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Long-Term Surveillance and Maintenance Plan for the Colonie, New York, Site

March 2021

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Contents

Figures

Tables

Appendixes

Abbreviations

AEC	U.S. Atomic Energy Commission
amsl	above mean sea level
bgs	below ground surface
CAS	Chemical Abstracts Service
cDCE	*cis*-1,2-dichloroethene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
COC	contaminant of concern
CP	Commissioner Policy
DER	Division of Environmental Remediation
DOE	U.S. Department of Energy
DOECAP	Department of Energy Consolidated Audit Program
DU	depleted uranium
EDGE	EQuIS Data Gathering Engine
EE/CA	Engineering Evaluation/Cost Analysis
EPA	U.S. Environmental Protection Agency
EQuIS	Environmental Quality Information System
ESDM	Environmental and Spatial Data Management
FIMS	Facilities Information Management System
ft	feet
FUSRAP	Formerly Utilized Sites Remedial Action Program
GAC	granular activated carbon
GEP	General Emergency Plan
IC	institutional control
IDW	investigation-derived waste
ISO	International Organization for Standardization
IWCP	Integrated Work Control Process
LM	Office of Legacy Management
LMS	Legacy Management Support
LTS&M	long-term surveillance and maintenance
mg/kg	milligrams per kilogram
µg/L	micrograms per liter

mL/min	milliliters per minute
MNA	monitored natural attenuation
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NL	NL Industries Inc.
NRC	U.S. Nuclear Regulatory Commission
NTU	nephelometric turbidity unit
NYCRR	*New York Codes, Rules and Regulations*
NYECL	*New York Environmental Conservation Law*
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSF	Other Structure and Facility
OSWER	Office of Solid Waste and Emergency Response
OU	operable unit
PCE	tetrachloroethene
pCi/g	picocuries per gram
QA	quality assurance
QAM	*Quality Assurance Manual*
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SCR	Site Completion Report
SMP	Site Management Plan
TCE	trichloroethene
TCG	target cleanup goal
TOC	top of casing
USACE	U.S. Army Corps of Engineers
USC	*United States Code*
UU/UE	unlimited use and unrestricted exposure
VC	vinyl chloride
VOC	volatile organic compound
VP	vicinity property

Forms Referenced in This Manual

LMS forms are accessible on the Document Management SharePoint page > **Libraries** > **LMS Forms**.

Digital Photograph and Video Log	LMS 2609CON
Landowner/ Stakeholder Notification Form	LMS 1013
Monitoring Well Condition Assessment Survey	LMS 1591
Site-Specific Emergency Response Information	LMS 2107
Water Sampling Field Data	LMS 1805

1.0 Introduction

This Long-Term Surveillance and Maintenance (LTS&M) Plan has been developed to document the processes and requirements for the management of the U.S. Department of Energy (DOE) Colonie, New York, Site. The U.S. Army Corps of Engineers (USACE) completed remedial actions at the site under the Formerly Utilized Sites Remedial Action Program (FUSRAP) (USACE 2018). The site was transferred to the DOE Office of Legacy Management (LM) on September 30, 2019.

1.1 Purpose and Scope

This LTS&M Plan documents the activities and processes required to maintain and ensure the effectiveness of the selected remedies for the Colonie site. These activities and processes include the following:

- Ensuring onsite actions are conducted safely
- Maintaining the institutional controls (ICs)
- Conducting the groundwater monitoring program
- Identifying and complying with the applicable federal, state, and municipal regulations
- Ensuring that risks, funding needs, and personnel requirements are identified for the life-cycle baseline
- Ensuring that outreach (websites, public databases, and written communications) informs the public about site conditions
- Ensuring that data and records are maintained and accessible
- Ensuring that real and personal property are maintained and secure, including planning for emergencies and contingencies

1.2 Plan Organization

Section 1, "Introduction," provides the purpose of the plan and the site's history, geologic setting, and regulatory requirements.

Section 2, "Site Conditions," describes the environmental conditions and real property and personal property assets.

Section 3, "Long-Term Surveillance," describes plans for community outreach, environmental monitoring, the Site Management Plan (SMP) (DOE/USACE 2020), long-term periodic reviews, contingencies, and emergency response.

Section 4, "Site Inspection and Maintenance," describes the plans for upkeep of the site and site assets.

Section 5, "References," includes all references used in the report, including appendixes.

1.3 Authorities

This section describes the applicable regulation authorities that affect the LTS&M program for the site.

From 1958 to 1962, the Colonie site was owned by the National Lead Company (National Lead) and licensed by the U.S. Atomic Energy Commission (AEC), the predecessor of the U.S. Nuclear Regulatory Commission (NRC). In 1962, when New York State became an Agreement State, regulatory oversight of licensed activities transferred to New York (Travers 2000). NRC and New York State licenses were terminated or allowed to expire when the site was sold to the United States and assigned to DOE, due to DOE's independent authorities granted under the Atomic Energy Act of 1954 (PL 83-703) (NRC 1999).

As a result of the Energy and Water Development Appropriations Act of 1984 (PL 98-50), the site became eligible for FUSRAP by congressional mandate. DOE performed investigations and removal actions at vicinity properties (VPs) under the authorities granted under the Atomic Energy Act of 1954. In the Energy and Water Development Appropriations Act of 1998 (PL 105-62) and the Energy and Water Development Appropriations Act of 1999 (PL 105-245), USACE was designated as the lead federal agency for performing FUSRAP Remedial Investigations (RIs) and response actions. USACE was directed to use the administrative, procedural, and regulatory provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (Title 42 *United States Code* Section 9601 et seq. [42 USC 9601 et seq.]) and the National Oil and Hazardous Substances Pollution Contingency Plan, also called the National Contingency Plan (NCP) (Title 40 *Code of Federal Regulations* Section 300 [40 CFR 300]). The site is not on the National Priorities List, nor is there a Federal Facility Agreement with the U.S. Environmental Protection Agency (EPA).

DOE performed initial removal actions at the site and finalized an Action Memorandum in 1997 (DOE 1997), hereafter called the Action Memorandum. USACE issued a Final Action Memorandum in 2001 (USACE 2001a).

USACE has issued the following three Records of Decision (RODs) for the operable units (OUs) that were established:

- *Colonie FUSRAP Site Record of Decision, Colonie Site Groundwater* (USACE 2010), hereafter called the Groundwater ROD
- *Colonie FUSRAP Site, Colonie Main Site Soils Record of Decision* (USACE 2015), hereafter called the Soil ROD
- *Colonie FUSRAP Site, Vicinity Property Operable Unit Record of Decision* (USACE 2017c), hereafter called the VP ROD

The RODs summarize site conditions and the risks posed to human health and the environment from FUSRAP contaminants of concern (COCs). The RODs state the determinations made by USACE regarding the current and potential future use of the site and its resources. The selected remedies are stated, followed by determinations that the remedies satisfy the statutory requirements of CERCLA and the NCP.

The New York State Department of Environmental Conservation (NYSDEC) has concurred with all three RODs. Both the Soil ROD and the Groundwater ROD require long-term periodic reviews (known as Five-Year Reviews for CERCLA sites). Those reviews are required after CERCLA corrective actions where hazardous substances remain above levels that allow for unlimited use and unrestricted exposure (UU/UE). The CERCLA requirement is stated in 42 USC 9621(c), and the NCP requirement is found in 40 CFR 300.430(f)(4)(ii). The term "hazardous substance" is defined in CERCLA Section 101(14).

The Soil ROD specified that an environmental easement would be emplaced for three areas of inaccessible soil contamination. Environmental easements in New York run with the land in favor of the State, subject to the provisions of Article 71 *New York Environmental Conservation Law* Title 36 (NYECL 71-36). Under certain provisions of the NYECL, NYSDEC has enforcement authority over the environmental easements. The NYECL also requires the use of the SMP, which describes the use, monitoring, and reporting requirements for the three soil easement areas and is a separate, stand-alone document describing the ICs established for the soil easement areas.

The Groundwater ROD specified that an environmental easement would be emplaced to prevent human exposure to vapors from volatile organic compounds (VOCs) emanating from groundwater beneath the site. The ICs include a groundwater monitoring program, a temporary requirement for vapor-intrusion controls if residences are built above the VOC plume, and the permanent prohibition of groundwater use for potable purposes.

USACE stated in the Groundwater ROD that NYSDEC is the lead regulatory agency. New York cleanup requirements are codified in Title 6 *New York Codes, Rules and Regulations* Part 375, "Environmental Remediation Programs" (6 NYCRR 375). NYSDEC guidance on the technical standards for site investigations and cleanup is given in the NYSDEC Division of Environmental Remediation (DER) program policy *Technical Guidance for Site Investigation and Remediation* (DER-10).

The VP ROD states that no further action is required for the vicinity properties under CERCLA (USACE 2017c). However, the VP ROD described the presence of inaccessible soil beneath the utility rail spur on the CSX Corporation VP. LM used USACE sampling data to perform a dose assessment of potential exposure under residential-use assumptions. The dose assessment showed that the area meets the dose limit for unrestricted release even under the most conservative assumptions (DOE 2018a).

The site transitioned to DOE according to guidance in the March 1999 Memorandum of Understanding between USACE and DOE (DOE/USACE 1999), which states that LM will assume the LTS&M responsibilities 2 years after USACE issues the Site Closeout Report. DOE performed the first annual site inspection (DOE 2020a) and the first (DOE) round of groundwater sampling under the long-term monitoring program (DOE 2020b) in July 2020.

There are Town of Colonie code and zoning regulations concerning the upkeep of property and designated use, and these are described in Section 1.8.6.

1.4 Accountabilities

In addition to LM, certain long-term care accountabilities are assigned to USACE, NYSDEC, and other stakeholders.

1.4.1 Role of LM

LM is responsible for providing stewardship of the site and ensuring that DOE's postclosure responsibilities are met, including LTS&M, records management, property management, and beneficial reuse planning. The FUSRAP LTS&M program is guided by the *Legacy Management Program Management Plan for the Formerly Utilized Sites Remedial Action Program* (LMS/S16063).

1) LM (or a subsequent owner) is responsible for implementing, reporting on, monitoring, maintaining, and enforcing the ICs. LM will periodically review land use for signs of noncompliance with the ICs. These reviews are conducted in annual site inspections and long-term periodic reviews.
2) Because residual groundwater contamination remains above target cleanup goals (TCGs), LM will perform periodic groundwater monitoring to protect human health.
3) LM is a custodian of site records and is responsible for responding to inquiries from the public, NYSDEC, and other stakeholders.
4) Because ownership of the site is no longer needed to fulfill the mission of LM, LM is pursuing transfer of the site for beneficial reuse.

1.4.2 Role of USACE

USACE is responsible for any additional cleanup actions that would be required under CERCLA (DOE/USACE 1999). For example, USACE would be responsible for response actions for inaccessible soils should they become accessible.

1.4.3 Role of NYSDEC

NYSDEC provides regulatory oversight for the remaining soil and groundwater remedies. The agency reviews proposed changes to the long-term groundwater monitoring program, SMP, and environmental easement. NYSDEC will provide input and review in annual site management reports and long-term periodic reviews. NYSDEC executes its oversight roles through a DOE grant/cooperative agreement.

1.4.4 Role of Stakeholders

Stakeholders may view public documents, attend public meetings, and direct questions and concerns to LM or NYSDEC. Community outreach documents are discussed in Section 3.2.1.

1.5 Location

The Colonie main site is in the town of Colonie and in the county of Albany (Figure 1). The southern property line is on the border of the city of Albany. The main site comprises 11.2 acres of federally owned land. There are 56 privately owned VPs, which are identified in Figure 2 and in Table 1. DOE acquired the 9.2-acre National Lead site in 1984 and the adjacent 2-acre parcel to the west from Niagara Mohawk Power Corporation in 1985. The municipal address is 1130 Central Avenue, and Central Avenue forms its northern boundary (Figure 3). Commercial properties, including a restaurant and automotive repair shop, are due east. Amtrak and CSX rail lines are on the southern boundary, and residences are on the southern side of the railroad tracks. Commercial and municipal properties are on the western boundary of the site.

1.5.1 Current Land Use

The site is vacant land located in an urban area consisting of both residential and commercial properties. The site itself is in a Town of Colonie "Industrial F" municipal zoning district. The Industrial F District prohibits uses that include "any use which produces radiation, light, smoke, fumes, or odors of a noxious or harmful nature carrying beyond the limits of the premises" (Colonie 2007).

U.S. Census Bureau data in 2010 indicated that, in 2009, approximately 81,000 people lived in the Town of Colonie and 304,000 people lived in Albany County (USACE 2015).

Homes and businesses in the area around the site are provided with public water from the Latham Water District in the Town of Colonie. Water sources are the Mohawk River, five supply wells on Onderdonk Avenue, and the Stony Creek Reservoir (Colonie 2018). All these sources are greater than 4 miles away and upgradient of the site.

1.5.2 Future Land Use

In accordance with EPA guidance for selecting a site's potential future land use, USACE examined current land use, site setting, zoning laws and maps, and comprehensive community master plans. The Soil ROD states that the most probable future land use is urban residential. The town's master plan indicates future commercial use for properties along Central Avenue. Use of the urban residential cleanup criteria is supported by the residential property use to the south. USACE assumed that future residents will not use groundwater because the productivity of the shallow aquifer is too low to support domestic use (USACE 2015). The three easement areas are safe for restricted residential use, whereas the balance of the site is safe for residential use (DOE/USACE 2020).

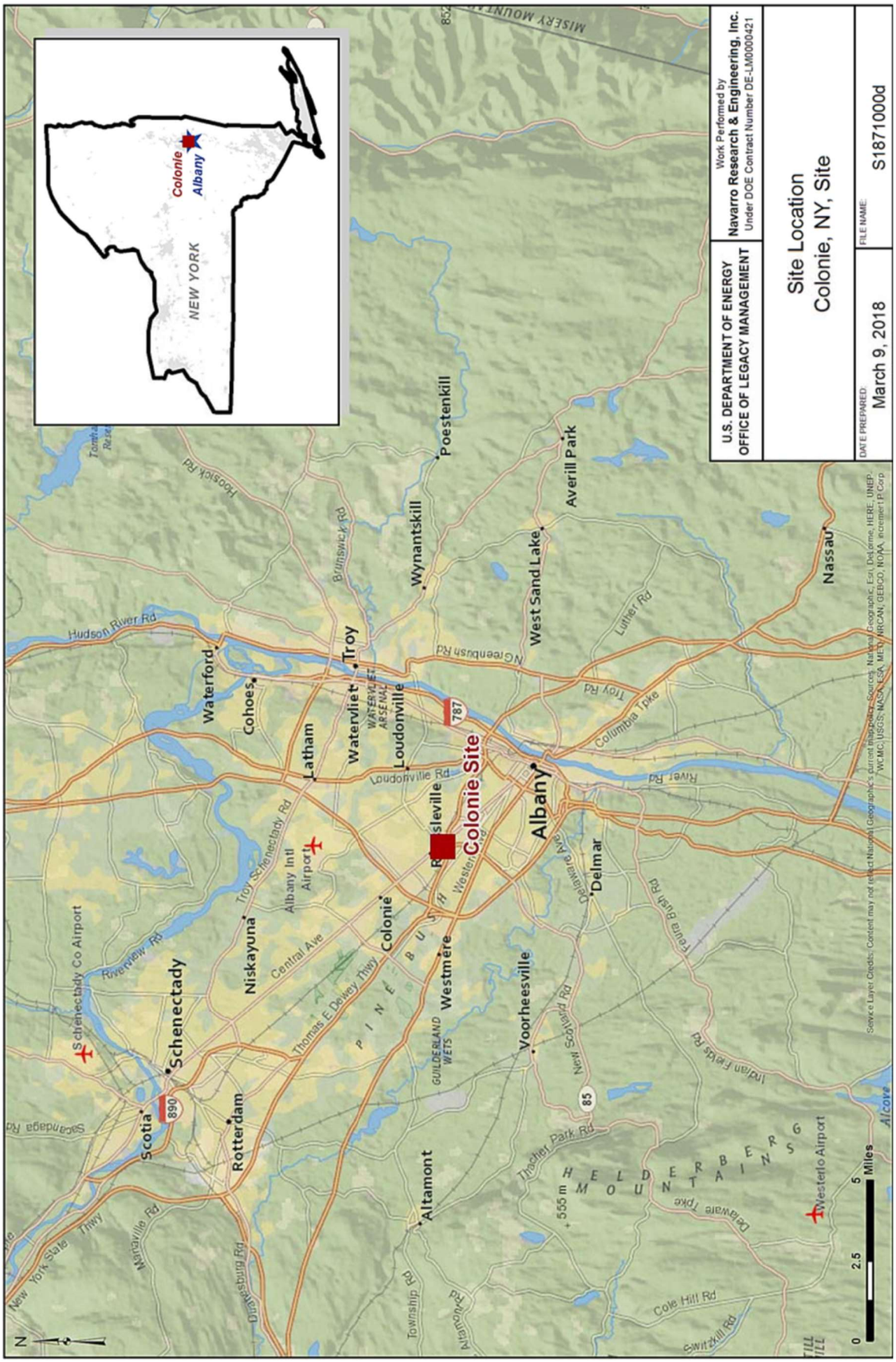


Figure 1. Site Location Map

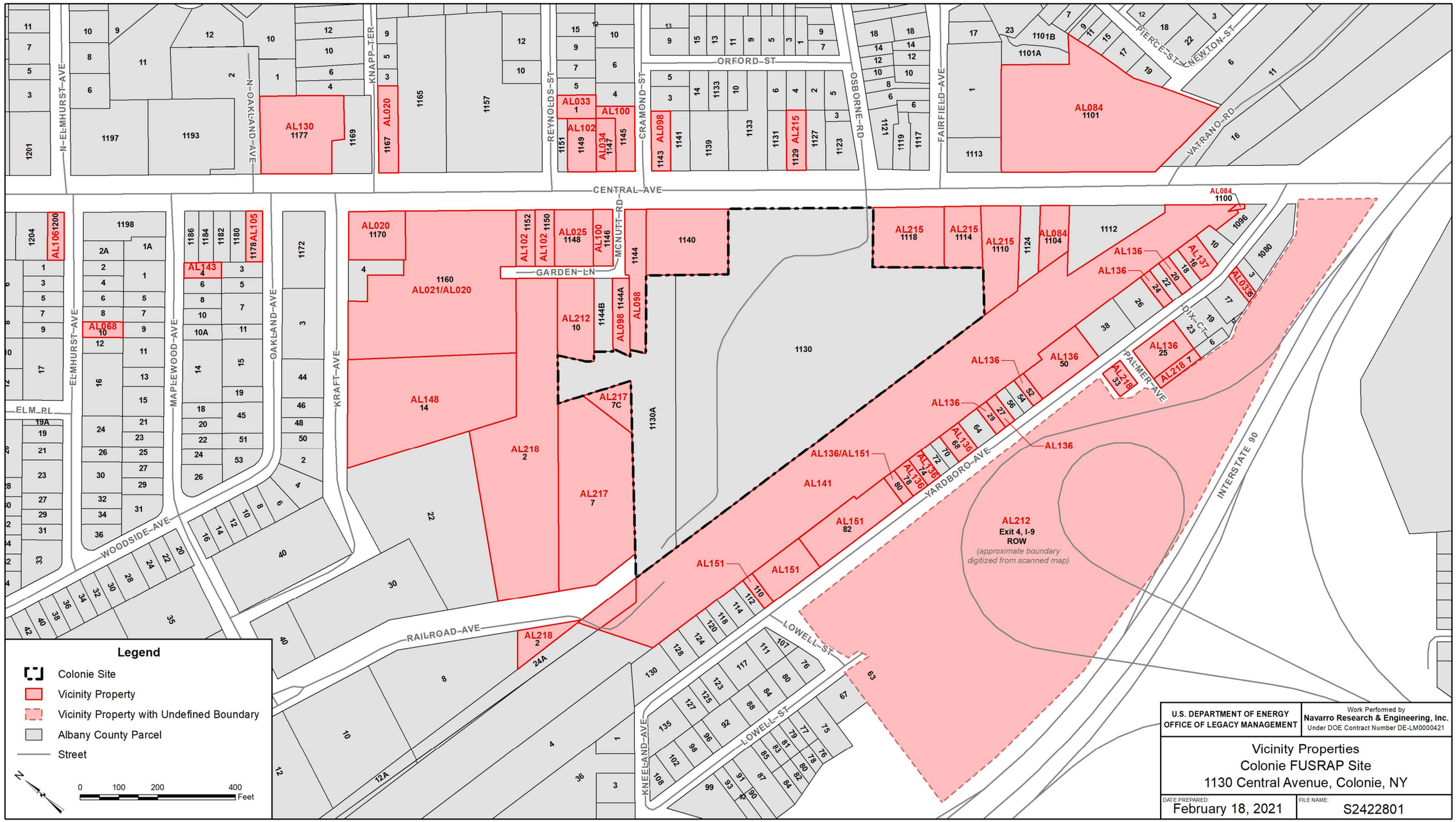
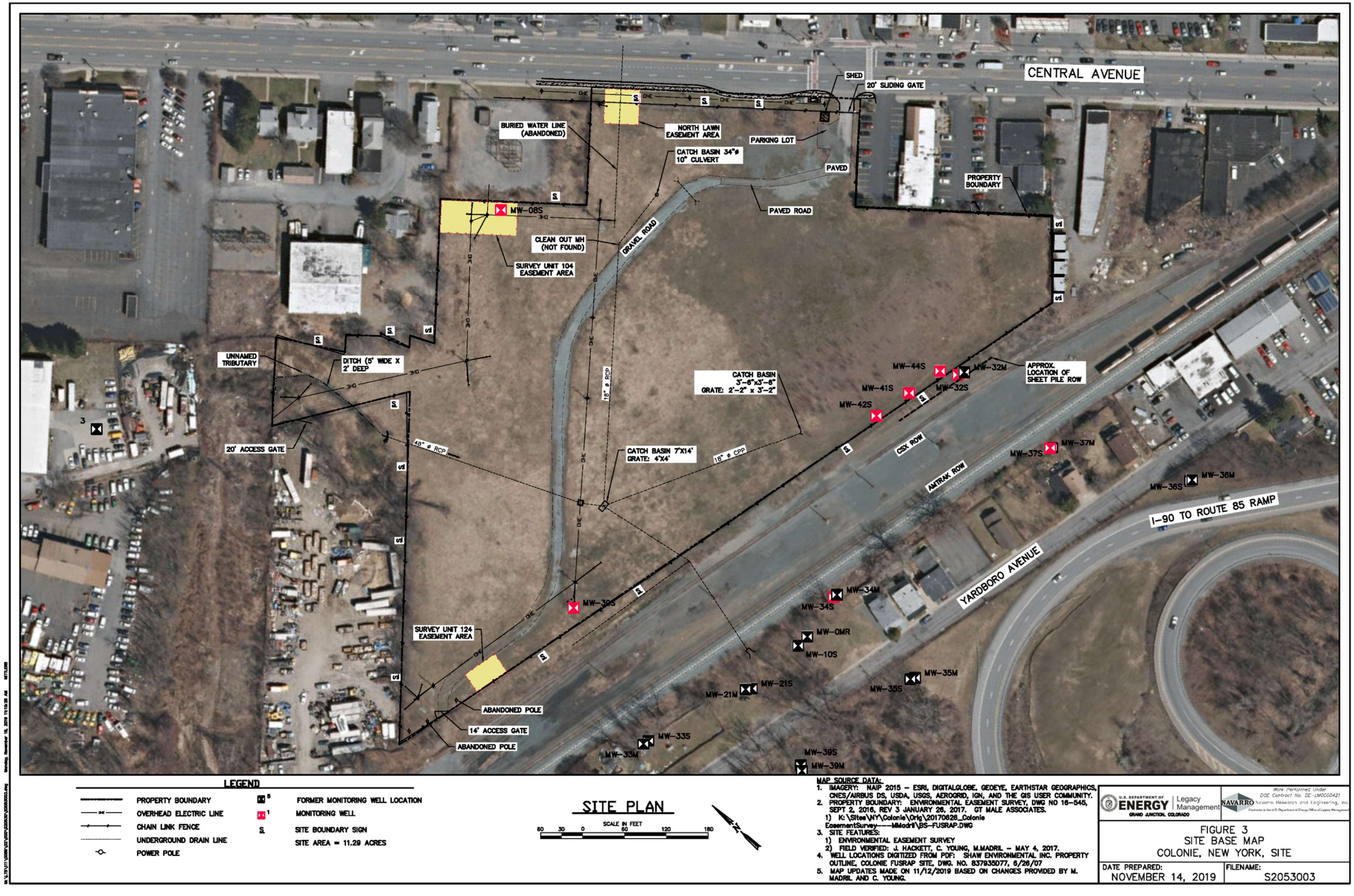


Figure 2. Vicinity Properties Map



LEGEND

- PROPERTY BOUNDARY
- OVERHEAD ELECTRIC LINE
- CHAIN LINK FENCE
- UNDERGROUND DRAIN LINE
- POWER POLE
- FORMER MONITORING WELL LOCATION
- MONITORING WELL
- SITE BOUNDARY SIGN
- SITE AREA = 11.29 ACRES

SITE PLAN

SCALE IN FEET: 60 30 0 60 120 180

MAP SOURCE DATA:

1. IMAGERY: NAIP 2015 – ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY.
2. PROPERTY BOUNDARY: ENVIRONMENTAL EASEMENT SURVEY, DWG NO 16-545, SEPT 2, 2016, REV 3 JANUARY 26, 2017. GT MALE ASSOCIATES.
   1) K:\Sites\NY\Colonie\Orig\20170626_Colonie EasementSurvey----MMadril\BS-FUSRAP.DWG
3. SITE FEATURES:
   1) ENVIRONMENTAL EASEMENT SURVEY
   2) FIELD VERIFIED: J. HACKETT, C. YOUNG, M.MADRIL – MAY 4, 2017.
4. WELL LOCATIONS DIGITIZED FROM PDF: SHAW ENVIRONMENTAL INC. PROPERTY OUTLINE, COLONIE FUSRAP SITE, DWG. NO. 837935D77, 6/26/07
5. MAP UPDATES MADE ON 11/12/2019 BASED ON CHANGES PROVIDED BY M. MADRIL AND C. YOUNG.

U.S. DEPARTMENT OF ENERGY | Legacy Management
GRAND JUNCTION, COLORADO

Work Performed Under DOE Contract No. DE-LM0000421
NAVARRO Navarro Research and Engineering, Inc.
Contractor to the U.S. Department of Energy Office of Legacy Management

FIGURE 3
SITE BASE MAP
COLONIE, NEW YORK, SITE

DATE PREPARED: NOVEMBER 14, 2019
FILENAME: S2053003

Figure 3. Colonie Site Base Map

Table 1. Addresses of the Colonie Site Vicinity Properties

Vicinity Properties Listed in the *Colonie FUSRAP Site Vicinity Property Operable Unit Record of Decision*					
Vicinity Property ID	**Property**	**Comment**	**Vicinity Property ID**	**Property**	**Comment**
AL084	1100 Central Ave.		AL106	1200 Central Ave.	
	1101 Central Ave.		AL217	Crannell Property, Railroad Ave.	7 Railroad Ave.
	1104 Central Ave.				7C Railroad Ave.
AL215	1110 Central Ave.		AL068	10 N. Elmhurst Ave.	
	1114 Central Ave.		AL212	Exit 4, 190 Right-of-Way Property	Boundary not defined
	1118 Central Ave.			10 Garden Lane	
	1129 Central Ave.		AL148	10/14 Kraft Ave.	**10 Kraft Ave.**
AL098	1143 Central Ave.				14 Kraft Ave.
	1144/1144A Central Ave.	1144 Central Ave.	AL143	4 Maplewood Ave.	
		1144A Central Ave.	AL218	Niagara Mohawk (NiMo) Property, Railroad Ave.	2 Railroad Ave.
AL100	1145 Central Ave.				
	1146 Central Ave.			7 Palmer Ave.	
AL102	1149 Central Ave.			33 Palmer Ave.	
	1150 Central Ave.		AL033	1 Reynolds Ave.	
	1152 Central Ave.			5 Yardboro Ave.	
	1159 Central Ave.		AL137	16 Yardboro Ave.	
AL021	1160 Central Ave.		AL136	20 Yardboro Ave.	
	1161 Central Ave.			24 Yardboro Ave.	
AL020	1160/1162 Central Ave.	1160 Central Ave.		25/27 Yardboro Ave.	
		1162 Central Ave.		27/29 Yardboro Ave.	
	1166 Central Ave.			50 Yardboro Ave.	
	1167 Central Ave.			52 Yardboro Ave.	
	1168 Central Ave.			68 Yardboro Ave.	
	1170 Central Ave.			74 Yardboro Ave.	
AL130	1177 Central Ave.			78 Yardboro Ave.	
AL105	1178 Central Ave.			80 Yardboro Ave.	
	1185 Central Ave.		AL151	80–110 Yardboro	
	1195 Central Ave.				

** Addresses in **bold red** font are not found in the 2018 Albany County parcel data.*

1.6 Site History

Industrial operations at the site began in 1923, when the Embossing Company built a factory for wooden products. In 1927, Magnus Metal purchased the site and operated a brass foundry for manufacturing railroad components, including parts cast in sand molds and brass-bearing housings with surfaces of babbitt metal (an alloy of lead, copper, and antimony). In 1937, National Lead purchased the site and continued to operate the brass foundry.

Before 1941, National Lead began filling a lake on the western side of the site with used casting sand. The lake was used for additional waste disposal through 1961. The used casting sands contained high concentrations of heavy metals, primarily lead, copper, and arsenic. The filled-in lake was identified as a source of metal contamination.

In 1958, the nuclear division of National Lead began producing items manufactured from uranium and thorium under a license issued by AEC. The plant handled enriched uranium from 1960 to 1972. During that time, National Lead also held several contracts to manufacture nuclear fuel components. Depleted uranium (DU), along with metal contamination from other processes, was later remediated in soil. National Lead also converted depleted uranium tetrafluoride to DU metal, which was then fabricated into both commercial and military components (Dufek et al. 2006). Some of the processes produced DU powder as a waste, which is pyrophoric. National Lead oxidized these powders in an onsite incinerator to eliminate the fire hazard, which resulted in aerial emission of DU particulates onto the site and vicinity properties (Lloyd et al. 2009). The AEC contract was terminated in 1968, and work at the plant afterwards was devoted to fabricating shielding components, aircraft counterweights, and artillery projectiles from DU.

The New York State Supreme Court shut down the National Lead plant in 1984 due to the violation of air emissions regulations, and the site was sold to DOE. As part of the Energy and Water Appropriations Act of 1984 (PL 98-50), DOE was directed to remediate the site. DOE purchased the Niagara Mohawk property bordering the National Lead site to the west in 1985 to assist the cleanup (USACE 2003). A timeline of the history of the site is presented as Figure 4.

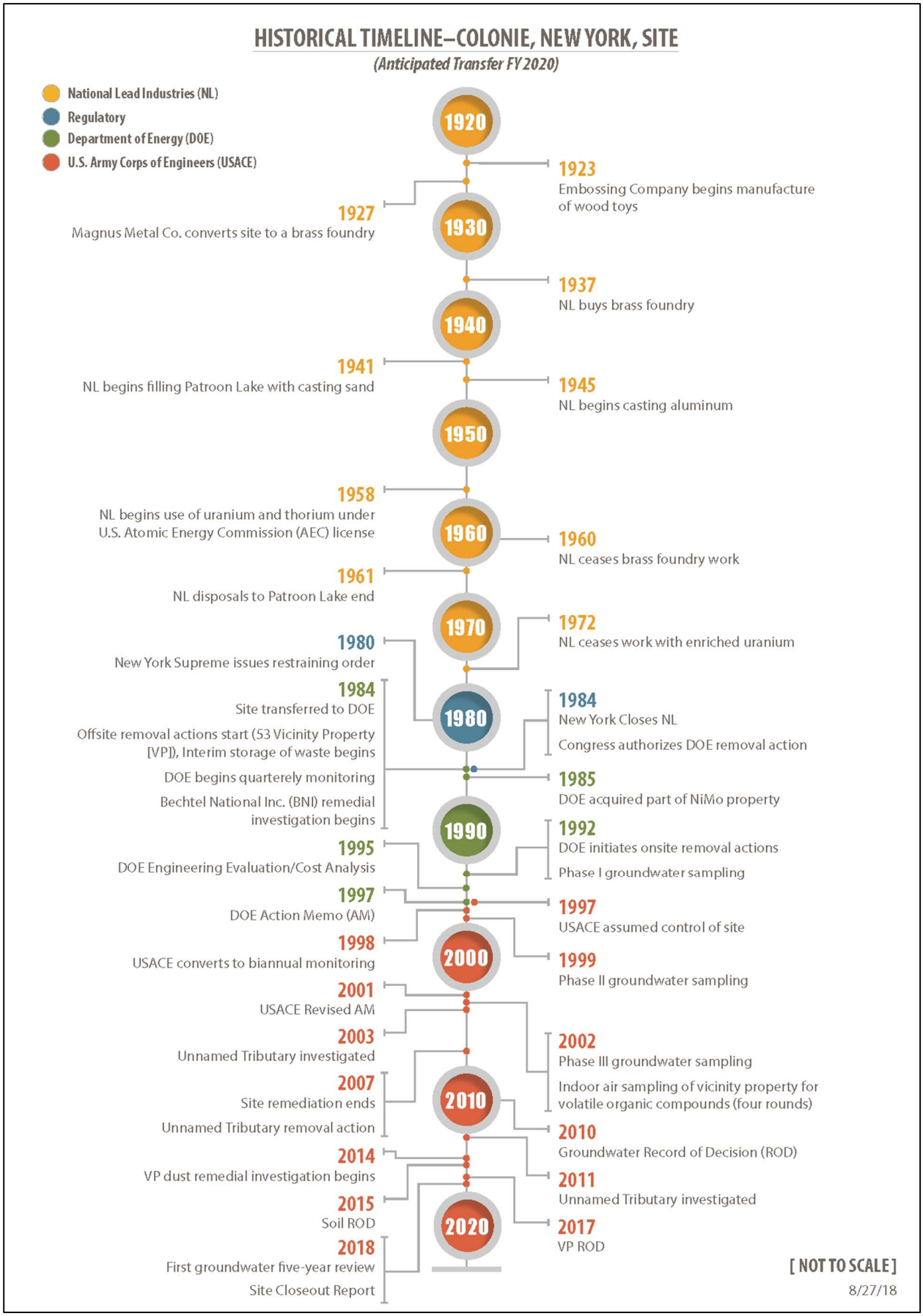


Figure 4. Historical Timeline

1.7 Remedial Actions

From 1984 through 1997, DOE investigated the site and 56 VPs (shown in Figure 2) and initiated the remediation process. During that time, DOE remediated 53 of the VPs and demolished the buildings onsite under the authority of the *Colonie Site Action Memorandum for Removal Action* (DOE 1997). The remaining three VPs were remediated by USACE.

In 1997, USACE assumed responsibility for the site cleanup and in 2001 issued a revised Final Action Memorandum (USACE 2001a). USACE divided the site into the following three OUs. Cleanups were completed in each OU in the following manner:

- **Soil OU:** By the end of 2007, USACE completed the removal of contaminated soil at the site under the Revised Action Memorandum. The Soil Feasibility Study and the Proposed Plan were completed in 2014 (USACE 2014a; USACE 2014b). The Soil ROD was executed in 2015 (USACE 2015).
- **Groundwater OU:** USACE continued groundwater investigations that were initiated by DOE. The Groundwater ROD was signed in 2010 (USACE 2010). USACE conducted 16 sampling events to demonstrate that natural attenuation of groundwater contaminant is occurring. The most recent USACE reports on groundwater monitoring were issued in 2016 (USACE 2016a) and in 2017 (USACE 2017a). The *First Five-Year Review Report for Colonie FUSRAP Site Groundwater Operable Unit* (USACE 2017d) was completed in September 2017.
- **Vicinity Property OU:** DOE remediated 53 VPs, and USACE completed cleanups in the remaining 3 VPs in 2007 (USACE 2008). An evaluation of the DOE-remediated VPs was completed in 2012, and additional contaminated soil was removed from one property in 2013. Indoor dust sampling was performed at several VPs in 2014. A *Draft Final Colonie FUSRAP Site, Vicinity Property Operable Unit Remedial Investigation Summary Report* was completed in 2016 (USACE 2016b). The *Colonie FUSRAP Site Vicinity Property Operable Unit Proposed Plan* (USACE 2017b) and the *Colonie FUSRAP Site Vicinity Property Operable Unit Record of Decision* (USACE 2017c) were both issued in 2017.

The *Site Closeout Report for the Colonie FUSRAP Site* (USACE 2018) was finalized in June 2018.

1.8 Regulations, Requirements, and Guidance That Govern LTS&M Activities

This section addresses applicable or relevant and appropriate requirements that affect the site's LTS&M program. The Legacy Management Support (LMS) Environmental Compliance group conducts regular reviews of changes to federal and state regulations and DOE orders that could impact LM programs.

1.8.1 CERCLA and the NCP

In accordance with the processes of CERCLA (42 USC 9601) Section 121(c) and NCP (40 CFR 300) Section 300.430(f)(4)(ii), if a remedial action is selected that results in any hazardous substances, pollutants, or contaminants remaining at the site above levels that allow

for UU/UE, the lead agency shall review such action every 5 years after the initiation of the selected remedial action.

The completion of remedial actions can serve as the triggering event for the timing of long-term periodic reviews. USACE completed removal actions for the Soil OU in 2007 and completed the Soil ROD, which was signed in March 2015. USACE completed its *First Five-Year Review Report of the Groundwater Operable Unit* in October 2017. These long-term periodic reviews are the functional equivalent of the Five-Year Reviews required under CERCLA and the NCP. LM will complete a long-term periodic review for both the Soil OU and the Groundwater OU by October 2022.

1.8.2 National Environmental Policy Act

The National Environmental Policy Act (NEPA) (PL 91–190) requires federal agencies to assess the impacts that federal actions may have on the quality of human health and the environment. USACE relies on the CERCLA process for review of remedial actions to be taken under FUSRAP. No separate NEPA document or NEPA review process is performed for a FUSRAP site transitioning to LM from USACE because NEPA values are incorporated into the CERCLA investigation and cleanup process (DOE 2002). For a federal action that is not a part of ongoing maintenance, NEPA may apply. DOE procedures for implementing NEPA are contained in 10 CFR 1021, 40 CFR 1500–1508, and DOE Policy 451.1, *National Environmental Policy Act Compliance Program*. LM-specific procedures for implementing the DOE regulations and the DOE policy are contained in DOE Policy 451.1.

1.8.3 New York Environmental Conservation Law

An environmental easement is used as an IC to protect humans from the risk of exposure to residual subsurface contamination. The environmental easement was recorded by the Albany County Clerk on June 12, 2020. NYECL 71-36 provides the requirements for environmental easements. The easement is granted to The State of New York through NYSDEC by The United States of America through LM and will convey with the deed upon transfer of site ownership. An SMP is required by the NYECL for the monitoring and maintenance of the environmental easement. The SMP is described in Section 2.5.

1.8.4 New York Environmental Remediation Regulations

The Soil and Groundwater RODs state that NYSDEC provides oversight of long-term groundwater monitoring and soil easement. The groundwater long-term monitoring program (Section 3.5.1) is designed to conform with the NYSDEC program policy *Technical Guidance for Site Investigation and Remediation* (DER-10). A crosswalk to compare DER-10 guidance to this plan is included as Appendix A.

1.8.5 New York Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations

New York ambient water quality standards are codified in 6 NYCRR 703. These standards do not apply to the Colonie groundwater remedy because USACE developed risk-based TCGs in compliance with CERCLA.

New York standards are relevant to produced groundwater, such as excess water generated from groundwater sampling and purged well redevelopment water. NYSDEC allows release of produced groundwater to the ground surface if it meets the ambient groundwater quality standards and if it is not allowed to run into surface water or storm drains. The *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PRO/S04351), also called the SAP, includes a program directive for the site that specifies how purge water is to be filtered through granular activate carbon (GAC) to achieve the discharge standards prior to releasing it to the ground surface.

1.8.5.1 New York Monitoring Well Requirements

There is no New York regulation or guidance that is applicable to the installation of groundwater monitoring wells. If a monitoring well will be installed (or replaced), then a work plan will be written that describes the procedures to be used. The procedures will include the SAP, the consensus guidelines of the ASTM International *Standard Practice for Design and Installation of Ground Water Monitoring Wells* (ASTM 2004), and the relevant federal guidelines described in the EPA *Groundwater Monitoring Technical Enforcement Guidance Document* (EPA 1986).

The decommissioning of groundwater monitoring wells is regulated in New York by NYSDEC guidance. Monitoring well decommissioning is required when a well is no longer needed or when its integrity is suspect or compromised. When appropriate, all site monitoring wells will be decommissioned in accordance with NYSDEC Commissioner Policy (CP)-43, *Groundwater Monitoring Well Decommissioning Policy* (NYSDEC 2009).

1.8.6 Local Regulations

Federal property is exempt from local zoning regulations, but federal agencies generally seek comity with local governments (NYDOS 2005). The following Town of Colonie zoning regulations (Colonie 2007) apply to private property and are relevant to maintenance of the site. As discussed in Section 1.5.1, the site is in the Industrial F municipal zoning district. The definition of the Industrial F District states that prohibited uses include "any use which produces radiation, light, smoke, fumes, or odors of a noxious or harmful nature carrying beyond the limits of the premises." The following regulations from the *Code of the Town of Colonie* are also relevant to site maintenance:

- Chapter 62-38 has prohibitions against blighted conditions, including unkempt lawns and overgrowth.
- Chapter 62-45 contains general requirements that include the maintenance of fencing, vegetation, and proper drainage:
    - All land must be kept free of dead or dying trees; accumulations of brush, shrubs, weeds, grass, stumps, roots, excessive and/or noxious growths, garbage, grass cuttings, and trimmings; and refuse or debris that would tend to start a fire or increase the intensity of a fire already started or cause an unsightly condition, cause poisoning or irritation to people or animals, or cause or tend to cause or enhance an unhealthy or dangerous or obnoxious condition on said property or on any adjacent or neighboring property. Grounds maintenance requirements for the site are described in Section 4.6.

- Fences need to be kept in a "safe and substantial manner." Site-specific fence maintenance requirements are described in Section 4.3.
- Erosion control is mandated. All land shall be maintained so as not to alter the existing flow rates, peaks, quantities, or direction of storm drainage. The topography or surface quantities of an area shall not be modified so as to alter the water retention characteristics of the property. Maintenance of the storm drain system is described in Section 4.8.
- Landowners are prohibited from allowing visibly turbid water from running into storm drains. Bare ground shall be vegetated to prevent the spread of dust. Wastewater disposal is discussed in Section 3.4.5.

- Chapter 177 limits the cutting of mature trees (Colonie 2007). The term "mature" is not defined in the code and has no standardized definition.

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2.0 Site Conditions

The Colonie site is designated as an LM Category 2 site. Category 2 activities typically include routine inspection, monitoring, maintenance, recordkeeping, and stakeholder support, in accordance with the LM *Site Management Guide* (Guide-3-20.0-1.0).

The selected remedy in the Soil ROD stipulates the need for ICs due to the presence of inaccessible contaminated soil in three discrete areas. LM has emplaced an environmental easement and the accompanying SMP describes the ICs that are required under the easement. The SMP mandates the performance of annual site inspections and reporting.

The selected remedy in the Groundwater ROD stipulates the use of monitored natural attenuation (MNA) with the use of ICs. The Groundwater ROD mandates periodic groundwater monitoring until cleanup criteria are met. Cleanup criteria are discussed in Section 2.4 and summarized in Table 2. There is currently a biennial (once every 2 years) schedule of monitoring and sampling. There are also ICs to restrict the use of groundwater and protect against the intrusion of VOC vapors into residences.

Table 2. Target Cleanup Goals

Contaminants of Concern	Target Cleanup Goals
Soil[1]	
Uranium-238	35 pCi/g
Thorium-232	2.8 pCi/g
Lead	450 mg/kg
Copper	1912 mg/kg
Arsenic	7.4 mg/kg
Groundwater[2]	
PCE	5.5 µg/L
TCE	18 µg/L
cDCE	1800 µg/L
VC	1.4 µg/L

Notes:
Abbreviations are defined in the "Abbreviations" section at the beginning of this LTS&M Plan.
[1] Soil TCGs were issued in the Final Action Memorandum (USACE 2001a).
[2] Groundwater TCGs were issued in the Groundwater ROD (USACE 2010).

2.1 Site Description

The site is a vacant lot that is traversed by a gravel and asphalt road (Figure 5). Sewer, water and electric utilities are available along Central Avenue. A stand of aspen trees exists in the southeastern corner of the site. There is a network of eight monitoring wells, one of which is inactive (Figure 6). Monitoring well boring logs and construction details are included in Appendix F.

2.2 Geology and Hydrology

The Colonie site is on the eastern edge of the Central Plateau physiographic province, with the Adirondack province to the north and the northern extension of the Valley and Ridge province to the east. The site is on relatively flat, slightly rolling terrain in the Pine Bush ecological zone within the Mohawk-Hudson lowland (USACE 2003).

The maximum topographic relief across the 11.2-acre site is 15 feet (ft). The highest point on the property, the northwest corner, has an elevation of approximately 235 ft above mean sea level. The land slopes gently (at approximately 2%) from the northwest toward the south–southeast. There is a steep embankment between the CSX and Amtrak rail lines, which parallel the southern site boundary, and the properties along Yardboro Avenue.

Figure 5. View Across Colonie Site from Parking Area Looking South

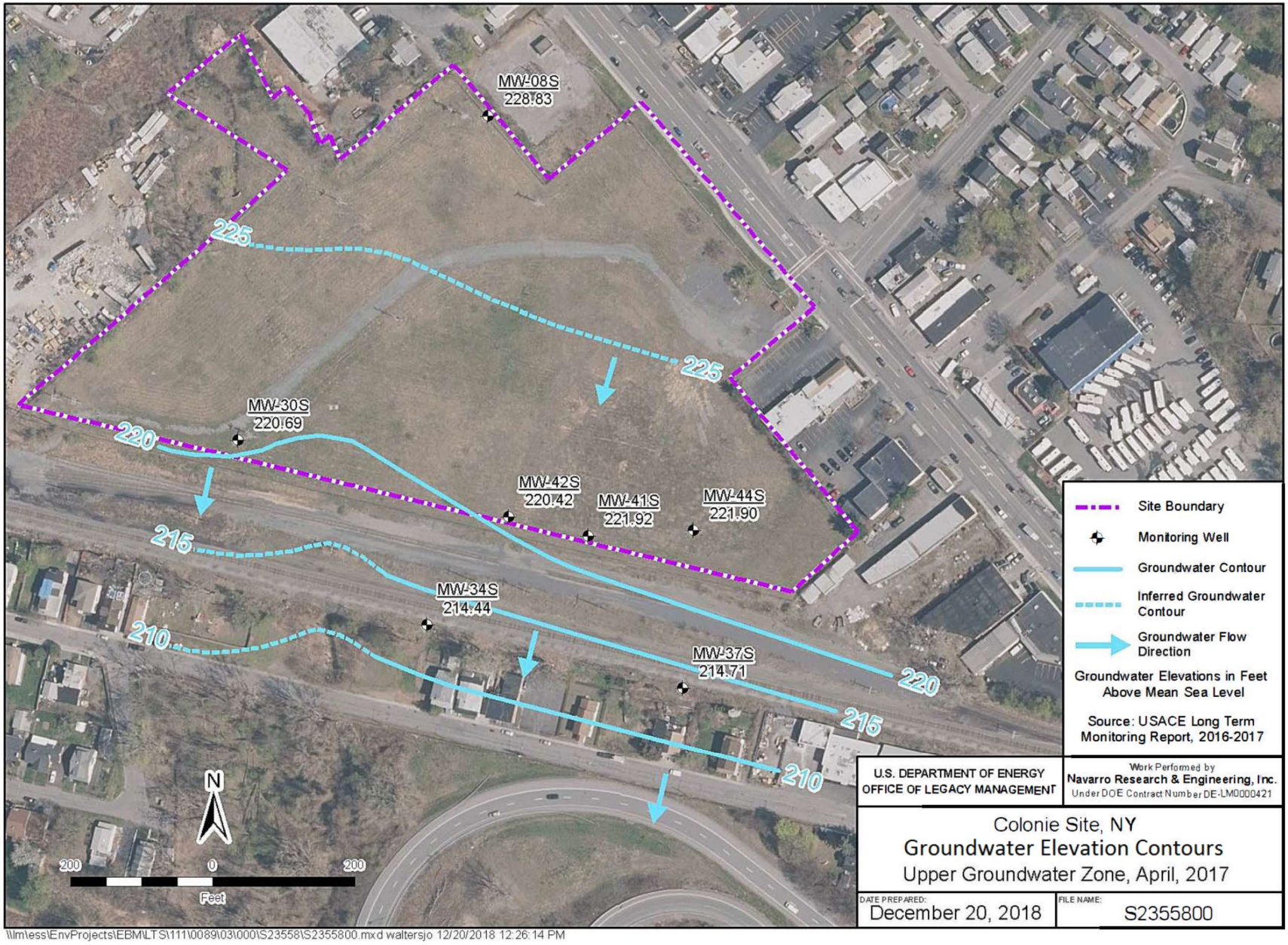

Figure 6. Groundwater Elevation Contour Map

An unnamed tributary of Patroon Creek crosses the site from the west to the south and east, a portion of which is in an underground culvert, ultimately discharging into Patroon Creek. The unnamed tributary (shown in Figure 3) drains an area of approximately 300 acres in the town of Colonie; it is in an urban area and has been significantly channeled into culverts. Patroon Creek is a perennial stream that drains an area of approximately 13 square miles in Colonie and Albany. The drainage basin is mostly urban and includes both commercial and residential properties. The creek is approximately 7 miles long, from its headwaters to where it discharges into the Hudson River (USACE 2003).

The geologic units at the Colonie site include two notable water-bearing zones named the upper silt (also referred to as the upper aquifer) and the lower silt (or lower aquifer) (Figure 7). The upper aquifer is composed of lacustrine silt and sand, and the lower aquifer consists predominantly of silty sand with some clay. These two water-bearing zones are typically separated by unit known as the upper aquitard that consists of a varied sequence of clay and silt that is 12–15 ft thick (Moore et al. 2014).

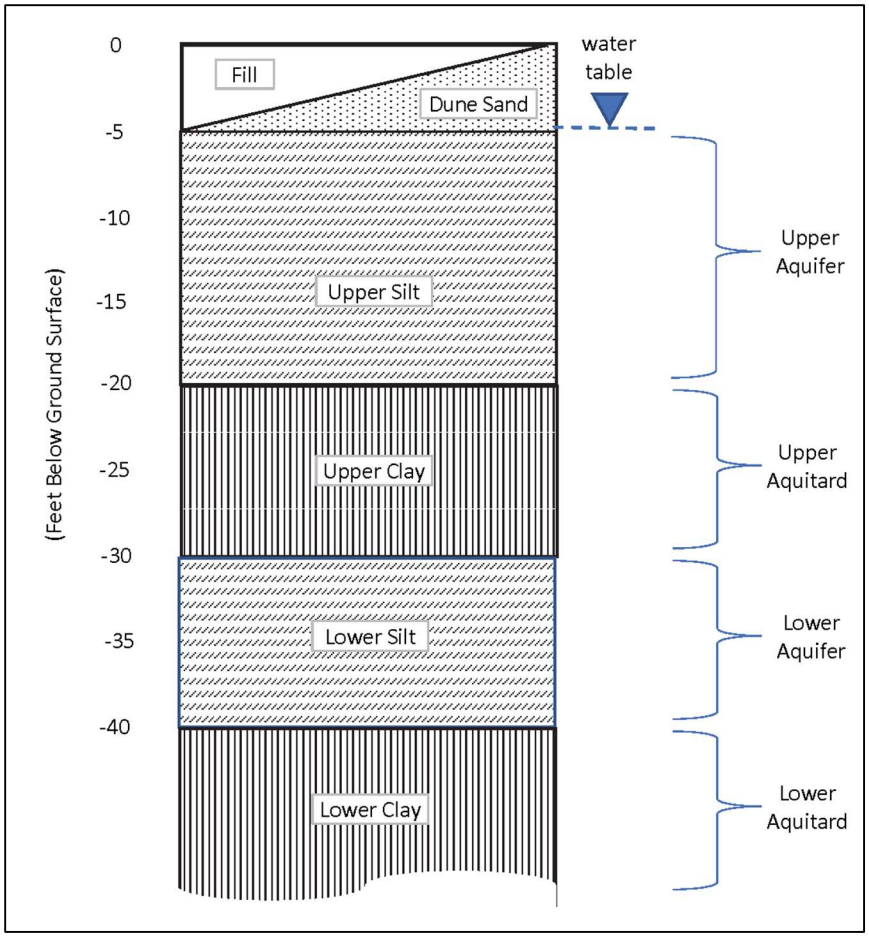

Figure 7. Generalized Cross Section

The upper aquifer is generally encountered at a depth of less than 10 ft below ground surface (bgs). The water table is at or near ground surface in the northwestern part of the site during the spring. The saturated thickness of this zone ranges from over 20 ft in the north portion of the site to less than 15 ft in the south near the property line. The thickness of the lower aquifer ranges from 10 to 15 ft. Groundwater level data provided in a 2003 groundwater RI report (USACE 2003) indicate that the hydraulic gradient and general direction of groundwater flow in the lower aquifer closely resemble those in the upper aquifer. Groundwater flow direction is generally to the south/southwest in both groundwater zones, as shown in Figure 6. There is a downward hydraulic gradient over the northern portion of the site, with localized upward hydraulic gradients near the unnamed tributary and Patroon Creek (USACE 2003).

2.3 Soil Contamination

From 1992 to 1996, DOE removed the buildings on the site, and developed the 1995 Engineering Evaluation/Cost Analysis (EE/CA) and the Action Memorandum (DOE 1997). The EE/CA and the Action Memorandum selected Alternative 3B, "Moderate Excavation and Capping." Due to site constraints and the community's resistance, the alternative was reevaluated when USACE assumed responsibility. The Action Memorandum was revised based on this reevaluation. A Technical Memorandum (USACE 2001b) and the Final Action Memorandum (USACE 2001a) document the subsequent selection of Alternative 2B, "Large-Scale Excavation and Disposal." USACE conducted removal activities between 2000 and 2007, which resulted in the removal and offsite disposal of more than 135,000 cubic yards of soil contaminated with radionuclides and metals. The Technical Memorandum established the TCGs for the COCs in soil, which are shown in Table 2.

The Technical Memorandum established that radiological contamination would be excavated regardless of depth, but that metal-contaminated soil would be excavated to a maximum depth of 9 ft bgs. Contaminated soil from deeper than 9 ft bgs would not be removed because no completed exposure pathway was anticipated and, therefore, leaving that soil in place would be protective of human health and the environment. There are three discrete areas with metal impacted soil that were inaccessible to excavation due to the presence of utilities, and these areas are protected under the environmental easement. The easement areas are further discussed in Section 2.5. With the completion of the removal action, the vast majority of contaminated soil was removed, disposed of offsite, and replaced with certified-clean backfill soil. No soil with radiological contamination above removal action goals was left on the site (Shaw 2010).

The inaccessible metals contamination is limited to three survey units in the shallow subsurface and an area of the deeper subsurface (greater than 12 ft in depth). The shallow subsurface areas were not excavated due to the presence of physical obstructions, including high-voltage power line support poles, a rail line, and a water main. The easement areas are shown in Figure 3. A brief summary of each survey unit is provided in Table 3.

Table 3. Summary of the Easement Areas

Easement Area	Location	Surface Area	Depth to Contamination	Contaminants
North Lawn	North property line	2,500 ft^2	3.9 ft bgs	• Copper: 4,340 mg/kg (cleanup goal 1,912 mg/kg) • Lead: 3,370 mg/kg (cleanup goal 450 mg/kg)
Survey Unit 104	Northwest corner	5,171 ft^2	1.8 ft bgs	• Arsenic: 85.4 mg/kg (cleanup goal 7.4 mg/kg)
Survey Unit 124	Southwest corner	1,716 ft^2	5.3 ft bgs	• Copper: 2,450 mg/kg (cleanup goal 1,912 mg/kg) • Lead: 734 mg/kg (cleanup goal 450 mg/kg)

Note: Abbreviations are defined in the "Abbreviations" section at the beginning of this LTS&M Plan.

Soil sample results for six locations in deeper subsurface soils (shallowest is 12 ft bgs) exceeded the metals cleanup goals applicable to soil less than 9 ft bgs. The six locations are confined to a single portion of the site where past National Lead landfilling occurred in the former Patroon

Lake, and are indicated on the site inspection map included in Appendix D. These deep subsurface soils were not removed because there is not a complete exposure pathway. In other words, these deep soils pose no harm to future residents or workers because future excavation to these depths is unlikely.

2.4 Groundwater Contamination

Since 1984, multiple studies have been performed to investigate hydrogeological conditions and evaluate the nature and extent of groundwater impacted by past operations. The upper (unconfined) groundwater zone has been impacted by historical releases of tetrachloroethene (PCE). A lower (confined) groundwater zone was investigated and determined to be uncontaminated. Information presented in the 2003 groundwater RI report (USACE 2003) indicated that the areas of impact had expanded southward from the source areas toward the railroad tracks, nearby buildings, and the unnamed tributary of Patroon Creek, consistent with the natural direction of groundwater flow. A decrease in the extent of groundwater contamination has been observed since 2003, with significantly lower levels of contaminants being observed in the areas where excavation and dewatering were performed during the soil removal action (USACE 2010).

The soil removal actions (that removed VOC source material) have been shown to improve groundwater quality. Groundwater sampling results have indicated a consistent decrease in VOC concentrations. The presence of the PCE breakdown products trichloroethene (TCE), *cis*-1,2-dichloroethene (cDCE), and vinyl chloride (VC) indicates that natural degradation processes are progressing. As a result, MNA of the remaining contamination is considered a viable means of achieving the TCGs (USACE 2016a; USACE 2017d; USACE 2017a).

The groundwater remedy includes a long-term groundwater monitoring program for the upper groundwater zone that will continue until natural environmental processes reduce the contamination to concentrations below the groundwater TCGs (USACE 2017d). In 2017, USACE estimated that contaminants would reach the TCGs in 15 years based on modeling using the Monitoring and Remediation Optimization System (MAROS) software (USACE 2017d). As described in Section 1.3, ICs were developed to limit potential future residential exposure to VOCs.

Four VOCs have been identified as COCs. Radiological COCs no longer need to be monitored. The COCs and their TCGs are summarized in Table 2.

Currently, PCE concentrations are above the TCGs in a stationary plume that encompasses an area of less than 1 acre and has a leading edge that has receded over time. The Groundwater ROD specifies that monitoring and sampling will continue until the contaminant concentrations recede to the TCG. The well network is primarily in the southeast portion of the site, as shown in Figure 8.

Figure 8. Monitoring Well Locations

2.5 Institutional Controls

The Soil ROD mandated the placement ICs in the form of an environmental easement on the three easement areas shown in Figure 3 and described in Section 2.3. A risk assessment determined that these areas contained soil that poses excess risk to human health. North Lawn and Unit 124 subsurface soil poses excess risk to children and Unit 104 subsurface soil poses excess risk to residents. The residual contamination poses no unacceptable risk to a future worker.

The Groundwater ROD mandates that ICs are to be used to ensure that the property is safe for future residential land use by limiting potential exposure of hypothetical future onsite residents to groundwater contamination via the vapor intrusion pathway.

ICs are incorporated into the environmental easement to ensure that the property is safe for its intended future use. The ICs are also detailed in the SMP (DOE/USACE 2020).

The environmental easement contains the following 9 ICs:

1. The Soil Easement Areas, as further identified in Appendix D, Schedule A (of the SMP), may be used for Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii), and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv).
2. No digging or excavation shall be permitted in the Soil Easement Areas without prior written approval of DOE and NYSDEC.
3. Vegetable gardens and farming are prohibited in the Soil Easement Areas.
4. The use of groundwater underlying the site, as described in Appendix D, Schedule B (of the SMP), is prohibited without necessary water quality treatment as determined by the New York State Department of Health (NYSDOH) or the Albany County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from NYSDEC.
5. The potential for vapor intrusion must be evaluated for any buildings designed for occupancy on the site, as described in Appendix D, Schedule B (of the SMP), and appropriate actions to address exposures must be implemented.
6. Data and information pertinent to site management must be reported at the frequency and in a manner as defined in the SMP.
7. All future activities that will disturb remaining contaminated material must be conducted in accordance with the SMP.
8. Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP.
9. Maintenance, monitoring, inspection, and reporting of any physical component of the remedy shall be performed as defined in the SMP.

2.6 Vicinity Properties

Remedial goals for each of the 56 VPs (shown in Figure 2 and Table 1) have been achieved. There is an area of inaccessible soil beneath an active rail line in the CSX VP. USACE has assessed the level of residual radiological contamination in this area and has determined that the residual dose to a hypothetical future resident would be below federal guidelines (USACE 2008). Therefore, no further action is required for the VPs.

2.7 Real Property Assets

Real property and real property assets are tracked in the LM Facilities Information Management System (FIMS). The site is inspected in a condition assessment survey for FIMS database updates every 5 years and has an annual validation of the condition of those assets. The most recent condition assessment survey was conducted in May 2017 (DOE 2018b).

The site will be dispositioned for beneficial reuse. After disposition, only the wells and associated fixtures will remain as government owned.

2.7.1 Real Property

The main site located at 1130 Central Avenue in the Town of Colonie is owned by the United States of America and managed by LM. The main site consists of two adjacent lots that are designated on the tax map of the county clerk of Albany as tax map parcel numbers 53.11-1-13.2 and 53.11-1-14, which were conveyed to the United States of America by the two deeds: (1) an indenture dated February 28, 1984, and recorded in the Albany County Clerk's Office in Liber 2256, page 590; and (2) an indenture dated August 28, 1984, recorded in the Albany County Clerk's Office in Liber 2268, page 141.

2.7.2 Other Structures and Facilities

Other Structures and Facilities (OSFs) are any fixed real property improvements to land that are not classifiable as a building or a real property trailer; for example, bridges, towers, roads, and fences. It also includes site utility systems used to generate or distribute any services such as heat, electricity, sewage, gas, and water (DOE 2019). There is a storage shed on the site, but it is not fixed to the ground, so it does not fit the definition of a fixed improvement and is included in this plan as personal property in Section 2.8. The LM Asset Management group currently tracks five OSF assets in FIMS for the Colonie site. The real property assets are summarized below in Table 4 and are discussed in the following subsections.

Table 4. Real Property Assets FIMS at the Colonie Site

Property Name	Property ID	Year Built	Status	Overall Asset Condition	Mission Dependency	Usage Code
Fence	CIS-OSFS-FENCE	2003	Operating	Adequate	Mission dependent, not critical	2429 Fencing
Monitoring Well System	CIS-OSFS-MWS	2012	Operating	Adequate	Mission critical	5007 Monitoring Well(s)
Parking Lot	CIS-OSFS-PARKINGLOT	1984	Operating	Adequate	Mission dependent, not critical	1789 Parking (Vehicular)
Road Tertiary	CIS-OSFS-ROADTERT	1984	Operating	Adequate	Mission dependent, not critical	1749 Tertiary Roads
Storm Drain System	CIS-OSFS-STORMDRNSYS	1984	Operating	Adequate	Mission dependent, not critical	8629 Piping, Gravity (Stormwater)

Source: Colonie Condition Assessment Survey Report (DOE 2018b)

2.7.2.1 Fence

A total of 3720 linear ft of chainlink fence surrounds the site. The fence is on the property line on all sides except for along Central Avenue, where the fence is set 20 ft back from the property line. A total of 3440 linear ft of fencing is 6 ft high with three-strand barbed wire at the top; the remaining 280 linear ft of fencing is 8 ft high. The main entrance gate is 20 ft wide and 6 ft high; it is a sliding gate set along the north fence line (Figure 9). The site has two additional gates that are 6 ft high; a 20 ft wide sliding gate on the southwest fence line and a 4 ft wide swinging gate on the west side.

Figure 9. Main Entrance Looking South from Central Avenue

2.7.2.2 Monitoring Well System

Figure 10. Monitoring Well MW-30S

There are seven active groundwater monitoring wells and one inactive monitoring well in the network. See Table 5 for well construction details and their purposes in the network. Two active wells (MW-34S and MW-37S) are on Amtrak property and the inactive well (MW-32S) is on CSX property. Those offsite wells cannot be accessed without prior notification and approval (see Appendix E). The other five wells are onsite. See Figure 6 for monitoring well locations. All eight wells access the water-table aquifer and have nominal 2-inch diameters and depths of 13–23 ft bgs. Monitoring well construction details are summarized in Table 5. All eight wells are enclosed in protective casings set in 2 ft diameter pads (Figure 10). Monitoring well boring logs and construction details are included as Appendix F.

2.7.2.3 Parking Lot

The parking lot is near the main entrance at the northeast corner of the site and consists of approximately 700 square ft of asphalt paving.

2.7.2.4 Road (Tertiary)

One 12-foot-wide tertiary road leads from the parking lot across the site toward the back gate. The road is 1050 ft long. The surface is gravel for about 900 ft and asphalt for about 150 ft. The gravel portion of the road is not elevated from the adjacent grade and is overgrown with weeds, and the paved portion has some deterioration. Both sections of the road were found to be in adequate condition, given the road's infrequent use. No maintenance needs were identified. The total size of paved areas is estimated to be approximately 0.5 acre.

2.7.2.5 Storm Drain System

An underground storm water drain system on the west half of the site connects to a municipal storm drain culvert that drains a portion of the town of Colonie. The system consists of 750 ft of buried water transmission pipelines and two catch basins (see Figure 3). There are two additional lines across the site: one is a 460-foot-long, 18-inch-diameter line with a catch basin at its inlet on the north side of the site; the other is a 290-foot-long, 18-inch pipe with a catch basin at its inlet on the south side. Both secondary lines flow into a 4-foot-wide × 14-foot-long catch basin on the south side of the site (Figure 11).

Figure 11. Catch Basin (4 ft × 14 ft)

The storm drain system includes the unnamed tributary, which is an open drainage ditch that enters the northwest corner in the "keyhole area" on the western boundary of the site. The ditch enters a culvert on town of Colonie property, and the culvert traverses underneath the site as a 320-foot-long, 48-inch diameter reinforced concrete pipe. This line continues underneath the CSX and Amtrak properties and daylights south of the railroad tracks. There are two unrecorded drainage easements in favor of the Town of Colonie that encompass the area of the town-owned storm drain; one easement is for the former Niagara Mohawk parcel and one is for the former National Lead parcel. The easements are described in Section 2.7.3.4.

2.7.3 Other Site Assets

The following section describes real property site assets that are not entered in FIMS. Any operation and maintenance considerations are discussed in Section 4.0.

2.7.3.1 Waterline

There is an abandoned 6-inch water line that was formerly connected to the municipal water supply, which runs in a southerly direction from Central Avenue onto the site for approximately 200 ft. The water line running toward the site was abandoned in 2019 by disconnecting it from a valve under Central Avenue. The line formerly ended at a hydrant, but the hydrant was removed in 2019 and the hydrant riser is capped at the ground surface. The location of the abandoned water line is shown in Figure 3. The former waterline traverses the North Lawn environmental easement area. A municipal hydrant was once located in the easement area and this too has been removed and the riser has been capped at ground surface.

Table 5. Monitoring Well Construction Information

Well Name	Purpose in Network	Well Installation Date	Number of Bollards	Well Diam-eter	Top of Casing (TOC)[1] Elevation [ft amsl]	Ground Surface Elevation [ft amsl]	Top of Screen		Pump Intake		Bottom of Screen		Bottom of Boring [2]	
							Depth [ft from TOC]	Elevation [ft amsl]	Depth [ft from TOC]	Elevation [ft amsl]	Depth [ft from TOC]	Elevation [ft amsl]	Depth [ft from TOC]	Elevation [ft amsl]
MW-08S	upgradient control	7/28/1988	0	2"	230.90	228.90	8.00	222.90	10.50	220.40	13.00	217.90	15.50	215.40
MW-30S	near former landfill source zone	8/2/2000	4	2"	226.74	225.24	6.00	220.74	10.00	216.74	16.00	210.74	16.56	210.18
MW-32S	Inactive. On CSX property	12/11/2001	0	2"	224.10	222.20	10.90	213.20	15.90	208.20	20.90	203.20	21.40	202.70
MW-34S	Downgradient control. On Amtrak property	12/20/2001	0	2"	219.84	218.33	10.01	209.83	15.01	204.83	20.01	199.83	20.51	199.33
MW-37S	Downgradient control. On Amtrak property	1/27/2002	0	2"	219.96	218.05	12.91	207.05	17.91	202.05	22.91	197.05	23.41	196.55
MW-41S	Lateral control	12/11/2006	0	2"	224.82	223.15	11.67	213.15	16.67	208.15	21.67	203.15	24.17	200.65
MW-42S	Lateral control	12/12/2006	0	2"	225.77	224.23	11.54	214.23	16.54	209.23	21.54	204.23	25.04	200.73
MW-44S [3]	Near former building source zone	7/27/2015	0	2"	225.11	223.36	13.91	211.20	* [3]	* [3]	23.91	201.20	24.41	200.70

Notes:

[1] Abbreviations are defined in the "Abbreviations" section at the beginning of this Plan.

[2] Boring depths are taken from boring logs and well construction diagrams prepared at the time of construction (included as Appendix F).

[3] Repaired and re-surveyed in July 2020. The installed pump is stuck at the bottom of the well as of July 2020.

2.7.3.2 Mailbox

A mailbox bearing the site's municipal address is outside the fence at the main entrance.

2.7.3.3 Sheet Pile Wall

A sheet pile wall was installed near the southerly property line by USACE during the remedial action. The location is shown in Figure 3. The approximate length is 150 ft. The sheet wall extends through the upper aquifer to depths of as much as 50 ft bgs; it was installed to allow excavation to proceed as close as possible to the CSX rail line (USACE 2015). It has no current use, needs no inspection or maintenance, and is not included in FIMS as an asset.

2.7.3.4 Utility Easements

There are six known utility easements associated with the site, which have been documented on the site survey. The list does not include the environmental easement areas since it is not a utility easement. The known utility easements are listed below:

- A telephone easement, 10 ft corridor along Central Avenue (recorded).
- A fencing and drainage easement for the former Niagara Mohawk parcel dated June 6, 1973, in favor of the Town of Colonie (unrecorded).
- A drainage easement for the former National Lead parcel, circa 1974, in favor of the Town of Colonie (unrecorded). The draft of the easement requires prior approval from the town before building in the easement area. The width of the easement area is 30 ft. The underground storm drain referred to in Section 2.7.2.5 is within this easement area.
- A waterline easement along Central Avenue in favor of the Town of Colonie (unrecorded). The water line has been abandoned as described in Section 2.7.3.1.
- A power transmission line easement along Central Avenue (unrecorded).
- A power transmission easement traversing the site (unrecorded).

2.8 Personal Property Assets

Personal property includes all property owned, rented, or leased by the government, such as office supplies, furniture, tools, equipment, and vehicles, except real property (land, rights to land, and permanent improvements to land). Accountable personal property is an asset with an acquisition cost of $10,000 or more or is regarded as pilferable. Accountable personal property must be managed in the DOE property management system. There is no accountable personal property at the site. To ensure that government property is secure and controlled, a periodic inventory of personal property will be performed (DOE Guide 580.1-1A, 41 CFR 109, *Personal Property Manual* [LM-Manual-3-13-2.0, LMS/POL/S24628]).

The following sections describe the personal property assets associated with the site.

2.8.1 Storage Shed

A storage shed is near the main entrance, as shown in Figure 3. The shed is not fixed to the ground, which defines the asset as personal property rather than real property. It is constructed of

wood and has an asphalt shingle roof. The dimensions are 8 ft × 10 ft. A disused pneumatic pump control panel is attached to the interior wall. The door is secured with an LMS padlock. The shed is used to store sampling supplies, including spare submersible pumps.

Other personal property assets in the shed include a lawn mower, a gasoline-powered air compressor, two gasoline-powered line trimmers, and a garden cart. The air compressor bears a U.S. government property tag number 019806. Since the equipment is below the cost threshold of $10,000, it will not be tagged or tracked by DOE. The personal property is now tracked on the site's personal property inventory. A copy of the Personal Property Inventory workbook is included in Appendix G of this plan.

2.8.2 Pneumatic Pumps

Each well is equipped with a dedicated QED Well Wizard pneumatic submersible bladder pump. The pumps are constructed of stainless steel and Teflon and have a diameter of 1.66 inches. The installation depths of the pumps are shown in Table 5. The pumps are suspended in the wells with high-density polyethylene air and water tubing. Two spare pneumatic bladder pumps are stored in the storage shed.

2.8.3 Locks

There are 13 government-issued Best (brand) padlocks issued to the site. Each lock has a 2-inches-long shank and rubber jacket. LM uses a common key for gate padlocks and monitoring wells across all sites. The storage shed is secured with the same padlock. An additional padlock will be attached to the chain locking the front gate for the use of maintenance vendors. Vendors cannot be issued an LM-controlled key. Contractors will be given site-specific keys or lock combinations. LM Asset Management maintains control of site keys as part of the LTS&M umbrella *Site Security Plan* (LMS/POL/S11558). Keys are issued to personnel on an as-needed basis. Security controls are described in Section 3.7.

2.8.4 Signs

Signs are in place on fences that identify the site as U.S. government property. There is also a sign at the entrance identifying the site as an LM site. There are additional warning signs at the sliding gates that list items that are prohibited from the property. Section 4.4 discusses the placement of DOE signage.

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3.0 Long-Term Surveillance

The LTS&M Plan implements DOE-authorized procedures, identifies and assigns responsibilities, and presents the documentation required for the monitoring, inspection, review, and reporting requirements.

3.1 Plan Revisions

LM is responsible for preparing, updating, and implementing this plan. LM will periodically review the plan and update it as necessary, based on changes in site conditions or changes in laws, regulations, or guidance.

3.2 Project Organization

The LTS&M activities described in this plan are managed by a project team, as shown in Figure 12. Specific roles are described below.

The LM site manager is responsible for overall scope, schedule, and budget decisions and serves as the point of contact with all regulators, stakeholders, and the public.

The LMS contractor site lead coordinates project support activities from the LMS functional groups and is responsible for implementing the scope, schedule, and budget decisions that are made by the LM site manager. Site contacts are shown in Table 6.

3.2.1 Community Outreach

LM seeks to keep the community informed and involved in site activities and accomplishments through media announcements, fact sheets and newsletters, and attendance, when warranted, at public meetings. Below are site-specific community outreach activities.

3.2.2 Public Webpage

LM maintains public webpage specific to the site. This webpage can be found at: https://www.energy.gov/lm/colonie-new-york-site The webpage includes a site description, contact information, and access to site documents. The webpage includes a link to the administrative record. The webpage is reviewed on an annual basis on the same schedule as the other completed FUSRAP sites.

3.2.3 Fact Sheet

LM protective measures include the production of a site fact sheet. The fact sheet is reviewed each spring for updates on the same schedule as other completed FUSRAP sites.

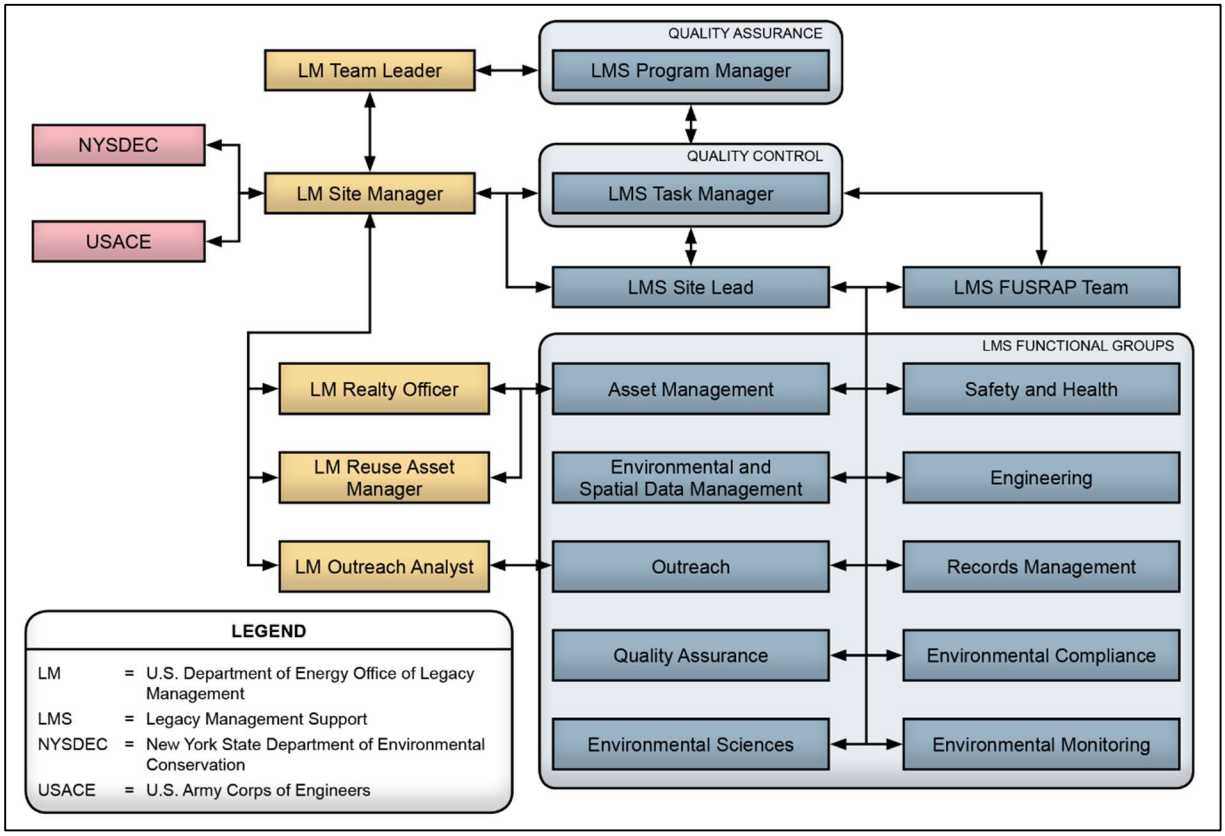

Figure 12. Site LTS&M Organizational Chart

Table 6. Colonie Site Contacts

Name	Phone/Email Address
Site owner: DOE (LM)	970-248-6070 or 877-695-5322 (**emergency contact numbers**)
LM site manager: Darina Castillo (LM)	720-377-3824 Darina.Castillo@lm.doe.gov
DOE realty officer: David McNeil	303-410-4827 David.Mcneil@lm.doe.gov
NYSDEC DER project manager: John Abunaw	518-402-8776 John.Abunaw@dec.ny.gov
NYSDEC regional hazardous waste engineer: Andrew Fleck	518-357-2045 Andrew.Fleck@dec.ny.gov
LMS site lead/qualified environmental professional: Carl Young	410-816-4029 Carl.Young@lm.doe.gov

3.3 Inspection of ICs

The ICs for the soil environmental easement (listed in Section 2.5) will be monitored through annual site inspections and in accordance with the SMP. The inspector will use the checklist included in Appendix D to review site conditions. It is anticipated that the annual inspection will take place at the same time that other site visits or sampling events take place. The inspector will

document and photograph any observed deficiencies or changes in site conditions, including the use of sketches or maps.

3.4 Groundwater Monitoring

Groundwater sampling and analysis activities are conducted according to the SAP. Consult the following website to obtain the latest revision: https://www.energy.gov/lm/downloads/sampling-and-analysis-plan-us-department-energy-office-legacy-management-sites. Site-specific sampling instructions are stated in the SAP.

Plans for monitoring should note the following conditions:

- Monitoring and sampling are Type 3 Procedure-Based Activities under the LMS *Integrated Work Control Process Manual* (LMS/POL/S11763), also known as the IWCP Manual.
- There are two monitoring wells on Amtrak property: MW-34S and MW-37S. Amtrak and CSX property cannot be accessed without prior approval granted through their right-of-entry permit systems. See Appendix E for offsite property access procedures.
- LM has a right-of-entry agreement with a neighboring property owner to allow access to Amtrak property from Yardboro Avenue.
- There is one inactive monitoring well on CSX property: MW-32S. Right-of-entry from CSX is needed to access this well.
- The offsite wells can also be accessed from Railroad Avenue onto CSX property, pending compliance with CSX and/or Amtrak permit requirements.

3.4.1 Frequency of Groundwater Monitoring

USACE established biennial (once every 2 years) sampling in the 2016–2017 Annual Long-Term Groundwater Monitoring Report (USACE 2017a). LM reevaluates the sampling schedule after reviewing the data from each sampling event. LM uses trend analysis to evaluate MNA effectiveness. Trend analysis (1) includes optimization routines to help determine the appropriate number of sample locations, sampling frequency, and laboratory analytes and (2) uses statistical analysis tools to evaluate the plume stability condition and remedy performance. Trend analysis including the July 2020 sampling data indicated that a biennial (once every 2 years) sampling schedule was optimal.

3.4.2 Well Redevelopment

LMS guidance for well redevelopment found in the SAP recommends that redevelopment should be performed if there is excessive sedimentation, significant decline in well capacity, or excessive biological growth. Wells MW-30S, MW-41S, MW-42S, and MW-44S are screened in a lacustrine silt unit and wells MW-41S and MW-42S were found to contain significant sediment thicknesses prior to the July 2020 sampling event. All wells were redeveloped in July 2020.

3.4.3 Groundwater Elevation Measurements

Groundwater elevations will be measured in accordance with the procedures of Section 3.1.1.4 of the SAP. Groundwater elevations will be measured during each groundwater sampling event, at a minimum.

3.4.4 Groundwater Sampling

Groundwater will be sampled for a combination of analytes, including VOCs as specified in the SAP. Groundwater sample collection will be conducted according to the low-flow sampling protocols described in Section 3.1.1.1 of the SAP. The monitoring wells are classed as Category I in Table 1 of the SAP, meaning that the wells will maintain a stable water level at a 100 milliliters per minute (mL/min) flow rate. Sample analysis is coordinated by the LMS Environmental Monitoring group, which has contracts with accredited commercial laboratories. The LMS site lead will coordinate the sampling schedule and confirm the requirements of the program directive with the Environmental Monitoring group at least 2 months in advance of field work. Environmental sampling should be scheduled 6 months in advance with the LMS Environmental Monitoring group.

3.4.5 Investigation-Derived Waste

Investigation-derived waste (IDW) groundwater is generated during each sampling event when wells are redeveloped and purged. Approximately 400 gallons of wastewater were generated during the July 2020 sampling event.

NYSDEC and DOE guidelines allow the release of waste groundwater onto unpaved surfaces onsite if contaminant levels are below regulatory standards. Waste groundwater will not be allowed to directly enter storm drains. The applicable regulatory standards (Table 7) are NYSDEC *Technical & Operational Guidance Series* 1.1.1: "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (TOGS 1998). The same standards are codified in New York Law under 6 NYCRR 703.

Table 7. New York Standards for Discharge of Groundwater

COC (CAS No.)	Target Cleanup Goal[a]	New York Standard[b]
Uranium (7440-61-1)	Not applicable	3×10^{-7} microcuries per mL[c]
PCE (127-18-4)	5.5 µg/L	5 µg/L
TCE (79-01-6)	18 µg/L	5 µg/L
cDCE (156-59-2)	1800 µg/L	5 µg/L
VC (75-01-4)	1.4 µg/L	2 µg/L

Notes:
Abbreviations are defined in the "Abbreviations" section at the beginning of this LTS&M Plan.
[a] Colonie Groundwater ROD (USACE 2010).
[b] NYSDEC standards for discharge of groundwater are listed in NYSDEC *Technical & Operational Guidance Series* 1.1.1 (TOGS 1998).
[c] 6 NYCRR 380-11.7 Table II: (natural uranium); equivalent to 450 µg/L.

IDW groundwater generated during well redevelopment and sampling events is filtered onsite using a GAC medium. This filtration method was approved by NYSDEC on May 6, 2020.

3.4.6 Criteria for Terminating Monitoring

The Groundwater ROD specifies that cleanup will be achieved when COC concentrations are below TCGs over 4 consecutive quarters. However, these monitoring events no longer occur on a quarterly basis. Accordingly, LM will perform trend analysis to evaluate the effectiveness of MNA and to provide statistical justification for any proposal to NYSDEC to alter sampling frequencies or cease monitoring.

3.5 Reporting Requirements

Reporting requirements are listed in the sections below and summarized in Table 8. A schedule for site inspections, sampling events, and reports is included as Figure 13.

3.5.1 Long-Term Groundwater Monitoring Reports

The long-term groundwater monitoring program will continue until the TCGs for COCs are achieved. The sampling interval approved by NYSDEC is biennial (once every 2 years). A long-term monitoring report will be completed to document each groundwater sampling event and will be submitted to NYSDEC for review.

3.5.2 Electronic Data Deliverables

NYSDEC requires that long-term monitoring data be submitted electronically by upload to their Environmental Information Management System. The NYSDEC system uses an Environmental Quality Information System (EQuIS) database like the LMS EQuIS database. The electronic data deliverable must be formatted by the LMS Environmental and Spatial Data Management (ESDM) group according to guidelines specified by NYSDEC. The ESDM group has developed an operating procedure to describe the upload process, as described in the *ESDM Environmental Data Management Team Work Procedures* (LMS/PRO/S13473).

3.5.3 Long-Term Periodic Reviews

Long-term periodic reviews are required under CERCLA and the NCP as long as residual contamination remains above UU/UE conditions. Long-term periodic reviews will be required every 5 years for as long as any ICs are in place. USACE completed the first Five-Year Review for the Groundwater OU in 2017 (USACE 2017d). The next long-term periodic review for the groundwater unit will be due in October 2022.

3.5.4 Site Inspection Reports

Sitewide inspections are performed annually. Inspections of all physical components of the site will be conducted. Deficiencies will be photographed. Site inspection activities are described more fully in Section 4.1.

Table 8. Summary of Colonie Site Reporting and Notification Requirements

Document	Frequency or Triggering Event	Accountability	Site Inspection Required
Reports			
Long-term groundwater monitoring report	2 years	NYSDEC/ROD	Yes
Electronic data deliverable	Sampling event	NYSDEC/SMP	No
Long-term periodic review	5 years	NYSDEC/ROD	Yes
Site inspection report	Annual	DOE	Yes
Site management report	Annual	NYSDEC/SMP	Yes
Periodic review report	5 years	NYSDEC/ROD/SMP	No
Asset Condition Assessment	5 years	DOE	Yes
SMP update	As needed	NYSDEC/SMP	No
Notifications			
Excavation notification (soil easement)	15 days advance notice	NYSDEC/SMP	No
Field activity associated with the remedial program	7 days advance notice	NYSDEC/SMP	No
Proposed changes in site use	60 days advance notice	NYSDEC/SMP	No
Corrective Measures Work Plan	IC failure	NYSDEC/SMP	No
Notification to NYSDEC of potential change of ownership	60 days prior to change in ownership	NYSDEC/SMP	No
Notification to NYSDEC of change of ownership	15 days after change in ownership	NYSDEC/SMP	No
Certification to NYSDEC that the environmental easement is still in place and has been complied with	Delisting from NYSDEC Registry of Inactive Hazardous Waste Disposal Sites	NYSDEC/SMP	No
Damage to remedial components	As soon as possible	NYSDEC/SMP	No

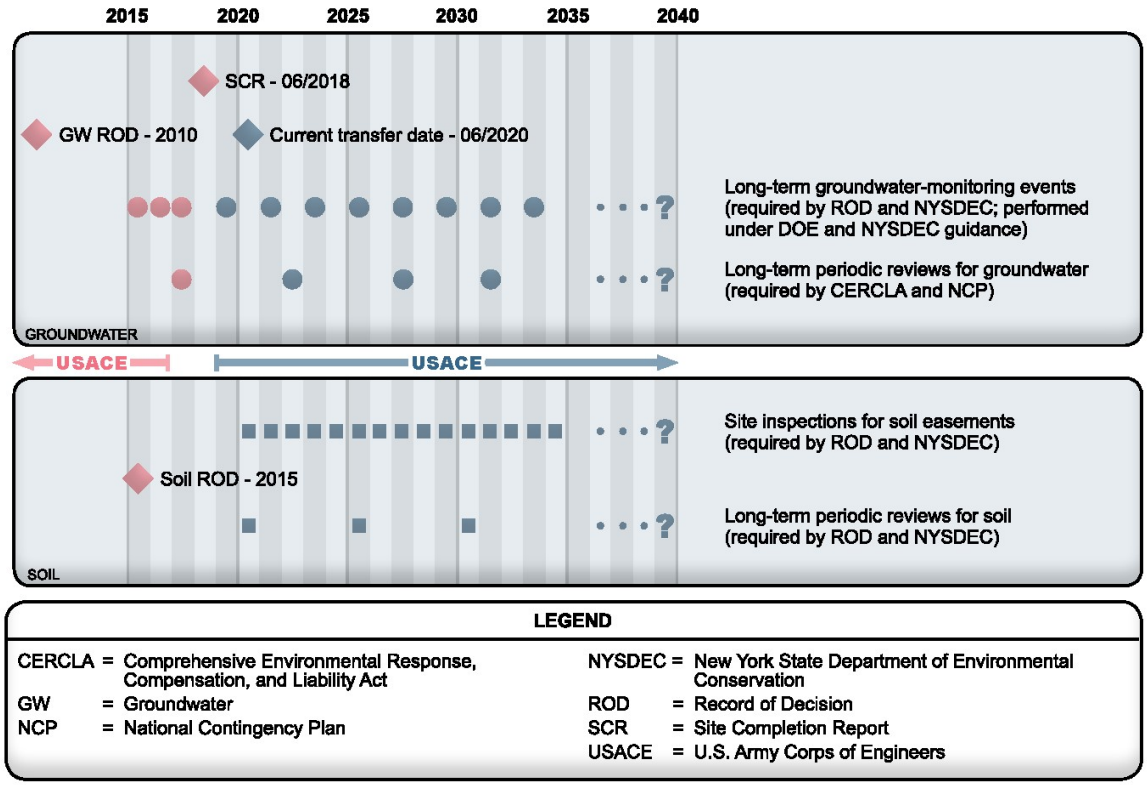

Figure 13. Colonie Site Schedule of Events

3.5.5 Site Management Reports

A sitewide inspection will be conducted and documented according to the SMP. Site management reports are required to be submitted annually to NYSDEC. Modification to the frequency or duration of the inspections will require approval from NYSDEC. During these inspections, a site inspection form will be completed as provided in the SMP (see Appendix D). The inspections will document the following:

- Compliance with requirements of the SMP and the environmental easement
- Compliance with ICs
- Site conditions at the time of inspection
- Status of site records (whether they are complete and up-to-date)

3.5.6 Periodic Review Report

LM will inspect the site and review the environmental easement ICs as part of a long-term periodic review that will be submitted to NYSDEC. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each reporting period. Media sampling results will be incorporated into the long-term periodic review. The report will include the following:

- Identification, assessment, and certification of all ICs required by the remedy
- Results of the required annual site inspections

- All applicable site management forms and other records generated for the site during the reporting period in NYSDEC-approved electronic format, if not previously submitted
- A site evaluation that includes the following:
  - The compliance of the remedy with the requirements of the site-specific ROD
  - Any new conclusions or observations regarding site contamination based on inspections
  - Recommendations on any necessary changes
  - An assessment of the overall performance and effectiveness of the remedy

3.5.7 Asset Condition Assessments

LM performs condition assessments of DOE-owned facilities on a 5-year periodic basis in conformance with DOE Order 430.1C. Condition assessments are managed and performed by the LMS Asset Management Support team using a FUSRAP-assigned LMS engineer, who is supported by the LMS site lead. The last 5-year condition-assessment inspection was conducted May 4, 2017. The next 5-year condition-assessment inspection will be performed in 2022. These 5-year condition-assessment inspections will need to be performed as long as the site is owned by DOE.

3.5.8 Notifications to NYSDEC

Notifications will be made to NYSDEC prior to each sampling event. Additionally, prior notifications will be submitted to NYSDEC, in accordance with the SMP, for the following reasons:

- Excavation in the easement areas will require prior notification to NYSDEC
- 60-day advance notice of any proposed changes in site use that are required under the terms of 6 NYCRR 375 or the NYECL
- 7-day advance notice of any field activity associated with the remedial program
- 15-day advance notice of any proposed ground-intrusive activity in the easement areas, with the exception of emergency utility work, pursuant to the submission of an excavation work plan
- Any failure of the ICs will require the submission of a Corrective Measures Work Plan to NYSDEC (DOE/USACE 2020)

Any change in ownership or responsibility for implementing the SMP will include the following notifications:

- At least 60 days before the change, NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser or lessee and the LMS Real Property group have been provided a copy of the SMP and all final copies of plans and reports required under the SMP.
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to NYSDEC.

3.6 Safety and Health

The safety and health program that applies to LTS&M activities is based on 10 CFR 851, "Worker Safety and Health Program"; 10 CFR 835, "Occupational Radiation Protection"; DOE Order 458.1 Chg 4, *Radiation Protection of the Public and the Environment*; and other requirements as specified in the LMS contract. LTS&M activities are conducted in accordance with the *LMS Safety and Health Program* (LMS/POL/S20043) and implementing procedures, established for LM sites. These procedures are consistent with DOE orders, regulations, codes, and standards.

Emergency management information specific to DOE work at the site are found in Appendix B, "Site-Specific Emergency Plan." This plan contains a list of emergency telephone numbers and addresses for local fire departments, hospitals, ambulances, and police or sheriff departments, as well as a map to the nearest emergency medical facility. LM inspectors will carry a copy of the site-specific emergency plan and conduct and document a site safety briefing before conducting an inspection, sampling event, or other activities. A job safety analysis will be developed by the subcontractors to address hazards and mitigation methods for the work they will perform on the site.

LMS maintenance subcontractors are advised of safety and health requirements through appropriate procurement documents. Subcontractors are required to have a safety and health program that complies with U.S. Occupational Safety and Health Administration standards.

3.7 Security

DOE Order 470.4B Chg 2 (MinChg), *Safeguards and Security Program*, specifies that DOE offices and facilities must be protected. Minimum security standards for federally owned and leased facilities are specified in the Interagency Security Committee *Risk Management Process for Federal Facilities: An Interagency Security Committee Standard* (ISC 2016).

DOE directives do not require that site perimeters be fenced or that gates be installed at access points for security interests present at LM complex sites, but the *Site Security Plan* restricts access to DOE sites to authorized personnel only.

Section 229 of the Atomic Energy Act of 1954 as amended (42 USC 2278a), as implemented by 10 CFR 860, prohibits "unauthorized entry and unauthorized carrying, transporting, or otherwise introducing or causing to be introduced any dangerous weapon, explosives, or other dangerous instrument or matter likely to produce substantial injury to persons or damage to property into or upon any facility, installation, or real property subject to the jurisdiction, administration, or in the custody of DOE" (DOE Order 473.3A Chg 1).

The lock and key control requirements in DOE Order 473.3A Chg 1 require the Level IV categories be adhered to. These guidelines specify that keys must meet the American National Standards Institute standards and that a plan must be in place to quickly rekey or replace affected locks if a key is lost or stolen. There is a lock and key control procedure for the LM complex as a best management practice, and the following procedures must be followed:

- Site security representatives shall appoint key custodians responsible for all facility keys.
- The LMS security lead is the custodian of keys to LM padlocks. The security lead controls facility keys and maintains an accountability log. All keys are numbered for accountability purposes.

- Keys will be signed out upon issue and signed in upon return, regardless of the length of issuance.
- Master keys will be issued only to authorized personnel by site security representatives.
- When keys must be made (due to loss or damage), key custodians will have the new keys numbered appropriately and then entered on the accountability log.
- If a key is lost or stolen, site security representatives must be notified within 24 hours.
- In the case of lost or stolen keys, site security representatives will determine whether the lock should be replaced.

Site-specific key control procedure is described in Section 4.5. LM uses a single key to secure most of its unoccupied sites and wells, and this key will be used at the Colonie site. The LMS site lead is the custodian of the site keys.

3.8 Emergency Response

Emergency management requirements for DOE sites, facilities, and activities are governed by the *Comprehensive Emergency Management System* (DOE Order 151.1D). The order is implemented by **t**he joint *LM and LMS Emergency Management Program Description (EMPD)* (LM-Procedure-3-20.0-2.0, LMS/POL/S14748). Unoccupied sites are served by the *General Emergency Plan for Unoccupied Sites and Activities* (LM-Plan-3-20-11.0, LMS/POL/S20013), also called the General Emergency Plan (GEP), as well as by site-specific emergency response information found in Appendix B.

An emergency, as defined in the GEP, includes any incident, whether natural or man-made, that could endanger or adversely affect people, property, or the environment and that requires responsive action beyond normal operations. There are no potential events that would be classified as operational emergencies since there are no hazardous or radiological materials present.

Damaging weather events could result in damage to real property assets, compromised security due to fence damage, or potential flooding caused by obstructions in the ditch on the west side of the site. As a contingency, if a damaging weather event occurs, LMS personnel or a local contractor will be sent to the site to inspect for damage. The inspection would take place only when travel in the area can be safely made.

A *Site-Specific Emergency Response Information* form (LMS 2107) has been developed for the Colonie site, and a copy is included as Appendix B.

3.9 Records Management

DOE maintains site surveillance and maintenance records in a central location at the LM Business Center at Morgantown, West Virginia. These records have been selected because they contain critical information needed to ensure the continued management and follow-on actions and controls (including property management) required to protect public health and the environment and demonstrate compliance with applicable legal requirements. This surveillance

and maintenance record collection does not include information pertaining to employee or public safety and health issues with respect to former site operations.

Site records pertaining to the soil easement and associated inspections and reporting must be submitted to NYSDEC for periodic review as specified in the SMP (DOE/USACE 2020).

LM will preserve the Administrative Record and Permanent Record. The Administrative Record will be accessible to the public through the site-specific webpage. The Permanent Record will be accessible to the public only through the process established to comply with the Freedom of Information Act.

Most environmental monitoring data will be collected directly into electronic format onsite using the EQuIS Data Gathering Engine system, also called the EDGE system. As a contingency, the *Water Sampling Field Data* form (LMS 1805) may be used. Site inspection forms will be scanned and stored electronically in compliance with the *Quality Assurance Manual* (QAM) (LMS/POL/S04320). Electronic copies of site inspection forms will be submitted to Records Management for archiving and will be saved on the project SharePoint site for reference.

3.10 Environmental Data Management

LM stores laboratory and field-acquired electronic data deliverables in an EQuIS database. Electronic data deliverables will be supplied to NYSDEC in EQuIS format as specified on the NYSDEC website: https://www.dec.ny.gov/chemical/62440.html. An LMS electronic data deliverable upload operating procedure has been developed and is included in *ESDM Environmental Data Management Team Work Procedures*.

3.11 Quality Assurance

The LTS&M of the site will comply with the QAM, which is based on DOE Order 414.1D, and on the current version of the International Organization for Standardization (ISO) 9001 standard for quality management systems. These requirements include project organization; a quality assurance program; a document control system; the identification and control of items; inspections; the control of measuring and test equipment; handling, storage, and shipping of quality-affecting items; a program for implementing and verifying corrective action; a program for maintaining quality assurance records; and a routine assessment program.

The quality of the environmental monitoring program is maintained and documented through a number of measures that are documented in the SAP in accordance with the current version of the ISO 14001 standard for environmental management. The measures include: the use of standard operating procedures; the collection, analysis, and evaluation of quality control samples and performance evaluation samples; the use of standardized analytical methods; data management activities and data quality evaluations (data validation); maintaining quality assurance records; and evaluating analytical laboratory data, sample collection activities, and programmatic procedures.

3.11.1 Quality Assurance Reviews

Quality Assurance (QA) representatives perform multiple types of reviews of projects and work activities as part of the work planning process. All planned work is reviewed by QA representatives to ensure that work is planned and executed in accordance with the LMS IWCP Manual.

QA manages the assessment program as described in the QAM, which establishes methods to assess whether internal or external products and services have been planned, managed, and performed in a compliant and effective manner that achieves intended results. Assessments identify issues, opportunities for improvement, noteworthy practices, lessons learned, and problems that hinder the organization from achieving its objectives.

IWCP reviews and planned assessments apply to personnel involved in the scheduling, planning, conducting, reporting, or tracking of internal or external independent assessments, management assessments, surveillances, and site visits. It does not apply to oversight bodies conducting assessments of LMS activities.

3.11.2 Issues Reporting and Management

Issues refer to any condition or occurrence (planned or unplanned) that affects the staff, visitors, public property, environment, or organizational mission. Issues refer to all issues, events, observations, concerns, and deficiencies and are reported and managed according to the issues reporting and management processes described in the QAM. Issues identified during sampling, inspections, or sites visits are submitted to an electronic tracking system, described in the QAM, which is used by QA to track responsible managers, corrective action plans, and issue status through closure.

4.0 Site Inspection and Maintenance

Site inspections are performed on an annual basis at minimum. There are two inspection checklists included in Appendix D; one that is required by the SMP to ensure that ICs remain protective and one that addresses additional site maintenance needs.

4.1 Site Inspection Objectives

Site inspections are performed to fulfill the following objectives:

1) Confirmation of compliance with ICs, as required by the SMP
2) Confirmation that site records are up to date, as required by the SMP
3) Surveillance of site conditions to determine whether ICs are properly implemented and enforced, as required by the SMP
4) Inspection of real property assets for deficiencies
5) Inspection of landscaping for proper upkeep
6) Inspection of security components for signs of damage, vandalism, or trespass

4.1.1 Inspection Procedure

It is anticipated that the annual inspection will take place concurrently with sampling events or other visits when possible. The inspector will review previous inspection reports in order to note any changes that occur. Inspections will involve the following:

- Check access agreements to ensure they are current and accurate. The LMS contractor will need to coordinate with CSX, Amtrak, and the Yardboro Avenue property owner in order to access offsite wells. Amtrak and CSX may require that their personnel be present. Entry procedures for offsite properties are included as Appendix E.
- The NYSDEC project manager must be informed of an annual inspection at least 7 days in advance (see Table 8).
- Photos should be georeferenced and logged on the *Digital Photograph and Video Log* (LMS 2609CON).
- Use the site inspection map in Appendix D to record notable conditions. Photo views indicated on the map should be repeated during each inspection to document changes that occur over time.
- Use the two checklists in Appendix D to note conditions of real property assets.
- Each real property asset should be inspected, as described in the following sections.

4.2 Environmental Easement Areas

The environmental easement areas are inspected at least once a year to verify that no unauthorized excavation occurred, and that the usage otherwise complies with the limitations of the ICs. The inspector will use the form provided in the SMP, a copy of which is included in Appendix D of this plan.

In accordance with the SMP, if an institutional or engineering control fails within easement areas, the owner will propose follow-up actions to correct the deficiencies. More specifically, a Corrective Measures Work Plan will be submitted to NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by NYSDEC. However, nothing in this section shall limit or otherwise affect DOE's rights to take response actions under CERCLA, NCP, or other federal law, whether DOE is owner or not, pursuant to FUSRAP.

4.3 Fencing

The fencing will be inspected annually. Inspectors will walk on the interior of the site along the entire length of the fence. Deficiencies will be described and photographed. Deficiencies may include the following:

- Missing or damaged fence components, including gates and locks
- Excessive corrosion of fence components
- Trees or vegetation either contacting or damaging any fence component
- Erosion or other soil loss that would allow human access
- Indications of vandalism or unauthorized entry

4.4 Signs

Signs will be inspected annually. Inspectors will describe and photograph any indications of damage, corrosion, or vandalism. The plan for the placement of signage is shown in Figure 14, and pictures of the signs are shown in Appendix C.

4.5 Locks

Lock inspection criteria include the following:

- All locks are present, including the contractor's lock on the main gate
- Locks are operable and free of dirt or corrosion
- Locks have not been tampered with

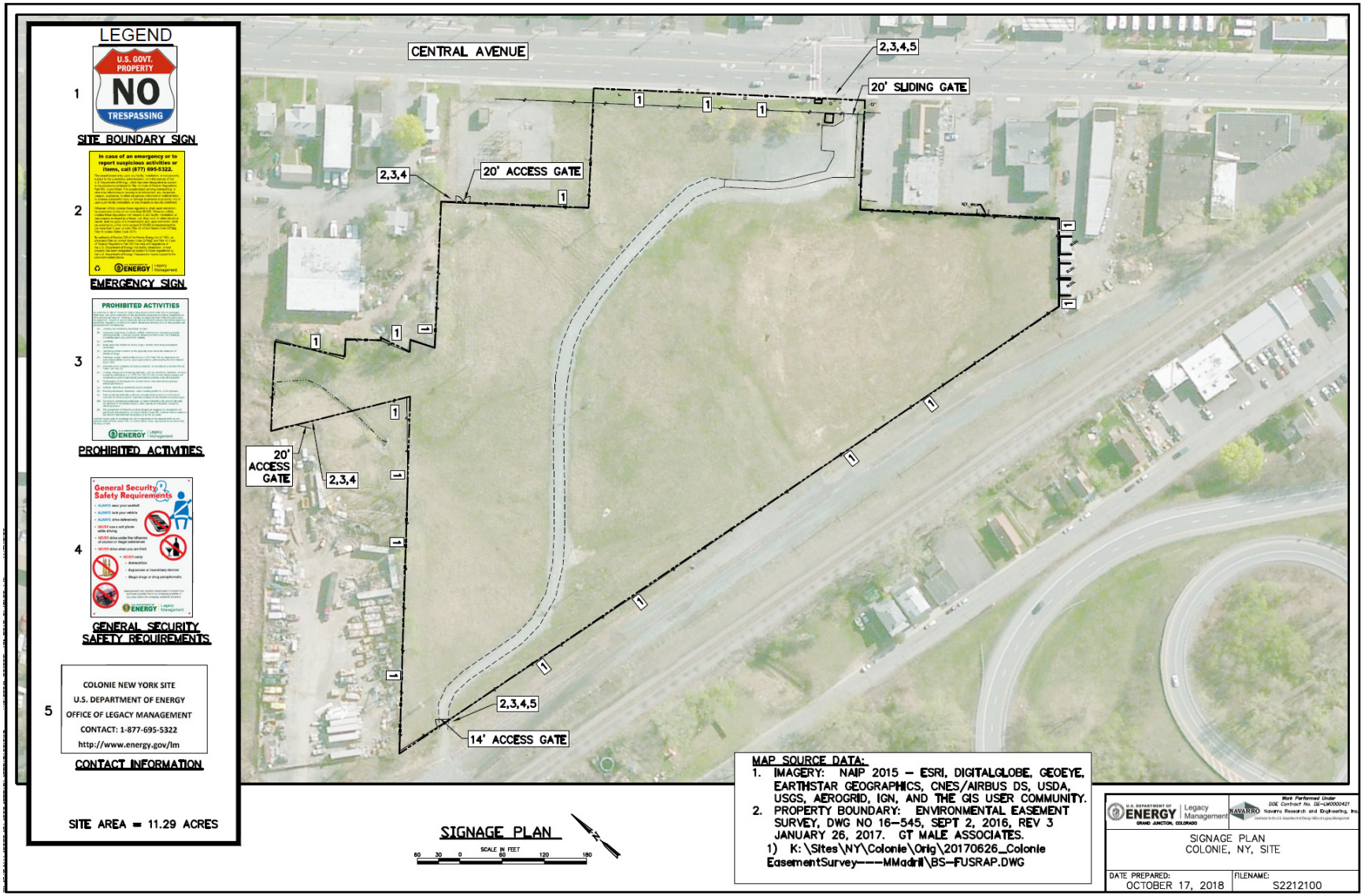

Figure 14. Signage Plan for the Colonie, New York, Site

4.6 Vegetation

The grass areas are mowed monthly during the growing season, which is April through October (7 months). The grass on the *outside* of the fence along Central Avenue will be mowed twice monthly, since the fence is set 20 ft back from the property line there, as shown in Figure 3. The fence is set on the property line in all other locations, which means there will be no mowing outside the fence elsewhere. The subcontractor will mow the lawn and trim the grass along the fence line. Any trash from this area will be picked up and disposed of at a licensed landfill. The grass within the fence line will be mown on a monthly basis, and the areas around the monitoring wells will be trimmed. No herbicides or pesticides may be applied.

Inspection criteria include the following:

- Trash should be removed from the lawn on Central Avenue
- The height of the grass along Central Avenue must appear to have been cut 2 weeks ago or less
- The grass under the Central Avenue fence line should be trimmed
- The grass within the fenced area should appear to have been cut within the last month
- Note indications of stress or damage to vegetation

4.7 Roads

The roads are in fair to poor condition. No maintenance activities are anticipated for the roads. Note whether leveling or vegetation impedes vehicle traffic. Photograph the parking area and portions of the road to show the current conditions.

4.8 Storm Drain System

The storm drain system consists of three catch basins connected by buried 18-inch reinforced concrete pipe. The storm drain system drains to the town's buried culvert. The storm drain system will be inspected annually by observing the inlets for blockage, signs of damage, or misplaced or missing grates. Any deficiencies will be logged and photographed.

4.9 Monitoring Wells

Programmatic guidance and standard operating procedures for monitoring well inspection and maintenance are found in the *Inspection and Maintenance of Groundwater Monitoring and Extraction Wells* (LMS/PRO/S18459).

4.9.1 Well Redevelopment

Monitoring wells will be redeveloped periodically. The need for well redevelopment will be evaluated during sampling events by monitoring the purge water for biological growth and turbidity levels. Procedures for redevelopment are discussed in the SAP and in the *Guidance for the Inspection and Maintenance of Groundwater Monitoring and Extraction Wells*.

4.9.2 Well Inspection

Monitoring wells will be inspected during each sampling event for signs of silting-in, damage, corrosion, or infiltration. Surface aspects of the monitoring wells will be inspected during condition assessments conducted every 5 years and during annual site inspections. Inspectors will use the *Monitoring Well Condition Assessment Survey* form (LMS 1591) to document well conditions. Note any signs of damage. Photograph each well. Indicate whether vegetation impedes access.

4.9.3 Well Decommissioning

Monitoring wells may be decommissioned when they are no longer needed, pending agreement with NYSDEC. LM will review the efficacy of the well system when preparing each long-term monitoring report. Monitoring wells will be decommissioned in accordance with NYSDEC Guidance CP-43 (NYSDEC 2009).

4.10 Other Assets

This section concerns the maintenance of personal property belonging to the site.

4.10.1 Personal Property

The status of the personal property is tracked in the Personal Property Inventory workbook (see Appendix G). Sampling technicians will note the condition of the pumps during well development and sampling events. The objective of tracking the pumps is to anticipate maintenance and replacement requirements. The LMS site lead will be responsible for updating the inventory after each field event.

4.10.2 Storage Shed

The storage shed houses spare parts and consumable items used for sampling or site maintenance. The status of the storage shed is tracked in the Personal Property Inventory workbook. Photograph the front of the shed. Note whether the roof is still water-tight. Inspect for damage or vandalism.

4.10.3 Mailbox

Vacant lots do not require mailboxes and the site is not occupied; therefore, the mailbox serves no purpose and is not being utilized. The U.S. Postal Service is directed to forward mail to the LM site manager.

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5.0 References

6 NYCRR 375 et seq., "Environmental Remediation Programs," as amended, *New York Codes, Rules and Regulations*.

6 NYCRR 703 et seq., "Surface Water and Groundwater Quality Standards," as amended, *New York Codes, Rules and Regulations*.

10 CFR 835. U.S. Department of Energy, "Occupational Radiation Protection," *Code of Federal Regulations.*

10 CFR 851. U.S. Department of Energy, "Worker Safety and Health Program," *Code of Federal Regulations.*

10 CFR 860. U.S. Department of Energy, "Trespassing on Department of Energy Property," *Code of Federal Regulations.*

10 CFR 1021. U.S. Department of Energy, "National Environmental Policy Act Implementing Procedures," *Code of Federal Regulations*.

40 CFR 300. U.S. Environmental Protection Agency, "National Oil and Hazardous Substances Pollution Contingency Plan," *Code of Federal Regulations*.

40 CFR 1500–1508. Council on Environmental Quality, "Regulations for Implementing the Procedural Provisions of the National Oil and Hazardous Substances Pollution Contingency Plan," *Code of Federal Regulations*.

42 USC 2278a. "Trespass on Commission Installations," *United States Code.*

42 USC 9601 et seq. "Comprehensive Environmental Response, Compensation, and Liability Act," as amended, *United States Code*.

42 USC 9621(c). "Cleanup Standards," *United States Code.*

ASTM (ASTM International), 2004. *Standard Practice for Design and Installation of Ground Water Monitoring Wells*, D 5092-04, June.

Colonie (Town of Colonie, New York), 2007. *Code of the Town of Colonie – Chapter 190, Zoning and Land Use*.

Colonie (Town of Colonie, New York), 2018. "Introduction to Department of Public Works, Division of Latham Water," https://www.colonie.org/departments/lathamwater/.

DER-10. *Technical Guidance for Site Investigation and Remediation*, New York State Department of Environmental Conservation, Division of Environmental Remediation.

DOE (U.S. Department of Energy), 1997. *Colonie Site Action Memorandum for Removal Action*, memorandum by Former Sites Restoration Division Acting Director William M. Seay, February 14.

DOE (U.S. Department of Energy), 2002. *DOE Policies on Application of NEPA to CERCLA and RCRA Cleanup Actions*, memorandum by Assistant Secretary for Environment, Safety and Health, Beverly Cook, July 11.

DOE (U.S. Department of Energy), 2018a. "Colonie CSX Vicinity Property Dose Evaluation," memorandum by John Hackett to project record, May.

DOE (U.S. Department of Energy), 2018b. *Summary of the Condition Assessment Survey Report for the 2017 Inspection of the Colonie*, *New York, Site*, LMS/CIS/S18743, April.

DOE (U.S. Department of Energy), 2019. *Facilities Information Management System User's Guide*, February.

DOE (U.S. Department of Energy), 2020a. *2020 Annual Inspection, Colonie, New York Site*, LMS/CIS/S31187, December.

DOE (U.S. Department of Energy), 2020b. *Long-Term Groundwater Monitoring Report, Colonie, New York Site – Natural Attenuation Remedy*, LMS/CIS/S31739, December (Draft Final).

DOE (U.S. Department of Energy) and USACE (U.S. Army Corps of Engineers), 1999. *Memorandum of Understanding Between the U.S. Department of Energy and the U.S. Army Corps of Engineers Regarding Program Administration and Execution of the Formerly Utilized Sites Remedial Action Program (FUSRAP)*, March.

DOE (U.S. Department of Energy) and USACE (U.S. Army Corps of Engineers), 2020. *Site Management Plan, Colonie FUSRAP Site*, LMS/CIS/S29459, April.

DOE Guide 580.1-1A, *Personal Property*, U.S. Department of Energy, June 09, 2015.

DOE Manual 435.1-1 Chg 3, *Radioactive Waste Management Manual*, U.S. Department of Energy, January 11, 2021.

DOE Order 151.1D, *Comprehensive Emergency Management System*, U.S. Department of Energy, August 11, 2016.

DOE Order 231.1B Chg 1, *Environment, Safety and Health Reporting*, U.S. Department of Energy, November 28, 2012.

DOE Order 414.1D Chg 2, *Quality Assurance*, U.S. Department of Energy, September 15, 2020.

DOE Order 430.1C Chg 2 (Admin Chg), *Real Property Asset Management*, U.S. Department of Energy, September 17, 2020.

DOE Order 435.1 Chg 2 (Admin Chg), *Radioactive Waste Management,* U.S. Department of Energy, January 11, 20021.

DOE Order 458.1 Chg 4, *Radiation Protection of the Public and the Environment*, U.S. Department of Energy, September 15, 2020.

DOE Order 470.4B Chg 2 (MinChg), *Safeguards and Security Program*, U.S. Department of Energy, January 17, 2017.

DOE Order 473.3A Chg 1, *Protection Program Operations*, U.S. Department of Energy, January 2, 2018.

DOE Policy 451.1, *National Environmental Policy Act Compliance Program*, U.S. Department of Energy, December 21, 2017.

Dufek, K., A. Zafran, and J.T. Moore, 2006. "The Patroon Creek Contamination Migration Investigation," at Waste Management 2006 Conference, Tucson, Arizona.

EPA (U.S. Environmental Protection Agency), 1986. *Groundwater Monitoring Technical Enforcement Guidance Document*, EC-G-2002-130, September.

ISC (Interagency Security Committee), 2016. *Risk Management Process for Federal Facilities: An Interagency Security Committee Standard*, November.

Lloyd, N.S., S.R.N. Chenery, and R.R. Parrish, 2009. "The distribution of depleted uranium contamination in Colonie, NY, USA," *Science of the Total Environment* 408(2):397–407.

LMS (Legacy Management Support) Contract DE-LM0000421 implementing documents, continually updated, prepared by Navarro Research and Engineering, Inc., for the U.S. Department of Energy Office of Legacy Management:

ESDM Environmental Data Management Team Work Procedures, LMS/PRO/S13473.

General Emergency Plan for Unoccupied Sites and Activities, LM-Plan-3-20-11.0, LMS/POL/S20013.

Inspection and Maintenance of Groundwater Monitoring and Extraction Wells, LMS/PRO/S18459.

Integrated Work Control Process Manual, LMS/POL/S11763.

Legacy Management Program Management Plan for Formerly Utilized Sites Remedial Action Program, LMS/S16063.

LM and LMS Emergency Management Program Description (EMPD), LM-Procedure-3-20.0-2.0, LMS/POL/S14748.

LMS Safety and Health Program, LMS/POL/S20043.

Personal Property Manual, LM-Manual-3-13-2.0, LMS/POL/ S24628.

Quality Assurance Manual, LMS/POL/S04320.

Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites, LMS/PRO/S04351.

Site Security Plan, LMS/POL/S11558.

Moore, J.T., P. Della Camera, M. Hardner, and T. Mathison, 2014. "Colonie FUSRAP Site Two Year Monitored Natural Attenuation Study of Groundwater," at Waste Management 2014 Conference, Phoenix, Arizona.

NRC (U.S. Nuclear Regulatory Commission), 1999. Letter from Charles A. Judd to John Hickey, chief, Low-Level Waste and Decommissioning Project Branch, regarding disposal of radioactive waste from Colonie New York at Resource Conservation and Recovery Act (RCRA) Disposal facility, Accession Number ML993190461.

NYDOS (New York Department of State), 2005. *Governmental Immunity from Zoning*, Division of Local Government Services, James A. Coon Governmental Technical Series.

NYECL 71-36. "Environmental Easements," *New York Environmental Conservation Law*.

NYSDEC (New York State Department of Environmental Conservation), 2009. *Groundwater Monitoring Well Decommissioning Policy*, CP-43, November.

PL 83-703. "Atomic Energy Act of 1954," Public Law.

PL 91-190. "National Environmental Policy Act of 1969," Public Law.

PL 98-50. "Energy and Water Development Appropriation Act, 1984," Public Law.

PL 105-62. "Energy and Water Development Appropriations Act of 1998," Public Law.

PL 105-245. "Energy and Water Development Appropriations Act of 1999," Public Law.

Shaw, 2010. *Final Post-Remedial Action Report, Colonie FUSRAP Site.* Shaw Environmental, Inc. for the U.S. Army Corps of Engineers, New York District, January.

Site Management Guide, Guide 3-20.0-1.0, continually updated, prepared by the U.S. Department of Energy Office of Legacy Management.

TOGS (Technical & Operational Guidance Series), 1998. "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations," *Technical & Operational Guidance Series* 1.1.1, New York State Department of Environmental Conservation, June.

Travers, 2000. William D. Travers, Executive Director for Operations, U.S. Nuclear Regulatory Commission, letter (regarding licensing of the National Lead site) to U.S. Representative Michael R. McNulty, February 29.

USACE (U.S. Army Corps of Engineers), 2001a. *Final Action Memorandum – Revising DOE Action Memorandum dated February 14, 1997: Soil Removal at the Colonie Site*, New York District, October.

USACE (U.S. Army Corps of Engineers), 2001b. *Final Technical Memorandum in Support of a Revised Action Memorandum–Colonie Site, Colonie, NY*, New York District, June.

USACE (U.S. Army Corps of Engineers), 2003. *Groundwater Remedial Investigation Report, Colonie Site, Colonie, NY*, New York District, July.

USACE (U.S. Army Corps of Engineers), 2008. *Final Colonie FUSRAP Site CSX Vicinity Property Report*, September.

USACE (U.S. Army Corps of Engineers), 2010. *Colonie FUSRAP Site Record of Decision, Colonie Site Groundwater*, New York District, April.

USACE (U.S. Army Corps of Engineers), 2014a. *Colonie Main Site Soil Feasibility Study*, New York District, June.

USACE (U.S. Army Corps of Engineers), 2014b. *Colonie Main Site Soil Proposed Plan*, New York District, June.

USACE (U.S. Army Corps of Engineers), 2015. *Colonie FUSRAP Site, Colonie Main Site Soils Record of Decision*, New York District, March.

USACE (U.S. Army Corps of Engineers), 2016a. *2015–2016 Annual Report Long-Term Groundwater Monitoring, Natural Attenuation Remedy, August 2015 & March 2016 Sampling Events*, New York District, August.

USACE (U.S. Army Corps of Engineers), 2016b. *Draft Final Colonie FUSRAP Site, Vicinity Property Operable Unit Remedial Investigation Summary Report*, New York District, April.

USACE (U.S. Army Corps of Engineers), 2017a. *2016–2017 Annual Report Long-Term Groundwater Monitoring, Natural Attenuation Remedy, August 2016 & April 2017 Sampling Events*, New York District, October.

USACE (U.S. Army Corps of Engineers), 2017b. *Colonie FUSRAP Site Vicinity Property Operable Unit Proposed Plan*, New York District, January.

USACE (U.S. Army Corps of Engineers), 2017c. *Colonie FUSRAP Site, Vicinity Property Operable Unit Record of Decision*, New York District, September.

USACE (U.S. Army Corps of Engineers), 2017d. *First Five-Year Review Report for Colonie FUSRAP Site Groundwater Operable Unit*, New York District, September.

USACE (U.S. Army Corps of Engineers), 2018. *Final Site Closeout Report for the Colonie FUSRAP Site*, New York District, June.

Appendix A

NYSDEC Requirements Crosswalk

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NYSDEC DER-10/*Technical Guidance for Site Investigation and Remediation*, codified in 6 NYCRR 375 et seq.	**Equivalents in This Plan**
2.1(a)5: Analysis must be conducted by a laboratory that is accredited pursuant to the New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP) for the category of parameters analyzed.	Included in the program directive. All three LM-contract labs have overlapping certifications.
2.1(a)5b: Laboratory analytical methods: Samples collected by the remedial party will be analyzed by an analytical method included in the most current DEC Analytical Services Protocol (ASP)…	All three LM-contract labs have approved methods that are anticipated for use.
2.1(a)5b3: The method selected must achieve a detection limit or minimum reporting limit that is below the applicable cleanup level for all contaminants …	Analytical detection limits are specified in the plan.
2.1(a)5c(g): Alteration of groundwater samples collected for metals analysis. **1.** Provision for the alteration of groundwater samples (filtration as defined in Section 2.4) for metals analysis is only acceptable when the rationale for any proposed filtration is prepared in accordance with this subdivision and, if a field decision, must be reviewed and approved in accordance with subdivision 1.6(d) by the DER project manager prior to any filtration of samples. **2.** Alteration of groundwater samples will not be approved unless the following conditions can be documented: **i.** the target turbidity level of 50 NTUs for development and sampling of groundwater monitoring well is or will be exceeded; **ii.** the well(s) being sampled was (were) properly designed, installed, constructed, developed, maintained and sampled; **iii**. attempts have been made to repurge and/or redevelop the well; and **iv.** replacement of the well(s) with documentation of proper well construction and installation where necessary, has been considered and is not justified.	(Former) wells MW-38S, MW-39S, and MW-41S often have turbidity exceeding 50 nephelometric turbidity units (NTU).
6. The procedures (including quality control and quality assurance) specified in the ASP analytical method must be followed unless an alternate procedure is included in the approved work plan.	The DOE contract lab will have DOECAP certification and will have New York State certification for the analyses used.
2.1(a)5 (g): Alteration of groundwater samples collected for metals analysis… **5.** When analyzing the samples: **i.** if the unfiltered sample does not exceed Site Cleanup Goals (SCGs), there is no need to analyze the filtered sample; and **ii.** if there is a question whether metal contaminants are naturally occurring or were introduced through human-made activities, upgradient and background wells may be sampled using the same procedure, with best efforts made to obtain an uncontaminated sample of the horizon which is being screened, to allow a comparison.	Metals are not included in the analysis list. A filtered sample can be collected but needs to be compared to an unfiltered split.

NYSDEC DER-10/*Technical Guidance for Site Investigation and Remediation*, codified in 6 NYCRR 375 et seq.	**Equivalents in This Plan**
2.2 (a)1.(4) samples to determine closure of a system pursuant to sections 6.4 and/or 6.5… ii. must include the preparation of a Data Usability Summary Report (DUSR) prepared by a party independent from the laboratory performing the analysis for all samples when Category B data deliverables are provided. This party must also be independent from any direct involvement with the project, e.g. Project Manager or property owner. The required content of a DUSR and qualifications for the person preparing the DUSR are detailed in Appendix 2B.	Not applicable; these are provisions for requiring the use of an independent third party to prepare a data usability summary report before closing a remediation system.
2.3(c)2. Duplicate and matrix/matrix-spike duplicates are required at a frequency of 1 per 20 samples. Aqueous trip blanks are required at the same frequency for samples that are to be analyzed for volatiles. Field and/or rinsate blanks **may** also be required at the same frequency.	QC samples and splits are all used at 5% frequency. Aligns with LM SAP.
2.4 Quality Assurance Project Plan **(a)2i.** the project scope and project goals as well as how the project relates to the overall site investigation or remediation strategy; **ii.** project organization, including the designation of a project manager, QAO and field analyst (if field analysis is planned). Resumes of these individuals must be included; **iii.** sampling procedures, data quality usability objectives and equipment decontamination procedures; **iv.** site map showing sample locations; **v.** an "Analytical Methods/Quality Assurance Summary Table" which must include the following information for all environmental, performance evaluation and quality control samples: (1) matrix type; (2) number or frequency of samples to be collected per matrix; (3) number of field and trip blanks per matrix; (4) analytical parameters to be measured per matrix; (5) analytical methods to be used per matrix with minimum reporting requirements; (6) number and type of matrix spike and matrix spike duplicate samples to be collected; (7) number and type of duplicate samples to be collected; (8) sample preservation to be used per analytical method and sample matrix; (9) sample container volume and type to be used per analytical method and sample matrix; and (10) sample holding time to be used per analytical method and sample matrix; and **vi.** a detailed description of sampling methods to be used and sample storage in the field.	The LTS&M Plan addresses quality assurance issues, supported by the LM SAP and LM QAM. **i:** See Section 1.1. **ii:** See Section 3.2. **iii:** These are addressed in the SAP. **iv:** See Figure 7. **v**: See Tables 4, 5, 6, and 7. **vi:** These are addressed in the SAP.
2.4(c) Analytical data must be provided in an electronic format in accordance with section 1.15.	Electronic deliverables will be submitted using the EQuIS format.
2.4(d) Quality assurance glossary. Quality assurance terms and definitions presented in this subdivision must be used in preparing all documents related to quality assurance or control.	The terms and definitions used in the guidance are the same as those used in this plan and in the SAP.

NYSDEC DER-10/*Technical Guidance for Site Investigation and Remediation*, codified in 6 NYCRR 375 et seq.	**Equivalents in This Plan**
3.3(e)5 Investigation generated water/fluid handling and disposal. Water/fluid generated during an investigation: ii. … may be stored on-site in labeled containers in an area with secondary containment awaiting treatment and/or disposal, in accordance with applicable DEC waste management regulations (e.g., 6 NYCRR Parts 360, 364 and the 370 series) or other provisions approved by DER. The contents of the containers will be (1) properly treated or disposed of when any of the following are observed: (A) visual evidence of contamination, consisting of discoloration, sheens, free product or NAPL; (B) olfactory evidence of contamination; or (C) concentrations of contaminants above groundwater standards at levels of concern are known to be present in the monitoring wells, based on previous sampling of the groundwater; or **(2)** if none of the conditions described in clause ii.(1) apply, the containerized water may be: (A) recharged to unpaved ground into the same groundwater unit, within or directly adjacent to a source area in a manner which does not result in surface water runoff, with DER approval;	Both Section 3.3.5 of the plan and the site -specific program directive address IDW, and these sections conform with the listed guidance.
6.1 Site Management (a)3. A site will have only one SMP which will encompass all site management activities identified by the remedy or remedies (including IRMs) selected for the site. The only exception would be a BCP site remedial program implemented by a volunteer, where off-site contamination has been determined to represent a significant threat as set forth in 6 NYCRR 375-3.7.	A single SMP addresses ICs. The SMP is supplemented by the LTS&M Plan.
6.2.2. Monitoring Plan (a)1. The plan should identify the requirements for:… iii. assessing achievement of remedial action objectives; iv. evaluating site information periodically, to confirm that the remedy continues to be effective protecting public health and the environment; v. sampling and analysis of appropriate media; and vi. preparing the necessary reports of the results of this monitoring.	Section 3.3.6 addresses the criteria for achievement of the remedial action objectives. Long-term monitoring reports will evaluate site information and the effectiveness of the SAP. Long-term periodic reviews are specified to evaluate the effectiveness of the remedy, adequacy of the sampling design, and necessary reporting.
6.2.2(a)2. For specific remedies, as described in paragraphs (c) 3 through 6 below, the plan may also need to include provision for: i. evaluating monitored natural attenuation; ii. plume management monitoring; … and iv. trend analysis.	Long-term monitoring reports will evaluate MNA effectiveness, plume management, and trend analysis.
6.2.2(c)1. Effectiveness monitoring requirements:… iii. groundwater should be characterized as to its temperature, pH, conductivity, turbidity and, where appropriate, indicator parameters for monitored natural attenuation at the site…	The plan requires characterization of the six well stability parameters plus MNA parameters.

NYSDEC DER-10/*Technical Guidance for Site Investigation and Remediation*, codified in 6 NYCRR 375 et seq.	**Equivalents in This Plan**
6.2.2(c) 3. Effectiveness monitoring requirements for monitored natural attenuation (MNA). For a remedy with an MNA component, a groundwater monitoring program should be implemented to monitor groundwater plume characteristics, horizontal and vertical contaminant migration and related controlling processes, in accordance with the USEPA guidance for MNA, OSWER Directive 9200.4-17 Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites (November 1997).	The plan includes MNA evaluation requirements that conform with the EPA OSWER Directive 9200.4-17.
6.2.2(d)1. A monitoring plan should include the: **i.** identification of the sampling points; **ii.** analytical method(s) protocol; **iii.** qualifications of the laboratory; **iii.** frequency of sampling; **iv.** sample collection protocols; **v.** sampling, reporting and quality assurance/quality control requirements pursuant to Chapter 2; **vi.** process for reporting and addressing migration of contaminants to sentinel wells or other compliance monitoring points; **vii.** protocols for modifying the plan by expanding or removing monitoring points; and **viii.** protocols for determining when or if, the required monitoring of media subject to the plan may be terminated.	**i.:** See SAP and Program Directive **ii.:** Sample collection methods are in the SAP. **v.** Quality assurance/quality control requirements are contained in the Quality Systems Manual.
6.2.2(d)2. **A HASP** for the monitoring identified in paragraph 6.2.1(b)4 is required and is to be prepared in accordance with subdivision 1.9(c).	LM uses the *LMS Safety and Health Program* (LMS/POL/S20043) as specified in Section 3.5. A task-specific job safety analysis is included as Appendix C of the SAP. Site-specific emergency response is addressed in the emergency response plan, included in Appendix B of this plan.
6.2.2(d)3. 3. The monitoring plan should also include provision for: i. the inspection and maintenance of groundwater monitoring wells, extraction wells or other permanent compliance monitoring points (e.g., soil vapor probes); and ii. decommissioning of groundwater monitoring wells, extraction wells or other permanent compliance monitoring points, by the remedial party or site owner: **(1)** when DER determines they are no longer necessary for monitoring the remedy; and **(2)** in accordance with the procedures set forth in the applicable guidance, CP-43, "Commissioner Policy on Groundwater Monitoring Well Decommissioning."	Inspections, maintenance, and decommissioning of monitoring wells are addressed in Section 4.9.

Note:
Abbreviations used in this appendix are defined in the "Abbreviations" section at the beginning of this LTS&M Plan.

Appendix B

Site-Specific Emergency Plan

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Contractor to the U.S. Department of Energy Office of Legacy Management

Site-Specific Emergency Response Information

Site name: Colonie New York FUSRAP Site **Date:** 8/13/2018

Site address: 1130 Central Ave., Colonie, NY, 12205 **Phone number:** none

☐ **Occupied site** ☒ **Unoccupied site**

Hazard Profile (summary of Site Hazard Survey [LMS 1567] Information)

☐ Disposal cell ☐ Public access ☐ Water treatment plant

☒ Monitor wells ☐ Decommissioned reactor ☐ Other Enter text

Please indicate the type of phone number provided. W = work; C = cell; H = home; O = other

LMS Site Lead

Name	Primary phone number	Secondary phone number
Carl Young	[C] 410-456-3415	[W] 410-575-3604

LM Site Manager

Name	Primary phone number	Secondary phone number
Darina Castillo	[W] 720-377-3824	[C] 720-450-2936

Medical emergency support facility or hospital:			Albany Memorial Hospital, 600 Northern Blvd, Albany, NY 12204 518-471-3221
Fire:	**911**	or	518-459-6311 (West Albany Fire Dept)
Ambulance:	**911**	or	518-434-4151 (Mohawk Ambulance Service)
Air Rescue:	**911**	or	Not applicable
Police or sheriff:	**911**	or	518-458-9148 (Albany Police Dept)
Nearest available telephone: *Cellular phone must accompany personnel to site.*	Albany Railyard Restaurant 1119 Central Ave	or	518-650-6499
Nearest emergency room:	Albany Memorial Hospital, 600 Northern Blvd, Albany, NY 12204 518-471-3221		

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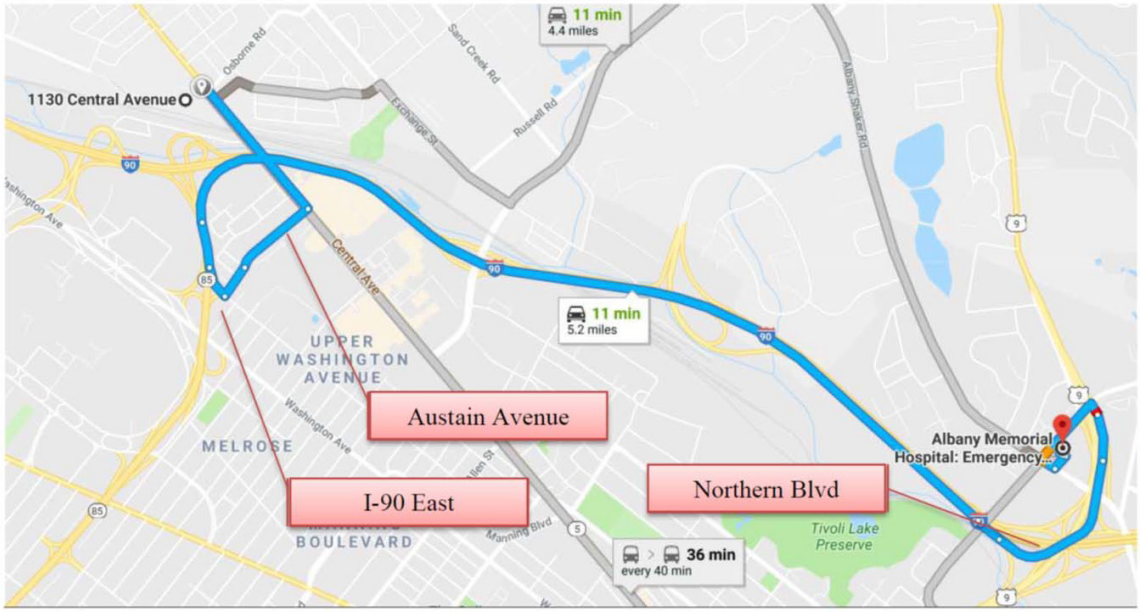
Site-Specific Emergency Response Information

Emergency assembly area:
Main Entrance

Evacuation warning system:
Three horn blasts

Directions from site to emergency facility (including map):
From 1130 Central Ave, turn RIGHT
Turn RIGHT onto Austain Ave [3 min / 1.0 mi]
Take I-90 E to Northern Blvd. Take exit 6 from I-90 E [4 min / 3.8 mi]
Continue on Northern Blvd to your destination 4 min (0.4 mi)
Albany Memorial Hospital Emergency Room 600 Northern Blvd, Albany, NY 12204



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Site-Specific Emergency Response Information

Personnel accountability process and responsible individuals
Define how the accountability process will work at your site, who is responsible for performing the task, how it is documented, etc.:

The LMS Site Lead will determine that site workers are accounted for during field work. The LMS Site Lead will verify that the personnel accountability process is in place at the beginning of field work, and that the process will be documented by field personnel.

Groundwater Sampling: Use voice contact pairing. At least two workers will be paired for onsite work, and can communicate by voice, radio, or phone.

Inspections, routine surveys, minor repairs, water level measurements: Use accountability check-in. An office POC will be used to receive calls from the field worker and to respond if the field worker does not check in. The field worker calls the office POC on a predetermined schedule to include (1) site entry, (2) not to exceed 4 hours during time onsite, and (3) site exit. Missed check-ins should be recovered within an hour. The office POC will contact the LMS Site Lead or their manager if the field worker misses a check-in. The office POC will call the Albany Police Department if the field worker cannot be reached within an hour.

Contracted field work: Contractors must utilize an personnel accountability process, which will be verified by the LMS Site Lead.

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Appendix C

Signage

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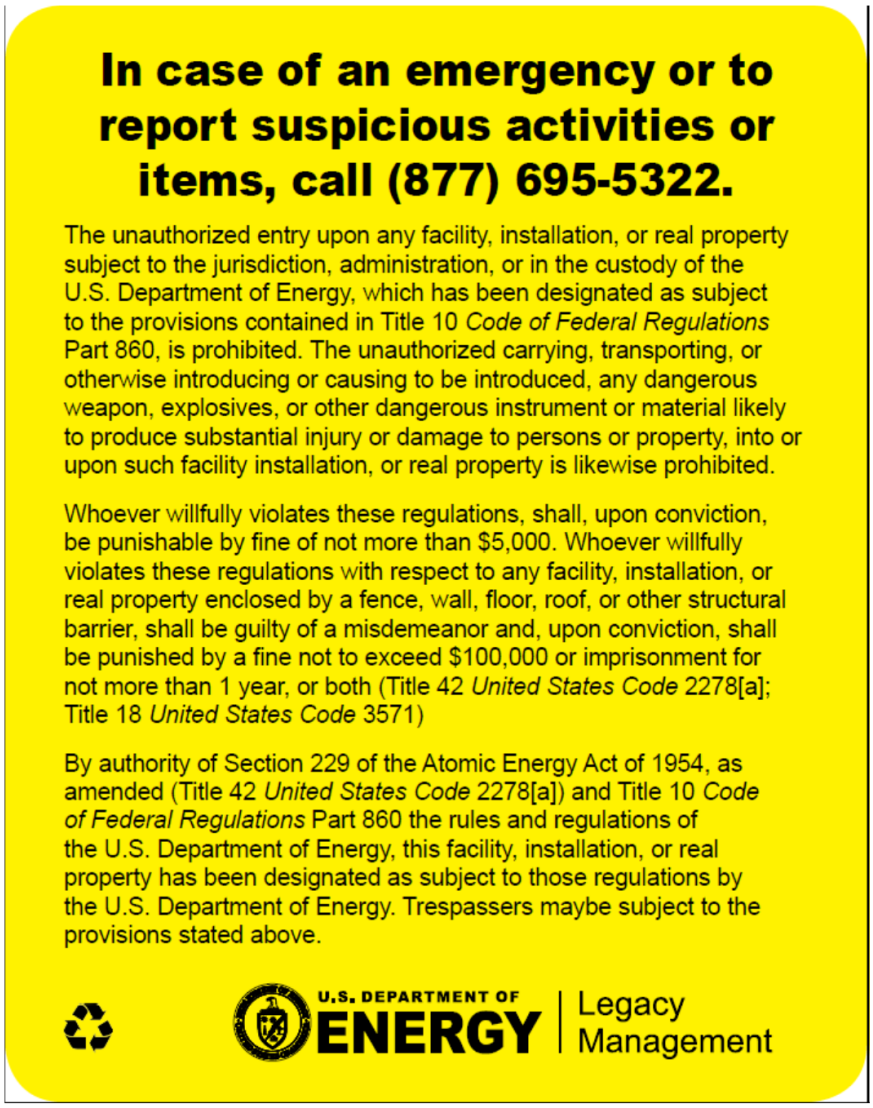
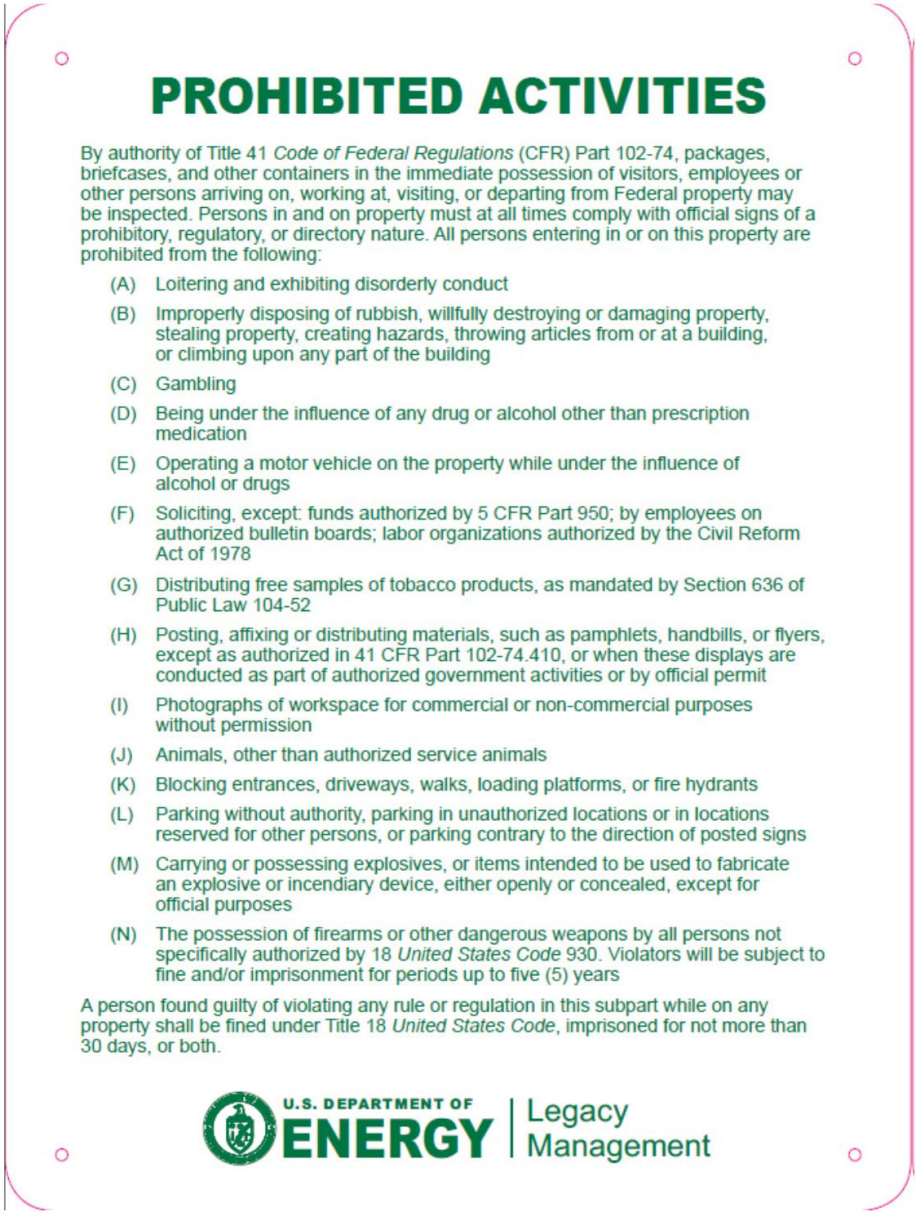
These signs are currently in place on the fences and will be kept:

This sign will be placed at the main gate and rear gate.

This sign will be placed near each entrance:



This sign will be placed near each entrance:



PROHIBITED ACTIVITIES

By authority of Title 41 *Code of Federal Regulations* (CFR) Part 102-74, packages, briefcases, and other containers in the immediate possession of visitors, employees or other persons arriving on, working at, visiting, or departing from Federal property may be inspected. Persons in and on property must at all times comply with official signs of a prohibitory, regulatory, or directory nature. All persons entering in or on this property are prohibited from the following:

(A) Loitering and exhibiting disorderly conduct

(B) Improperly disposing of rubbish, willfully destroying or damaging property, stealing property, creating hazards, throwing articles from or at a building, or climbing upon any part of the building

(C) Gambling

(D) Being under the influence of any drug or alcohol other than prescription medication

(E) Operating a motor vehicle on the property while under the influence of alcohol or drugs

(F) Soliciting, except: funds authorized by 5 CFR Part 950; by employees on authorized bulletin boards; labor organizations authorized by the Civil Reform Act of 1978

(G) Distributing free samples of tobacco products, as mandated by Section 636 of Public Law 104-52

(H) Posting, affixing or distributing materials, such as pamphlets, handbills, or flyers, except as authorized in 41 CFR Part 102-74.410, or when these displays are conducted as part of authorized government activities or by official permit

(I) Photographs of workspace for commercial or non-commercial purposes without permission

(J) Animals, other than authorized service animals

(K) Blocking entrances, driveways, walks, loading platforms, or fire hydrants

(L) Parking without authority, parking in unauthorized locations or in locations reserved for other persons, or parking contrary to the direction of posted signs

(M) Carrying or possessing explosives, or items intended to be used to fabricate an explosive or incendiary device, either openly or concealed, except for official purposes

(N) The possession of firearms or other dangerous weapons by all persons not specifically authorized by 18 *United States Code* 930. Violators will be subject to fine and/or imprisonment for periods up to five (5) years

A person found guilty of violating any rule or regulation in this subpart while on any property shall be fined under Title 18 *United States Code*, imprisoned for not more than 30 days, or both.

U.S. DEPARTMENT OF ENERGY | Legacy Management

This sign will be placed near each entrance:

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Appendix D

Inspection Checklists and Map

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I. COLONIE SITE INFORMATION

Date of Inspection:	Type of Inspection (site walk, windshield):
General Site Conditions: Weather/Temperature:	Inspection Team Names/Affiliation (print):

Deed Holder: DOE

If the property is owned by the DOE, is it currently leased? Yes No

Site Records, Inspections, and Reports up to date? Yes No

Institutional Controls:

1. The Soil Easement Areas, as further identified in Schedule A of the Easement, may be used for Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv).
2. No digging or excavation shall be permitted in the Soil Easement Areas without prior written approval of DOE and NYSDEC.
3. Vegetable gardens and farming are prohibited in the Soil Easement Areas.
4. The use of groundwater underlying the Site, as described in Appendix D of the Easement, Schedule B, is prohibited without necessary water quality treatment as determined by the NYSDOH or the Albany County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from NYSDEC.
5. The potential for vapor intrusion must be evaluated for any buildings designed for occupancy on the Site, as described in Appendix D, Schedule B, and appropriate actions to address exposures must be implemented.
6. Data and information pertinent to Site management must be reported at the frequency and in a manner as defined in the SMP.
7. All future activities that will disturb remaining contaminated material must be conducted in accordance with the SMP.
8. Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP.
9. Maintenance, monitoring, inspection, and reporting of any physical component of the remedy shall be performed as defined in the SMP.

Agency or company conducting the inspection: _____

Primary Inspector_____

Name Title Phone No.

_____ _____

Signature Date

Use the following to document current changed Site Conditions, include as Attachments:

Photographs Maps Other (sketches, etc.)

II. INSTITUTIONAL CONTROLS (ICs)

**If deficiencies are noted, the locations should be documented on a site map and photographed.*

1. Property Use:

Are all ICs being complied with?	Yes	No
Easement Areas disturbed in any manner?	Yes	No
Changes in Site Conditions?	Yes	No
Is there any Gardening or Farming?	Yes	No
Is the property used for industrial purposes?	Yes	No
Is the property used for commercial purposes?	Yes	No
Is the property currently vacant?	Yes	No
Any evidence of new construction?	Yes	No

Remarks:_____

2. Soil Conditions:

Is there any evidence of digging or soil excavation?	Yes	No
Authorization/Permit #:_____		
Any signs of dumping, staining, or vegetative stress?	Yes	No

Remarks:_____

3. **Real Property Assets:**

Do any property assets need maintenance?	Yes	No

Remarks:_____

III. EVALUATION OF INSTITUTIONAL CONTROLS (ICs)

1. Implementation and Enforcement:

Site conditions imply ICs have been properly implemented.	Yes	No
Site conditions imply ICs are fully enforced.	Yes	No

Remarks:_____

2. Observations, Conclusions, Recommendations (including changes needed and overall performance and effectiveness of the remedy):

Remarks:_____

DOE Office of Legacy Management **Colonie NY Site** **Site Inspection Checklist**

Date of this Inspection: _____ Date of the last inspection: _____

Names of Inspector(s): _____

Other persons present and roles: _____

1) Pre-Trip – note whether this is an annual inspection	
1.1 Was a readiness review conducted?	☐yes ☐no ☐n/a
1.2 Were deficiencies or issues identified on the previous inspection form?	☐yes ☐no ☐n/a
1.3 Does this inspection include the annual inspection for the soil easement areas?	☐yes ☐no ☐n/a
1.4 Has this form been revised since the previous inspection?	☐yes ☐no ☐n/a
1.5 Is right-of entry in effect for offsite locations? If not, do not access off-site locations	☐yes ☐no ☐n/a
Notes:	

2) General Observations - including weather conditions	
2.1 Was a Plan of the Day / Week prepared?	☐yes ☐no ☐n/a
2.2 Was a Job Safety Analysis reviewed onsite?	☐yes ☐no ☐n/a
Notes:	

3) Fencing – Inspector will walk along the entire interior fence line. Photograph all deficiencies	
3.1 Missing or damaged fence components, including gates and locks?	☐yes ☐no ☐n/a
3.2 Excessive corrosion of fence components?	☐yes ☐no ☐n/a
3.3 Trees or vegetation either contacting or damaging any fence component?	☐yes ☐no ☐n/a
3.4 Erosion or other soil loss that would allow human access?	☐yes ☐no ☐n/a
3.5 Indications of vandalism or unauthorized entry?	☐yes ☐no ☐n/a
Notes (include photo numbers):	

4) Signs – Reference the locations in the signage plan shown in Figure 1. Photograph all deficiencies	
4.1 Missing or damaged signs?	☐yes ☐no ☐n/a
4.2 Excessive corrosion of signs?	☐yes ☐no ☐n/a
4.3 Indications of vandalism?	☐yes ☐no ☐n/a
Notes (include photo numbers):	

5) Locks – Reference the locations of defects or issues. Well locks are reviewed with wells in Section 10. Photograph all deficiencies.	
5.1 Missing or damaged lock at front entrance?	☐yes ☐no ☐n/a
5.2 Missing or damaged lock at rear entrance?	☐yes ☐no ☐n/a
5.3 Missing or damaged lock at west pedestrian entrance?	☐yes ☐no ☐n/a
Notes (include photo numbers):	

6) Vegetation – Reference lawn care, tree growth, signs of stress		
6.1 Has the grass along Central Avenue been recently mown?	Grass height:	☐yes ☐no ☐n/a
6.2 Is the vegetation along Central Avenue fence line trimmed?	Grass height:	☐yes ☐no ☐n/a
6.3 Is there trash on the lawn on Central Avenue?		☐yes ☐no ☐n/a
6.4 Has the grass in the site interior been recently mown?	Grass height:	☐yes ☐no ☐n/a
6.5 Is there trash on the site?		☐yes ☐no ☐n/a
6.6 Are there signs of stressed vegetation?		☐yes ☐no ☐n/a
6.7 Are there dead trees or downed branches within the property?		☐yes ☐no ☐n/a
6.8 Are there any areas of erosion on the grounds?		☐yes ☐no ☐n/a
Notes (include photo numbers):		

7) Roads and Parking Area – Review drivability and vegetation ingress	
7.1 Are there any driving hazards in the road or parking area?	☐yes ☐no ☐n/a
7.2 Do any conditions make the road unsafe or unusable?	☐yes ☐no ☐n/a
Notes (include photo numbers):	

8) Storm Drain System – Inspect for blockage	
8.1 Is the northern catch basin intact and undamaged?	☐yes ☐no ☐n/a
8.2 Is the eastern catch basin intact and undamaged?	☐yes ☐no ☐n/a
8.3 Is the central catch basin intact and undamaged?	☐yes ☐no ☐n/a
8.4 Are there any obstructions in the unnamed tributary?	☐yes ☐no ☐n/a
8.5 Are there any signs of erosion in the unnamed tributary?	☐yes ☐no ☐n/a
Notes (include photo numbers):	

9) Environmental Easement Areas – Inspect and photo-document	
9.1 Is this an annual inspection where the Site Management Plan Checklist will be used? If 'yes' then do not complete the remainder of this section.	☐yes ☐no ☐n/a
9.2 Are there signs that digging has occurred in any of the easement areas?	☐yes ☐no ☐n/a
9.3 Are there any signs of dumping, staining, or vegetative stress?	☐yes ☐no ☐n/a
Notes (include photo numbers):	

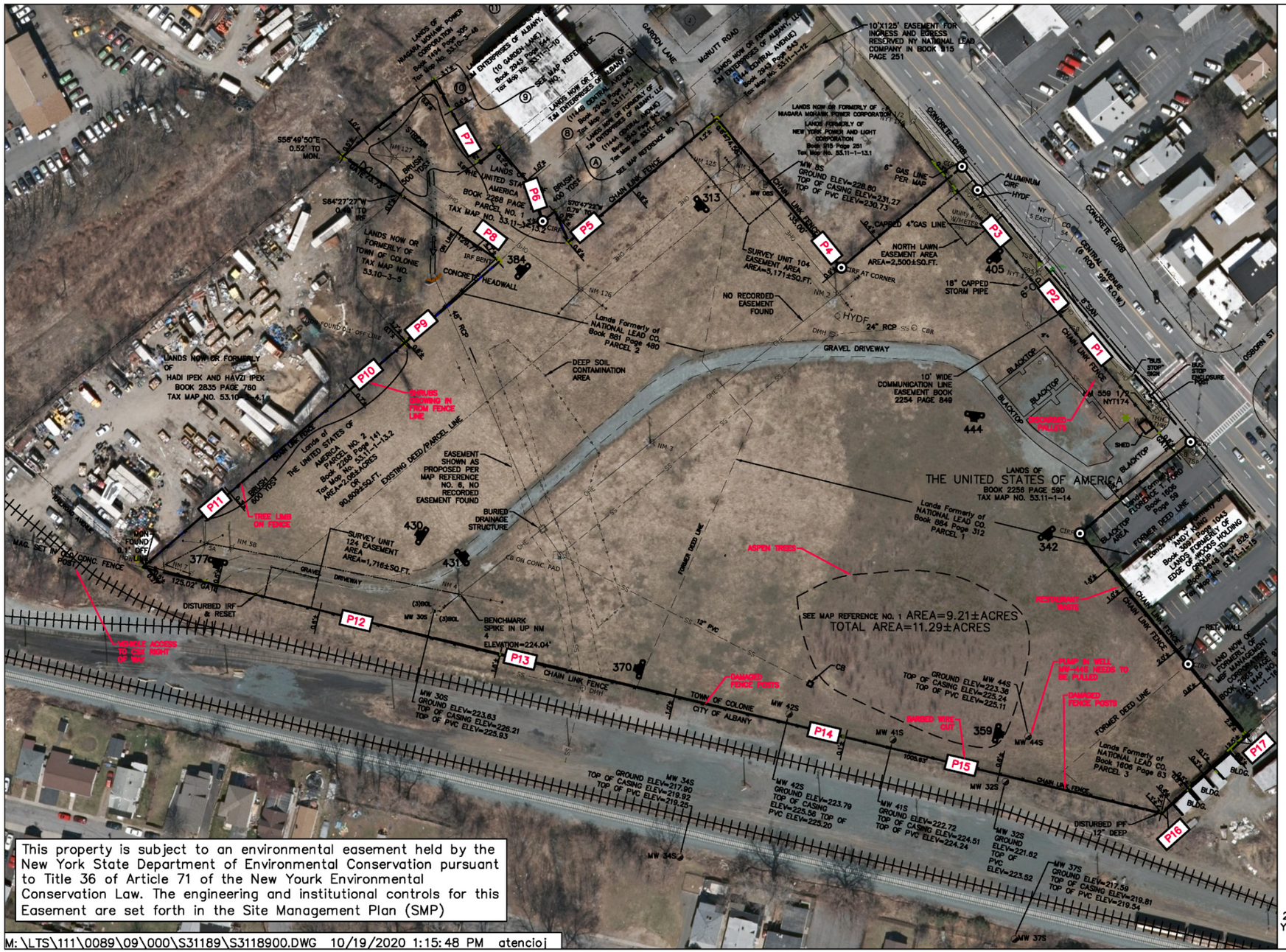
10) Monitoring Wells – Photograph all wells if possible and list photo numbers	
10.1 Are separate well inspection forms being used? If yes, do not complete this section.	☐yes ☐no ☐n/a
10.2 Are there signs of damage to the wells or bollards?	☐yes ☐no ☐n/a
10.3 Are the locks installed and undamaged?	☐yes ☐no ☐n/a
Notes (include photo numbers):	

11) Storage Shed – Inspect for wear and damage	
11.1 Is the shed locked and secure?	☐yes ☐no ☐n/a
11.2 Are there signs of vandalism or damage?	☐yes ☐no ☐n/a
11.2 Are there signs of water damage inside the shed?	☐yes ☐no ☐n/a
Notes (include photo numbers):	

12) Mailbox – photo-document	
12.1 Is the mail box present and intact?	☐yes ☐no ☐n/a
12.2 Are there signs of vandalism or damage?	☐yes ☐no ☐n/a
Notes (include photo numbers):	

12) Personal Property	
12.1 Refer to the Personal Property inventory. Is all equipment accounted for?	☐yes ☐no ☐n/a
12.2 Are there signs of vandalism or damage?	☐yes ☐no ☐n/a
Notes (include photo numbers):	

13) Additional Notes – Summarize Notable issues
Notes (include photo numbers):



EXPLANATION

- P2 — PERIMETER SIGN AND NUMBER
- SITE MARKER
- 1 — BOUNDARY MONUMENT AND NUMBER
- PROPERTY BOUNDARY
- BARBED WIRE FENCE
- GATE
- ROAD OR TRACK
- DRAINAGE AND FLOW DIRECTION
- BOL — BOLLARD
- CIRS — CAPPED IRON ROD SET
- CIRF — CAPPED IRON ROD FOUND
- CB — CATCH BASIN
- CBR# — CATCH BASIN ROUND
- SMON — CONCRETE MONUMENT FOUND
- DMH# — DRAINAGE MANHOLE
- GUY WIRE
- HYDF — HYDRANT FLANGE
- IPF — IRON PIPE FOUND
- IRF — IRON ROD FOUND
- MW# — MONITOR WELL
- SMH# — SANITARY MANHOLE
- TMH# — TELEPHONE MANHOLE
- TSB — TRAFFIC SIGNAL BOX
- TSP — TRAFFIC SIGNAL POLE
- NM# — UTILITY POLE

RED–ISSUE IDENTIFIED IN 2020 INSPECTION

LAND–USE CONTROL AREA

1 — PHOTOGRAPH LOCATION, NUMBER, AND DIRECTION (REFERENCED AS IMG–XXX IN APPENDIX C OF 2020 INSPECTION REPORT)

SCALE IN FEET

120 60 0 120 240

COORDINATES: NORTH AMERICAN DATUM OF 1983 / 2011, NORTH AMERICAN VERTICAL DATUM OF 1988

ANNUAL INSPECTION CONDUCTED JULY 13–16, 2020

2017 New York State Imagery

MAGNETIC NORTH 14.5 DEGREES

U.S. DEPARTMENT OF ENERGY | Legacy Management — GRAND JUNCTION, COLORADO

Work Performed Under DOE Contract No. DE–LM0000421 — NAVARRO Navarro Research & Engineering, Inc. — Contractor to the U.S. Department of Energy Office of Legacy Management

2020 INSPECTION FIELD DRAWING
COLONIE, NEW YORK

DATE PREPARED: August 25, 2020

FILENAME: S3118900

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Appendix E

Entry Procedure for Offsite Properties

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E1. Entry Procedure for Offsite Properties

LMS personnel cannot perform work on offsite properties without prior written agreement with the offsite property owners.

In order to gain access to the three offsite wells, right-of-entry agreements are needed. Two agreements are with Amtrak, one agreement is with CSX, and one agreement is with a private property owner. Complete copies of the rights-of-entry and contact information for each are stored in the project and Asset Management Support files. Key details related to each right-of-entry are summarized in Table E-1. The agreements contain additional details and should be carefully reviewed while planning site work.

Access by NYSDEC representatives is not addressed in the rights-of-entry granted to the LMS contractor or to the United States of America. NYSDEC and Amtrak have a cooperative agreement that allows NYSDEC representatives to make unannounced inspections on Amtrak property.

The SMP requires that NYSDEC receive notification at least 7 days before any remedial program-related field activity, which includes both the annual site inspection and periodic groundwater sampling. The LM site manager and LMS site lead coordinate site access requirements with NYSDEC at least 7 days in advance and provided plans about activities for each day of field work. The NYSDEC project manager may make periodic unannounced visits to the site to observe the work.

Table E-1. Key Details Related to Each Right-of-Entry

Grantor / Grantee	Purpose	Terms and Requirements	Notifications	Notes
Amtrak and Navarro Research and Engineering, Inc., expiring January 30, 2021	Access by the LMS contractor to sample offsite monitoring wells MW-34S and MW-37S, which are on Amtrak property	• 1-year term • Annual fee and insurance coverage • Prior safety training on the Amtrak website and issuance of worker ID cards • A copy of agreement required while onsite • High-visibility vest, hearing protection, safety glasses with side shields, hard hats, and steel-toed safety shoes • Onsite entry meeting with Amtrak district engineer or track foreman • Oversight by Amtrak engineer or foreman • After sampling, Amtrak will receive analysis results	• 10 working days written prior notification to Amtrak • Coordinate with district engineer 2 weeks in advance • Document notifications on the *Landowner/ Stakeholder Notification Form* (LMS 1013)	• Amtrak foreman requests reminder 1 week before fieldwork began • Required that a track foreman be present for the sampling work
Amtrak and the United States of America, expiring June 4, 2021	Access by federal employees for MW-34S and MW-37S, which are on Amtrak property	• Annual fee and insurance coverage • Prior safety training on the Amtrak website and issuance of worker ID cards • A copy of agreement required while onsite • High-visibility vest, hearing protection, safety glasses with side shields, hard hats, and steel-toed safety shoes • Coordinate with Amtrak district engineer at least 2 weeks before fieldwork • Onsite entry meeting with Amtrak district engineer or track foreman • Oversight by Amtrak engineer or foreman • After sampling, Amtrak will receive analysis results	• 10 working days written prior notification to Amtrak • Coordinate with district engineer 2 weeks in advance • Document notifications on the *Landowner/ Stakeholder Notification Form*	• Amtrak foreman requests reminder 1 week before fieldwork began • Required that a track foreman be present for the sampling work
CSX Transportation and the United States of America, renewed annually from February 1, 2020	Access by LM or the LMS contractor to well MW-32S for inspection	• 1-year term • Annual fee and insurance coverage • A copy of agreement required while onsite • Flag protection fees for certain work • 10 calendar days prior notification • Safety glasses with side shields, hard hats, hearing protection, and steel-toed safety shoes	• Document notifications on the *Landowner/ Stakeholder Notification Form*	• No oversight was required by CSX for the 2020 inspection
Owner of 82 Yardboro Avenue, Albany, New York and the United States of America, expiring July 31, 2024	Cross private property to gain access to offsite wells MW-34S and MW-37S	• 5-year term	• At least 24 hours • Document notifications on the *Landowner/ Stakeholder Notification Form*	• Prior notifications of property owners are documented on a landowner notification form by the Environmental Monitoring Operations team

Appendix F

Well Boring Logs and Construction Diagrams

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GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
Colonie Interim Storage Site	4501-139	1 OF 1	B39W08S

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
CISS	N 1776 E 1122	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
11-7-84	11-7-84	Empire Soils	Acker AD-2	7-1/2"			14.0

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
/			231.45	229	/	/

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
		E. W. Lundeen

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN. CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M.	WATER PRESSURE TESTS: PRESS. P.S.I.	WATER PRESSURE TESTS: TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
							228.8				0.0 - 0.3 Ft. TOPSOIL.	
								5			0.3 - 10.8 Ft. SAND (SP). Light brown, medium- to coarse-grained, well sorted, rounded to subangular, frosted particles. 10% silt. Noncohesive. Dry to saturated at 5.5 Ft. (DUNE SAND)	
								10				
							218.1				10.8 - 14.0 Ft. Clayey SILT (ML). Gray to dark gray noncohesive to slightly cohesive, slightly plastic material. Rapid to moderate dilatancy. (UPPER SAND)	
							214.9				Bottom of borehole at 14.0 Ft. Monitor well installed and screened at 6.0 to 11.0 Ft., 11/7/84.	

S = SPLIT SPOON; ST = SHELBY TUBE; = DENNISON; P = PITCHER; O = OTHER

SITE: CISS

HOLE NO.: B39W08S

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well 30-S

Project Colonie FUSRAP Site — Owner USACE
Location Colonie, NY — Proj. No. 866724
Surface Elev. ____ — Total Hole Depth 14.5 ft. — Diameter ____
Top of Casing 225.74 ft. — Water Level Initial 6 ft — Static ____
Screen: Dia 2 in — Length 10 ft. — Type/Size Sch 40PVC in
Casing: Dia 2 in. — Length 6 ft. — Type Sch 40PVC
Fill Material ____ — Rig/Core ____
Drill Co. Maxim Technology — Method HSA
Driller C. DiNova — Log By T. Maynard — Date 08/01/00 — Permit # ____
Checked By ____ — License No. ____

See Site Map For Boring Location

COMMENTS:

Atmosphere & samples monitored by EC's

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							0-10': Dark brown-brown, medium grained sand, increased silt content w/depth, increased moisture-wetness w/depth, trace boulder, cobble, gravel, fine gravel, content decreases w/depth.
2							
4							
6						SM	
8							
10							10-12': Brown, saturated, sandy silt;60-80% silt, very fine-fine grained sand, trace clay, medium dense.
12				2/2/2/2 80%		SM	
14						SM	
16							
18							
20							
22							
24							

Colonie FUSRAP Site	DISTRICT: Baltimore	BORING NUMBER: MW – 32S
COMPANY NAME: T Corporation	DRILL SUBCONTRACTOR: Parratt Wolff	SHEET: 1 of 2

PROJECT NAME: TERC CONTRACT NO. DACA31-95-D-0083	SITE LOCATION: 1130 Central Ave. Albany, NY
NAME OF DRILLER: Mickey Marshall	HOLE LOCATION: See site map
NAME OF GEOLOGIST: Marc Flanagan	SIGNATURE OF GEOLOGIST:
TYPE AND SIZE OF DRILLING AND SAMPLING EQUIPMENT: Hollow Stem Auger / Split spoon sampler	DATE STARTED: 12/11/2001 — DATE COMPLETED: 12/11/2001
	SURFACE ELEVATION: 222.20
	DEPTH TO FIRST ENCOUNTERED WATER: NA
DEPTH TO REFUSAL: NA	DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
DEPTH DRILLED INTO BEDROCK: NA	OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA
TOTAL DEPTH OF HOLE: 20'	TOTAL FLUID LOSSES: NA

GEOTECHNICAL SAMPLES	SAMPLE DEPTH	UNDISTURBED/DISTURBED	TOTAL NUMBER OF CORE BOXES

ENVIRONMENTAL SAMPLES	SAMPLE DEPTH	ANALYTES	TOTAL CORE RECOVERY %

DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	CASING TYPE	WELL DEPTH	SCREENED INTERVAL
Monitoring well installed	#0 Morie	MW – 32S	2" PVC	19'	9-19'

DATE	START TIME	FINISH TIME	DRILLING DEPTH	DESCRIPTION

SKETCH OF DRILLING LOCATION/ADDITIONAL COMMENTS SCALE:

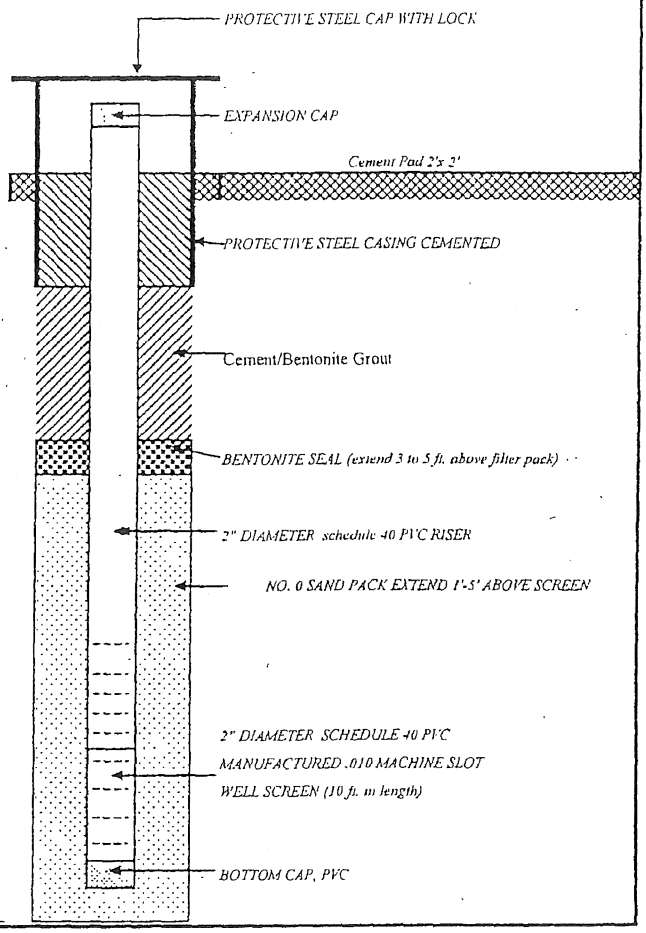
PROJECT TO 33, DC SCHOOLS	BORING.
NOTE: ATTACH WELL CONSTRUCTION DIAGRAM	MW – 32S

IT DRILLING LOG (CONTINUATION SHEET)					BORING NUMBER MW – 32S	
PROJECT NAME: COLONIE FUSRAP SITE				GEOLOGIST: M.Flanagan		SHEET: 2
DEPTH	BLOW COUNT	USCS SYMBOL	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS	SAMPLE ID/DEPTH	REMARKS
						Augered down to 9'. No split spoons collected.
9---	2	ML	Gray silt, interbedded lenses of gray clay, medium density, Wet	2.6		
-	2					
-	3					
-	3					
11---	4	ML	Gray silt, trace fine grain sand, 1-2" lenses of gray clay interbedded throughout, medium density, Wet	2.6		
-	3					
-	2					
-	3					
13---	WOH	ML	Gray silt, trace fine grain sand, 1-2" lenses of gray clay interbedded throughout, slight-medium density, Wet	2.8		
-	2					
-	3					
-	2					
-						
15---	3	OL	Gray-brown silt, slight density, Wet.	<1.0		
-	4					
-	5					
-	5					
17---	3	ML	Gray-brown silt, slight-medium density, Wet.	1.3		
-	3					
-	3					
-	2					
19---						

FIELD FORM
STICK-UP WELL CONSTRUCTION DIAGRAM
COLONIE FUSRAP (to be completed in the field)
WELL ID (MW - 32S)

	DEPTH (RECORD ON THIS FORM)
SURFACE	
DEPTH BOTTOM STEEL CSG-	1.80
DEPTH TOP BENTONITE-	3.0
DEPTH BOTTM BENTONITE-	7.0
DEPTH TOP SAND-	7.0
DEPTH TOP OF SCREEN-	9.0
DEPTH BOTTOM SCREEN-	19.0
TOTAL DEPTH-	20.0

CONSTRUCTION DETAILS



GEOLOGIST: M.Flanagan
DATE INSTALLED: 12-11-01
DATE COMPLETED:12-11-01
BOREHOLE DIAMETER: 8 in.
TYPE OF DRILLING:Hollow Stem Auger
DRILLER/RIG: M.Marshall/Parrat Wolff

LOCATION DESCRIPTION: "B"

Colonie FUSRAP Site	DISTRICT: Baltimore	BORING NUMBER: MW – 34S
COMPANY NAME: IT Corporation	DRILL SUBCONTRACTOR: Parratt Wolff	SHEET: 1 of 2

PROJECT NAME: TERC CONTRACT NO. DACA31-95-D-0083	SITE LOCATION: 1130 Central Ave. Albany, NY
NAME OF DRILLER: Mickey Marshall	HOLE LOCATION: See site map
NAME OF GEOLOGIST: Marc Flanagan	SIGNATURE OF GEOLOGIST:
TYPE AND SIZE OF DRILLING AND SAMPLING EQUIPMENT: Hollow Stem Auger / Split spoon sampler	DATE STARTED: 12/20/2001 — DATE COMPLETED: 12/20/2001
	SURFACE ELEVATION: 218.33
	DEPTH TO FIRST ENCOUNTERED WATER: NA
DEPTH TO REFUSAL: NA	DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
DEPTH DRILLED INTO BEDROCK: NA	OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA
TOTAL DEPTH OF HOLE: 18.5'	TOTAL FLUID LOSSES: NA

GEOTECHNICAL SAMPLES	SAMPLE DEPTH	UNDISTURBED/DISTURBED	TOTAL NUMBER OF CORE BOXES

ENVIRONMENTAL SAMPLES	SAMPLE DEPTH	ANALYTES	TOTAL CORE RECOVERY %

DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	CASING TYPE	WELL DEPTH	SCREENED INTERVAL
Monitoring well installed	#0 Morie	MW – 34S	2" PVC	18.5'	8.5'-18.5'

DATE	START TIME	FINISH TIME	DRILLING DEPTH	DESCRIPTION

SKETCH OF DRILLING LOCATION/ADDITIONAL COMMENTS SCALE:

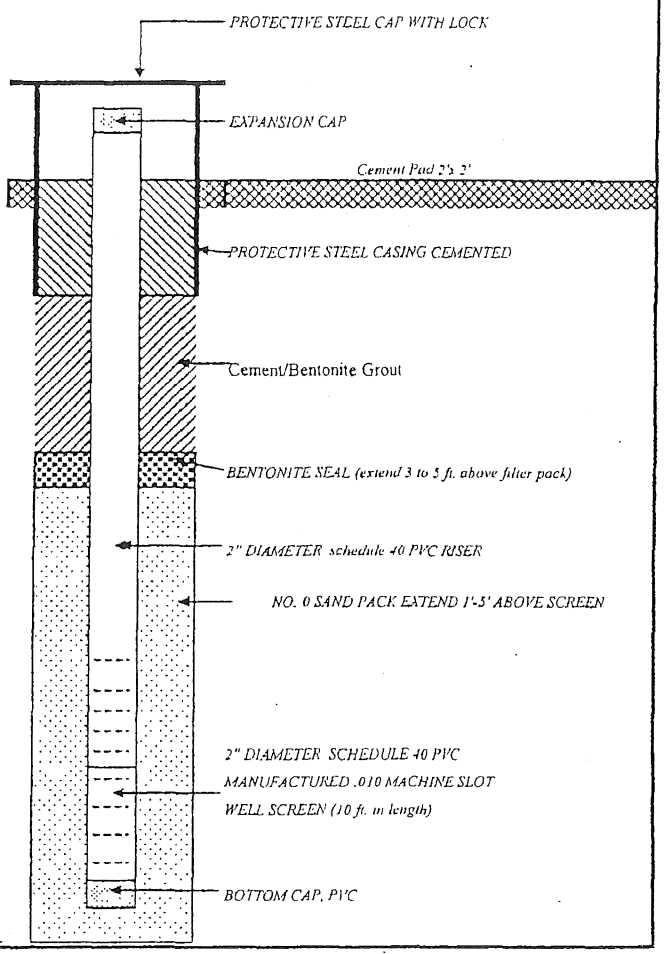
PROJECT TO 33, DC SCHOOLS	BORING.
NOTE: ATTACH WELL CONSTRUCTION DIAGRAM	MW – 34S

IT DRILLING LOG (CONTINUATION SHEET)						BORING NUMBER MW – 34S
OJECT NAME: COLONIE FUSRAP SITE				GEOLOGIST: M.Flanagan		SHEET: 2
DEPTH	BLOW COUNT	USCS SYMBOL	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS	SAMPLE ID/DEPTH	REMARKS
						Augered down to 8'. No split spoons collected.
8---	5	ML	Brown to brown-gray silt, trace clay content, slight density, Wet	7.0		
-	3					
-	4					
-	2					
10---	3	ML	Gray-brown silt, trace clay content, slight density, Wet.	6.0		
-	3					
-	2					
-	3					
12---	2	ML	Gray-brown silt, trace clay content, slight density, Last ~4" gray silt, some clay, medium density, Wet.	10.0		
-	3					
-	2					
-	2					
14---	2	CL	Gray-brown clay, medium density, some silt interbedded, Wet.	15.0		
-	2					
-	3					
-	3					
16---	3	CL	Gray-brown clay, medium density, trace silt in 2 horizons, Wet.	15.0		
-	3					
-	3					
-	5					
18---						

FIELD FORM
STICK-UP WELL CONSTRUCTION DIAGRAM
COLONIE FUSRAP (to be completed in the field)
WELL ID (MW - 34S)

	DEPTH (RECORD ON THIS FORM)
SURFACE	
DEPTH BOTTOM STEEL CSG-	1.80
DEPTH TOP BENTONITE-	3.5
DEPTH BOTTM BENTONITE-	6.5
DEPTH TOP SAND-	6.5
DEPTH TOP OF SCREEN-	8.5
DEPTH BOTTOM SCREEN-	18.5
TOTAL DEPTH-	18.5

CONSTRUCTION DETAILS



GEOLOGIST: M.Flanagan
DATE INSTALLED: 12-20-01
DATE COMPLETED:12-20-01
BOREHOLE DIAMETER: 8 in.
TYPE OF DRILLING:Hollow Stem Auger
DRILLER/RIG: M.Marshall/Parrat Wolff

LOCATION DESCRIPTION: "C"

Colonie FUSRAP Site	DISTRICT: Baltimore	BORING NUMBER: MW – 37S
COMPANY NAME: IT Corporation	DRILL SUBCONTRACTOR: Parratt Wolff	SHEET: 1 of 2

PROJECT NAME: TERC CONTRACT NO. DACA31-95-D-0083	SITE LOCATION: 1130 Central Ave. Albany, NY
NAME OF DRILLER: Mickey Marshall	HOLE LOCATION: See site map
NAME OF GEOLOGIST: Marc Flanagan	SIGNATURE OF GEOLOGIST:
TYPE AND SIZE OF DRILLING AND SAMPLING EQUIPMENT: Hollow Stem Auger / Split spoon sampler	DATE STARTED: 1/27/2002 — DATE COMPLETED: 1/27/2002
	SURFACE ELEVATION: 220 (est.)
	DEPTH TO FIRST ENCOUNTERED WATER: NA
DEPTH TO REFUSAL: NA	DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA
DEPTH DRILLED INTO BEDROCK: NA	OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA
TOTAL DEPTH OF HOLE: 22'	TOTAL FLUID LOSSES: NA

GEOTECHNICAL SAMPLES	SAMPLE DEPTH	UNDISTURBED/DISTURBED	TOTAL NUMBER OF CORE BOXES

ENVIRONMENTAL SAMPLES	SAMPLE DEPTH	ANALYTES	TOTAL CORE RECOVERY %

DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	CASING TYPE	WELL DEPTH	SCREENED INTERVAL
Monitoring well installed	#0 Morie	MW – 37S	2" PVC	22'	10'-20'

DATE	START TIME	FINISH TIME	DRILLING DEPTH	DESCRIPTION

SKETCH OF DRILLING LOCATION/ADDITIONAL COMMENTS SCALE:

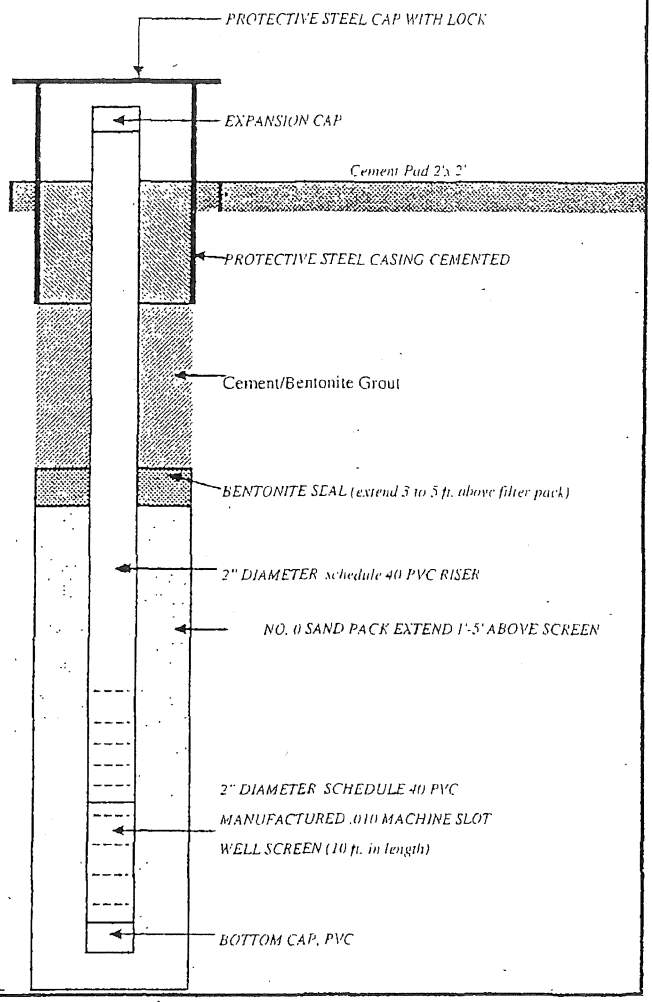
PROJECT TO 33, DC SCHOOLS	BORING.
NOTE: ATTACH WELL CONSTRUCTION DIAGRAM	MW – 37S

IT DRILLING LOG (CONTINUATION SHEET)				BORING NUMBER MW – 37S		
PROJECT NAME: COLONIE FUSRAP SITE				GEOLOGIST: M. Flanagan		SHEET: 2
DEPTH	BLOW COUNT	USCS SYMBOL	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS	SAMPLE ID/DEPTH	REMARKS
						Augered down to 10'. No split spoons collected.
10--- - - - 12--- - - - 14--- - - - 16--- - - - 18--- - - - 20--- - - - 22---	4 4 6 4 4 4 4 5 1 3 3 2 3 3 2 3 2 3 2 3 3 5 4 5	ML	Brown-gray silt, trace fine grain sand, slight density, Wet.	<1.0		
		ML	Brown-gray silt, slight density, Wet.	<1.0		
		ML	Brown-gray silt, slight density, Wet.	<1.0		
		ML	Brown-gray silt, slight density, trace brown-gray clay in 2" lens at bottom of spoon, Wet.	<1.0		
		CL	Brown-gray silt, some clay, interbedded throughout spoon, medium density, Wet.	<1.0		
		ML	Brown-gray silt, slight density, ~1" brown-gray clay lens, interbedded at bottom of spoon, Wet.	<1.0		

FIELD FORM
STICK-UP WELL CONSTRUCTION DIAGRAM
COLONIE FUSRAP (to be completed in the field)
WELL ID (MW - 37S)

	DEPTH (RECORD ON THIS FORM)
SURFACE	
DEPTH BOTTOM STEEL CSG-	~2.0
DEPTH TOP BENTONITE-	3.0
DEPTH BOTTM BENTONITE-	8.0
DEPTH TOP SAND-	8.0
DEPTH TOP OF SCREEN-	11.0
DEPTH BOTTOM SCREEN-	21.0
TOTAL DEPTH-	22.0

CONSTRUCTION DETAILS



GEOLOGIST: M. Flanagan
DATE INSTALLED: 1-27-02
DATE COMPLETED:1-27-02
BOREHOLE DIAMETER: 8 in.
TYPE OF DRILLING:Hollow Stem Auger
DRILLER/RIG: M.Marshall/Parrat Wolff

LOCATION DESCRIPTION: "F"

Drilling Log

Monitoring Well **MW-41S**

Page: 1 of 1

Project: Colonie FUSRAP Site | Owner: Shaw Environmental, Inc.

Location: Central Ave., Colonie, NY | Proj. No.: 837935

Surface Elev.: 223.0 ft. | Total Hole Depth: 23.0 ft. | North: | East:

Top of Casing: NA | Water Level Initial: ▽ 14.0 ft. | Static: NA | Diameter: 6.25 in.

Screen: Dia: 2 in. | Length: 10 ft. | Type/Size: PVC Sch 40/0.010 in.

Casing: Dia: 2 in. | Length: 11 ft. | Type: PVC Sch 40

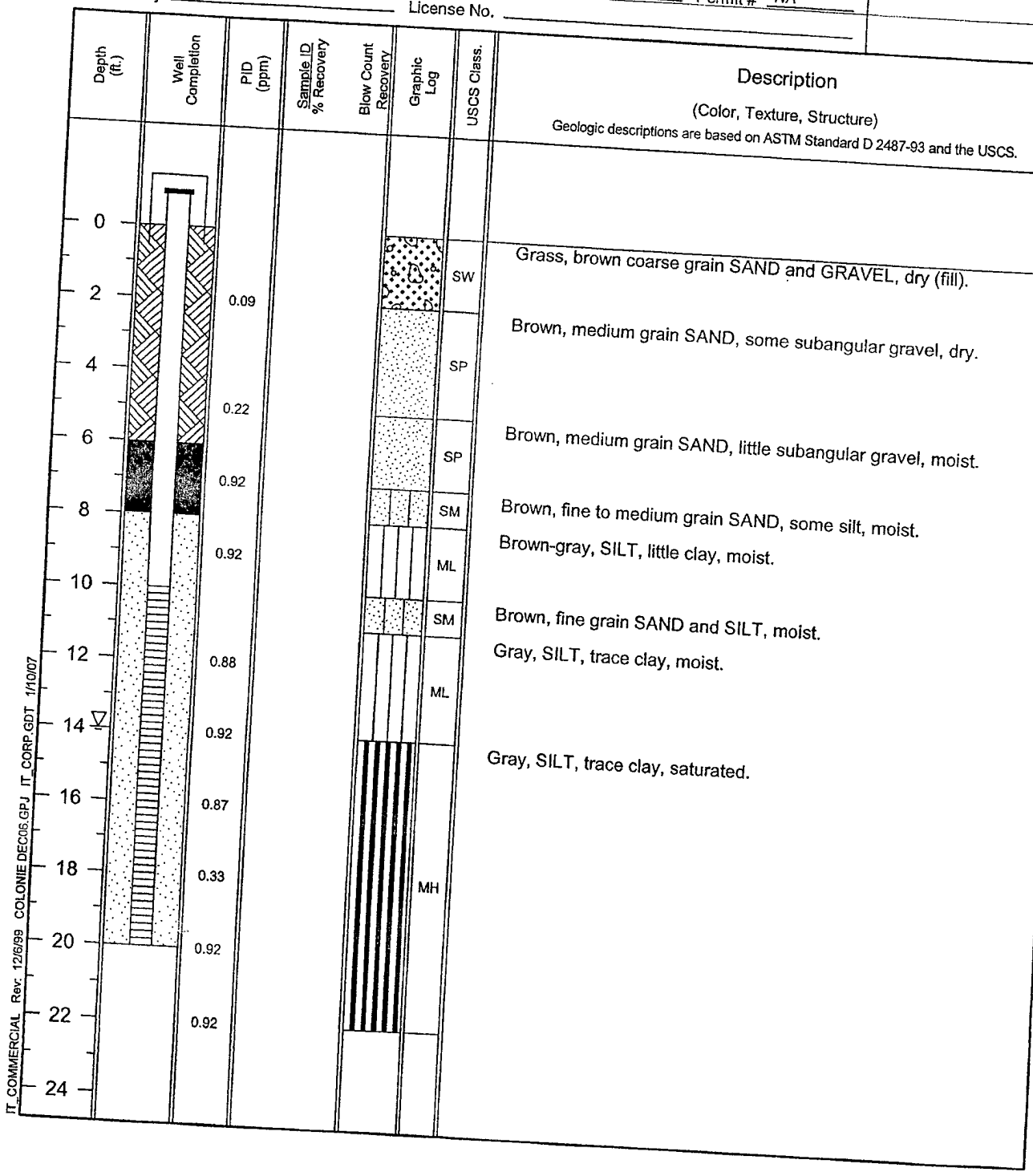
Fill Material: Morie Sand #1 | Rig/Core:

Drill Co.: ADT | Method: HSA

Driller: R.Comfort | Log By: R.Adams | Date: 12/11/06 | Permit #: NA

Checked By: | License No.:

COMMENTS



Depth (ft.)	USCS Class.	Description (Color, Texture, Structure)
		Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0 – 2	SW	Grass, brown coarse grain SAND and GRAVEL, dry (fill).
2 – 4	SP	Brown, medium grain SAND, some subangular gravel, dry.
4 – 6	SP	Brown, medium grain SAND, little subangular gravel, moist.
6 – 8	SM	Brown, fine to medium grain SAND, some silt, moist.
8 – 10	ML	Brown-gray, SILT, little clay, moist.
10 – 12	SM	Brown, fine grain SAND and SILT, moist.
12 – 14 ▽	ML	Gray, SILT, trace clay, moist.
14 ▽ – 16	MH	Gray, SILT, trace clay, saturated.

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Drilling Log

Monitoring Well **MW-42S**

Project Colonie FUSRAP Site — Owner Shaw Environmental, Inc.

Location Central Ave., Colonie, NY — Proj. No. 837935

Surface Elev. 223.0 ft. — Total Hole Depth 23.0 ft. — North ____ — East ____

Top of Casing NA — Water Level Initial ▽ 10.0 ft. — Static NA — Diameter 6.25 in.

Screen: Dia 2 in. — Length 10 ft. — Type/Size PVC Sch 40/0.010 in.

Casing: Dia 2 in. — Length 10 ft. — Type PVC Sch 40

Fill Material Morie Sand #1 — Rig/Core ____

Drill Co. ADT — Method HSA

Driller R.Comfort — Log By R.Adams — Date 12/12/06 — Permit # NA

Checked By ____ — License No. ____

COMMENTS

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / % Recovery / Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) — Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						
2		0.22			SW	Grass, brown, medium grain SAND, some gravel, dry.
4		0.14				
6		0.14			SM	Brown, fine grain SAND, some silt, some gravel, moist.
8		0.29				
10 ▽		0.98			SM	Brown-gray, SILT and fine grain SAND, trace gravel, wet.
12		1.12			ML	Brown-gray, SILT and fine grain SAND, trace gravel, wet, slight petro-like odor.
14		1.78				
16					ML	Brown-gray, SILT and fine grain SAND, trace gravel, wet.
18						
20		0.28			ML	Gray, SILT, little fine grain sand, wet.
22		0.27				
24						

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VISUAL CLASSIFICATION OF SOILS

BORING NUMBER	**MW44S**	PROJECT NAME	Colonie FUSRAP					DATE	
PROJECT NUMBER	500304	COORDINATES	Northing 1405456.27, Easting 679685.18					STARTED	7/27/2015
ELEVATION	Ground: 223.20 ft msl	TOC: 224.65 ft msl						COMPLETED	7/27/2015
GEOLOGIST	B. Squire	GWL	Depth		Date/Time			PAGE/PAGES	1/2
DRILLING METHOD	HSA & Split Spoon								

DEPTH (ft)	SAMPLE NUMBER	RECOVERY (ft)	PID (ppm)	DESCRIPTION	USCS SYMBOL	REMARKS
1 2 3 4 5				Brown f-c SAND, little silt, little rock, damp		Hand auger, log from cuttings
6 7	1	1	0.0	Brown silty SAND, some gravel, loose, damp	SM	
8 9	2	1.5	0.0	As above, grading to gray-brown		
10 11	3	1.0	0.0	As above, moist		
12 13	4	1.5	0.0	As above Brown f SAND, few to little silt, loose, wet	SP/SM	
14 15	5	0.0	0.0	As above (trace recovery)		
16 17	6	1.0	0.0	As above Gray vf-f SAND, some silt, loose, saturated	SM	
18 19	7	1.5	0.0	As above,		
20	8	NR	0.0	As above		

Continued on page 2

NOTES:

c = coarse
m = medium
f = fine
vf = very fine

ft = feet
NA= not applicable
NR= not recorded
ppm = parts per million

Drilling Contractor: Parratt-Wolffe
Drilling Equipment: HSA and split spoon
Driller: M. Eaves

VISUAL CLASSIFICATION OF SOILS

BORING NUMBER	**MW44S**	PROJECT NAME	Colonie FUSRAP						
PROJECT NUMBER	500304	COORDINATES	Northing 1405456.27, Easting 679685.18				DATE		
ELEVATION	Ground: 223.20 ft msl	TOC: 224.65 ft msl					STARTED	7/27/2015	
GEOLOGIST	B. Squire	GWL	Depth		Date/Time		COMPLETED	7/27/2015	
DRILLING METHOD	HSA & Split Spoon						PAGE/PAGES	2/2	

DEPTH (ft)	SAMPLE TYPE & NUMBER	RECOVERY (ft)	PID / Oil Screen (ppm / pos-neg)	DESCRIPTION	USCS SYMBOL	REMARKS
21	8 (cont.)	NR	0.0	As above	SM	
22				Drilled interval		
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
39						
39						
40						

End of boring = 22 ft.

NOTES:

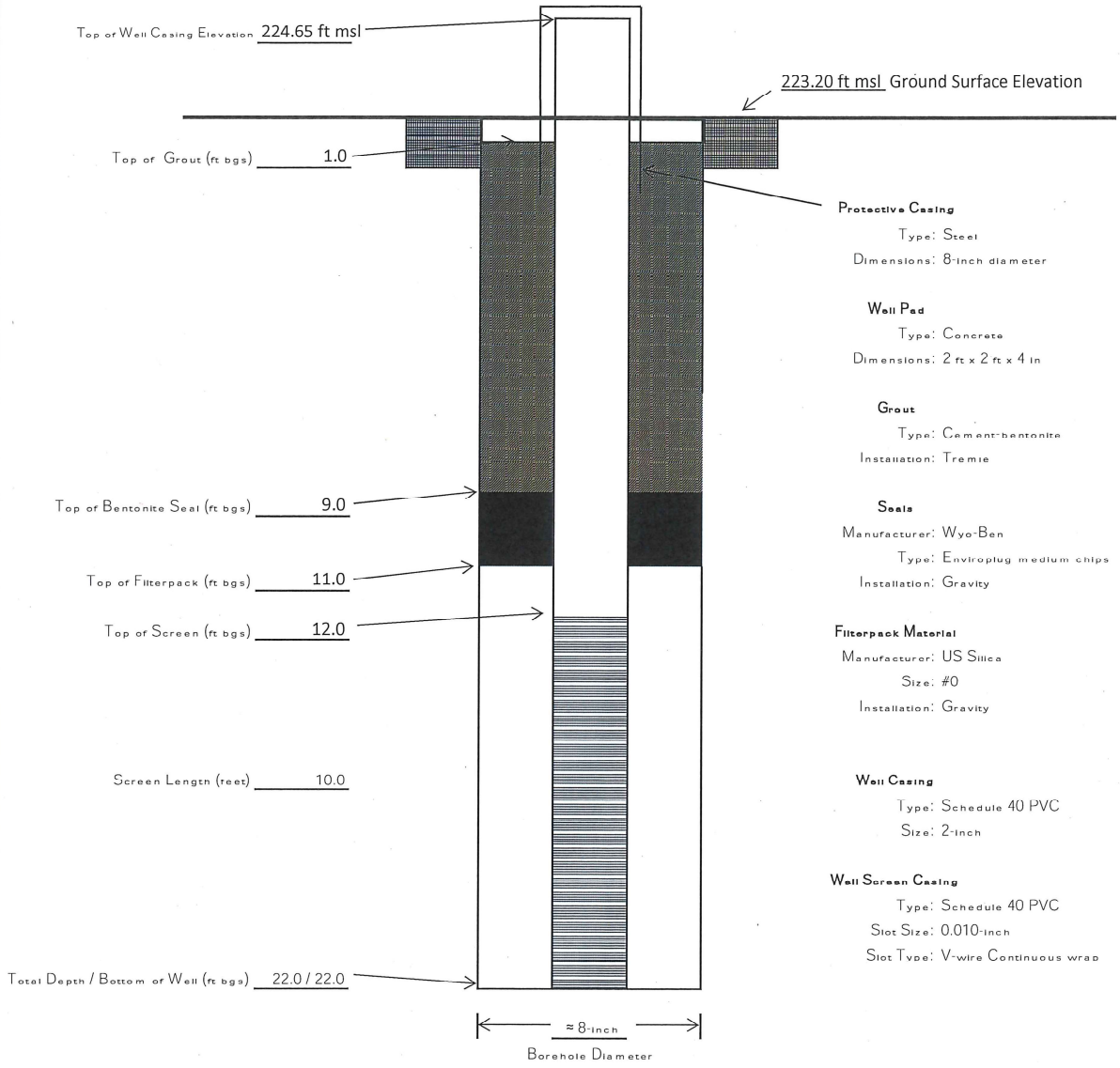
c = coarse
m = medium
f = fine
vf = very fine

ft = feet
NA= not applicable
NR= not recorded
ppm = parts per million

Drilling Contractor: Parratt-Wolffe
Drilling Equipment: HSA and split spoon
Driller: M. Eaves

MONITORING WELL CONSTRUCTION LOG

PROJECT	Colonie FUSRAP	WELL NUMBER	MW44S		
LOCATION	Colonie, NY	SITE LOCATION	Main Site		
CLIENT	USACE	DATE INSTALLED	7/27/2015		
SUBCONTRACTOR	Parratt Wolff	NORTHING	1405456.27		
DRILLER	M. Eaves	EASTING	679685.18		
SHAW FIELD REPRESENTATIVE	B. Squire	NAD		NGVD	



NOTES: Elevations are feet above mean sea level
ft bgs = feet below ground surface

Not to Scale

Appendix G

Personal Property Inventory

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EQUIPMENT INVENTORY LIST Colonie NY Site

PHYSICAL CONDITION							FINANCIAL STATUS	
Item description (make and model)	Serial number	Location	Condition	Vendor	Service Life [yrs]	Years of service left	Initial value	Date purchased
mail box	n/a	main gate	Fair	local	10	-3	$15.00	1/1/2008
pump, pneumatic		MW-08S	poor	local	10	-10	$1,000.00	8/2/2000
pump, pneumatic		shed	Good	local	10	-9	$1,000.00	12/11/2001
pump, pneumatic		shed	Good	local	10	-9	$1,000.00	12/11/2001
pump, pneumatic		MW-30S	poor	local	10	-10	$1,000.00	8/2/2000
pump, pneumatic		MW-34S	Good	local	10	-9	$1,000.00	12/20/2001
pump, pneumatic		MW-37S	Good	local	10	-9	$1,000.00	1/27/2002
pump, pneumatic		MW-41S	Good	local	10	-4	$1,000.00	12/11/2006
pump, pneumatic		MW-42S	Good	local	10	-4	$1,000.00	12/12/2006
pump, pneumatic		MW-44S	Good	local	10	5	$1,000.00	7/27/2015
Shed	n/a	Entrance	Fair	unk	20	-1	$5,000.00	1/1/2000
air compressor	19806	shed	unk	unk	10	-11	$200.00	1/1/2000
line trimmer		shed	ink	Ryobi				

PHYSICAL CONDITION							FINANCIAL STATUS	
Item description (make and model)	Serial number	Location	Condition	Vendor	Service Life [yrs]	Years of service left	Initial value	Date purchased
line trimmer		shed	unk	Ryobi				
wagon		shed	good					
lawn mower		shed	unk					
locks [13 count]		various	new	Best	10		$455.00	12/11/2020