Town of Madbury in 1992. Monitoring of these Institutional Controls has found that no one within the affected area is using contaminated groundwater.[19]

The last remaining remedial action at the Site was construction of the Source Control Remedial Action (SCRA) consisting of 17 clusters of groundwater recovery wells arrayed around the landfill to capture contaminants migrating from the landfill in groundwater. Construction began in Autumn 2010 and concluded in February 2012. Although extraction rates will vary dependent upon operational efficiencies, the rate of

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[15] GeoInsight, Interim Remedial Action Report, Southern Plume Management of Migration, September 14, 2009.
[16] XDD, Inc., *Northwest Landfill Response Action,* October 24, 2008.
[17] GeoInsight, *Quarterly Progress Report, Dover Municipal Landfill Superfund Site*, January 10th, 2012, page 2.
[18] City of Dover, *170-28.5 Hazardous Waste Landfill District I. Ord. No. 9-87*, May 13, 1987.
[19] Letter from Dean Peschel, Peschel Consulting LLC, to EPA Site Manager Darryl Luce, March 12, 2012.

extraction is approximately 80+ gallons per minute. Details of the construction, including the as-built drawings are contained in a Final Construction Report.[20]

Remedial Action Objectives

Remedial Action Objectives (RAOs) for the Site were presented in the 2004 AROD. The RAOs for each of the media and the methods used to address them are:

RAOs for Hazardous Wastes in the Landfill

1. Facilitate the treatment of contaminants in the landfill and their transport to ground water and subsequent destruction or capture.
2. Prevent direct contact with and ingestion of contaminated solid waste materials present in the landfill.
3. Evaluate additional remedial measures for contaminant source areas that may not be adequately or efficiently conveyed to ground water for destruction or capture.
4. Implement measures to meet clean closure requirements.
5. Comply with federal and State ARARs.

The first of these RAOs was modified by the 2009 ESD. Instead of the contaminants being flushed to a treatment wall and treated *in situ*, the method of the 2004 AROD remedy, the contaminants are flushed to a network of recovery wells, extracted, and discharged to the POTW for treatment and disposal. The fourth RAO has not been met, but the goal is for the extraction system to recover all contaminants until groundwater at the Site attains cleanup levels. It is estimated that cleanup levels for VOCs will be attained in 9 to 65 years, and that arsenic cleanup levels will be attained in 92 to 100 years.[21] The remaining RAOs were met by implementing the PDI investigations and SCRA.

RAOs for On-Site Sediments in the Perimeter Ditches

1. Eliminate or minimize the potential human exposure to, and environmental impact from, the contaminated sediments located in the landfill drainage trench and at the outlet of the trench discharging to the drainage swale to the Cocheco River.
2. Eliminate or minimize the migration of contaminated sediments from the landfill drainage swale into the Cocheco River and along the banks of the Cocheco River.
3. Contain or remove contaminated sediments in a manner protective of human health and the environment.
4. Comply with federal and State ARARs.

These RAOs were met during construction of the SCRA.[22] Although some portions of the perimeter ditch remain open along the northern border of the landfill, arsenic has not

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[20] GeoInsight, *Final Construction Report, Source Control Remedial Action, Dover Municipal Landfill Superfund Site, Dover, New Hampshire*, August 1, 2012.
[21] *Final Remedial Action Report...*, August 1, 2012, page 25.
[22] *Final Remedial Action Report...*, August 1, 2012, page 21.

been found in concentrations exceeding the action levels. This ditch is approximately 1100 feet long and varies in width from 2 to 7 feet and depths from 0.5 to 1 feet. This ditch will be filled in September 2012 to eliminate a surface water discharge of iron and accommodate monitoring requirements. Future monitoring will ensure that the remaining sediments do not exceed the action limits.

RAOs for On-Site Ground Water, Surface Water, and Leachate

1. Contain and control the generation and migration of impacted ground water and leachate on-Site serving as a source of off-Site ground water and potential surface water contamination and impact to the drainage trenches.
2. Reduce the total mass of contaminants present in ground water and leachate to MCLs or levels protective of human health and the environment prior to discharge.
3. Comply with federal and State ARARs.

Monitoring will be conducted to ensure that the extraction wells are recovering groundwater to meet these RAOs.

RAOs for Air

1. Eliminate or minimize risk to human health due to off-gassing of VOCs contained in the surface water currently flowing through the landfill drainage trenches.
2. Eliminate fugitive dust emissions from the landfill.
3. Eliminate or minimize the potential risk to human health from migration of VOC vapors from the ground water into the basements of existing homes or future structures should additional development occur in the area.
4. Comply with federal and State ARARs.

The operation of the SCRA will ensure that these RAOs are met. A prior investigation of the potential for vapor intrusion into nearby homes found no completed pathway.[23, 24]

RAOs for Off-Site Ground Water and Surface Water

1. Eliminate or minimize the levels of contaminants in the ground water and leachate emanating from and down-gradient of the landfill. The off-Site contaminated ground water will be compared to MCLs. If no MCL or non-zero MCLG exist, a target level for treatment of that contaminant will be used. This target level will be established at a level which is protective of human health and the environment.
2. Eliminate or minimize the threat posed to the public health and surrounding environment by the current extent of the contaminated ground water, including potential indoor air exposures.

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[23] GeoInsight, *Technical Memorandum, Response to USEPA's comments, February 2008 Quarterly Groundwater Monitoring Event, and Soil Vapor Intrusion Summary Investigation Report,* December 9, 2008.

[24] Correspondence from Darryl Luce, EPA Site Manager to Dean Peschel, Environmental Projects Manager, Dover Group, September 23, 2009.

3. Prevent the discharge of impacted ground water from the Site from entering surface water bodies above concentrations that are protective of human health and the environment.
4. Comply with federal and State ARARs.

Monitoring will be performed to determine progress in attaining cleanup levels in groundwater down-gradient of the SCRA. The Southern Plume pump-and-treat system was discontinued to allow the SCRA to operate and determine its effective area of influence. If it is determined that the SCRA is acting to recover contaminants in the Southern Plume, the Southern Plume pump-and-treat system may be suspended indefinitely. EPA anticipates that natural attenuation will be effective in remediating the Eastern Plume to cleanup goals. However, the Eastern Plume of contamination will be assessed 5 to 7 years after the SCRA becomes operational. If it is determined that natural attenuation of contamination in the Eastern Plume has been unsuccessful an active remedy for this area will be investigated and implemented.[25]

RAOs for Off-Site Sediments in the Cocheco River

1. Eliminate or minimize any impact from arsenic-contaminated sediments in the Cocheco River to human health or ecological receptors.
2. Comply with federal and State ARARs.

Monitoring will be performed to determine if these RAOs are met.

Table 2: Completed Site remedial activities.

Task	Date	Organization Responsible
Remedial Action Start, Southern Plume pump-and-treat	September 2008	The Group
Interim Remedial Action Report	September 2009	EPA
Southern Plume, Operation & Maintenance (O&M) Start	September 2009	The Group
Northwest Landfill, Air-sparging/Soil vacuum extraction begins	April 2009	The Group
Remedial Action Start, SCRA pump and treat	September 2010	The Group
Groundwater Institutional Controls Established	June 2010	EPA, NHDES
SCRA groundwater extraction begins	February 2012	The Group
Pre-Final Inspection, SCRA	April 10, 2012	EPA, NHDES
Final Inspection, SCRA	July 5, 2012	EPA, NHDES
RA Report approved	August 8, 2012	The Group
SCRA, O& M Start	August 8, 2012	The Group

[25] *1991 ROD*, page 57.

Redevelopment Potential
The 47-acre landfill has limited uses due to the presence of buried wastes underlying a thin soil cover. No formal reuse plans have been developed for the Site.

III DEMONSTRATION OF CONSTRUCTION QUALITY ASSURANCE AND QUALITY CONTROL

The methods, procedures, inspections and tests were performed in accordance with the Construction Quality Assurance Plan prepared as part of the EPA approved design. The construction contractors Quality Control Plans were implemented and verified by the independent Construction Quality Assurance Engineer, the EPA's remedial project managers, the EPA's remedial action oversight contractors, and the NHDES project managers. Construction completion is consistent with the relevant portions of the 1991 ROD, 2004 AROD and 2009 ESD.

IV SCHEDULE OF ACTIVITIES FOR SITE COMPLETION

All major construction activities have been completed at the Site. Other activities associated with the Site completion will be performed according to the schedule in Table 3:

Table 3: Schedule of remaining activities for Site completion.

Task	Date	Responsible Organization
Closing of Northern Perimeter Ditch	September 2012	The Group
Re-Issuing Operation, Maintenance and Monitoring Plan	September 2012	The Group
Monitoring of groundwater, surface water, and sediments	Begins September 2012 and continues semi-annually	The Group
Monitor Institutional Controls	Began December 2010 and continues annually	The Group
First Five-Year Review	September 2017	The Group
Final Site Inspection	September 2038	EPA, NHDES
Final Close Out/Final Remedial Action Report	September 2038	EPA, NHDES
NPL Site Deletion	September 2038	EPA, NHDES

All preliminary completion requirements for the Site have been met as specified in OSWER Directive 9320.2-22. Specifically, a final inspection was conducted on July 5, 2012 by the EPA and the State of New Hampshire which verified that all construction activities scheduled and planned as part of the last remedial action for the Site have been completed.

V FIVE-YEAR REVIEW

Hazardous substances will not remain at the Site above levels that allow unlimited use and unrestricted exposure after the completion of the remedial actions but will require five or more years from construction completion to attain cleanup levels. Pursuant to CERCLA §121(c) and as provided in the current guidance on Five-Year Reviews (OSWER Directive 9355.7-03B-P, June 2001), EPA must conduct, as a matter of policy, five-year reviews until all cleanup levels are met. The first Five-Year Review Report is scheduled for the last quarter of fiscal year 2017. Institutional controls to prevent consumption of groundwater and prevent activities that would compromise the integrity of the remedy are in place and are successfully preventing exposures. However, currently there are no development or use activities on any properties that would present an unacceptable exposure risk to Site contaminants.

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9/6/12
Date

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