FIVE-YEAR REVIEW REPORT FOR MCKIN COMPANY SUPERFUND SITE CUMBERLAND COUNTY, MAINE

Prepared by

U.S. Environmental Protection Agency
Region 1
BOSTON, MASSACHUSETTS

James T. Owens, III, Director
Office of Site Remediation and Restoration

9/30/13
Date

SDMS Doc ID 547728

2013 FIVE-YEAR REVIEW
MCKIN COMPANY SUPERFUND SITE

TABLE OF CONTENTS

	EXECUTIVE SUMMARY	v
I.	**INTRODUCTION**	1
II.	**PROGRESS SINCE THE LAST REVIEW**	1
III.	**FIVE-YEAR REVIEW PROCESS**	4
IV.	**TECHNICAL ASSESSMENT**	10
V.	**ISSUES/RECOMMENDATIONS AND FOLLOW-UP ACTIONS**	14
VI.	**PROTECTIVENESS STATEMENTS**	14
VII.	**NEXT REVIEW**	15

APPENDICES

APPENDIX A. EXISTING SITE INFORMATION
APPENDIX B. PRESS RELEASE ANNOUNCING FIVE-YEAR REVIEW
APPENDIX C. SITE FIGURES
APPENDIX D. DECLARATION OF ENVIRONMENTAL COVENANT

LIST OF ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	United States Environmental Protection Agency
CFR	Code of Federal Regulations
DNAPL	Dense, Non-Aqueous Phase Liquids
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
GETS	Groundwater extraction and treatment system
ICs	Institutional Controls
ICZ	Institutional Control Zone
LTMP	Long-Term Monitoring Plan
MCL	Maximum Contaminant Level
MEDEP	Maine Department of Environmental Protection
MEG	Maine Maximum Exposure Guideline
Mg/kg	Milligrams per Kilogram
MW	Monitoring well
NCP	National Contingency Plan
NPL	National Priorities List
OU	Operable Unit
PPB	Parts Per Billion
PPM	Parts Per Million
PCE	Tetrachloroethylene
RAO	Remedial Action Objective
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SWQC	State Water Quality Criteria
TCA	1,1,1-trichloroethane
TCE	Trichloroethylene
VOC	Volatile Organic Compound
µg/L	Micrograms per Liter

EXECUTIVE SUMMARY

This is the fifth Five-Year Review (FYR) for the McKin Company Superfund Site (Site) located in the Town of Gray, Cumberland County, Maine (the "Town"). The purpose of this FYR is to review information to determine if the remedy is and will continue to be protective of human health and the environment. The triggering action for this statutory FYR was the signing of the previous FYR on September 30, 2008.

The Site was operated as a collection and transfer station and disposal facility for waste oil and industrial process waste from 1965-1977. In 1978, sixteen private wells were capped due to volatile organic compound contamination, and the Gray Water District water system was extended to the East Gray area where the Site is located. Between 1979 and 1983, Maine Department of Environmental Protection (MEDEP) conducted a removal of liquid wastes, drums, solid materials and soil. The United States Environmental Protection Agency (EPA) signed a Record of Decision (ROD) in 1985 that selected a remedy for the contaminated soil on the McKin property and for the contaminated groundwater. The remedy included thermal treatment of soils, drum disposal, construction of a groundwater extraction, treatment and surface water discharge system (GETS), groundwater monitoring, and Site closure activities. The Site has two Operable Units or "OUs": OU1 comprised of the McKin property, and OU2 comprised of the properties beyond the McKin property where groundwater contamination came to be located.

In the late 1980s, a group of responsible parties (the "Settling Parties") conducted remedial activities related to soil on the McKin property. In 1987, the Settling Parties submitted a Site remediation and closure report to EPA and MEDEP. The soil remediation component of the remedial action was completed with the submittal of this report.

The Settling Parties constructed the GETS in 1990 and operated the system until October 1995 when EPA and MEDEP agreed to a shutdown of the system while an evaluation was performed to determine whether it was technically practicable to restore groundwater. The agencies and the Settling Parties were unable to reach a consensus regarding groundwater restoration, so in 1997, the parties entered into a mediation process. This process was expanded to include the Town, Gray Water District, a community group funded by EPA, and other interested parties. The result was an Amended ROD that EPA issued in 2001 that modified the groundwater remedy to waive groundwater cleanup standards, require institutional controls on properties within a defined area impacted by the groundwater contamination (the "Institutional Control Zone"), increase long-term monitoring with a contingency response for surface water, and to include actions to address contamination as it reaches surface water in the Boiling Springs area. This amendment was made with the understanding of all the parties that the timeframe to meet drinking water standards in groundwater through natural processes was estimated to be up to fifty years.

The institutional controls selected in the Amended ROD included a Town ordinance to prevent use of the groundwater within the Institutional Control Zone, restrictive covenants for nineteen sub-dividable properties, conservation easements for two properties to protect against future development along reaches of Collyer Brook and the Royal River, and a restrictive covenant on the McKin property.

The long-term monitoring selected in the Amended ROD included additional groundwater and surface water monitoring with increased surface water monitoring locations in 2009 and 2013,

installation of wells along the interpreted perimeter of the plume, data evaluation to confirm decreasing contaminant concentrations, and a refinement of the estimated timeframe to meet federal and state standards. The modified remedy also included an engineered cover for the Boiling Springs area, an area within the Royal River floodplain where contaminated groundwater discharged to the ground surface as springs. The engineered cover was completed in September 2000.

As noted in previous five-year reviews, the Town adopted a Groundwater Ordinance on January 22, 2002; nineteen property owners signed restrictive covenants for their properties; and two property owners signed conservation easements for their properties along Collyer Brook and the Royal River. The McKin property owner signed an environmental covenant that was recorded on September 27, 2013. Surface water and groundwater monitoring is being conducted by the Settling Parties in accordance with the long-term monitoring plan.

According to data reviewed, observations from the inspection of the Site, and interviews, the remedies have generally been implemented in accordance with the requirements of the 1985 ROD and 2001 Amended ROD. The source control portion of the remedy is complete. Implementation of institutional controls has thus far ensured the integrity of the remedial measures conducted at the Site, and prevented exposure to contaminants contained in groundwater. All homes within the Institutional Control Zone are supplied with water from the Gray Water District. Groundwater and surface water monitoring continue in accordance with the long-term monitoring plan as specified in the Amended ROD. In 2009 and 2013 additional surface water monitoring was conducted at locations in the Royal River that demonstrated the surface water standard had been attained. Therefore the contingency cleanup, as detailed in an insurance policy purchased by the Settling Parties, was not exercised. Regression analysis of groundwater data through Spring 2013 indicates the contaminant concentrations are continuing to decrease and drinking water standards may be attained more quickly in some locations than was originally calculated during the mediation process.

Additionally, since the 2001 Amended ROD, EPA issued a draft national guidance concerning the vapor intrusion pathway. EPA has conducted investigations of this pathway since 2006 through 2013. The data do not indicate an unacceptable risk from this pathway.

Two components of the 2001 remedy have yet to be implemented: a new series of wells (900-series wells) originally required to provide assurance regarding the lateral extent of the groundwater contamination have not been installed; and residential wells have not been permanently abandoned. As discussed below in Table 1 and Section II, however, EPA and MEDEP have concluded that the new series of wells would not provide the necessary assurance that the bedrock groundwater has been restored and the process for abandoning the residential wells has begun.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: McKin Company Superfund Site		
EPA ID: MED980524078		
Region: 1	**State:** ME	**City/County:** Gray, Cumberland

SITE STATUS	
NPL Status: Final	
Multiple OUs? Yes	**Has the site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: EPA and MEDEP (Consent Decree indicates this is a joint lead site)
Author name (Federal or State Project Manager): Terrence Connelly
Author affiliation: EPA
Review period: 7/11/2013 – 9/30/2013
Date of site inspection: August 20 and 21, 2013
Type of review: Statutory
Review number: 5
Triggering action date: 9/30/2008
Due date *(five years after triggering action date)*: 9/30/2013

Issues and Recommendations Identified in the Five-Year Review:

OU(s): *OU2*	**Issue Category: Monitoring**			
	Issue: vapor intrusion pathway			
	Recommendation: Set up periodic review of toxicity data and guidance and monitoring if necessary			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	EPA/State	EPA/State	2/28/2018

OU(s): *OU2*	**Issue Category: Institutional Controls**			
	Issue: No formal compliance monitoring program			
	Recommendation: Determine appropriate schedule and responsibilities			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	EPA/State/Settling Parties	EPA/State	2/28/2018

OU(s): *OU2*	**Issue Category: Operations and Maintenance**			
	Issue: Residential wells have not been permanently abandoned			
	Recommendation: Complete process outlined in 2001 Remedial Action Work Plan			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	EPA/Settling Parties	EPA/State	2/28/2016

Protectiveness Statement(s)	
Operable Unit: OU1	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy at OU1 is protective of human health and the environment because source remediation was completed and because OU1 is located within the Town of Gray groundwater ordinance zone that prohibits any use of groundwater and an environmental covenant for the McKin property has been recorded.	

Protectiveness Statement(s)	
Operable Unit: OU2	*Protectiveness Determination:* Short-term Protective
Protectiveness Statement: The remedy at OU2 is protective of human health and the environment because OU2 is located within the Town of Gray groundwater ordinance zone that prohibits any use of groundwater. In addition, the water rights of sub-dividable properties within OU2 have been purchased by the Settling Parties adding another layer of institutional controls. Periodic monitoring of the vapor intrusion pathway has found sub-slab concentrations are decreasing, and TCE concentrations detected in indoor air are within both EPA's acceptable risk range and Maine risk levels for residential exposure. However, in order for the remedy to be protective in the long-term, abandonment of residential wells within the IC Zone needs to be completed to ensure protectiveness.	

Sitewide Protectiveness Statement
Protectiveness Determination: Short-term Protective
Protectiveness Statement: Short-term protectiveness has been achieved through overlapping institutional controls. However, in order for the remedy to be protective in the long-term, the permanent abandonment of residential wells within the IC Zone needs to be completed to ensure protectiveness.

I. INTRODUCTION

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

The U.S. Environmental Protection Agency (EPA) prepares FYRs pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121 and the National Contingency Plan (NCP). CERCLA 121 states:

> "*If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*"

EPA interpreted this requirement further in the NCP; 40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii), which states:

> "*If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such actions no less often than every five years after the initiation of the selected remedial action.*"

EPA conducted a FYR on the remedy implemented at the McKin Company Superfund Site in Gray, Cumberland County, Maine. EPA and MEDEP are joint-lead agencies for overseeing the development and implementation of the remedy for the Site by the Settling Parties. MEDEP has reviewed all supporting documentation and provided input to EPA during the FYR process.

This is the fifth FYR for the Site. The triggering action for this statutory review is the completion date of the previous FYR. The FYR is required due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure. The Site consists of two Operable Units, both of which are addressed in this FYR.

II. PROGRESS SINCE THE LAST REVIEW

The fourth Five-Year Review Report was signed on September 30, 2008. The 2008 review found that the OU1 remedy was currently protective because the soil remediation had been completed and the Town of Gray ordinance prohibited the use of groundwater. However, in order for the remedy to be protective in the long-term, the 2008 review found that institutional controls were needed for the McKin

property to limit redevelopment and the approved site closure activities needed to be implemented to prevent accidental pathways to the groundwater. Tables 1 and 2 below present the protectiveness determinations and recommendations from the 2008 FYR.

Table 1: Protectiveness Determinations/Statements from the 2008 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1	Short-term Protective	The on-site remedy (OU1) at the McKin Company Superfund Site currently protects human health and the environment because the soil remediation is complete and the Town of Gray ordinance and other institutional controls prohibit the use of groundwater. However, in order for the remedy to be protective in the long-term, institutional controls are needed on the McKin property. In addition, the approved site closure activities (decommissioning of monitoring wells, infiltration galleries, decontamination pad and removal of all equipment) to prevent accidental exposure to the groundwater need to be implemented.
2	Protectiveness Deferred	The off-site groundwater remedy (OU2) at the McKin Company Superfund Site currently protects human health and the environment because the Town of Gray ordinance prohibits the use of groundwater and other institutional controls are in place. The remedy will remain protective as long as the institutional controls are monitored, maintained, and if necessary, enforced. Without the installation of the 900-series wells that would provide bedrock data, it is expected that the institutional controls will need to remain in place beyond the predicted attainment of federal and state drinking water standards for the overburden groundwater by 2036. No remedy has been selected to address the vapor intrusion pathway, and thus, a protectiveness determination for this pathway cannot be made until further information is obtained.
Sitewide	Protectiveness Deferred	The remedial actions at OU1 are protective; however, because a protectiveness determination cannot be made at this time for OU2, the protectiveness of human health for the entire site is deferred. The following actions need to be taken to ensure protectiveness: complete the second phase of the vapor intrusion investigation; determine whether further investigation is necessary, and then perform a final risk assessment of the vapor intrusion data. It is expected that the second phase activities will be completed by the end of 2008, and any further investigation and risk assessment by summer 2009.

Table 2: Status of Recommendations from the 2008 FYR

OU #	Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Party	Original Milestone Date	Current Status	Completion Date (if applicable)
1	McKin property restrictive covenant	Investigate other options	EPA/MEDEP	EPA/MEDEP	Summer 2009	Under Discussion	
2	Vapor Intrusion	Determine appropriate response action	EPA/MEDEP	EPA/MEDEP	Summer 2009	Completed	5/10/2013
2	900 series wells	Reexamine need and, if appropriate, new strategy for	EPA/MEDEP/SP	EPA/MEDEP	Summer 2009	Under Discussion	

		access					
2	IC compliance monitoring	Determine appropriate schedule and responsibilities	EPA/MEDEP/SP	EPA/MEDEP	Summer 2009	Under Discussion	

Status of Recommendations from the 2008 FYR.

Recommendation 1

- The McKin property owner signed an environmental covenant on September 17, 2013. Following signings by MEDEP and EPA, the Settling Parties submitted the document to the Cumberland County Registry of Deeds where it was recorded on September 27, 2013 (Book 31052, Pages 201-210). A copy of the environmental covenant is attached in Appendix D.

Recommendation 2

- In 2009 EPA issued an addendum to the 2008 FYR following further sampling for the vapor intrusion pathway. At that time, EPA stated that there was no unacceptable risk from this pathway. With the recent change in the TCE toxicity value, EPA re-sampled indoor air in one home in January 2013 and again concluded that there was no unacceptable risk relating to vapor intrusion. EPA and MEDEP will set up a periodic review of toxicity data and guidance and will conduct further monitoring, if necessary.

Recommendation 3

- EPA, MEDEP, and Settling Parties representatives met in Spring 2009 to discuss the 900-series wells. Following review of the existing data, the scale of OU2 being well over 600 acres, and the lack of bedrock data, the parties concurred that data from the 900-series wells would not provide the high level of confidence necessary to remove restrictive covenants from individual properties or to recommend to the Town to adjust the Institutional Control Zone (ICZ). Therefore the parties agreed that this component of the 2001 Amended ROD would be removed through an Explanation of Significant Differences (ESD). It was further agreed that the ESD would be completed following resolution of the McKin property institutional control.

Recommendation 4

- EPA, MEDEP, and Settling Parties representatives have met several times since the 2008 FYR and this recommendation has been noted as something to be developed following the resolution of the IC on the McKin property.

Remedy Implementation Activities

Additional sampling for the vapor intrusion pathway was performed in 2009 and 2013. As discussed below, no unacceptable risk was found following these two sampling events. The 2009 sampling is

further described in the 2009 FYR Addendum.

System Operation/Operation and Maintenance Activities

Long-term monitoring of groundwater and surface water has continued during the period covered by this review (Fall 2008 to Summer 2013). The Settling Parties submitted an inventory of residential wells in accordance with the 2001 Remedial Action Work Plan.

Operation and maintenance activities have included various decommissioning activities. Since the last five-year review, the treatment building, underground piping, and decontamination pad and tank have been removed or filled. Fifty-four wells, including the four extraction wells, have been decommissioned following MEDEP well abandonment procedures.

III. FIVE-YEAR REVIEW PROCESS

Administrative Components

The Settling Parties were notified of the initiation of the five-year review on April 1, 2013. The McKin Company Superfund Site Five-Year Review was led by Terrence Connelly, the EPA Remedial Project Manager. Rebecca Hewett assisted in the review as the MEDEP representative.

The review, which began on March 11, 2013, consisted of the following components:

- Community Involvement;
- Document Review;
- Data Review;
- Site Inspection; and
- Five-Year Review Report Development and Review.

Community Notification and Involvement

Activities to involve the community in the five-year review process were initiated with a discussion in March 2013 between the Remedial Project Manager and Community Involvement Coordinator for the Site. Per Region 1 policy, a region-wide press release announcing all upcoming five-year reviews in New England was sent to all regional newspapers including the Portland Press Herald. The press release was sent on May 9, 2013 and is attached in Appendix B. The results of the review and the report will be made available at the Site information repository located at

Gray Public Library
5 Hancock Street
Gray, Maine 04039

and at

US Environmental Protection Agency
5 Post Office Square, Suite 100

Boston, MA 02109-3912

Document Review

This five-year review consisted of a review of relevant documents including monitoring data. Applicable groundwater and surface water cleanup standards, as listed in the March 2001 Amended Record of Decision were also reviewed.

Data Review

Groundwater and Surface Water

The Settling Parties conduct routine groundwater and surface water monitoring in accordance with the Long-Term Monitoring Plan (LTMP). The LTMP, approved by the agencies in 2001, is attached to the revised Remedial Action Work Plan, Appendix A to the 2001 Consent Decree Amendment. Monitoring under the LTMP commenced in January 2002.

As detailed in the LTMP, monitoring points were initially placed in one of three categories: active, intermittent, and inactive. The active category included wells that would be sampled quarterly, semi-annually, or annually. When TCE concentrations decreased to less than 50 ppb (ten times the MCL and MEG) in an active well, it was shifted to the intermittent category and sampled once every three years. Once TCE concentrations were below 5 ppb for three consecutive sampling events, the well would be shifted to the inactive category. Between 1998 (three years after GETS shutdown) and 2002, sampling was discontinued at 18 monitoring wells and three seeps/springs. Between 2002 and 2008 and after the LTMP was approved, nine additional monitoring wells and one spring/seep were shifted to the inactive category. At the time of the fourth FYR, 18 monitoring wells and four surface water points were monitored for site-related contaminants. As of June 2013, nine monitoring wells and one surface water point are now being monitored. Springs and seeps have achieved drinking water standards and are no longer monitored. Figures showing the groundwater plume and monitoring locations are attached in Appendix C.

At the time of the 2008 FYR, six VOCs were consistently detected in the groundwater: TCE, 1,1,1-TCA, cis-1,2-dichloroethene, 1,1-dichloroethene, 1,1-dicloroethane, and PCE. Of these six, TCE and 1,1-DCE exceeded Maine MEGs and Federal MCLs with TCE overwhelmingly being the most widespread and having the highest concentrations. Since the 2008 FYR, PCE has not been detected and only TCE has exceeded its MEG and MCL.

Over the last five years, contamination concentrations throughout the eastern plume (discharging in the Royal River) continue to show an overall decreasing trend though not at the rate observed during the 2003-2008 period. Concentrations in the northern plume also continued to decrease and as documented in the 2002 FYR, attenuate to non-detect in the overburden prior to Collyer Brook.

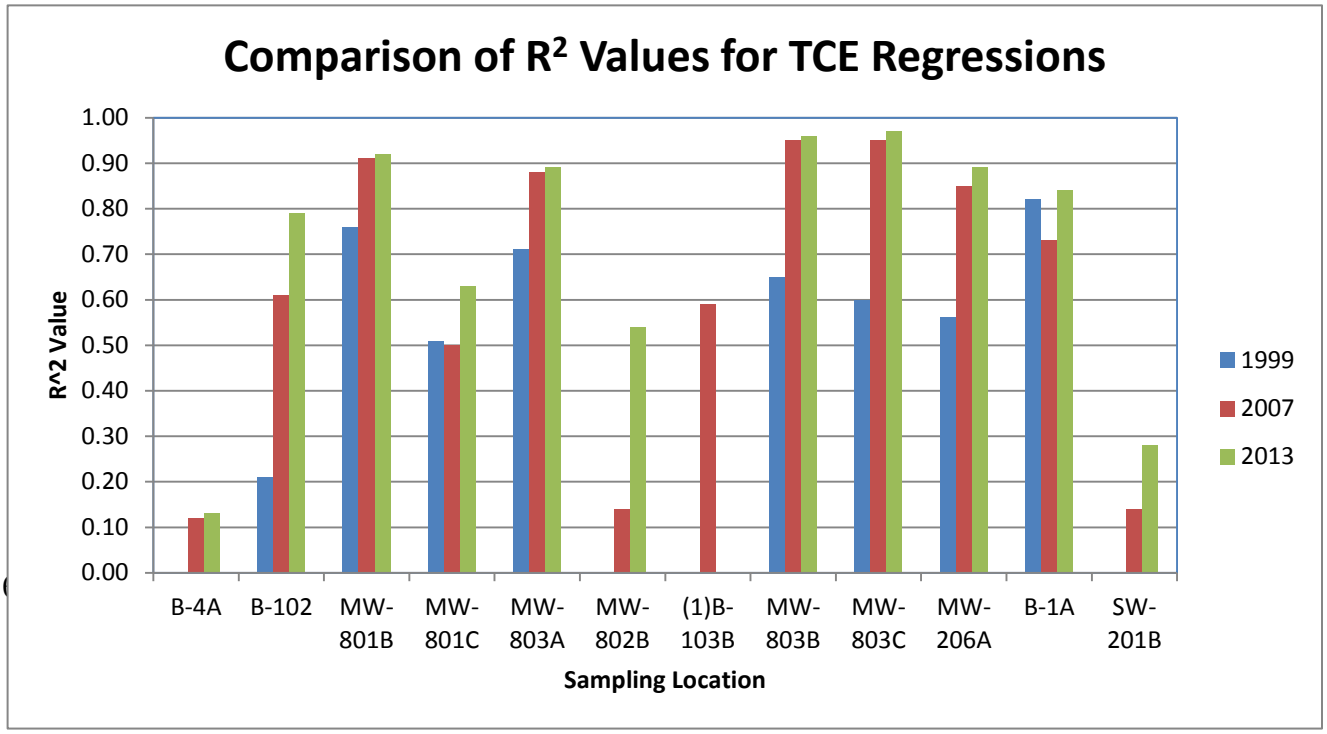
Table 3: TCE Concentrations Since the 2008 Five-Year Review

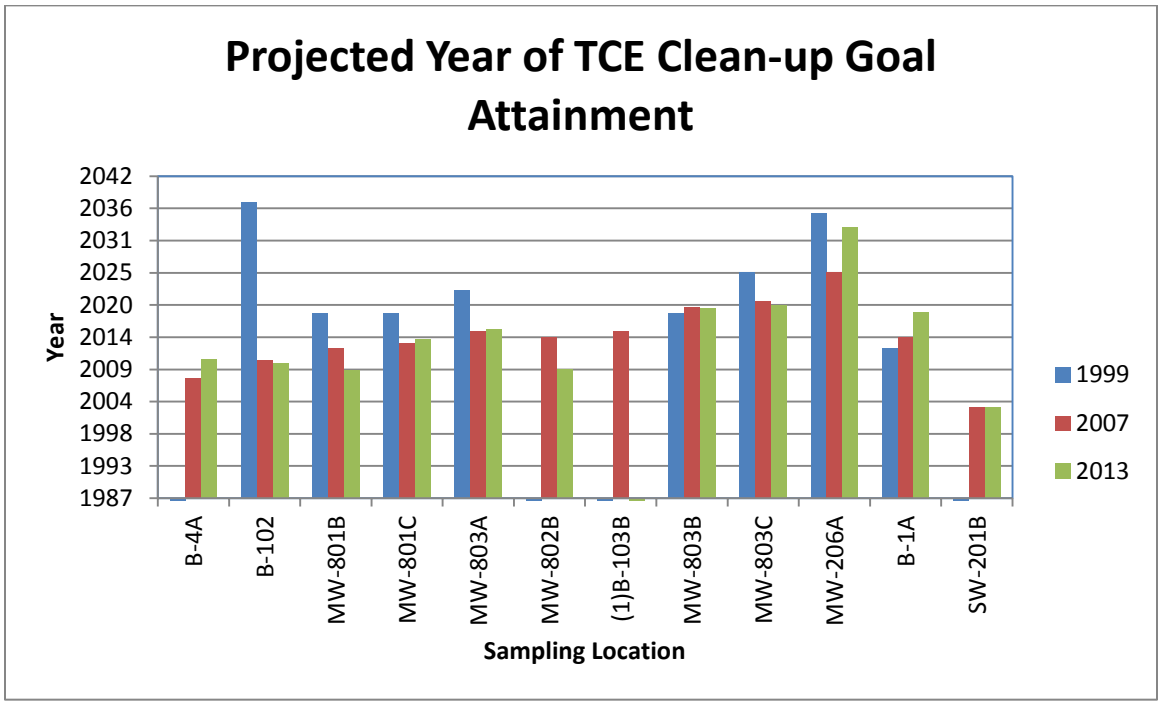
	TCE Concentrations 2008 -2013 (in µg/L)										
Monitoring Location	**Sampling Frequency[1]**	**2008 Sept**	**2009 June**	**2009 Dec**	**2010 Apr**	**2010 Sept**	**2011 Apr**	**2011 Sept**	**2012 Apr**	**2012 Sept**	**2013 Apr**
Eastern Plume											
B-1A	Semi-annual	7					61[2] 68	27	56	40	68

MW-206A	Semi-annual	500/ 390[3]	300	410	450/ 360	210	340	330	240	310	210
B-4A	Every 3 yrs						31/ 41				
MW-801B	Every 3 yrs	2	1						9.7	1.6	1U
MW-802B	Every 3 yrs	11					1	3	5.6	4.1	4.3
MW-803C	Semi-annual	94	58	87/8 2	52	54/ 50	38	23/ 22	31/ 29	33/ 32	22
B-102	Semi-annual	9/1	16/54	0.5U	10/ 0.7	0.5U	43/ 38	0.8/ 3	1U	1U	1U/2.9
B-103	Semi-annual						81	54	120	110	58
Northern Plume											
MW-202A	Semi-annual								3.7	4	3.2
Surface Water											
SW-201	Semi-annual	0.8/1	0.5U	NA[4]	0.5U	2	0.3J	0.4J	1U	1U	1U

Note: Monitoring locations are ordered by distance from the McKin Site
[1] Sampling Frequency according to the approved LTMP, but modified based on results
[2] This sample was collected in January 2011
[3] Duplicate sample represented by /
[4] Sampling location not accessible (ice on river)

In September 2013 the Settling Parties submitted updated regression analyses on monitoring well TCE concentrations used to project the likely year when drinking water standards will be reached. The analysis added sampling results from 2008-2013 to the regression analysis first conducted in 1999. The R^2 values for the regression analysis are statistical measurements of the "goodness-of-fit" of the regression to the actual data points. As noted in the 2008 FYR, the R^2 values for the 2007 analysis were higher than the 1999 analysis indicating greater confidence in the projected estimates for attaining drinking water standards. Similarly, the 2013 analysis indicates the R^2 values continue to improve and further refine the projected timeframe for attaining the drinking water standards. Graphs presenting the R^2 values and the three regression projections are presented below.





Surface Water

Surface water in the Royal River, a State of Maine Class B surface water body, has met the TCE standard since the 2008 FYR. TCE has never been detected in Collyer Brook, a State of Maine Class A surface water body. The Maine.GOV webpage states that Maine has four classes for freshwater rivers. Additionally, the webpage states "The classification system should be viewed as a hierarchy of risk, more than one of use or quality, the risk being the possibility of a breakdown of the ecosystem and loss of use due to either natural or human-caused events. Ecosystems that are more natural in their structure and function can be expected to be more resilient to a new stress and to show more rapid recovery. Class AA involves little risk since activities such as waste discharge and impoundment are prohibited. The expectation to achieve natural conditions is high and degradation is unlikely. Class A waters allow impoundments and very restricted discharges, so the risk of degradation while quite small, does increase since there is some small human intervention in the maintenance of the ecosystem. Class B has fewer restrictions on activities but still maintain high water quality criteria. Finally, Class C has the least restrictions on use and the lowest (but not low) water quality criteria".

Indoor Air

EPA collected soil gas and groundwater samples from well points installed along the roadways around the Site in 2006 (see figure of sample locations in Appendix C). From these data points, six homes on Depot Road were selected for sub-slab soil gas and indoor air sampling in June 2008. Compared to draft screening levels, one home had a slightly elevated carcinogenic risk ($1.2x10^{-4}$). The other homes were within the acceptable carcinogenic risk range, and all homes had a non-cancer Hazard Quotient (HQ) of less than one, indicating no unacceptable non-cancer risks.

Since no remedy had been selected to address the vapor intrusion pathway, the 2008 FYR did not make a protectiveness determination for this pathway. The 2008 FYR recommended that the vapor intrusion investigation be completed and a final risk assessment be performed.

An EPA management briefing was held in February 2009 to determine further steps to take. It was decided to re-sample two homes: 42 Depot Road, which had the slightly elevated carcinogenic risk, and 45 Depot Road where the sub-slab concentrations were elevated. The two homes were re-sampled in April 2009. The data from these two homes were compared to the then current EPA screening levels and used to calculate cancer risks and non-cancer hazards for a residential scenario. The TCE carcinogenic risks were $5.5x10^{-6}$ or less, and HQs were well below one based on these sampling results. Accordingly, the June 2009 risk assessment recommended that no further VI activities be taken.

The September 2009 FYR Addendum noted that there was no unacceptable vapor intrusion risk from the 2009 indoor air data. Although the indoor air data resulted in risks within the EPA's and Maine's acceptable range, the risks were greater than $1x10^{-6}$ and data were close to MEDEP's incremental lifetime cancer risk values. Therefore, the Addendum recommended that the vapor exposure pathway be evaluated during the next five-year review. The Protectiveness Statement stated that the vapor intrusion pathway should be periodically assessed to ensure long-term protectiveness.

With the upcoming 2013 FYR, the 2008 and 2009 data were compared to current (2012) screening levels. The data and screening levels are presented in the table below.

PCE Compared to the 2012 screening levels, the 2008 and 2009 PCE data represent a 10^{-7} carcinogenic risk. The Regional Screening Level (RSL) indicates that the non-cancer PCE screening level is less than ten times the carcinogenic screening level, and, therefore, the 2008 and 2009 data would result in approximately a 10^{-6} non-carcinogenic risk.

TCE Compared to the April 2012 screening levels, the 2009 indoor air data from 42 Depot Road would result in a 1.1×10^{-5} carcinogenic risk and a HQ of up to 2.3. It is noted that the greater risks are associated with samples from a basement that was reported to be a non-living space. Calculated risks from the first floor results are $5.4x10^{-6}$ and a HQ of 1.1.

VC Vinyl chloride was not detected in the indoor air sampling with detection limits ranging from 0.23 to 0.26 $\mu g/m^3$. The April 2012 vinyl chloride screening level is 0.16 $\mu g/m^3$ based on a cancer risk of 1×10^{-6}. Compared to this screening level, assuming the detection limits represent the vinyl chloride concentrations, they result in a 1.6×10^{-6} risk, which remains within EPA's acceptable risk range.

There have been no changes in Site conditions that would result in increased groundwater contaminant concentrations since the last FYR. Groundwater concentrations both upgradient and downgradient of the homes where indoor air samples have been collected have decreased since the last FYR, consistent

with the conceptual site model. There is no expectation that indoor air concentrations would have increased since the 2009 sampling. However, given the change in the TCE toxicity value, a follow-up sample was collected from 42 Depot Road in February 2013. Consistent with the decrease in contaminant concentrations in groundwater, the indoor air concentrations were also less (in fact, TCE and PCE were not detected). Because of the dilution necessary to re-pressurize the sampling device, the achievable detection limit was above the RSL and therefore, conservatively assuming the detection limit also represents the actual concentration, the resulting 2013 carcinogenic risk is 1.1×10^{-6} and the HQ is less than one (0.23).

Table 4: Indoor Air Data Since the 2008 Five-Year Review

	June 2008 Data[(A)]		April 2009 Data[(B)] and risks		2009 Data compared to April 2012 RSLs and risks		2013 Data compared to April 2012 RSLs and risks	
RSLs	TCE 0.022 g/m^3	PCE 0.41 µg/m^3	TCE 1.22 µg/m^3	PCE 0.41 µg/m^3	TCE (10^{-6}) 0.43 µg/m^3 (HI = 0.1) 0.21 µg/m^3	PCE (10^{-6}) 9.4 µg/m^3	TCE 0.43 µg/m^3 (HI = 0.1) 0.21 µg/m^3	PCE 9.4 µg/m^3
Street Number Depot Road and Sampling Location								
38 basement[(C)]	0.54	ND (0.68)	Not sampled		Not sampled		Not sampled	
42 basement	2.6/2.3 (duplicate)	0.61 L[(D)]	4.8/4.6 (duplicate) 4×10^{-6} HQ = 0.2	0.61 L 1.5×10^{-6} HQ not calculated	1.1×10^{-5} HQ = 2.3	6.5×10^{-8}	ND (0.48) 1.1×10^{-6} HQ=0.23	ND (0.61) 6.5×10^{-8}
42 first floor	Not sampled		2.3	0.41 L	5.4×10^{-6} HQ = 1.1		ND (0.48) same	ND (0.61) same
44 basement	ND (0.65)	1.6	Not sampled		Not sampled		Not sampled	
45 basement	0.54	ND (0.61)	0.86 7×10^{-7} HQ = 0.082	0.48 L 2.3×10^{-6} HQ not calculated	2×10^{-6} HQ = 0.4		Not sampled	
45 first floor	Not sampled		0.70	0.95	1.6×10^{-6} HQ = 0.3	1×10^{-7}	Not sampled	
49 basement	0.65	ND (0.75)	Not sampled		Not sampled		Not sampled	
50 basement	ND (0.54)	ND (0.68)	Not sampled		Not sampled		Not sampled	

Notes:

[(A)] The TCE concentrations were compared to the screening level presented in the 2002 draft guidance (Table 2c where the screening level met both 10^{-6} and HI =1). The PCE concentrations were compared to the updated level based on the California EPA unit risk factor value (the 2002 SL was 0.81 µg/m^3)
[(B)] 2009 screening levels based on CalEPA unit risk factor
[(C)] 2008 indoor air samples were only collected in the basements; the report does not provide the thought process concerning this. The October 2008 Phase II Report states that the basement at 42 Depot is not a living space whereas half the basement of 45 Depot is a living space
[(D)] L = estimated value, below calibration range

Site Inspection

The inspection of the McKin property was conducted on August 13, 2013. In attendance were Terrence Connelly, EPA project manager, Peter Mailey, Sevee & Maher Engineers, Inc (SME) representing the Settling Parties, the owner of the McKin property, and her brother. On August 14, Connelly and Mailey inspected the other parts of the McKin Site (the 1985 ROD designated the McKin property as the Site

and the areas where contamination had migrated as “off-site”). The purpose of the inspection was to assess the protectiveness of the remedy.

The two days of inspections did not identify any issues with the Site. The fence around the McKin property remains in excellent shape other than in one place damaged by the weight of a fallen tree. The parties on the Site walk documented the condition of the fence and SME will arrange for the repair and removal of other trees that are leaning on the fence. The gate remains locked. All monitoring wells were observed to be locked. Locations on private properties where wells had been decommissioned have been restored such that there were no indications of the wells. The concrete vault installed as a sampling point in the Boiling Springs area by EPA’s contractor in 2000 could not be located after thirty minutes of searching because of dense vegetative growth. The wetlands in the Royal River floodplain disturbed by the installation of wells and 1999 pump test appear to have completely recovered.

Interviews

During the FYR process, interviews were conducted with parties impacted by the Site, including the current McKin landowner, and regulatory agencies involved in Site activities or aware of the Site. The purpose of the interviews was to document any perceived problems or successes with the remedy that has been implemented to date. Interviews were conducted during the months of August and September 2013.

IV. TECHNICAL ASSESSMENT

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

Yes.

Remedial Action Performance

- The source control component was completed in 1988. The operation of the GETS was suspended in 1995 and terminated in 2001 following preparation of a Technical Impracticability Evaluation and a mediation process that culminated with an Amended ROD in March 2001.
- The remedy selected in the Amended ROD continues to function as designed. All ICs have been implemented, long-term monitoring of groundwater and surface water continues, and this is the third five-year review following the 2001 Amended ROD. The regulatory agencies and the Settling Parties reached agreement that the monitoring wells to be installed as part of the 2001 remedy would not provide sufficient value to alter the ICs and therefore agreed not to pursue obtaining access for the wells.
- Groundwater cleanup levels were waived in the 2001 Amended ROD. Regression analysis indicates that groundwater cleanup levels in the geologic units monitored (overburden and shallow bedrock) may be reached within the next forty years. Surface water cleanup levels have been attained.
- Analysis of water quality and piezometric data indicate that containment of the plume is effective with the eastern plume discharging to the Royal River (which meets surface water standards).

System Operations/O&M

- The groundwater extraction system was permanently terminated following the 2001 Amended ROD. Since then, the extraction wells and treatment facility have been decommissioned as have several monitoring wells. SME has compiled and submitted an inventory of residential wells as the first step in that component of Site operation and maintenance. No other operation and maintenance activities have been performed during this review period.

Opportunities for Optimization

- EPA and MEDEP continue to evaluate and adjust the Long-Term Monitoring Plan with the Settling Parties. As a result of data review and the need to strengthen IC compliance monitoring, it is anticipated that the Long-Term Monitoring Plan will be further adjusted following the current review.

Early Indicators of Potential Issues

- There have not been any indicators of potential issues (such as IC non-compliance) since the last FYR.

Implementation of Institutional Controls and Other Measures

- The 2001 Amended ROD included four ICs: a Town ordinance, restrictive covenants on nineteen properties, conservation easements on two properties, and a restrictive covenant on the McKin property. The Town ordinance established an ICZ where use of groundwater was prohibited. There were 124 properties within the ICZ at the time it was established. There are now 130 properties within the zone following the division of three properties.

  Restrictive covenants were obtained on nineteen properties within the ICZ by June 2003. Conservation easements were placed on two properties bordering the north side of Collyer Brook between Merrill Road and the Royal River in January 2002. The McKin property owner recently signed an environmental covenant that was recorded at the Cumberland County Registry of Deeds on September 27, 2013. The McKin property is surrounded by a gated fence.

- Based on the data review, site inspection, and interviews, no immediate threats have been identified and thus no other actions (e.g., removals) are necessary.

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

No, as detailed in the 2008 FYR, the exposure assumptions have changed (the vapor intrusion pathway).

In addition, the toxicity data for TCE has been changed.

Changes in Standards and TBCs

- As detailed in the 2008 FYR, the cleanup standards identified in the 1985 ROD were revised in the 2001 Amended ROD. These revisions, however, do not call into question the protectiveness of the remedy.
- There have not been any newly promulgated standards applicable to McKin that call into question the protectiveness of the remedy.
- The 1985 ROD set risk-based cleanup levels for 1,1,1-TCA and TCE as there were no primary drinking water standards for those contaminants at that time. The 2001 Amended ROD changed the cleanup levels to the respective MCLs that had been established in the intervening time. No TBCs were used in selecting either the 1985 or 2001 cleanup levels at the Site and thus do not affect the protectiveness of the remedy.

Changes in Exposure Pathways

- The area in the ICZ remains zoned rural residential and agricultural and it is anticipated that that zoning will remain in effect for the foreseeable future. The Site conditions, both on the facility property and surrounding properties, have not changed in a way that could affect the protectiveness of the remedy.
- The 2003 FYR identified vapor intrusion as a possible exposure pathway and this was investigated in 2006, 2008, 2009, and 2013 with the latter three investigations collecting indoor air samples. Based on the results, the pathway exists but the low contaminant concentrations detected have not created an unacceptable risk.
- Release of contaminants ended with the closing of the McKin facility in the late 1970s. There have been no changes in the Site use nor on surrounding properties that would create a new contaminant source
- The 2001 Amended ROD waived all groundwater standards including degradation products of the primary contaminant TCE. The ICs prevent exposure to all of the contaminants in the groundwater. Periodic indoor air monitoring has found TCE levels to be within EPA's acceptable risk range and MEDEP's risk levels. In addition, the air monitoring has not detected degradation products of TCE.

Changes in Toxicity and Other Contaminant Characteristics

- On September 28, 2011, EPA finalized the December 2009 revised toxicity values for TCE. The new values indicate that TCE is more toxic from both cancer and non-cancer health effects. Whereas the ICs prevent exposure to contaminated groundwater, the changes in the toxicity values relative to vapor intrusion could have affected the protectiveness of the remedy. Consequently, in February 2013, EPA re-sampled indoor air in the residence that had the highest

concentrations in 2009. The low levels detected remained within EPA's acceptable risk range and Maine risk levels, and, therefore, the changes in TCE toxicity have not resulted in a change in protectiveness.

- In January 2010, EPA revised the non-cancer toxicity value for cis-1,2-DCE and determined that there are currently no available cancer value and no inhalation values. On February 10, 2012, EPA also finalized the cancer and non-cancer toxicity values for PCE. These new values indicate that PCE is now more toxic from cancer risk but less toxic from non-cancer hazard effects. Although cancer risks and non-cancer hazards from these contaminants may change due to the changes in toxicity values, the low detected levels in groundwater still result in acceptable EPA's risk range and therefore do not result in a change in protectiveness.
- No other contaminant characteristics have changed in a way that could affect the protectiveness of the remedy.

Changes in Risk Assessment Methods

- There have not been any changes in the standardized risk assessment methodologies since the previous FYR in a way that could affect the protectiveness of the remedy.

Expected Progress Towards Meeting RAOs

- The remedy is progressing as expected. The soil remedy at the McKin property was completed and met the specified remedial action goals. Overall, groundwater concentrations in the overburden and shallow bedrock are decreasing and as long as they continue to do so, the selected remedy is functioning within the limits of the Amended ROD. The 2001 Amended ROD estimated it would take 50 years to attain federal and state drinking water standards. Based on the updated regression analysis through the 2012 monitoring data, the drinking water standards may be attained in about 2035. However, because there is no water quality data from the deep bedrock, EPA and MEDEP will conservatively assess the monitoring data and its impact on the institutional controls prior to recommending removal of any of the controls.

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

No other information has come to light which could affect the protectiveness of the remedy.

Technical Assessment Summary

The components of the remedy included in the 1985 ROD and 2001 Amended ROD are performing as expected. The soil remedy is complete. All ICs have been implemented. Groundwater monitoring of the overburden and shallow bedrock indicates a downward trend toward federal and state drinking water standards. Surface water performance standards have been attained. While neither the 1985 ROD nor

2001 Amended ROD included a remedy component to address the vapor intrusion pathway, periodic monitoring of indoor air has shown the low levels of TCE detected are within EPA's acceptable risk range and Maine's risk levels even as the TCE toxicity values were changed to be more conservative.

V. ISSUES/RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Table 5: Issues and Recommendations/Follow-up Actions

OU #	Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
						Current	Future
OU2	Vapor intrusion	Set up periodic review of toxicity data and guidance and monitoring if necessary	EPA	EPA	2/28/2018	No	Yes
OU2	IC Compliance Monitoring	Determine appropriate schedule and responsibilities for IC compliance monitoring	MEDEP, EPA, Settling Parties	MEDEP, EPA	2/28/2018	No	Yes
OU2	O&M	Complete permanent abandonment of residential wells	EPA, Settling Parties	MEDEP, EPA	2/28/2016	No	Yes

VI. PROTECTIVENESS STATEMENTS

Protectiveness Statement(s)		
Operable Unit: OU1	*Protectiveness Determination:* Protective	*Addendum Due Date (if applicable):* Click here to enter a date.
Protectiveness Statement: The remedy at OU1 is protective of human health and the environment because source remediation was completed and because OU1 is located within the Town of Gray groundwater ordinance zone that prohibits any use of groundwater and an environmental covenant for the McKin property has been recorded.		

Protectiveness Statement(s)		
Operable Unit: OU2	*Protectiveness Determination:* Short-term Protective	*Addendum Due Date (if applicable):* Click here to enter a date.

Protectiveness Statement: The remedy at OU2 is currently protective of human health and the environment because OU2 is located within the Town of Gray groundwater ordinance zone that prohibits any use of groundwater. In addition, the water rights of sub-dividable properties within OU2 have been purchased by the Settling Parties adding another layer of institutional controls. Periodic monitoring of the vapor intrusion pathway has found sub-slab concentrations are decreasing, and TCE concentrations detected in indoor air are within both EPA's acceptable risk range and Maine risk levels for residential exposure. However, in order for the remedy to be protective in the long-term, abandonment of residential wells within the IC Zone needs to be completed to ensure protectiveness.

Sitewide Protectiveness Statement	
Protectiveness Determination: Short-term Protective	*Addendum Due Date (if applicable):* Click here to enter a date.
Protectiveness Statement: Short-term protectiveness has been achieved through overlapping institutional controls. However, in order for the remedy to be protective in the long-term, the permanent abandonment of residential wells within the IC Zone needs to be completed to ensure protectiveness.	

VII. NEXT REVIEW

The next five-year review report for the McKin Company Superfund Site is required five years from the completion date of this review.

APPENDIX A – EXISTING SITE INFORMATION

A. SITE CHRONOLOGY

Site Chronology

Event	Date
Initial discovery of problem or contamination	1973-1974
Pre-NPL responses	1979-80, 1983
Final NPL listing	September 1, 1983
Cooperative Agreement signed between EPA and MEDEP	1983
Remedial Investigation/Feasibility Study complete	July 1985
ROD signature	July 22, 1985
ESD signature	September 1990
Amended ROD signature	March 30, 2001
Administrative Order by Consent	July 1985
Consent Decree	November 21, 1988
Consent Decree Amendment	December 7, 2001
Remedial design complete	June 1990
On-site remedial action construction start	July 8, 1986
RA Construction completion	June 23, 1987
OU1 Construction completion date OU2 Construction completion date	July 1987 Sept 1990
Previous five-year reviews	September 22, 1992 September 30, 1998 September 22, 2003 September 30, 2008
Long-Term Monitoring Events	ongoing
Site Decommissioning Activities	ongoing

C. BACKGROUND

Physical Characteristics

- The McKin Superfund Site is located in Gray, Maine, approximately 15 miles north of Portland, Maine. The McKin property comprises an area of approximately seven acres located on the west side of Mayall Road. The Site is composed of areas both presently and potentially impacted by contamination that was released on the McKin property. Based on observed contaminant distribution, the Site also extends north of Collyer Brook at its confluence with Royal River, and east just beyond the Royal River at the river bend due east of the McKin property. In total, it is estimated that the Site consists of approximately 660 acres of residential, farm and wooded properties
- The topography of the McKin property has been modified by past excavations; the fenced enclosure was formerly a gravel pit with steep slopes on the west, south, and north sides. At-grade access to the property is from Mayall Road. The topography at the Site ranges from 300

feet above mean sea level (MSL) at the McKin property to approximately 90 feet MSL at the floodplain of the Royal River, a horizontal distance of about 3,700 feet. The topography west of the McKin property, in the Depot Road vicinity is relatively flat. East of Mayall Road, the land slopes downward to the floodplain of the Royal River. Flooding of this area occurs in winter, early spring, and summer months following periods of heavy rainfall. Wetland areas are interspersed in the floodplain in eroded channels and depressions. The land surface is dissected by a number of small unnamed streams, and associated gullies. The resulting topography is frequently very steep, and access can be difficult.

- The property is located in the eastern, rural part of Gray. Properties contiguous to the McKin property include residential areas, wooded areas, and farmland. The nearest residences are immediately north and west of the McKin property; the closest home is approximately 200 feet from the McKin property. The site vicinity remains generally rural.
- Groundwater that moves beneath the McKin property flows toward the Royal River and Collyer Brook. The Royal River is a Class B surface water from its confluence with Collyer Brook to tidewater; Collyer Brook is a Class A surface water from Route 202 to its confluence with Royal River.

Hydrology

- The geology of the Site reflects both the topography of the bedrock and the deposition of marine and glacial materials. The former McKin facility is situated on a relative bedrock high point, with bedrock sloping downward both to the north (toward Collyer Brook) and to the east (toward Royal River). Bedrock at the Site is identified as granite of the Sebago Pluton. The bedrock is encountered at a depth of 50 to 100 feet below the ground surface at the eastern edge of the glaciomarine delta and almost 200 feet below the ground surface near the Royal River. A single bedrock outcrop has been identified approximately 800 feet southeast of the former McKin facility, in the bed of an unnamed tributary to the Royal River. Core samples indicate that bedrock is generally fractured, but competent (unweathered). A bedrock trough runs from the junction of Mayall and Depot Roads southeasterly toward the Royal River. A second trough, a former river bed, is located just west of the Royal River, trends in a southerly direction. TCE concentrations in certain monitoring wells suggest groundwater from the McKin property is transported via bedrock fractures in the east-northeast direction.
- The surficial material overlying the bedrock include glacial till, fine-grain sand, silt, and clay (Presumpscot Formation), and sand and gravel units. These glaciomarine materials thicken from the McKin property toward the Royal River and Collyer Brook. Beneath the McKin property, the sand and gravel directly overlie the bedrock and is approximately 60-100 feet thick. East of Mayall Road, there is a relatively thin layer of glacial till between the bedrock and the sand and gravel and the Presumpscot overlies the sand and gravel. Alluvial deposits (water-borne) occur farther east, along the floodplain of the Royal River, Collyer Brook, and the unnamed tributary that enters the Royal River upstream of the railroad trestle. The alluvial deposits consist of silt, sand, gravel, and widely disseminated organic matter.
- Contaminated groundwater discharges to the Royal River along a 500-700 feet reach of the floodplain between Boiling Springs and the railroad trestle in a fairly level area extending 50-70 feet back from the banks of the river. Water level data show a drop in groundwater elevation of about 200 feet from the McKin facility to the Royal River floodplain. Groundwater is recharged by infiltration of precipitation above an elevation of 240 feet and by leakage from the Presumpscot Formation. The direction of groundwater flow is generally from west to east toward the Royal River. Vertical upward gradients along the Royal River, and the presence of

contaminants in the river that are the same as those in the groundwater plume, indicate groundwater from the Site discharges to the Royal River.

Land and Resource Use

- The McKin Company property encompasses approximately seven acres; approximately 4.5 acres are cleared, and the remainder is wooded. Prior to the operation of the McKin facility, some sand and gravel extraction had occurred. The rest of the property was undeveloped. Since the Town of Gray shut down the facility in 1977, no other land use of the property has occurred other than the remedial activities. Future land uses will need to comply with Town of Gray zoning as well as institutional controls that MEDEP is working to place on the property deed.
- The current land uses for the area surrounding the Site are residential and agricultural. These land uses are anticipated to continue into the foreseeable future.
- Use of groundwater is prohibited for the Site as well as surrounding properties as defined by the Town of Gray 2002 groundwater ordinance.
- At the time of the facility's operation, the groundwater served as a drinking water source for the residents in the area. With the discovery of contamination in drinking water wells, emergency water was brought into the area and the public water system was extended so that now all residents within the IC Zone are served with public water.

History of Contamination

- The McKin facility operated from 1965 to 1977 as a collection and transfer station and disposal facility for waste oil and industrial process waste. In 1972, the facility was expanded with the addition of an asphalt-lined lagoon and incinerator to process a large volume of oily waste from an oil spill in Hussey Sound (a shipping channel leading into Portland harbor). The incinerator operated under a permit from MEDEP until operations ceased about 1973. Most of the oily wastes were stored in the on-site lagoon. This lagoon reportedly leaked and discharged portions of its contents to the subsurface. The facility reportedly handled an estimated 100,000 to 200,000 gallons of waste annually between 1972 and 1977.
- During 1973 and 1974, local residents reported chemical odors in their well water and discoloration of their laundry. Investigations subsequently found solvents in site soils and groundwater. Volatile organic compounds (VOCs) from the facility contaminated local residential wells through migrating groundwater. In 1977, the solvents were identified as trichloroethene (TCE) and 1,1,1-trichloroethane (TCA), and the Town of Gray ordered the McKin Company to cease operations.

Initial Response

- In December 1977, 16 private water supply wells were capped and water was trucked in on an emergency basis. In 1978, residents were connected to the public water system which had by then been extended to the eastern part of Gray.
- During the summer of 1979, MEDEP removed 33,500 gallons of liquid waste from the McKin property. MEDEP entered into a cooperative agreement with EPA in June 1983 to implement initial remedial measures and conduct an RI/FS. During 1983, MEDEP removed 69 drums of solidified sludge, 18 cubic yards of solid materials, and 10,500 cubic yards of soil from the property. These activities were undertaken to remove potential sources of contamination from the Site.

Basis for Taking Action

- Soil contaminants identified on the McKin property included VOCs and heavy metals. The heavy metal concentrations were within the range typically found in soils. Three areas contained soil contaminants typical of oil disposal operations (e.g., constituents of petroleum). Three other areas were heavily contaminated with VOCs including: TCE at 1,500 milligrams per kilogram (mg/kg, also commonly expressed as parts per million or ppm); methylene chloride at 49 mg/kg; xylenes at 21 mg/kg; 1,1,1-TCA at 4.5 mg/kg; dichlorobenzene at 9.2 mg/kg, and other contaminants.
- Contaminants were released to the subsurface at the McKin property. As a result of precipitation-driven groundwater flow, and influenced by the pumping of the residential bedrock wells, contaminated groundwater migrated to the regional aquifer discharge area at the Royal River. The major VOCs found in the surficial aquifer groundwater were TCE and 1,1,1-TCA at concentrations of 16,000 micrograms per liter (µg/L, also commonly expressed as parts per billion or ppb) and 170 ppb, respectively. Concentrations of the two contaminants were 29,000 ppb and 500 ppb, respectively, in the bedrock aquifer. Concentrations of TCE and 1,1,1-TCA were below a 1 ppb detection limit in Collyer Brook and the Royal River. Both VOCs were detected at Boiling Springs at maximum concentrations of 44 ppb TCE and 30 ppb 1,1,1-TCA.
- The risk assessment completed as part of the RI concluded that there was no significant health risk from surface water or direct contact with soils on the McKin property. Air monitoring on the property indicated no exceedances of state guidelines for ambient air. However, the contaminated soils on the property were considered a source of contaminants that impacted the overburden and bedrock aquifers, which are potential drinking water sources. The public heath risk was considered "potential" because there were no known users of the groundwater as a drinking water supply at the time of the RI due to the availability of municipal water, and because it was assumed the contamination could restrict future use of the aquifer. The TCE concentrations exceeded the guideline lifetime risk of cancer, or 28 ppb, at most of the monitoring wells sampled. The risk assessment concluded that at the concentrations found, there was a public health risk associated with long term consumption of groundwater. EPA's risk assessment concluded that surface water did not present an unacceptable human health or ecological risk, either currently or under a future potential drinking water source scenario. Based on these findings, action to protect human health and the environment was required.
- During the 1997-1999 mediation process, EPA reviewed human health and environmental risk assessments to evaluate exposure pathways and new risk data. The assessment concluded that an unacceptable risk was associated with drinking water use of groundwater and surface water from Boiling Springs, a depression adjacent to the Royal River where groundwater flows to the surface. Concentrations of TCE in both waters exceeded the newly established federal MCL of 5 ppb. Although the risk from groundwater was confirmed by EPA, EPA also determined that groundwater drinking standards were technically impractical to meet. As a result, the amended ROD focused on institutional controls and long-term monitoring as a way to address this risk. In addition, the amended ROD focused on measures to address the source of contamination into surface water at Boiling Springs.

D. REMEDIAL ACTIONS

Remedy Selection

Remedial Action Objectives were developed in the 1985 ROD and in the 2001 Amended ROD. The 1985 ROD and 2001 Amended ROD selected remedies to address these RAOs. The RAOs and the components of the remedies were previously detailed in the 2008 Five-Year Review and the information is repeated below.

> "The following RAOs were used to evaluate alternatives in the 1984 FS:
>
> • Maintain adequate safe drinking water for the public potentially impacted by groundwater contamination;
> • Prevent exposure of the public to harmful airborne contaminants;
> • Prevent contact by the public with contaminated soils by dermal or ingestion routes;
> • Prevent subsurface discharge of contaminated groundwater from the McKin property to off-site aquifers;
> • Restore, within a reasonable time and practical limits, the off-site aquifer contaminated by McKin operations to levels acceptable for drinking water supply and protective of the environment; and
> • Protect Royal River state-designated uses and aquatic life.
>
> The 1985 ROD included an on-site component for treatment of contaminated soil and an off-site groundwater treatment component. The remedy presented in the ROD included:
>
> • On-site soil aeration of soils from identified areas on the property;
> • Off-site disposal of approximately 16 drums;
> • Soil testing in the petroleum contaminated areas;
> • Construction of the GETS and operation of this system for a period of five years to achieve groundwater performance standards of 92 ppb 1,1,1-TCA and 28 ppb TCE;
> • Re-evaluation of the groundwater performance standards if the standards were not met within five years;
> • Initiation of an off-site groundwater and surface water monitoring program; and
> • Building demolition, clearing debris, removing drums and other materials, and other site closure activities.
>
> Source area soil aeration was selected to actively and significantly reduce the amount of contamination that remained in soil on the McKin property. The performance standard for the remedy was a soil concentration of 0.1 mg/kg TCE, averaged over the volume of treated soils, so contamination in soil was no longer adversely affecting groundwater that could be used as drinking water. The ROD specified that areas of the property contaminated with petroleum derivatives would be tested further during the remedial design to determine an appropriate remedial action.
>
> The remedial action objective for off-site groundwater as stated in the 1985 ROD was to restore the off-site aquifer to levels protective of human health and the environment within practical limits and a reasonable amount of time. The ROD required surface water discharge for treated groundwater. Performance standards were established with the expectation that they could be achieved within the planned five-year period of operation of the off-site groundwater remedy. The performance standards of 92 ppb 1,1,1-TCA and 28 ppb TCE were applicable throughout the impacted area, and were established based on the protection of human health and the environment with consideration given to potential exposures and possible synergistic and additive effects. As a suspected carcinogen, the TCE standard was based on a 10^{-5} lifetime cancer risk value. The 1,1,1-TCA performance standard was based on a recommended maximum concentration level of 200 ppb, adjusted to 92 ppb based on possible synergistic and additive effects with TCE.
>
> The off-site groundwater remedy change in the 2001 Amended ROD replaced the two groundwater RAOs in the 1985 ROD with the following four activities:

1. Develop institutional controls to prevent exposure to contaminated groundwater;
2. Monitor groundwater to show that the contaminant plume does not expand and that contaminant concentrations continue to decline due to natural processes;
3. Monitor surface water to show decreases in TCE concentrations in the Royal River resulting from decreases in groundwater concentrations. A contingency response approach would be implemented if TCE exceeds the state performance standard at a specified location and date; and
4. Evaluate the remedy to assess that it is protective of human health and the environment at least every five years and report findings in Five-Year Review reports".

Remedy Implementation

The source control remedy was completed in 1987. Prior to the startup of the GETS, EPA issued an Explanation of Significant Differences in 1990 that changed the discharge of treated groundwater from surface water discharge to a groundwater reinjection system. The GETS operated from 1990 until 1995 when its operation was suspended to focus on the technical impracticability evaluation. Three of the four ICs identified in the 2001 Amended ROD have been implemented and MEDEP is actively working to obtain the fourth IC. Long-term monitoring of surface water and groundwater continues. The 2008 FYR detailed the remedy implementation and the information is repeated below.

"During 1986, a group of PRPs excavated and treated VOC-impacted soil to minimize continued migration of VOCs to groundwater. Approximately 9,500 cubic yards of soils that contained solvents were excavated and treated by soil aeration between July 1986 and February 1987. These VOC-contaminated soils were excavated outward from the identified source areas until TCE concentrations were below 1 mg/kg, the soil excavation performance standard. Between November 1986 and April 1987, approximately 2,500 cubic yards of petroleum-contaminated soils were excavated to a 1 mg/kg polynuclear aromatic hydrocarbon and total extractable hydrocarbons performance standard and treated in the same manner. The treated soil was then stabilized using cement and replaced in the excavations. The entire property was sloped, graded, loamed, and hydroseeded.

The 1985 ROD stated that the three RAOs for the off-site groundwater remedy would be achieved by the design, construction and operation of the GETS to remove VOCs from the overburden aquifer and restore overburden groundwater to the established performance standards. The ROD assumed the off-site groundwater remedy would consist of 25 extraction wells into the surficial aquifer and upper bedrock aquifer and anticipated a five-year restoration time frame.

In 1990, EPA and MEDEP agreed to a phased approach to groundwater remediation beginning with four extraction wells and a central treatment system to address the contamination in these two plumes. Two extraction wells were located approximately 1,000 feet north of the McKin property on the western side of Mayall Road (prior to the intersection with Depot Road), one west of Depot Road and the fourth off of Mayall Road approximately 500 feet west of the Depot Road intersection. (Figure 4) Two infiltration galleries were located in the central and northern areas of the McKin property to reinject treated groundwater. Following an evaluation of the effectiveness of the first phase, a decision to expand the system (e.g., the next phase) to the east side of Mayall Road would be made.

One of the four extraction wells, placed in the eastern plume, (EW-503), was designed with a projected flow of 20 gallons per minute (gpm). The well was installed in soils with a limited saturated overburden thickness that yielded only 1-2 gpm. As a result, the system was not effective in extracting VOCs migrating in the eastern plume from the McKin property to the Royal River. In addition, the expected flushing of VOCs through the use of infiltration galleries did not appear to affect the monitoring wells placed in the northern TCE plume thereby limiting the effectiveness of this action. This observation suggested that pumping the residential wells in the 1970s, historic lagoon operations, and TCE transport

through bedrock fractures, may have contributed to the northern plume.

The Amended ROD identified four layered institutional controls that were to be used in conjunction with long-term monitoring to assure protectiveness of the remedy.

The Town of Gray established a groundwater ordinance for the Site on January 22, 2002. The objective of this ordinance is to prevent exposure to contaminated groundwater until federal and state drinking water standards are reached. The ordinance prohibits the extraction and use of groundwater for any purpose, with the exception of monitoring the contamination. This ordinance delineates an area known as the ICZ which these restrictions will apply. This zone was established based on the horizontal area of the proposed Technical Impracticability Zone, extending vertically to deep bedrock. The ICZ boundaries include areas where groundwater is known or suspected to exceed federal maximum contaminant levels (MCLs) and state maximum exposure guidelines (MEGs) and areas where contaminated groundwater could migrate in the future. This zone will remain in place as long as contamination above drinking water standards remains in the groundwater. The ordinance includes provisions for Town enforcement and stipulates penalties for any breaches of the ordinance. (See Figure 2 which outlines the ICZ)

The second set of institutional controls included restrictive covenants for nineteen sub-dividable properties. The restrictive covenants were included to prevent the use of groundwater on these properties and alleviate the concern that future development and installation of wells could possibly alter the boundaries of the contaminant plume.

The third set of institutional controls included the establishment of two conservation easements to protect areas of open space with frontage along Collyer Brook and the Royal River.

Finally, the SP were also required to make a good faith effort to procure a restrictive covenant for the McKin property.

In addition to these institutional controls, two separate agreements were reached between the Settling Parties and the Town of Gray and the Gray Water District. The SP agreed to provide funds to the Gray Water District for development of a new water supply well and for water mains to connect the new well to the existing distribution system. Per a Memorandum of Understanding signed by the Settling Parties, EPA, Maine DEP, Gray Water District, and the Town of Gray, payment by the Settling Parties for these controls and agreements were made on or around January 1, 2002".

System Operation/Operation and Maintenance

As noted above, the GETS was suspended in 1995 and permanently shut down following the 2001 Amendment to the Consent Decree. Since the 2008 FYR, O&M activities have been those performed under the approved Site Closure Plan. These activities have included the dismantling of the treatment building and system, and abandonment of the four extraction wells, associated piping, and multiple monitoring wells.

APPENDIX B

PRESS RELEASE ANNOUNCING THE FIVE-YEAR REVIEW

News Release

U.S. Environmental Protection Agency

New England Regional Office

May 9, 2013

Contact: David Deegan, (617) 918-1017

EPA Conducts "Five-Year Review" for 16 New England Superfund Sites

(Boston, Mass. – May 9, 2013) – EPA is beginning the process of routine Five-Year Reviews of 16 Superfund sites across New England.

EPA conducts evaluations every five years on previously-completed clean up and remediation work performed at sites listed on the "National Priorities List" (aka Superfund sites) to determine whether the implemented remedies at the sites continue to be protective of human health and the environment. Further, five year review evaluations identify any deficiencies to the previous work and, if called for, recommend action(s) necessary to address them.

In addition to a careful evaluation of technical work at the sites, during the Five Year Review process EPA also provides the public with an opportunity to evaluate preliminary findings and to provide input on potential follow up activity that may be required following the review process.

The Superfund sites at which EPA is performing Five Year Reviews over the following several months include the following sites. Please note, the Web link provided after each site provides detailed information on site status and past assessment and cleanup activity.

Massachusetts

Iron Horse Park, North Billerica http://www.epa.gov/region1/superfund/sites/ironhorse

Nyanza Chemical Waste Dump, Ashland http://www.epa.gov/region1/superfund/sites/nyanza

Re-Solve, Inc., North Dartmouth http://www.epa.gov/region1/superfund/sites/resolve

Sullivan's Ledge, New Bedford http://www.epa.gov/region1/superfund/sites/sullivansledge

Maine

McKin Co., Gray http://www.epa.gov/region1/superfund/sites/mckin

Saco Tannery Waste Pits, Saco http://www.epa.gov/region1/superfund/sites/sacotannery

West Site/Howe's Corner, Plymouth http://www.epa.gov/region1/superfund/sites/hows

New Hampshire

Kearsarge Metallurgical Corp., Conway http://www.epa.gov/region1/superfund/sites/kearsarge

Ottati & Goss, Kingston http://www.epa.gov/region1/superfund/sites/o&g

South Municipal Water Supply Well, Peterborough http://www.epa.gov/region1/superfund/sites/southmuni

Tinkham Garage, Londonderry http://www.epa.gov/region1/superfund/sites/tinkham

Town Garage/Radio Beacon, Londonderry http://www.epa.gov/region1/superfund/sites/towngarage

Rhode Island

Central Landfill, Johnston http://www.epa.gov/region1/superfund/sites/central

Picillo Farm, Coventry http://www.epa.gov/region1/superfund/sites/picillo

Vermont

Elizabeth Mine, Strafford http://www.epa.gov/region1/superfund/sites/elizmine

Old Springfield Landfill, Springfield http://www.epa.gov/region1/superfund/sites/oldspringfield

# # #

Learn More about the Latest EPA News & Events in New England (http://www.epa.gov/region1/newsevents/index.html)

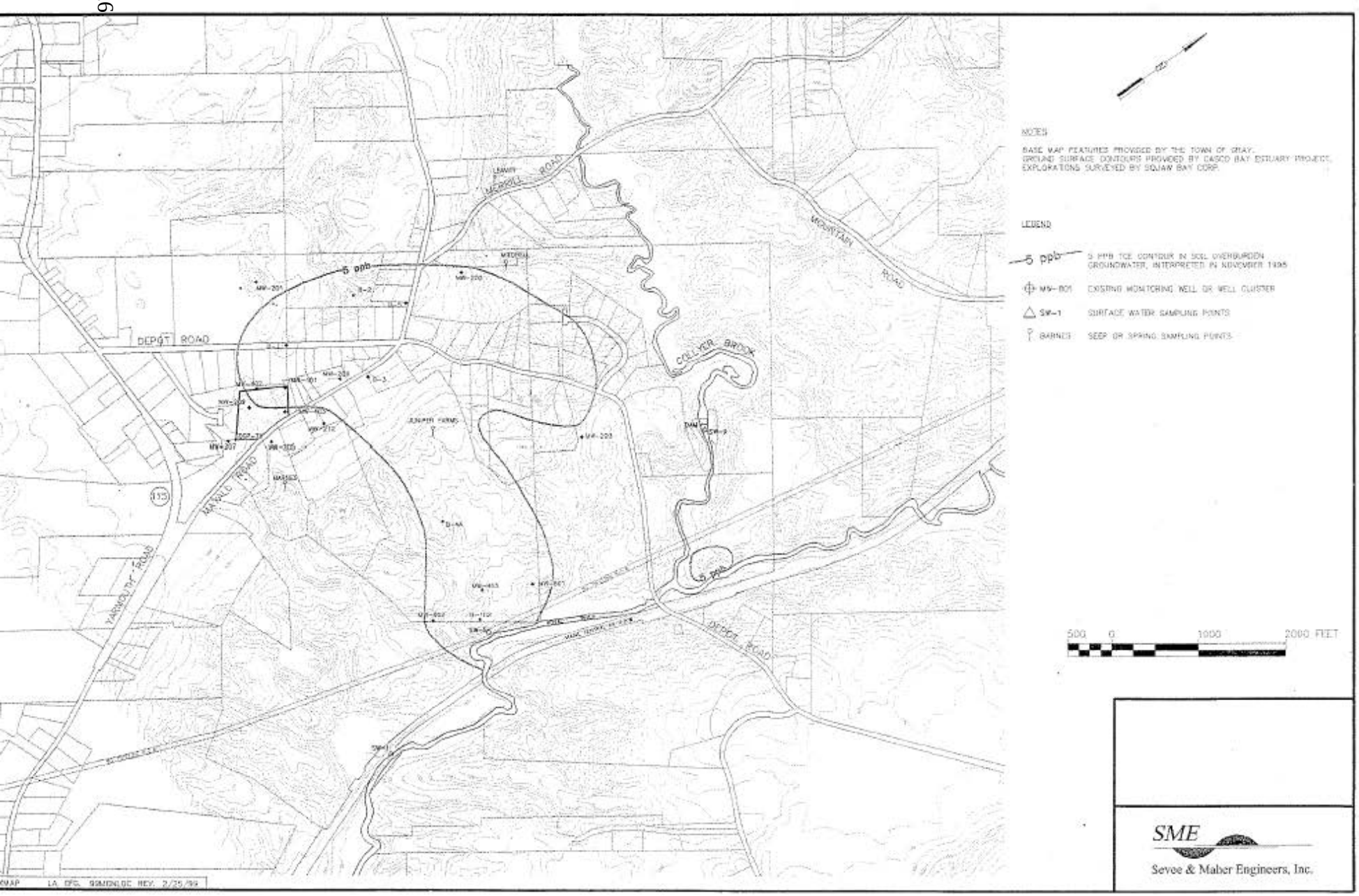
Follow EPA New England on Twitter (http://twitter.com/epanewengland)

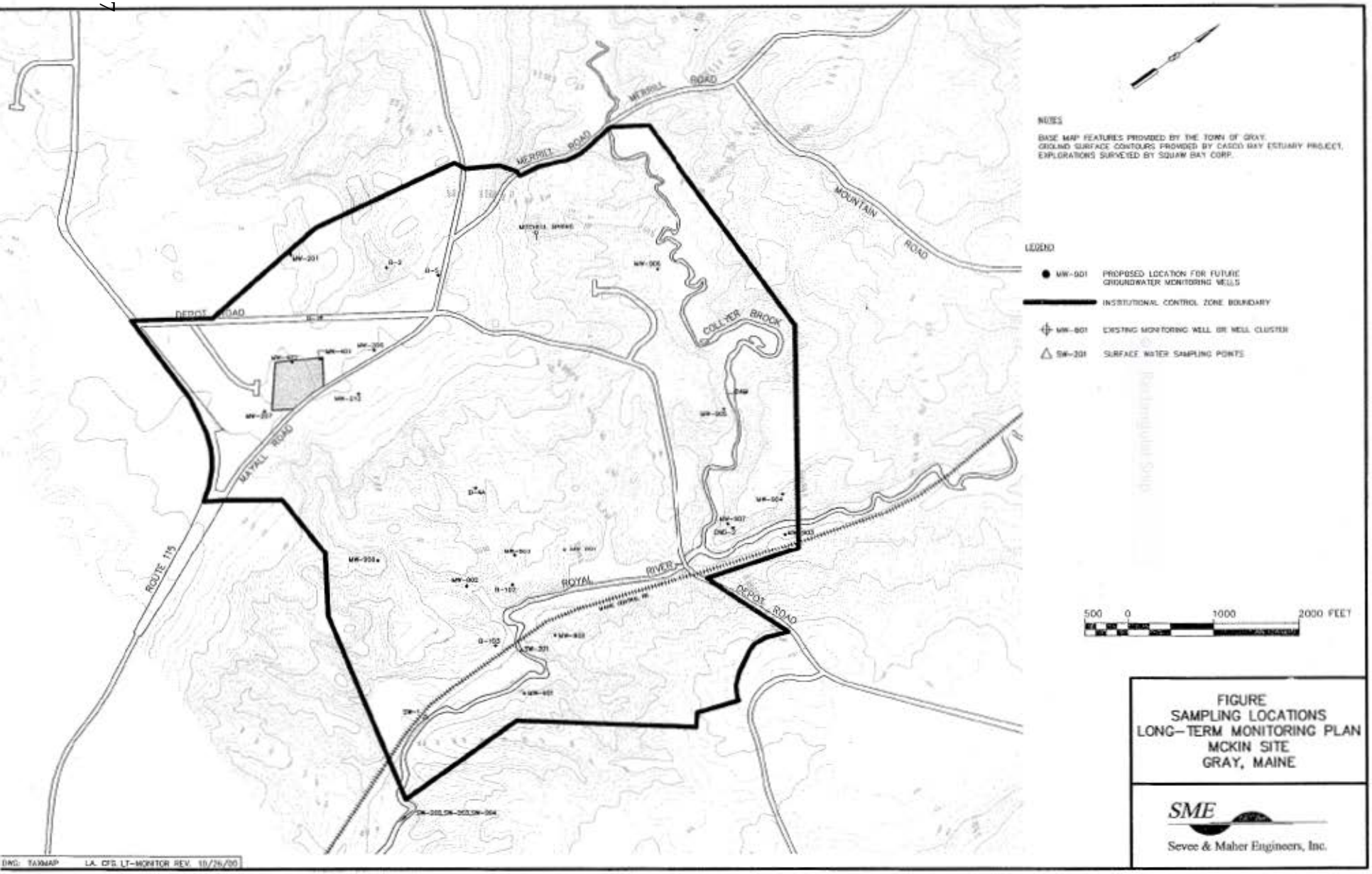
More info on EPA's Environmental Results in New England (http://www.epa.gov/region1/results/index.html)

If you would rather not receive future communications from U.S. EPA, Region 1, let us know by clicking here.
U.S. EPA, Region 1, 5 Post Office Square, Suite 100, Boston, MA 02109-3912 United States

APPENDIX C

SITE FIGURES


5 ppb
DEPOT ROAD
MERRILL ROAD
MOUNTAIN ROAD
COLLYER BROOK
FARMOUTH ROAD
135
MW-201
MW-202
MW-203
MW-204
MW-205
MW-206
MW-207
MW-208
MW-209
MW-210
MW-211
MW-212
MW-213
MW-214
MW-215
MW-216
MW-217
MW-218
MW-219
MW-220
MW-221
MW-222
MW-223
MW-224
MW-225
MW-226
MW-227
MW-228
MW-229
MW-230
MW-231
MW-232
MW-233
MW-234
MW-235
MW-236
MW-237
MW-238
MW-239
MW-240



NOTES

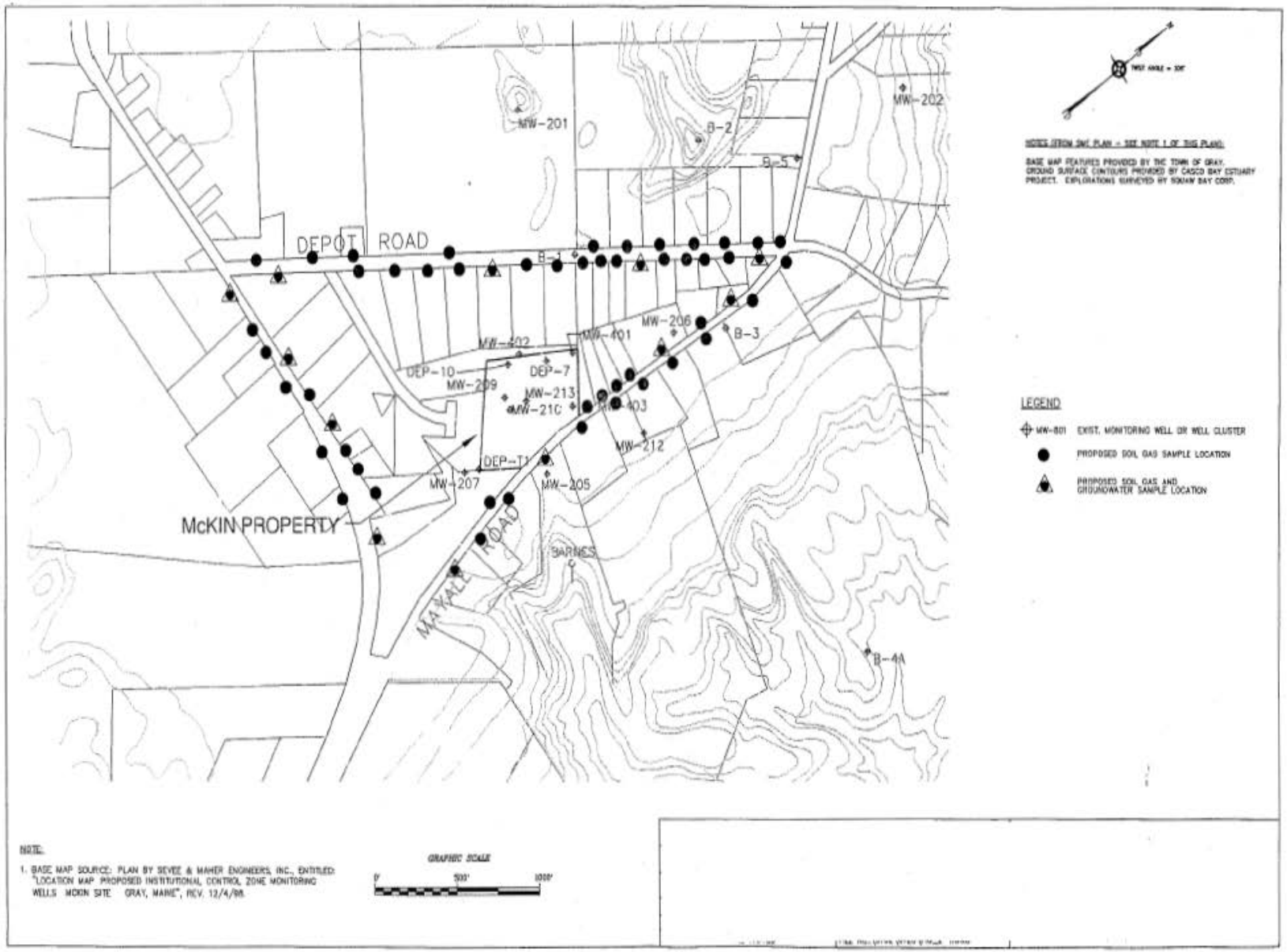
BASE MAP FEATURES PROVIDED BY THE TOWN OF GRAY.
GROUND SURFACE CONTOURS PROVIDED BY CASCO BAY ESTUARY PROJECT.
EXPLORATIONS SURVEYED BY SQUAW BAY CORP.

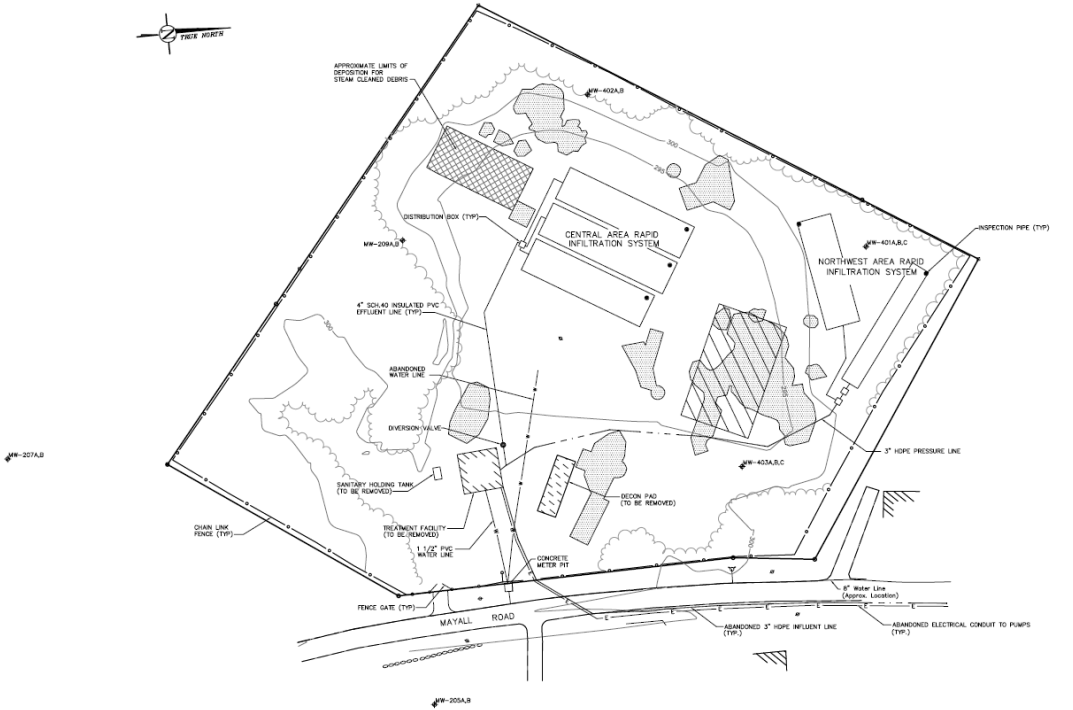
LEGEND

- MW-901 PROPOSED LOCATION FOR FUTURE GROUNDWATER MONITORING WELLS
- INSTITUTIONAL CONTROL ZONE BOUNDARY
- MW-801 EXISTING MONITORING WELL OR WELL CLUSTER
- SW-201 SURFACE WATER SAMPLING POINTS

FIGURE
SAMPLING LOCATIONS
LONG-TERM MONITORING PLAN
MCKIN SITE
GRAY, MAINE

SME
Sevee & Maher Engineers, Inc.


DEPOT ROAD
MA VALE ROAD
McKIN PROPERTY
MW-201
MW-202
B-2
B-5
B-3
B-4A
MW-206
MW-401
MW-402
DEP-10
DEP-7
MW-209
MW-213
MW-210
MW-403
MW-212
DEP-11
MW-207
MW-205
BARNES
LEGEND
MW-801 EXIST. MONITORING WELL OR WELL CLUSTER
PROPOSED SOIL GAS SAMPLE LOCATION
PROPOSED SOIL GAS AND GROUNDWATER SAMPLE LOCATION
NOTES (FROM DWG PLAN - SEE NOTE 1 OF THIS PLAN):
BASE MAP FEATURES PROVIDED BY THE TOWN OF GRAY.
GROUND SURFACE CONTOURS PROVIDED BY CASCO BAY ESTUARY PROJECT. EXPLORATIONS SURVEYED BY SOUTH BAY CORP.
NOTE:
1. BASE MAP SOURCE: PLAN BY SEVEE & MAHER ENGINEERS, INC., ENTITLED: "LOCATION MAP PROPOSED INSTITUTIONAL CONTROL ZONE MONITORING WELLS MCKIN SITE GRAY, MAINE", REV. 12/4/98.
GRAPHIC SCALE
0
500'
1000'



GENERAL NOTES:

1. IDENTIFIED LIMITS OF WASTE DEPOSITION ARE ESTIMATED BASED ON INFORMATION CONTAINED IN "SOIL REMEDIATION AND SITE CLOSURE MCKIN SUPERFUND SITE" PREPARED BY CANONIE ENVIRONMENTAL, JULY 1987.
2. THIS PLAN WAS PHOTOMECHANICALLY ENLARGED FROM DRAWING PREPARED BY CANONIE ENVIRONMENTAL, MAY 1987.
3. VERTICAL DATUM BASED ON U.S.G.S. MEAN SEA LEVEL.
4. NORTH ARROW DESIGNATES TRUE NORTH.

LEGEND

- APPROXIMATE LIMITS OF DEPOSITION FOR TREATED PETROLEUM CONTAMINATED SOILS
- APPROXIMATE LIMITS OF DEPOSITION FOR TREATED VOLATILE ORGANIC CONTAMINATED SOILS
- APPROXIMATE LIMITS OF DEPOSITION FOR STEAM CLEANED DEBRIS
- MW-403A,B,C — GROUNDWATER MONITORING WELL

PRELIMINARY

30 0 30 60 90 FEET

SITE PLAN
MCKIN SITE
GRAY, MAINE

SME
Sevee & Maher Engineers, Inc.
Consulting Engineers
Cumberland Center, Maine

DWG: SITEPLAN LMN: SITEPLAN CTB: SME-STD REV: 9/22/09

APPENDIX D

DECLARATION OF ENVIRONMENTAL COVENANT

Doc# 40314 Bk:31050 Pg: 20

DECLARATION OF ENVIRONMENTAL COVENANT

This ENVIRONMENTAL COVENANT is hereby declared and granted as of this 17th day of September, 2013, by **AUBINE W. DINGWELL** a ***resident of 975 Burns Street, Orlando, Orange County, Florida*** ("Grantor" or "Declarant"), to the **MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION** ("Holder" or "DEP") on property located in Gray, Maine, which is more fully described below.

WHEREAS, Grantor is the owner in fee simple of a certain property approximately seven acres in size located at 25 Mayall Road in **Gray, Cumberland County, Maine,** and described in a deed recorded in the Cumberland County Registry of Deeds at Book **9415**, Page **0003** and generally depicted in Town of Gray tax records as Lot 38-20 on GIS Grid Map 45, formerly identified as Lot 20 on Tax Map 38, and generally depicted in figure attached as Figure A, ("Property");

WHEREAS, Aubine W. Dingwell obtained title to the Property from the Estate of Richard A. Dingwell by a deed dated December 3, 1990, and recorded in the Cumberland County Registry of Deeds at Book 9415, Page 0003;

WHEREAS, Richard A. Dingwell d/b/a the McKin Company operated a tank cleaning and waste removal business located at the Property from approximately 1965 to 1978;

WHEREAS, the Property, which was contaminated by the McKin Company operation, is now the location of the McKin Company Superfund Site ("Site"), which the U.S. Environmental Protection Agency ("EPA"), pursuant to Section 105 of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. § 9605, placed on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on September 8, 1983 (48 Fed. Reg. 40658);

WHEREAS, the Site is an Uncontrolled Hazardous Substance Site designated by the Commissioner of DEP on November 8, 1985 pursuant to 38 M.R.S.A. §§ 1361 and 1365.

WHEREAS, between 1979 and 1983 DEP conducted removal actions that included, among other things, removal of liquid oil and chemical wastes from tanks and drums; rinsing, crushing and disposal of barrels and containers; installing monitoring wells, sampling and analyzing groundwater, soil and tank residuals; and funding a hydrogeologic study;

WHEREAS, EPA prepared a Remedial Action Master Plan in April 1983 and implemented certain Initial Remedial Measures to remedy potential hazards;

WHEREAS, In a Record of Decision dated July 22, 1985 and amended March 30, 2001, the EPA Region 1, with concurrence of the DEP, selected the remedial action;

WHEREAS, EPA issued a Determinations and Administrative Order on August 23, 1985, with two (2) potentially responsible parties to conduct remedial actions and a pilot soil aeration study;

WHEREAS, EPA and DEP issued a Determinations and Administrative Order in July 1986, with fourteen (14) potentially responsible parties to undertake the completion of on-site aeration of contaminated soils portion of the remedial action;

WHEREAS, on November 21, 1988, a Consent Decree was entered by the U.S. District Court for the District of Maine (Civil Action No. 00-0101 B) among EPA, DEP and approximately 190 settling parties ("McKin Settling Parties"), wherein selected remedial actions at the Site were required;

WHEREAS, an "Abstract of Consent Decree Easement and Restrictive Covenant" dated February 1, 1991, was recorded at the Cumberland County Registry of Deeds in Book 9467 Page 344, that describes certain easements, restrictions, and obligations that attach to and run with the Property that the owner of the Property agreed to impose pursuant to the Consent Decree referenced immediately above;

WHEREAS, on December 7, 2001, an Amended Consent Decree was entered by the U.S. District Court for the District of Maine (Civil Action No. 00-0101 B) wherein amendments were made to the selected remedial actions at the Site;

WHEREAS, the removal actions and remedial actions taken at this Site shall collectively be referred to as the "environmental response project" for this Site;

WHEREAS, the parties have agreed that it is appropriate and necessary (1) to impose on the Property use restrictions as covenants that run with the land for the purpose of maintaining or enhancing the soil, air, and water quality of the Property, protecting human health and the environment, and protecting the environmental response project at the Site; and (2) to grant a permanent right of access over the Property to the Holder, to EPA and to the McKin Settling Parties for purposes of implementing and monitoring the removal and remedial actions and for monitoring and enforcing that Environmental Covenant;

WHEREAS, the EPA has determined and approved the environmental response project and is therefore an agency pursuant to the UECA, and DEP also is an agency under the UECA;

WHEREAS, EPA has the right of the agency to enforce this environmental covenant pursuant to the UECA, but this right is not an interest in real property;

WHEREAS, DEP is the only holder of this Environmental Covenant, as that term is defined in the UECA, and DEP is entitled to exercise the rights of a holder including enforcing this environmental covenant, pursuant to the UECA;

WHEREAS, a title search of the 25 Mayall Road property was performed by Douglas Title Company in August 2011 and a subsequent legal review of that title search was performed by Sam Kilbourn Law Office, which together show that Aubine W. Dingwell has unencumbered right and title to the property;

WHEREAS, Grantor wishes to cooperate fully with the DEP and the EPA in the implementation and monitoring of the environmental response project; and

WHEREAS, Grantor intends to create and grant an Environmental Covenant pursuant to the Uniform Environmental Covenants Act (UECA), 38 M.R.S.A. §§ 3001 et seq.;

NOW, THEREFORE, Grantor, AUBINE W. DINGWELL, for and in consideration of the facts above recited and the covenants herein contained, and intending to create and be legally bound by a perpetual covenant running with the land, subject to the terms hereof, hereby declares covenants and agrees as follows:

1. Declaration of Covenant. This instrument is an Environmental Covenant executed pursuant to the UECA.

2. Property. This Environmental Covenant concerns a property of approximately seven acres in size, owned in fee simple by Grantor, and located at 25 Mayall Road, in Gray, Cumberland, Maine and described in a deed recorded in the Cumberland County Registry of Deeds in Book **9415**, Page **0003** ("Property") and generally depicted in Town of Gray tax records as Lot 38-20 on GIS Grid Map 45, formerly identified as Lot 20 on Tax Map 38 and generally depicted in the figure attached as Figure A.

3. Activity and Use Limitations. The following covenants, conditions, and restrictions apply to the use of the Property, shall run with the land, and shall be binding on the Grantor, its successors and assigns, during their respective periods of ownership, in perpetuity:

   a. Groundwater under the Property shall not be extracted or used for any purpose except for monitoring related to the environmental response project.

   b. There shall be no digging or disturbing of soil on the Property without prior written permission from the DEP, which permission shall not be unreasonably withheld, after EPA has had at least 14 days to comment upon such permission.

   c. Any drainage system, including but not limited to a commercial or domestic septic system, to be installed on the Property or any other release of surface or groundwater shall be designed to discharge downgradient of the infiltration systems shown on Figure A.

   d. Any building constructed on the Property shall be equipped with a sub slab vapor system or its equivalent designed to prevent migration of soil vapors into the interior of the building.

   e. Monitoring wells within the Property shall not be destroyed, obstructed, tampered with or otherwise disturbed (including wells currently installed at the Property and depicted on Figure A and any future wells deemed necessary for the environmental response project).

   f. The buried components from the environmental response project shall not be disturbed without written permission from DEP, which permission shall not be unreasonably withheld, after EPA has had at least 14 days to comment upon such permission (buried components are depicted on Figure A).

4. Agency and Holder. DEP is an environmental agency with enforcement authority pursuant to the UECA and is the only Holder of the Environmental Covenant granted in this Declaration. EPA is also an environmental agency with enforcement authority pursuant to the UECA.

5. Perpetuity of Covenant. This Environmental Covenant and each and every covenant herein shall be a covenant running with the land in perpetuity and shall bind the Property, Grantor, all persons or entities having any right, title, or interest in and to the Property or any portion thereof, and their respective heirs, personal representatives, successors and assigns, during their respective periods of ownership, and all those acting by and through, or under any of them forever. Any owner of the Property or any interest therein, by the acceptance of a deed of conveyance of all or any part of the Property or any interest therein, whether or not the deed shall so express, shall be deemed to have accepted the Property subject to the restrictions contained herein and shall be deemed bound by, obligated to comply with, and otherwise subject to the restrictions herein and this Environmental Covenant.

6. Representation of Ownership and Encumbrances. By its execution hereof, Grantor hereby represents that it is the sole owner of the Property and that there are no mortgages, easements or other encumbrances on the Property that would materially adversely affect the effectiveness or enforceability of this Environmental Covenant.

7. Access. In addition to any rights already possessed by DEP and EPA, this Environmental Covenant grants to DEP and EPA, including their authorized employees, agents, representatives and independent contractors and subcontractors, a right of access to the Property, without cost and upon presentation of credentials, for the purposes of implementing, facilitating and monitoring the removal and remedial actions and for monitoring and enforcing this Environmental Covenant. This Environmental Covenant also grants to the McKin Settling Parties and their authorized employees, agents, representatives and independent contractors and subcontractors, a right of access to the Property, without cost and upon presentation of credentials, for the purposes of implementing, facilitating and monitoring the removal and remedial actions and for monitoring this Environmental Covenant.

8. Notice to Tenants and Others. The current owner of the Property (including Grantor if Grantor is the current owner of the property) shall provide notice of this Environmental Covenant to any tenants or lessees and to any other person conducting any activity on the Property that would be prohibited by this Environmental Covenant.

9. Notice upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion of the Property, including but not limited to deeds, leases and mortgages, shall contain a notice that is in substantially the following form:

> NOTICE: THE INTEREST CONVEYED HEREBY IS SUBJECT TO A DECLARATION OF ENVIRONMENTAL COVENANT, RECORDED IN THE _____ COUNTY REGISTRY OF DEEDS ON _____, 20__, IN BOOK _____, PAGE _____, IN FAVOR OF AND ENFORCEABLE BY THE STATE OF MAINE AND THE UNITED STATES OF AMERICA.

Within thirty (30) days of the date any such instrument of conveyance is executed, such instrument shall be recorded in the Cumberland County Registry of Deeds, and Grantor or current owner of the Property shall notify DEP and EPA of the book and page at which it is recorded, and submit to DEP and EPA a copy of the recorded instrument date-stamped by the Register of Deeds.

10. Notice of Noncompliance. The current owner of the Property (including Grantor if Grantor is the current owner of the property) shall provide written notice to DEP and EPA within ten (10) working days of discovery of any noncompliance with the terms of this Environmental Covenant.

11. Notice Pursuant to Covenant. Any notice or other communication required pursuant to this Instrument shall be in writing and shall be sent by certified mail, return receipt requested, or by any commercial carrier that provides proof of delivery, addressed as follows, or to such other address as each entity may designate from time to time by written notice to the other entities:

To Grantor:
Aubine W. Dingwell
975 Burns Street
Orlando, FL 32803

To DEP:
Superfund Program Manager
Department of Environmental Protection
Bureau of Remediation and Waste Management
17 State House Station
Augusta, Maine 04333

To EPA:
Remedial Project Manager
McKin Superfund Site
U.S. Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100 (OSRR07-1)
Boston, MA 02109-3912

To the McKin Settling Parties:
John Savee, P.E., C.G.
Project Coordinator
Savee & Maher Engineers, Inc.
4 Blanchard Road, P.O. Box 85A
Cumberland Center, ME 04021

12. Inspection and Reporting. The current owner of the Property (including Grantor if Grantor is the current owner of the property) shall conduct inspections of the Property annually for compliance with the terms of this Environmental Covenant and shall report the results to DEP and EPA in writing by June 30 of each year. If the property has been vacant for the past year and the property secured, then the annual inspection shall be waived and the current owner shall report that the property has been vacant and secured since the previous year's reporting.

13. Enforcement. This Environmental Covenant shall be enforceable as authorized by the UECA. Any forbearance as to enforcement of any of the terms hereof shall not be deemed a waiver of the right to seek and obtain enforcement at any time thereafter as to the same violation or as to any other violations.

14 Amendment or Termination by Consent. The terms and conditions herein may not be amended or terminated except by a written instrument duly executed by Grantor, the current owner of the Property at the time of the amendment or termination, and DEP and EPA or their successors in legal function, which instrument is duly recorded in the Cumberland County Registry of Deeds. The Grantor waives its right to consent in the event the Grantor no longer owns the property.

15. Petition to Modify. Grantor or current owner of the Property may petition the DEP and EPA to modify or remove some or all of the covenants, restrictions, agreements and obligations herein. The burden is upon the party seeking DEP and EPA approval of the modification or removal of a restriction to show that the restriction is no longer necessary to protect the public health and safety and the environment. The DEP and EPA may agree to remove or modify restrictions that in the exercise of their sole discretion, the DEP and EPA determine to be no longer necessary to protect the public health and safety and the environment. Any such amendment or termination of the Environmental Covenant must comply with the UECA and the provisions of this Environmental Covenant.

16. Administrative Record. The environmental response project described in this Declaration of Environmental Covenants is based on the McKin Company Superfund Site Administrative Record, which has been developed in accordance with Section 113(k) of CERCLA, and which is available for review at the Gray Public Library, Gray, Maine, and at the United States Environmental Protection Agency, Region 1, OSRR Records Center, 5 Post Office Square, Boston, Massachusetts. The State administrative record for the environmental response project is located at the main office of DEP, whose mailing address is 17 State House Station, Augusta ME 04333-0017, with a street address of Ray Building, 28 Tyson Drive, Augusta, Maine.

17. Governing Law. This Environmental Covenant shall be governed and interpreted in accordance with the laws of the State of Maine.

18. Liberal Construction. It is intended that this Environmental Covenant be construed liberally to protect the health and welfare of the public and the quality of the environment from the risk of adverse effects of exposure to hazardous substances.

19. Invalidity. If any part of this Environmental Covenant shall be decreed to be invalid by any court of competent jurisdiction, all of the other provisions hereof shall not be affected thereby and shall remain in full force and effect.

20. Recording. The McKin Settling Parties or their agents/representatives shall cause this Declaration to be duly recorded in the Cumberland County Registry of Deeds within thirty (30) days of the execution of this Declaration by the last signatory, and shall, within thirty (30) days of the recording of the Declaration, notify DEP and EPA of the book and page at which it is recorded, and submit to DEP and EPA a copy of the signed Declaration date-stamped by the Register of Deeds.

IN WITNESS WHEREOF, Grantor has caused this instrument to be executed by its duly authorized representative as of the day and year first above written.

AUBINE W. DINGWELL

By: Aubine W. Dingwell
Name: Aubine W. Dingwell
Title: Owner

STATE OF MAINE
CUMBERLAND COUNTY, ss.

The above-named Aubine W. Dingwell personally appeared before me this 17th day of September, 2013 in her capacity as owner and acknowledged the foregoing to be her free act and deed.

~~Notary Public~~ Attorney
Karen J. M. Mitchell
Printed Name Bar No. 7824
My Commission Expires: _____

ACKNOWLEDGED AND AGREED TO BY:
MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

By: Melanie Loyzim
Name: ~~Melaine~~ Loyzim Melanie Loyzim
Title: Director, Bureau of Remediation and Waste Management

STATE OF MAINE
KENNEBEC COUNTY, ss.

The above-named Melanie Loyzim personally appeared before me this 24th day of September, 2013 in her capacity as Director of the Bureau of Remediation and Waste Management and acknowledged the foregoing to be her free act and deed in her said capacity and the free act and deed of the Maine Department of Environmental Protection.

Notary Public
Ruth Ann Burke
Printed Name
My Commission Expires: Feb. 21, 2015

RUTH ANN BURKE NOTARY PUBLIC My Comm. Expires February 21, 2015 STATE OF MAINE

SEAL

ACKNOWLEDGED AND AGREED TO BY:
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

By: Nancy Barmakian for
Name: James T. Owens, III NANCY BARMAKIAN
Title: Director, Office of Site Remediation and Restoration, U.S. EPA, Region 1

COMMONWEALTH OF MASSACHUSETTS
SUFFOLK COUNTY, ss.

On this 26th day of September, 2013, before me, the undersigned notary public, personally appeared James T. Owens, III, proven to me through satisfactory evidence of identification, which was personal ID, to be the person whose name is signed on the this document, and acknowledged to me that he signed it voluntarily for its stated purpose.

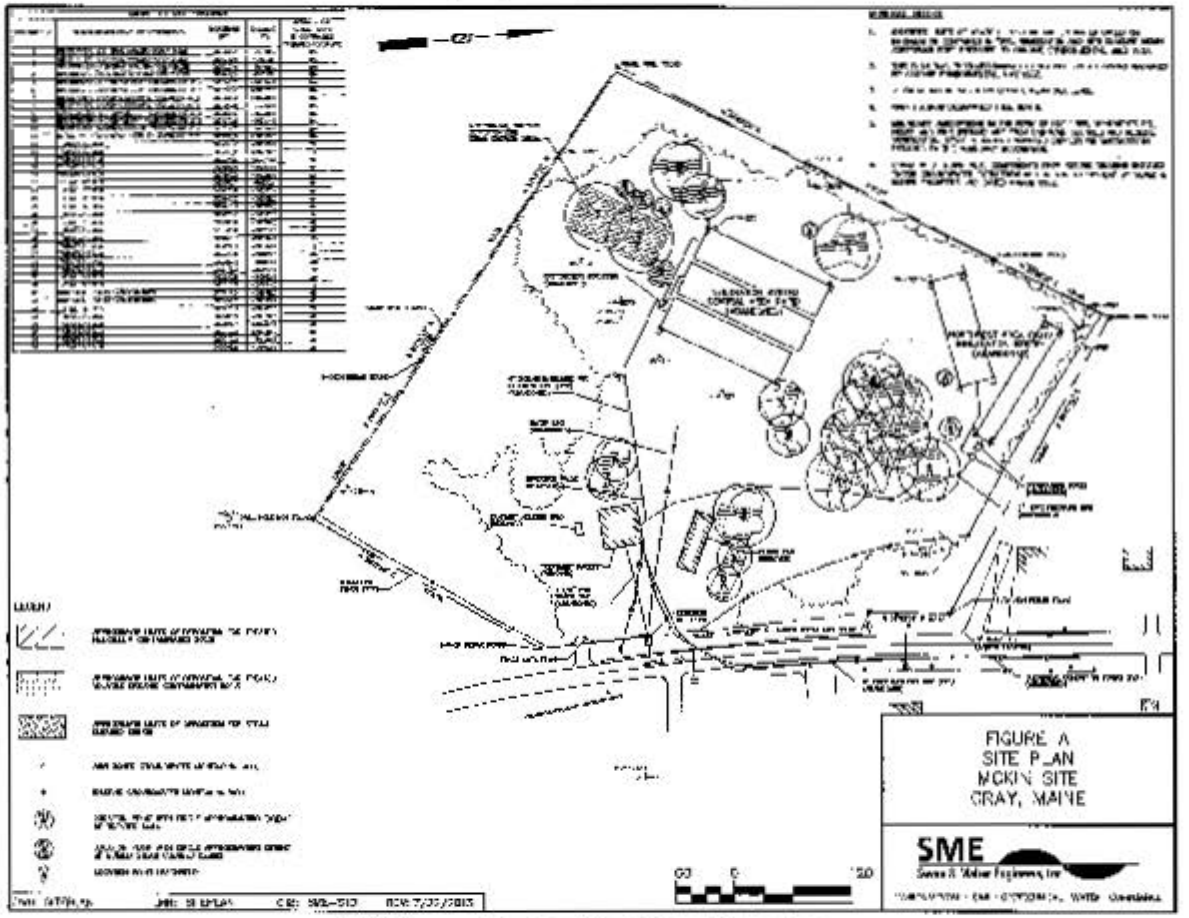
Danny Rodriguez
Notary Public
Danny Rodriguez
Printed Name
My Commission Expires: February 3, 2017.

DANNY RODRIGUEZ
Notary Public
Commonwealth of Massachusetts
My Commission Expires
February 3, 2017

SEAL

FIGURE A

Plan of Property, 25 Mayall Road, Gray, Maine



CUMBERLAND COUNTY
A TRUE COPY OF RECORD
Attest
Register

Received
Recorded Register of Deeds
Sep 27,2012 11:40:44A
Cumberland County
Pamela E. Lovley