DEPARTMENT OF ENERGY
Environmental Management Los Alamos Field Office (EM-LA)
Los Alamos, New Mexico 87544

EMLA-2020-1602-02-001

September 28, 2020

Mr. Kevin Pierard
Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6313

Subject: Submittal of the Delta Prime Site Aggregate Area Progress Report

Dear Mr. Pierard:

Enclosed please find two hard copies with electronic files of the "Delta Prime Site Aggregate Area Progress Report for Fiscal Year 2020." This progress report summarizes the initiation of fieldwork activities at the remaining sites associated with building 21-257, former building 21-35, Delta Prime (DP) West industrial waste lines (IWLs), and DP East. This report is being submitted to fulfill fiscal year 2020 Milestone #14 in Appendix B of the 2016 Compliance Order on Consent (Consent Order).

The U.S. Department of Energy (DOE) Environmental Management Los Alamos Field Office and Newport News Nuclear BWXT-Los Alamos, LLC (N3B) are in the process of investigating 38 solid waste management units (SWMUs) and areas of concern (AOCs) included in the Technical Area 21 (TA-21) Decontamination and Decommissioning (D&D) and Cleanup Campaign. In January 2020, higher than expected radionuclide inventory was encountered inside building 21-257 and the DP West IWLs. After verification and discussion with DOE, these conditions were verbally communicated by N3B to the New Mexico Environment Department on June 19, 2020, and July 16, 2020.

The building 21-257 structure and contents were initially classified as low-level radioactive material. Historical documentation for the operation of building 21-257 and subsequent demolition planning documents identified the building and systems were less than hazard category 3, using the methodology described in DOE Standard 1027-92, "Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports." The results obtained from the sampling activities inside building 21-257 and the IWLs indicated a revised facility hazard categorization was required. The formal process to revise the hazard categorization document, perform reviews, and obtain approvals is currently in progress. These evaluations are being performed using DOE Standard 1027-92 as required by 10 Code of Federal Regulations (CFR) 830, "Nuclear Safety Management." Hazard categorization involves categorizing the facility based solely on the amount of radioactive material present in the facility. The inventory is compared with a list of threshold quantities for each isotope in DOE Standard 1027-92 to determine the initial hazard categorization. As a result of the potential inadequacy of the safety analysis determination and in accordance with 10 CFR 830, Subpart B, N3B is developing an evaluation of the safety of the situation to send to DOE for approval. In addition, N3B will be required to obtain DOE approval of a safety basis document that meets the safe harbor requirements of 10 CFR 830, Subpart B.

Because of the unexpected radiological conditions encountered during sampling, the following immediate actions were taken:

1. Work was suspended and facilities were placed into a safe configuration. As of March 2020, no additional fieldwork is being performed in building 21-257 or on the IWLs. Work will resume after all radiological regulatory requirements are met and planning to address the increased contamination levels is performed.
2. Hazard category evaluations will be performed and a safety basis will be developed and approved by DOE before additional sampling and eventual D&D operations resume.
3. Building 21-257 and IWL implementation will be replanned. This will include characterization for D&D, performing the D&D, and subsequent investigation and remediation of the SWMUs and AOCs associated with building 21-257 and the IWLs.

The "Delta Prime Site Aggregate Area Progress Report for Fiscal Year 2020" provides details of all activities conducted during the fiscal year and discusses the events and issues encountered at TA-21. Investigations of the 38 sites at TA-21 are currently suspended until the safety basis documentation and subsequent implementation documents are completed.

If you have any questions, please contact Keith Kohlmeier at (505) 412-3592 (keith.kohlmeier@em-la.doe.gov) or Cheryl Rodriguez at (505) 414-0450 (cheryl.rodriguez@em.doe.gov).

Sincerely,

Arturo Duran
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Arturo Q. Duran
Compliance and Permitting Manager
Environmental Management
Los Alamos Field Office

Enclosure(s):

1. Two hard copies with electronic files – Delta Prime Site Aggregate Area Progress Report for Fiscal Year 2020 (EM2020-0430)

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Sent: Tuesday, September 29, 2020 9:39 AM
To: Pamela T. Maestas
Subject: RE: Submittal to NMED on 9/28/2020 of DP Site Agg Area Progress Report

Good Morning,
Received.
Thank you

From: Pamela T. Maestas <pamela.maestas@em-la.doe.gov>
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Subject: [EXT] Submittal to NMED on 9/28/2020 of DP Site Agg Area Progress Report

Mr. Pierard,
Attached for submittal is a pdf of the following:

- Submittal of the Delta Prime Site Aggregate Area Progress Report (EMLA-2020-1602-02-001, letter and enclosure)

Please acknowledge receipt of this submittal by responding to this email.
Let me know if you have any questions.
Thank you.

Pamela T. Maestas
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September 2020
EM2020-0430

Delta Prime Site Aggregate Area Progress Report for Fiscal Year 2020

N3B Los Alamos

EM2020-0430

Delta Prime Site Aggregate Area Progress Report for Fiscal Year 2020

September 2020

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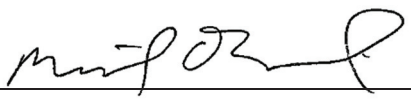
Michael O. Erickson		Program Director	RCRA Remediation Program	9/22/20
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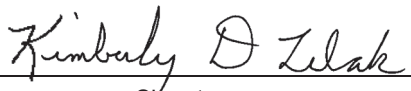
Responsible N3B representative:

Kim Lebak		Program Manager	N3B Environmental Remediation Program	9/22/20
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Printed Name	Signature	Title	Organization	Date

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Appendix A Photo Logs

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Plate 1 TA-21 D&D and Cleanup Campaign SWMUs and AOCs

Plate 2 IWL sampling locations

Acronyms and Abbreviations

ACM	asbestos-containing materials
AOC	area of concern
bgs	below ground surface
CFR	Code of Federal Regulations
Consent Order	Compliance Order on Consent
D&D	decontamination and decommissioning
DOE	Department of Energy (U.S.)
DP	Delta Prime
FIP	field implementation plan
FY	fiscal year
HC	hazard category
IDW	investigation-derived waste
IPT	integrated project team
IWL	industrial waste line
LANL	Los Alamos National Laboratory
LLW	low-level waste
MLLW	mixed low-level waste
N3B	Newport News Nuclear BWXT-Los Alamos, LLC
NA	not analyzed
NDA	nondestructive assay
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMED	New Mexico Environment Department
PCB	polychlorinated biphenyl
PID	photoionization detector
PISA	potential inadequacy of the safety analysis
PPE	personal protective equipment
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
SVOC	semivolatile organic compound
SWMU	solid waste management unit

TA	technical area
TAL	target analyte list
TCLP	toxicity characteristic leaching procedure
TRU	transuranic
VOC	volatile organic compound
XRF	x-ray fluorescence

1.0 PURPOSE

This progress report fulfills fiscal year (FY) 2020 Milestone #14 of the 2016 Compliance Order on Consent (Consent Order), Appendix B, under the Technical Area 21 (TA-21) Decontamination and Decommissioning (D&D) and Cleanup Campaign. The specific milestone addressed by this deliverable is described as a progress report summarizing the initiation of fieldwork activities at the remaining sites associated with building 21-257, former building 21-35, Delta Prime (DP) West industrial waste lines (IWLs), and DP East.

2.0 OVERVIEW

The U.S. Department of Energy (DOE) Environmental Management Los Alamos Field Office and Newport News Nuclear BWXT-Los Alamos, LLC (N3B) are in the process of remediating the TA-21 DP Site Aggregate Area delayed sites. These sites are included in the Consent Order under the TA-21 D&D and Cleanup Campaign. There are 26 solid waste management units (SWMUs) and 12 areas of concern (AOCs) that will be investigated, remediated as necessary, and reported on as part of the TA-21 D&D and Cleanup Campaign (Plate 1). Investigations at these 38 sites are included in the following work plans: “Investigation Work Plan for Delta Prime Site Aggregate Area Delayed Sites, Revision 1” (LANL 2009, 108166.9), “DP Site Aggregate Area Building 21-257 Footprint Letter Work Plan” (LANL 2014, 261899), and “Phase II Investigation Work Plan for Delta Prime Site Aggregate Area Sites at Delta Prime East and Delta Prime West” (N3B 2019, 700644).

The SWMUs and AOCs are potentially contaminated with both hazardous and radioactive components. The New Mexico Environment Department (NMED), pursuant to the New Mexico Hazardous Waste Act, regulates cleanup of hazardous wastes and hazardous constituents. DOE regulates cleanup of radioactive contamination, pursuant to DOE Order 458.1, Administrative Change 3, “Radiation Protection of the Public and the Environment,” and DOE Order 435.1, “Radioactive Waste Management.” Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to NMED in accordance with DOE policy.

The DP Site Aggregate Area is located near the eastern perimeter of the Los Alamos townsite within TA-21 at Los Alamos National Laboratory (LANL or the Laboratory). In 2005, investigations of DP Site Aggregate Area delayed sites were approved for deferred action until collocated active/occupied buildings, Laboratory processes, and/or utilities were removed and/or taken out of service (NMED 2005, 089314). These sites consist of a former outfall area, aboveground storage tanks, sumps, and IWLs that transferred DP West and DP East industrial/radioactive liquid wastes to Material Disposal Area T or building 21-257 for treatment and disposal. The DP West and DP East buildings have been removed, and building 21-257 will be removed.

Building 21-257 was active and maintained operation until 2006, when it was placed in inactive-standby status. It is currently in a “cold-and-dark” configuration, indicating that it was isolated from all external sources of hazardous energy. The DP West structures, which include buildings 21-002, 21-003, 21-004, 21-005, and 21-0150, have been removed, although the foundations remain. Waste generated from activities associated with these structures was collected in sumps and transferred through the IWLs to building 21-257 for treatment. Figure 2.0-1 shows the DP Site Aggregate Area and associated facilities. The former building 21-35 footprint north of the IWLs has been removed, with further investigations pending.

3.0 SUMMARY OF WORK PLANNED AND WORK COMPLETED IN FY 2020

The following sections summarize the facilities background, the basis for the strategy N3B and DOE used to plan the work, work completed in FY 2020, characterization results, and the nuclear safety implications of those results for the TA-21 D&D and Cleanup Campaign.

3.1 Building 21-257 and Industrial Waste Lines Background

This section explains the facilities background, the contractual and legal requirements, and the strategy and assumptions used to develop the D&D plan and conduct the investigation and required remediation under the Consent Order.

From a nuclear safety perspective, N3B issued a facility hazard categorization document for building 21-257 in February 2019 (N3B 2019, 701034) based on historical facility operations information and planning documents previously developed to support the D&D of building 21-257. The facility hazard categorization determination, which used the methodology described in DOE Standard 1027-92, "Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports," identified building 21-257 as less than a hazard category 3 (HC-3) radiological facility.

N3B determined that the waste from building 21-257 and IWLs would include low-level waste (LLW), mixed low-level waste (MLLW), asbestos-containing material (ACM), universal waste, and polychlorinated biphenyl– (PCB-) containing materials. No transuranic (TRU) waste volumes were expected.

Based on the proposal, contract, planning documents, and historical references, N3B planned and executed the work under less than HC-3 facility conditions. The project team studied a variety of historical reports and found that a prior safety analysis report (LANL 1993, 701032) had been prepared for building 21-257 in accordance with DOE requirements for an HC-3 facility, even though the facility was less than HC-3. N3B consulted with past facility operators to better understand the process followed to deactivate the building 21-257 facility and IWLs. The results of this evaluation were inconclusive, and the project team resorted to field investigations for a better understanding. The project team was in the process of completing these field investigations when the data obtained suggested that levels of residual material in building 21-257 and the IWLs contained higher-than-planned levels of radiological contamination. These findings indicate that further nuclear safety analysis is necessary, and the current hazard categorization of building 21-257 and the IWLs needs to be reevaluated. Additionally, building 21-35 is adjacent to the IWLs and DP East has physical waste line connections with Building 21-257. Therefore, these sites are part of the reevalution being conducted to ensure that proper precautions are taken to protect the workers, public, and environment if any unexpected conditions are found.

3.2 Work Planned for FY 2020

The work for the IWLs and building 21-257 is broken into two parts: (1) D&D activities and (2) Consent Order investigation and remediation. The D&D activities are the first activities performed to remove the infrastructure before investigating and remediating the SWMUs and AOCs under the requirements in the Consent Order. Until this infrastructure is removed, the SWMUs and AOCs cannot be investigated or remediated.

3.2.1 D&D Activities

The 2019 "Technical Area 21 Delta Prime West Investigations Letter Report" (N3B 2019, 700591) indicated the following D&D work would be performed in FY 2020:

- Excavation and removal of the IWLs during the first quarter
- Strip-out and demolition work on building 21-257 during the first and second quarters

3.2.2 Consent Order Activities

The 2019 "Technical Area 21 Delta Prime West Investigations Letter Report" (N3B 2019, 700591) indicated the following Consent Order work would be performed in FY 2020:

- Investigation and remediation work associated with former building 21-35 during the second quarter
- Investigation and remediation work associated with the building 21-257 footprint and surrounding sites during the third quarter (LANL 2014, 261899)
- Investigation and remediation of the remaining sites during the fourth quarter

3.3 Work Completed in FY 2020

In August 2019, N3B began potholing to locate the IWLs associated with SWMUs 21-022(b), 21-022(c), 21-022(d), 21-022(e), and 21-022(g). Work continued during August and September to locate and mark the IWLs. Building 21-257 interior equipment strip-out work also started in August and continued during September.

The following is a summary of the work conducted at building 21-257 and the IWLs:

- Cold-and-dark verification of building 21-257
- Removal of universal waste in building 21-257
- Initiation of nonprocess systems removal; abatement and removal of asbestos and hazardous materials (potentially lead paint and PCB-containing oils from pumps and motors) in building 21-257
- Radiological nondestructive assay (NDA) of equipment, tanks, and piping in building 21-257
- Sampling of accessible equipment, tanks, piping, and structures to support building 21-257 demolition, to include coupon and minimum aliquot sampling for Resource Conservation and Recovery Act (RCRA) and radiological data
- Sampling overburden above located IWLs for safety purposes. (Ten above-background samples were collected for analysis; continual radiological field screening was performed; soils below twice-background were not sampled further.)
- Potholing of IWLs. (Potholing in 10 locations resulted in finding/verifying stainless-steel and cast-iron waste lines along the entire corridor from DP West slabs to building 21-257.)
- NDA survey of IWLs. (NDA surveys were performed in nine locations; one survey was not completed because of high levels of soil contamination.)

3.3.1 Industrial Waste Lines

Table 3.3-1 identifies the major project activities performed on the IWLs.

3.3.1.1 Potholing

Manual potholing began on August 5, 2019. The manual potholing progressed to approximately 2 ft 11 in. below ground surface (bgs), where the top of a 1.5-in.-diameter stainless-steel IWL was identified. Radiological levels were observed at the location and a pause-work measure was initiated to evaluate the work controls. On August 7, 2019, N3B issued a pause-work notice and began development of directed actions as a condition of restarting potholing or intrusive activities.

3.3.1.2 Overburden Sampling

A field implementation plan (FIP) (N3B 2019, 701035) was developed to characterize the IWL overburden before excavation. The FIP was designed to characterize the overburden soil, reduce the potential risk to workers and the environment, and contribute to the characterization of the material (i.e., excavated soils) for waste handling, packaging, and disposition. Soil was to be sampled at depth intervals ranging from 0 to 1 ft and 2.5 to 3.5 ft bgs. Field measurements were collected using a photoionization detector (PID) to determine the presence of volatile organic compounds (VOCs) in the site soils. Radiological detection equipment was used to measure levels of radiation in site soils. Plate 2 shows overburden sampling locations, which were field-located using geodetic surveying.

Samples were to be collected only from sample locations where field-screening showed radiological contamination levels of twice the measured background. Samples collected and submitted for analysis are summarized in Table 3.3-2.

3.3.1.3 IWL Location and Investigation

Manual potholing to locate the IWLs began on August 5, 2019. Because elevated radiological levels were observed in the initial pothole, work was paused, reevaluated, and resumed on December 3, 2019. Radiological Controls conducted field screening of the IWLs and the surrounding soils using sodium iodide detectors. Because of the field-screening results, an NDA survey was conducted of the IWLs exposed by mechanical potholing. The field screening helped to identify the locations for the NDA survey points. The results of the NDA survey indicated that levels of radioactivity within the IWLs exceeded 100 nCi/g, the established minimum threshold for TRU isotopes. NDA measurements were collected at locations 1, 6, and 7 (Plate 2). Because of soil contamination, no NDA readings were collected at Location 11.

A second NDA survey was conducted to further characterize the contents of the IWLs at six specific locations. The second NDA survey was conducted from March 9 through 12, 2020. The potholes were at locations 2, 8, 3, 11, 34, and 48 (Plate 2). No IWLs were found at location 45 and no NDA survey was completed at that location.

A total of 10 potholes were advanced to locate the IWLs and allow NDA surveys. A summary of all utilities and IWLs exposed during potholing can be found in Table 3.3-3. IWL locations are illustrated on Plate 2. Photo logs for IWL potholing and NDA surveys are included in Appendix A.

3.3.1.4 Waste Generated from IWL Location and Investigation Activities

During the project's IWL locating and investigation activities, various types of waste were generated. Investigation-derived wastes (IDWs) included contaminated soils excavated during IWL location and investigation, various items found during potholing, and personal protective equipment (PPE) used during

these tasks. As indicated by field monitoring, clean soils were also generated during IWL location and investigation activities and were segregated from contaminated materials.

3.3.2 Building 21-257

Table 3.3-4 presents the major building 21-257 project activities.

3.3.2.1 Building 21-257 Pre-Characterization

All electrical disconnects, including zero-voltage verification of all conduits entering or exiting the facility, were inspected. All air gaps, including electrical, water, phone, and zero-voltage verifications, were documented before D&D activities began.

The asbestos inspector collected samples of materials suspected to be ACM, including insulation and vermiculite. Upon confirmation of asbestos content, the required notification with analysis was submitted to NMED on July 23, 2019, a minimum of 10 days before beginning demolition work in compliance with the National Emission Standards for Hazardous Air Pollutants (NESHAP).

The membrane installed over the building 21-257 roof was repaired to prevent water leaks so that activities to be conducted inside the building could be performed safely, as the majority of the interior of building 21-257 is categorized as a contamination area.

3.3.2.2 Building 21-257 Characterization and Nonprocess System Removal

The building 21-257 structure and contents were initially classified as low-level radioactive material. Sampling was required to confirm the initial classification and identify additional potential hazardous analytes. A comprehensive NDA survey of the building contents and systems was conducted, both to aid in making health and safety determinations and to identify potential high-contamination areas.

Walkdowns of building 21-257 were conducted to identify and verify the systems, manifolds, pipes, and painted materials for sampling and sample type determination (e.g., PCB, RCRA, RAD, asbestos) for characterization. During this time, smears and swipes were collected to verify radiological controls. The general approach used to remove components from building 21-257 was to begin at the south end and work north, sequencing removal activities from the cleanest to the most contaminated equipment and components.

The vast majority of removal, decontamination, and packaging of universal and regulated materials and removal of ACM occurred from August 20 to November 30, 2019. Universal waste items included fluorescent light tubes, incandescent bulbs, PCB ballasts, circuit boards, batteries, and exit signs. Periodically, as work progressed, additional universal material, regulated material, and ACM were removed and packaged outside of the dates listed above. Table 3.3-5 presents a complete list of types and quantities of universal waste, regulated materials, and ACM removed.

Removal of nonprocess systems and pipes began on September 3, 2019. These systems included air lines, fire water lines, electrical conduit, cooling water lines, cable trays, electrical cabinets, and cabling. As part of preparation for removal of the nonprocess systems and pipes, any liquids contained in these systems had to be drained. Multiple tanks contained liquid, as detailed in Table 3.3-6. Fluids were drained from some of the nonprocess systems and pipes into containers (e.g., 55-gal. drums). The nonprocess systems, pipes, and containerized fluid were staged for packaging, pending sample collection for characterization and disposal purposes. The volumes of fluids that were packaged can be found in Table 3.3-5. Appendix B includes a photo log of investigation, characterization, removal, and packaging activities at building 21-257.

To identify the presence of heavy metals (e.g., lead) in painted surfaces, x-ray fluorescence (XRF) analysis of metals was conducted from September 30 to October 1, 2019. The XRF analysis was used for prescreening painted surfaces for indications of heavy metal content and determining the type of metal present. Each location where XRF readings were collected was marked. Photo logs of the XRF shots are included in Appendix A.

Coupon samples were collected to characterize the material for disposal, with sampling starting on October 7, 2019. The coupon samples were shipped to an N3B-approved, DOE-accredited, off-site laboratory for toxicity characteristic leaching procedure (TCLP) metals analysis. One of the coupon samples (WST21-20-188178), collected from a green metal control panel door, exceeded the regulatory TCLP limit for lead with a result of 5.99 mg/L. The metal, which was identified as containing lead paint, was segregated and packaged in a 55-gal. drum as mixed waste and disposed of appropriately. Based on the remaining nonhazardous coupon sample results, the remaining accessible nonprocess system components were removed, size-reduced, and packaged as LLW. All removed nonprocess systems and pipes were packaged before demobilization on March 19, 2020.

Minimum-quantity aliquot samples were collected for radiological analysis. This radiological analysis was used to make sample-shipping determinations for full-suite samples (because of the larger quantity of sample media required for the full-suite samples). The full-suite sampling analysis would be used for waste characterization. Analytical results for one of the samples from the third group of samples (WST21-20-188241, collected from the batch waste tank) identified TRU isotopes at greater than the established minimum threshold for TRU materials of 100 nCi/g, which confirmed the presence of TRU isotopes inside of building 21-257.

3.4 Initial Characterization Results

Table 3.4-1 summarizes sampling performed for the IWLs and building 21-257.

3.4.1 Industrial Waste Lines

The initial sampling of IWLs and the overburden has been completed. The overburden was field screened for VOCs and radiological contamination. Ten samples were sent to a laboratory for further analysis. No significant levels of radiological or hazardous material contamination were identified. Table 3.3-2 identifies the results of the overburden sampling. The IWLs were investigated using NDA, which identified higher-than-planned levels of radiological contamination, including americium-241.

3.4.2 Building 21-257

The initial sampling of building 21-257 for waste characterization has been completed. No significant levels of RCRA hazardous material contamination were identified. Nine of the minimum-quantity aliquot sample locations were identified for further sample collection, as summarized in Table 3.4-2. Additional characterization has identified higher-than-planned levels of radiological contamination, including americium-241.

3.5 Regulatory Requirements

Upon discovery of elevated radiological conditions through NDA and analytical data from within building 21-257 and NDA data from the IWLs, N3B developed an integrated project team (IPT) to focus on the path forward for further sampling and D&D activities at TA-21, including reevaluating the hazard categorization of building 21-257 and the IWLs. The IPT reviewed the analytical data and identified the additional nuclear safety; criticality; safeguards and security; and nuclear material, control, and accountability requirements necessary to proceed with the work, based on the increased level of radioactive material. Title 10 Part 830 of the Code of Federal Regulations (CFR), "Nuclear Safety Management," requires that a hazard categorization be developed in accordance with DOE Standard 1027-92. The results of the hazard categorization, from highest to lowest category—HC-2, HC-3, or less than HC-3 nuclear facility—can invoke additional DOE orders and standards. Because of these conditions, work associated with the IWLs and building 21-257 was paused for further evaluation and could not be accomplished as planned. These results also impacted further investigation of the AOCs and SMWUs associated with the TA-21 D&D Cleanup Campaign.

3.5.1 Facility Hazard Categorization

Based on the recently collected sampling information, N3B has performed a second hazard categorization per DOE Standard 1027-92 and determined that building 21-257 and the IWLs should be considered HC-3 for the initial hazard category. Building 21-257 and the IWLs are being treated as separate facilities. The formal process to perform the hazard analysis and subsequent reviews and approvals is in progress. These evaluations are being performed using DOE Standard 1027-92 as required by 10 CFR 830. Hazard categorization involves categorizing the facility based solely on the amount of radioactive material present in the facility. The inventory is compared with a list of threshold quantities for each isotope in DOE Standard 1027-92 to determine the initial hazard categorization. The exceedance of threshold quantities of radionuclides required N3B to enter the process for a potential inadequacy of the safety analysis (PISA) per 10 CFR 830. N3B determined that a PISA exists and is developing the required safety analysis to obtain DOE approval for performance of additional characterization activities.

3.5.2 Nuclear Safety Implications

If the final hazard categorization of building 21-257 and the IWLs is determined to be an HC-2 or HC-3, there are more requirements to meet in order to protect the workers, the public, and the environment. HC-2 and HC-3 nuclear facilities are required to develop a documented safety analysis per DOE Standard 3009-2014, "Preparation of Nonreactor Nuclear Facility Documented Safety Analysis," or DOE Standard 1120-2005, "Integration of Environment, Safety, and Health into Facility Disposition Activities, Volume 1 of 2: Documented Safety Analysis for Decommissioning and Environmental Restoration Projects." These facilities are also required to develop and implement a set of controls defined in a technical safety requirements document per DOE Guide 423.1-1B, "Implementation Guide for Use in Developing Technical Safety Requirements." HC-2 facilities could also be required to implement DOE

Standard 3007-2017, “Preparing Criticality Safety Evaluations at Department of Energy Nonreactor Nuclear Facilities.”

4.0 SUMMARY OF PLANNED WORK FOR FY 2021

Once the safety basis documents are approved by DOE, radiological sampling will be performed on the IWLs and building 21-257 to more accurately define the radiological inventory of both facilities. This information will be reevaluated through a new hazard categorization that will determine a new initial HC based on the revised inventory data per DOE Standard 1027-92. A safety basis will be developed for expanded operations to perform the D&D and Consent Order investigations and remediation, based on the additional characterization information and subsequent analysis. The safety basis documentation is planned to be completed and approved in August 2021. Mobilization for radiological sampling activities should start in October 2021. Once the safety basis documentation is approved by DOE, the controls required to perform the D&D and Consent Order investigations and remediation will be implemented.

5.0 REFERENCES AND MAP DATA SOURCES

5.1 References

The following reference list includes documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ERID, ESHID, or EMID. This information is also included in text citations. ERIDs were assigned by the Laboratory’s Associate Directorate for Environmental Management (IDs through 599999); ESHIDs were assigned by the Laboratory’s Associate Directorate for Environment, Safety, and Health (IDs 600000 through 699999); and EMIDs are assigned by N3B (IDs 700000 and above). IDs are used to locate documents in N3B’s Records Management System and in the Master Reference Set. The NMED Hazardous Waste Bureau and N3B maintain copies of the Master Reference Set. The set ensures that NMED has the references to review documents. The set is updated when new references are cited in documents.

LANL (Los Alamos National Laboratory), June 1993. “Safety Analysis Report for the Waste Management Operations at TA-50 and the Radioactive Liquid Waste Treatment Facility at TA-21, Volume One, Information Common to All Facilities,” Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 1993, 701032)

LANL (Los Alamos National Laboratory), December 2009. “Investigation Work Plan for Delta Prime Site Aggregate Area Delayed Sites, Revision 1,” Los Alamos National Laboratory document LA-UR-09-8180, Los Alamos, New Mexico. (LANL 2009, 108166.9)

LANL (Los Alamos National Laboratory), October 2014. “DP Site Aggregate Area Building 21-257 Footprint Letter Work Plan,” Los Alamos National Laboratory document LA-UR-14-26889, Los Alamos, New Mexico. (LANL 2014, 261899)

LASL (Los Alamos Scientific Laboratory), May 14, 1985. “Acid Waste Utility Trench, Civil Plan and Profile, Bldgs. 2, 3, 4, 5, 150 and 257, TA-21,” Engineering Drawing ENG-C-39421, sheet number 1 of 1, Los Alamos, New Mexico. (LASL 1985, 701036)

LATA (Los Alamos Technical Associates, Inc.), May 2020. “Final Project Closeout Report, Technical Area-21 (TA-21), Delta Prime Site Aggregate Area, Delayed Sites Project,” Los Alamos, New Mexico. (LATA 2020, 701033)

N3B (Newport News Nuclear BWXT-Los Alamos, LLC), March 2019. "Facility Hazard Categorization for Building TA-21-257," Newport News Nuclear BWXT-Los Alamos, LLC, document N3B-FHC-001, Los Alamos, New Mexico. (N3B 2019, 701034)

N3B (Newport News Nuclear BWXT-Los Alamos, LLC), November 12, 2019. "Field Implementation Plan for Characterization of Overburden Material at Technical Area-21, Revision 2," Newport News Nuclear BWXT-Los Alamos, LLC, document, Los Alamos, New Mexico. (N3B 2019, 701035)

N3B (Newport News Nuclear BWXT-Los Alamos, LLC), September 2019. "Technical Area 21 Delta Prime West Investigations Letter Report," Newport News Nuclear BWXT-Los Alamos, LLC, document EM2019-0321, Los Alamos, New Mexico. (N3B 2019, 700591)

N3B (Newport News Nuclear BWXT-Los Alamos, LLC), October 2019. "Phase II Investigation Work Plan for Delta Prime Site Aggregate Area Sites at Delta Prime East and Delta Prime West," Newport News Nuclear BWXT-Los Alamos, LLC, document EM2019-0283, Los Alamos, New Mexico. (N3B 2019, 700644)

NMED (New Mexico Environment Department), April 13, 2005. "Approval with Modifications for the Investigation Work Plan for Delta Prime Site Aggregate Area at Technical Area 21," New Mexico Environment Department letter to D. Gregory (DOE LASO) and G.P. Nanos (LANL Director) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2005, 089314)

Note: The IWLs are shown as dashed lines.

Figure 2.0-1 Aerial view of the DP Site Aggregate Area and IWLs

Table 3.3-1
IWL Activities

Activity	Date	Description
Potholing plan	7/23/2019	Initial potholing plan and utility locate
Pause work for potholing	8/7/2019	Pause work on IWL and intrusive activities because of contamination identified in the overburden
FIP approval	9/30/2019	The FIP was approved.
Start FIP overburden sampling	11/4/2019	Began collection of FIP samples
FIP Revision 1 approval	11/12/2019	Revision 1 of the FIP was approved.
Completion of corrective actions to restart after potholing pause	11/14/2019	All corrective actions to restart potholing were complete and approved.
Start manual potholing of IWLs	12/3/2019	Began manual potholing after the pause-work measure was lifted
Completion of FIP overburden sampling	1/15/2020	Completed collection of overburden samples
Initial NDA of IWLs	1/29/2020–1/30/2020	Conducted an initial NDA survey of three IWL locations
Report for initial NDA of IWLs	2/5/2020	Initial NDA report received
Expansion of potholes to accommodate NDA	2/10/2020–3/10/2020	Potholes were expanded to allow for safe access to enter and place instrumentation and isolate individual IWLs for NDA measurements.
Supplemental NDA	3/9/2020–3/12/2020	Conducted a supplemental NDA to gather additional and more isolated measurements of individual IWLs
Completion of manual and mechanical IWL potholing	3/10/2020	Potholing completed
Supplemental NDA report	3/17/2020	Received supplemental NDA report
Backfill	3/17/2020–3/18/2020	Backfilled and compacted the pothole locations
Site restoration	3/18/2020	Graded and restored the site and placed best management practices

Table 3.3-2
IWL Overburden Samples

FIP Location	Sample ID	Date Collected	Field Measurements (above background)*
2a	WST21-20-188878	11/13/2019	PID: 5 ppm Alpha: 0 cpm Beta: 0 cpm
2a (additional)	WST21-20-191085	11/13/2019	PID: 5 ppm Alpha: 0 cpm Beta: 0 cpm
7b	WST21-20-188889	12/12/2019	PID: 0 ppm Alpha: 1800 cpm Beta: 4800 cpm
25a	WST21-20-188976	1/14/2020	PID: 0 ppm Alpha: 0 cpm Beta: 0 cpm
25b	WST21-20-188977	1/14/2020	PID: 1 ppm Alpha: 0 cpm Beta: 0 cpm
26a	WST21-20-188978	1/14/2020	PID: 0 ppm Alpha: 0 cpm Beta: 0 cpm
26b	WST21-20-1888979	1/14/2020	PID: 0 ppm Alpha: 0 cpm Beta: 0 cpm
37a	WST21-20-188944	1/14/2020	PID: 0 ppm Alpha: 0 cpm Beta: 0 cpm
37b	WST21-20-1888945	1/4/2020	PID: 0 ppm Alpha: 0 cpm Beta: 0 cpm
39a	WST21-20-188948	1/13/2020	PID: 2 ppm Alpha: 0 cpm Beta: 0 cpm

*PID field measurements are reported in parts per million (ppm) and radiological levels are reported in counts per minute (cpm).

Table 3.3-3
IWL Summary

Location ID[a]	Size (in.)	Material	Origin	Approximate Depth (ft bgs)	Comment
1	1.5	Stainless steel	Building 21-02	3.5	NA[b]
	1.5	Unknown	Unknown	2.5	Suspected secondary electrical conduit
	4	Cast iron	Building 21-02	4.55	North/south section of common 4-in. IWL. Appeared plugged with cement.
2	1.5	Stainless steel	Building 21-02	5.1	NA
	1.5	Stainless steel	Building 21-03	5.7	North/south section of IWL runs under 1.5-in. IWL from building 21-02 and elbows to the east.
3	1.5	Stainless steel	Building 21-02	5.65	NA
	1.5	Stainless steel	Building 21-03	5.65	NA
	2	Stainless steel	Unknown	3.5	Coated/painted blue, suspected steam line
	4	Cast iron	Building 21-04	7.0	North/south common 4-in. IWL from building 21-04 makes “T” with common 4-in. IWL.
6	1.5	Stainless steel	Building 21-02	3.6	NA
	1.5	Stainless steel	Building 21-03	3.6	NA
	1.5	Stainless steel	Building 21-05	3.6	NA
	1.5	Stainless steel	Unknown	3.8	Coated in yellow PVC[c]
	4	Cast iron	Unknown	3.9	Common 4-in. IWL, north of three 1.5-in. IWLs
	4	Transite	Unknown	3.4	Electrical conduit was found inside of 4-in. transite.
	4	Transite	Unknown	3.4	Electrical conduit was found inside of 4-in. transite.
7	4	Cast iron	Unknown	3.1	Common 4-in. IWL, north of three 1.5-in. IWLs
	1.5	Stainless steel	Building 21-02	2.7	NA
	1.5	Stainless steel	Building 21-03	2.7	NA
	1.5	Stainless steel	Building 21-05	2.7	NA
	1.5	Stainless steel	Unknown	2.7	Coated in yellow PVC
8	6	Cast iron	Unknown	8.25	NA
	24	Concrete	Unknown	3.5	Storm drain
11	1.5	Stainless steel	Building 21-05	5.4	NA
34	4	Cast iron	Building 21-05	7.4	NA

Table 3.3-3 (continued)

Location ID[a]	Size (in.)	Material	Origin	Approximate Depth (ft bgs)	Comment
45	n/a[d]	n/a	n/a	n/a	No lines found at this location
48	4	Cast iron	Unknown	5.9	NA
	1.5	Stainless steel	Building 21-02	6.1	NA
	1.5	Stainless steel	Building 21-03	6.1	NA
	1.5	Stainless steel	Building 21-05	6.1	NA
	1.5	Stainless steel	Unknown	6.1	Coated in yellow PVC

[a] Location IDs are included on Plate 2.

[b] NA = Not analyzed.

[c] PVC = Polyvinyl chloride.

[d] n/a = Not applicable.

Table 3.3-4
Building 21-257 Activities

Activity	Date	Description
Cold-and-dark verification	7/15/2019	Cold-and-dark verification completed.
Asbestos sampling	7/15/2019	Began exploratory asbestos sampling.
NDA survey	7/22/2019–8/5/2019	Conducted NDA surveys of the building contents and systems.
NESHAP notification	7/23/2019	Submitted notification.
NDA report	9/9/2019	Submitted report.
Roof repair	8/13/2019	Building 21-257 initial roof repair completed.
Universal waste removal, decontamination, and packaging	8/20/2019	Began removing, decontaminating, and packaging universal waste.
ACM and regulated materials removal and packaging	8/21/2019	Began removing and packaging ACM.
Nonprocess system removal	9/3/2019	Began nonprocess system removal.
XRF data collection	9/30/2019–10/1/2019	Conducted XRF analysis.
Characterization sampling	10/7/2019	Began collecting coupon samples.
Minimum-quantity (aliquot) sampling	1/15/2020–3/5/2020	Conducted minimum-quantity (aliquot) sampling.
RCRA and PCB sampling	3/9/2020–3/20/2020	Conducted RCRA and PCB sampling of specific minimum-quantity (aliquot) sampling.
Waste packaging	3/16/2020	Completed waste packaging and removed waste from building.

Table 3.3-5
Waste Packaging Log

List No.	ID No.	Packaging Start Date	Container Tare Weight	Container Type	Waste Description	Approx. Volume/ Net Weight[a]	Waste Type	Packaging Complete/ Generation Date
1	n/a[b]	8/1/2019	48 lb	55-gal. drum	Empty aerosol cans – building 21-257	55 gal.	Universal	3/19/2020
2	n/a	8/5/2019	48 lb	55-gal.drum (DM)	Overburden from IWL (during utility locate)	55 gal.	LLW	8/5/2019
3	n/a	8/5/2019	25 lb	35-gal.drum (DM)	Overburden from IWL (during utility locate)	35 gal.	LLW	8/5/2019
4	n/a	8/6/2019	22 lb	55-gal.poly drum	Water pumped from the pothole – IWL	55 gal.	LLW	8/8/2019
5	CTI1294	8/7/2019	Unknown	20-yd^3 rolloff	IDW debris	18 yd^3	LLW	3/5/2020
6	n/a	8/20/2019	48 lb	55- gal. drum (DM)	Water from nonprocess piping, valves, and floor	40 gal.	LLW	3/19/2020
7	n/a	8/21/2019	10 lb	Light tube (DF)	Fluorescent lights (contains Hg) – building 21-257	70 tubes	Universal	8/26/2019
8	n/a	8/21/2019	48 lb	55-gal.drum (DM)	Waste oil from the two compressors – building 21-257	3 gal.	Universal	3/19/2020
9	n/a	8/21/2019	12 lb	30-gal. poly drum	PCB ballasts – building 21-257	30 gal.	Universal	3/19/2020
10	n/a	8/21/2019	2 lb	5-gal.bucket	Batteries – building 21-257	5 gal.	Universal	3/19/2020
11	n/a	8/26/2019	10 lb	Light tube (DF)	Fluorescent lights (contains Hg) – building 21-257	35 tubes	Universal	3/19/2020
12	n/a	8/26/2019	2 lb	5-gal.bucket	Incandescent bulbs – building 21-257	5 gal.	Universal	3/19/2020
13	R237 68pl	8/27/2019	Unknown	20-yd^3 rolloff	PPE and IDW	15 yd^3	LLW	3/19/2020
14	n/a	8/28/2019	48 lb	55-gal.drum (DM)	5 bags of ACM (double bagged)	50-gal. (90% full)	ACM	3/3/2020
15	6293	9/3/2019	4120 lb	20-yd^3 rolloff	Unpainted metal piping and items from non-contaminated water lines – building 21-257	20 yd^3	LLW	3/19/2020
16	63	10/31/2019	485 lb	B-12 (1.6 yd^3)	Soils > twice rad background – IWL	1 yd^3	LLW	3/16/2020
17	60	12/5/2019	485 lb	B-12 (1.6 yd^3)	Soils < twice rad background soils – IWL	1.6 yd^3	Soil	12/9/2019

Table 3.3-5 (continued)

#	ID No.	Packaging Start Date	Container Tare Weight	Container Type	Waste Description	Approx. Volume/ Net Weight[a]	Waste Type	Packaging Complete/ Generation Date
18	68	12/9/2019	485 lb	B-12 (1.6 yd^3)	Soils < twice rad background soils – IWL	1.6 yd^3	Soil	1/14/2020
19	SRUU-002126	3/3/2020	7900 lb	Intermodal	Nonprocess piping/components – building 21-257	20 yd^3/ 4040 lb	LLW	3/9/2020
20	n/a	3/3/2020	12 lb	30-gal. poly	ACM (double bagged)	22 gal. (75% full)	ACM	3/3/2020
21	n/a	3/9/2020	48 lb	55-gal. drum	4 green panel doors (18 in × 12 in.) and 12 painted metal coupon samples – building 21-257	55 gal.	MLLW	3/16/2020
22	n/a	3/9/2020	2 lb	5-gal. bucket	15 small mercury indicator light bulbs – building 21-257	5 gal.	Universal	3/16/2020
23	76	3/10/2020	485 lb	B-12 (1.6 yd^3)	Non-process piping/components – building 21-257	0.8 yd^3	LLW	3/16/2020
24	n/a	3/11/2020	2 lb	5-gal.bucket	3 tritium exit signs – building 21-257	5 gal.	LLW	3/16/2020

[a] Net waste weight is provided where available. Post-staging consolidation of waste (e.g., waste stored in drums and B-12 containers was later consolidated into rolloff bins or intermodal disposal containers), containers with remaining volume for additional waste, and the accelerated project-demobilization schedule precluded recording of most final container weights/waste net weights.

[b] n/a = Not applicable.

Table 3.3-6
Estimated Tank Volumes

Description	Alternate Description/Notes	Estimated Quantity* (gal.)	Capacity (gal.)
Sodium hydroxide storage tank	21-288 (empty – visually observed)	0	1000
Effluent tank 1	21-112 (empty – visually observed)	0	12,730
Effluent tank 2	21-113 (empty – assumed based on 21-112)	0	12,730

* Estimated quantities (tank/containment-vessel volumes) were calculated using field measurements and/or visual observation of tank contents, as well as known capacities (LASL 1985, 701036). Daily field reports and project-specific notes generated by Los Alamos Technical Associates and its subcontractor S.E.T. (LATA 2020, 701033) provide available information and rationale used to calculate estimated tank/containment-vessel volumes provided in this table.

Table 3.4-1
Summary of Sampling

Location	Number of Samples	Sample Type	Type of Analysis
Potholes of IWLs	5	Overburden	Radiological, PCBs, RCRA
Building 21-257	11	ACM	Asbestos
Potholes of IWLs	1	ACM (cementitious pipe)	Asbestos
Building 21-257	11	Coupon	Metals and PCBs
Building 21-257	19	Minimum quantity	Radiological
Building 21-257	9	Additional sampling from minimum-quantity sampling locations	RCRA* and PCBs

*The additional nine samples were also analyzed for semivolatile organic compounds, VOCs, pH, and target analyte list metals.

Table 3.4-2
RCRA and PCB Sample Log

Sample ID	Aliquot ID/ Location	Description	Media Type	PCB	SVOC[a]	VOCs	pH	TAL[b] Metals	Date
WST21-20-257-196458	WST21-20-188230	55-gal. white barrel	Liquid	X[c]	X	X	X	X	3/10/2020
WST21-20-257-196459	WST21-20-188237	Sludge storage tank – top	Liquid	X	X	X	X	X	3/10/2020
WST21-20-257-196460	WST21-20-188238	Sludge storage tank – bottom	Liquid	X	X	X	X	X	3/10/2020
WST21-20-257-196461	WST21-20-188239	Filter sump	Liquid	X	X	X	X	X	3/10/2020
WST21-20-257-196462	WST21-20-188232	#5 drain valve	Liquid	X	X	X	X	X	3/11/2020
WST21-20-257-196485	WST21-20-188236	Flocculator	Solid	X	X	X	X	X	3/20/2020
WST21-20-257-196486	WST21-20-188242	Flash mixer	Solid	X	X	X	X	X	3/20/2020
WST21-20-257-196463	WST21-20-188233	#6 Drain valve	Liquid	X	X	X	X	X	3/20/2020
WST21-20-257-196487	WST21-20-188235	Flocculator settling tank	Solid	X	X	X	X	X	3/20/2020

[a] SVOC = Semivolatile organic compound.

[b] TAL = Target analyte list.

[c] X = Sampled.

Appendix A

Photo Logs

Photolog: Overburden Sampling

Fall 2019/Winter 2020

Overburden Sampling

- Date: August 5, 2019
- Direction: Southwest
- Description: RCT performing field scan of overburden soil at OB1

- Date: August 5, 2019
- Direction: n/a
- Description: OB1 backfilled and staked

Overburden Sampling

- Date: November 15, 2019
- Direction: n/a
- Description: OB11 backfilled and staked

- Date: November 15, 2019
- Direction: West
- Description: OB 11-1 backfilled and staked. Utility markings for water line to the north.

Overburden Sampling

- Date: December 19, 2019
- Direction: Northwest
- Description: Using hand auger to sample OB21

- Date: January, 14 2020
- Direction: North
- Description: Preparing full-suite samples at OB25

Overburden Sampling

- Date: January 14, 2020
- Direction: North
- Description: Preparing full-suite samples at OB26

- Date: January 8, 2020
- Direction: n/a
- Description: OB27 backfilled and staked

Overburden Sampling

- Date: November 5, 2019
- Direction: West
- Description: Field crew overburden sampling at location OB36

- Date: November 4, 2019
- Direction: West
- Description: Overburden sampling at location OB37

Overburden Sampling

- Date: Unknown
- Direction: n/a
- Description: NaI probe used to collect field measurements

- Date: Unknown
- Direction: South
- Description: Field crew decontaminating hand auger between sample intervals

Photolog: Manual and Mechanical Potholing

Spring 2020

Manual and Mechanical Potholing

- Date: August 5, 2019
- Direction: North
- Description: Potholing performed on August 05, 2019

- Date: August 7, 2019
- Direction: East
- Description: Rain event involving pothole from August 05, 2019

Manual and Mechanical Potholing

- Date: January 30, 2020
- Direction: Top of image is North
- Description: Location 1, 4CI and (1) 1.5SS

- Date: January 30, 2020
- Direction: Northwest
- Description: Location 1, 4CI plugged and abandoned at flanage.

Manual and Mechanical Potholing

- Date: January 30, 2020
- Direction: Northwest
- Description: Location 1, 1.5SS Unknown removed by excavator

- Date: February 12, 2020
- Direction: Top of image is North
- Description: Location 2, (2) 1.5SS, elbow of 1.5SS from Building 3

Manual and Mechanical Potholing

- Date: February 12, 2020
- Direction: Northwest
- Description: Location 2, Close-up view

- Date: February 12, 2020
- Direction: West
- Description: Location 2, 1.5SS from Building 3 is cracked at elbow weld.

Manual and Mechanical Potholing

- Date: January 22, 2020
- Direction: Top of image is West
- Description: Location 6, 4CI, (3) 1.5SS

- Date: January 22, 2020
- Direction: Northwest
- Description: Scanning excavated soil for Radiological levels and VOCs at Location 6

Manual and Mechanical Potholing

- Date: January 30, 2020
- Direction: Southeast
- Description: Location 6, 4CI, (3) 1.5SS, 1.5SS Unknown yellow, (2) 4transite

- Date: January 24, 2020
- Direction: North
- Description: Location 7, 4CI, (3) 1.5SS, 1.5SS Unknown yellow

Manual and Mechanical Potholing

- Date: February 24, 2020
- Direction: Southeast
- Description: Location 8, 6CI

- Date: February 24, 2020
- Direction: Top of image is South
- Description: Location 8, Storm Drain

Manual and Mechanical Potholing

- Date: February 26, 2020
- Direction: Northeast
- Description: Location 10, (2) 1.5SS, 4CI from Building 4

- Date: February 26. 2020
- Direction: Top of image is West
- Description: Location 10, 4CI from Building 4 with "T" into common line

Manual and Mechanical Potholing

- Date: February 26,2020
- Direction: South
- Description: Location 10, Unknown 2SS

- Date: February 26, 2020
- Direction: Top view
- Description: Location 10, close-up view of Unknown 2SS

Manual and Mechanical Potholing

- Date: March 5, 2020
- Direction: top of image is Northwest
- Description: Location 11, 1.5SS from Building 5

- Date: March 5, 2020
- Direction: West
- Description: Location 34, 4CI from Building 5

Manual and Mechanical Potholing

- Date: March 9, 2020
- Direction: Southeast
- Description: Location 45, no utility found

- Date: March 11, 2020
- Direction: n/a
- Description: Location 48, Standpipe removed during mechanical potholing

Manual and Mechanical Potholing

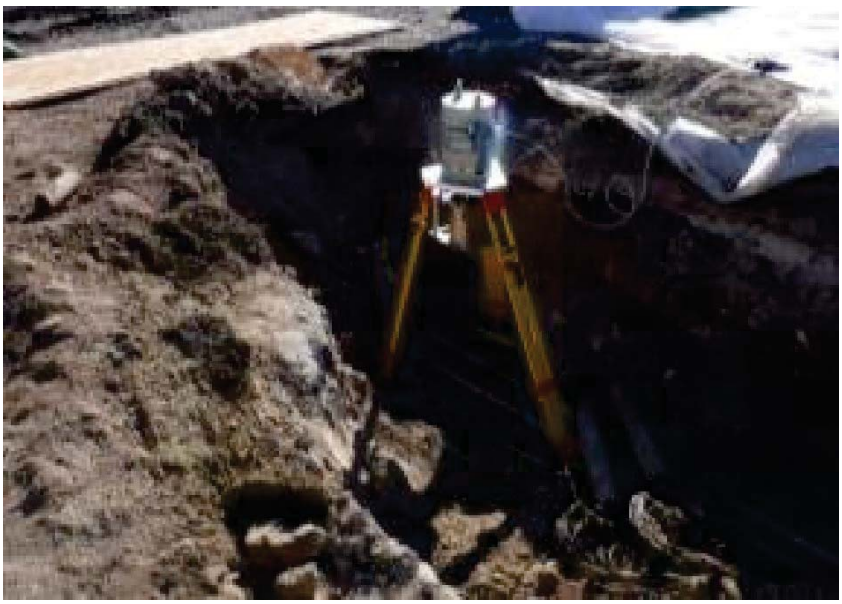
- Date: March 11, 2020
- Direction: Top view
- Description: Location 48, debris found during mechanical potholing

- Date:
- Direction:
- Description:

Photolog: NDA of IWLs at TA-21

January /March 2020

1st NDA of IWLs: 1/29/2020 - 1/30/2020



- Date: 1/29/20
- Direction: East
- Description: Location 6

- Date: 1/30/20
- Direction: East
- Description: Location 7

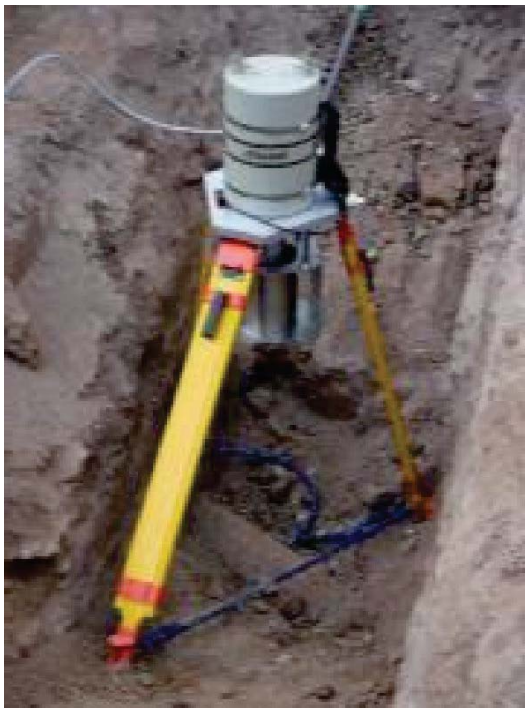
2nd NDA of IWLs: 3/10/20 - 3/12/20

- Date: 3/12/20
- Direction: East
- Description: Background of instrument being measured

- Date: 3/10/20
- Direction: East
- Description: Location 10, (2) 1.5SS from Building 2 and 3

2nd NDA of IWLs: 3/10/20 - 3/12/20

- Date: 3/10/20
- Direction: Northeast
- Description: Location 10, 4Cl "T" from Building 4



- Date: 3/10/20
- Direction: Southwest
- Description: Location 34, 4Cl from Building 5

2nd NDA of IWLs: 3/10/20 - 3/12/20

- Date: 3/10/20
- Direction: North
- Description: Location 11, 1.5SS from Building 5

- Date: 3/10/20
- Direction: East
- Description: Location 6, (3) 1.5SS from Buildings 2,3, and 5 at bend

2nd NDA of IWLs: 3/10/20 - 3/12/20

- Date: 3/11/20
- Direction: Southwest
- Description: Location 48, 4CI

- Date: 3/11/20
- Direction: Southwest
- Description: Location 48, 1.5SS from Building 3

2nd NDA of IWLs: 3/10/20 - 3/12/20

- Date: 3/11/20
- Direction: Southwest
- Description: Location 48, 1.5SS from Building 2

- Date: 3/11/20
- Direction: Southwest
- Description: Location 48, 1.5SS Unk Yellow

2nd NDA of IWLs: 3/10/20 - 3/12/20

- Date: 3/12/20
- Direction: East
- Description: Location 2, 1.5SS from Building 3, elbow

- Date: 3/12/20
- Direction: East
- Description: Location 2, 1.5SS from Building 2

2nd NDA of IWLs: 3/10/2020 - 3/12/2020

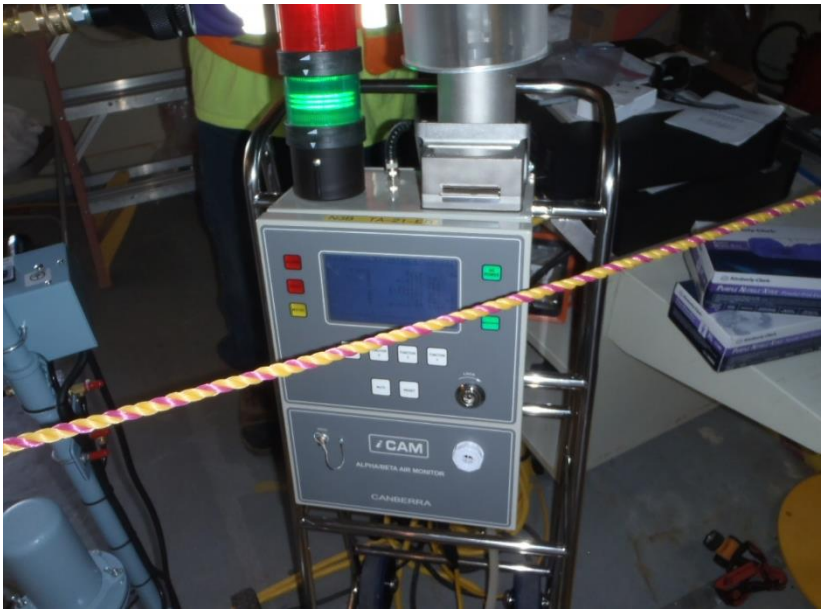
- Date: 3/12/20
- Direction: Southeast
- Description: Location 8, 4CI

Photolog: Building 21-257 Investigation, Characterization, Removal and Packaging Activities

July 2019 – March 2020

Use of HEPA Air Movers and iCAM to Monitor and Control Potential Airborne Rad

- Air mover set up at the north end of Building 21-257



- iCAM set up to monitor for airborne Alpha-Beta contamination

Rad II Workers Inside Building 21-257 Contamination Area

- Rad II workers inside of building 21-257 CA, photo shows the controlled area and contamination area boundaries

- RCTs scanning workers for contamination prior to doffing PPE and exit from the contamination area

Universal Waste Staged for Packaging

- Removal of universal waste, fluorescent light fixtures, bulbs and ballasts

- Removal of universal waste, circuit boards

Universal Waste Free Release

- Cleaning fluorescent light tubes in preparation for free release as universal waste

- RCTs swiping and surveying fluorescent light tubes and PCB ballasts for free release as universal waste

Locations for XRF Measurements and Painted Metal Coupon Samples

- Red paint located on a handrail at XRF location #16, and coupon sample ID WST21-20-188178.

- Dark green paint on a Honeywell south metal graph door cover XRF location #19 and coupon sample ID WST21-20-188178. This location failed for TCLP lead in the dark green paint. Packaged as mixed waste.

N3B RCTs Conducting Radiological Screening

- N3B RCT support personnel screening interior surfaces for radiological contamination

- N3B RCT support personnel screening interior surfaces for radiological contamination

Characterization of solids in Tanks

- Flocculator, minimum aliquot location sample ID WST21-20-188236

- Settling tank, minimum aliquot location sample ID WST21-20-188235

Characterization of Liquids in Tanks and Non-process Piping

- Valve prepared for collection of minimum aliquot liquid sample

- Valve prepared for collection of minimum aliquot liquid sample

Influent Tanks 21-110 and 21-111

- Tops of tanks 21-110 and 21-111, building 21-257 roof in background

- Interior of water level inside tank 21-110, water level ≅ 4 ft, water level in both tanks was the same. Volume ≅ 3,400 G in each tank

Packaging of LLRW

- Packaging of LLRW from Building 21-257 into the intermodal container

- Packaging of LLRW from Building 21-257 into the intermodal container

Temporary Roof Repair

- Conducting temporary roof repairs on building 21-257

- Conducting temporary roof repairs on building 21-257

- Oil from air compressors staged for final packaging for recycling

- Two air compressors disconnected and ready for pickup by N3B for re-use

ACM Removal

- Workers dressed out in Stage 3 PPE for ACM removal

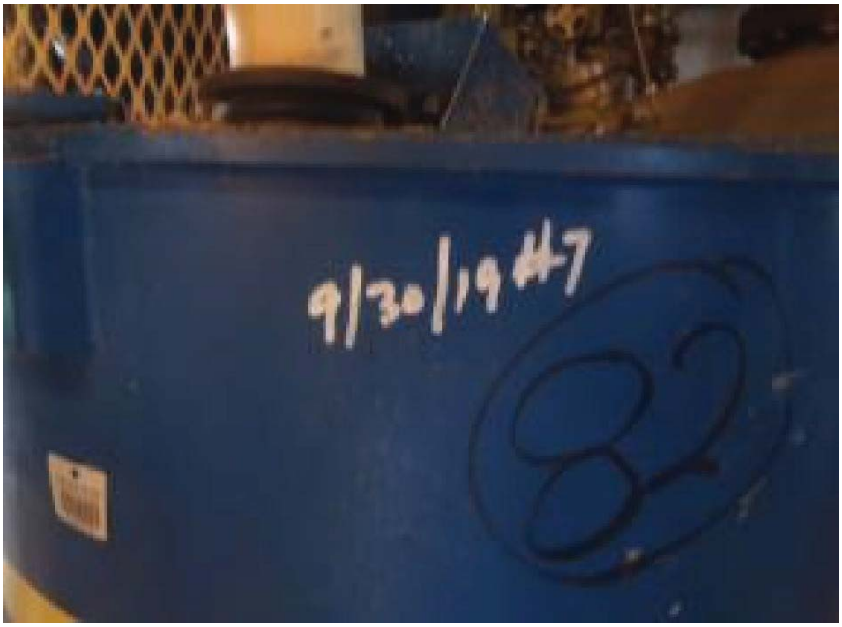
- Workers dressed out in Stage 3 PPE for ACM removal

Photolog of Building-257 XRF Shots

September 30, 2019 – October 1, 2019

XRF Shots: September 30, 2019

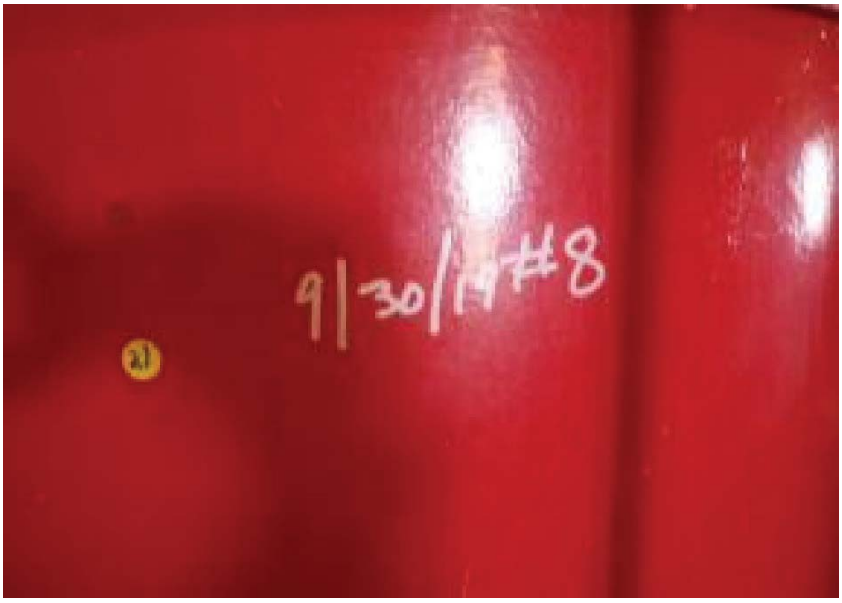
- Date: 9/30/19
- Description: #5



- Date: 9/30/19
- Description: #7

N3B Los Alamos

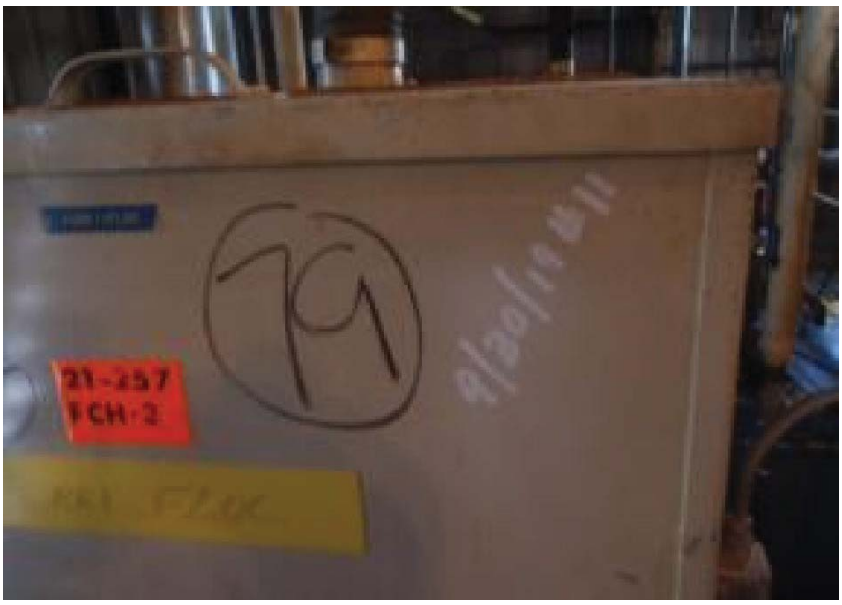
XRF Shots: September 30, 2019



- Date: 9/30/19
- Description: #8

- Date: 9/30/19
- Description: #10

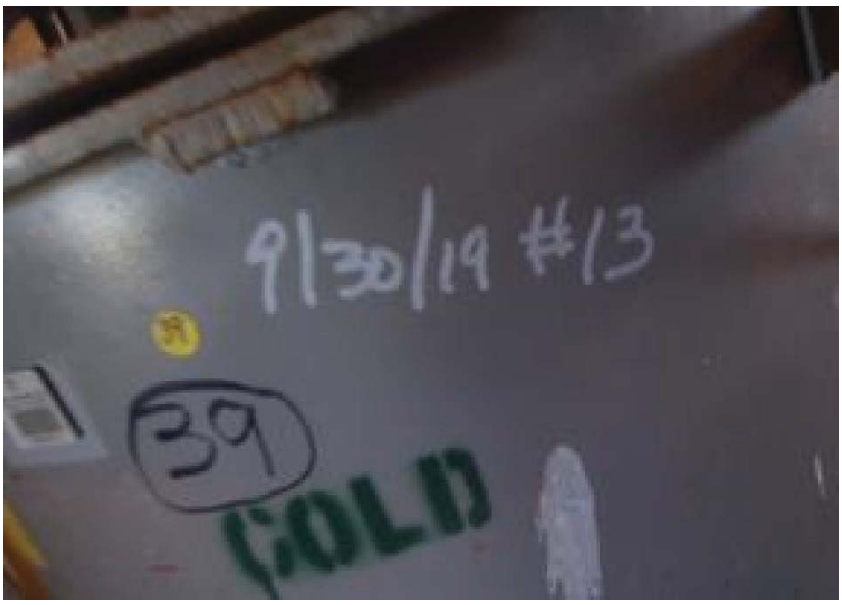
XRF Shots: September 30, 2019



- Date: 9/30/19
- Description: #11

- Date: 9/30/19
- Description: #12

XRF Shots: September 30, 2019



- Date: 9/30/19
- Description: #13

- Date: 9/30/19
- Description: #15

N3B Los Alamos

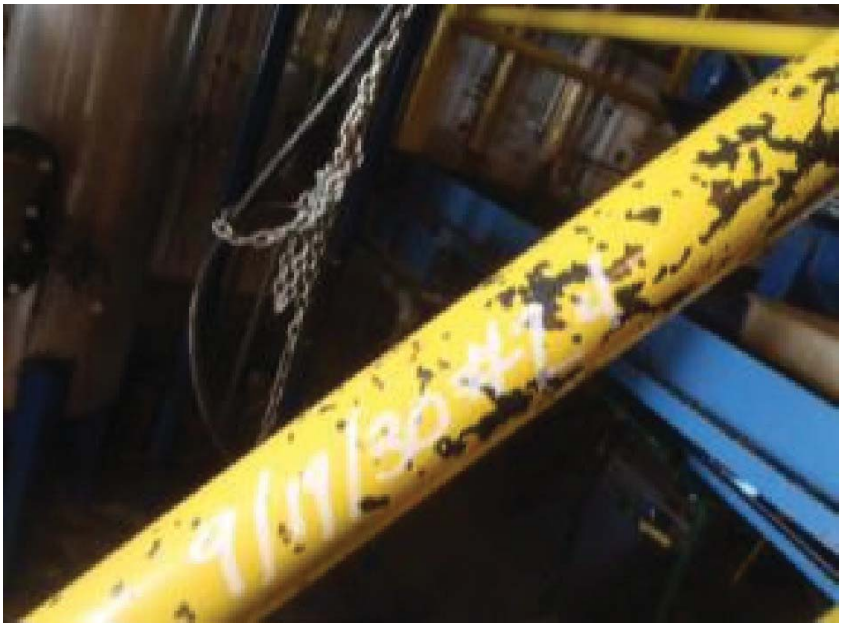
XRF Shots: September 30, 2019

- Date: 9/30/19
- Description: #17

- Date: 9/30/19
- Description: #18

XRF Shots: September 30, 2019

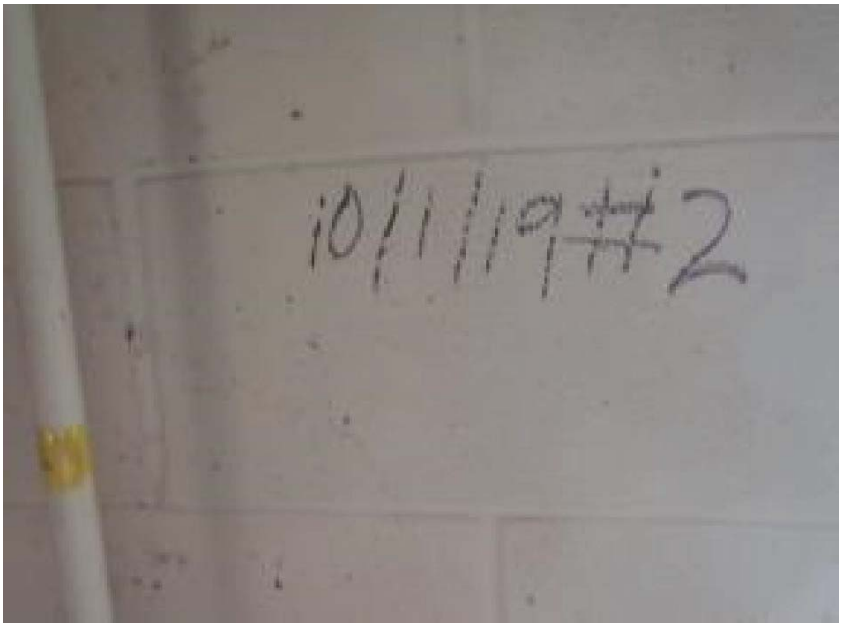
- Date: 9/30/19
- Description: #19



- Date: 9/30/19
- Description: #24

XRF Shots: September 30 – October 1, 2019

- Date: 9/30/19
- Description: #25



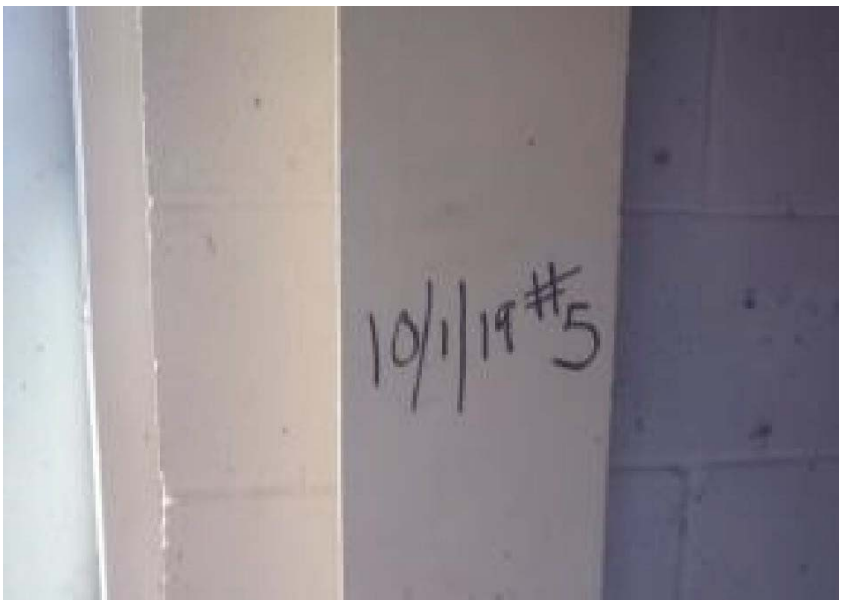
- Date: 10/1/19
- Description: #2

XRF Shots: October 1, 2019

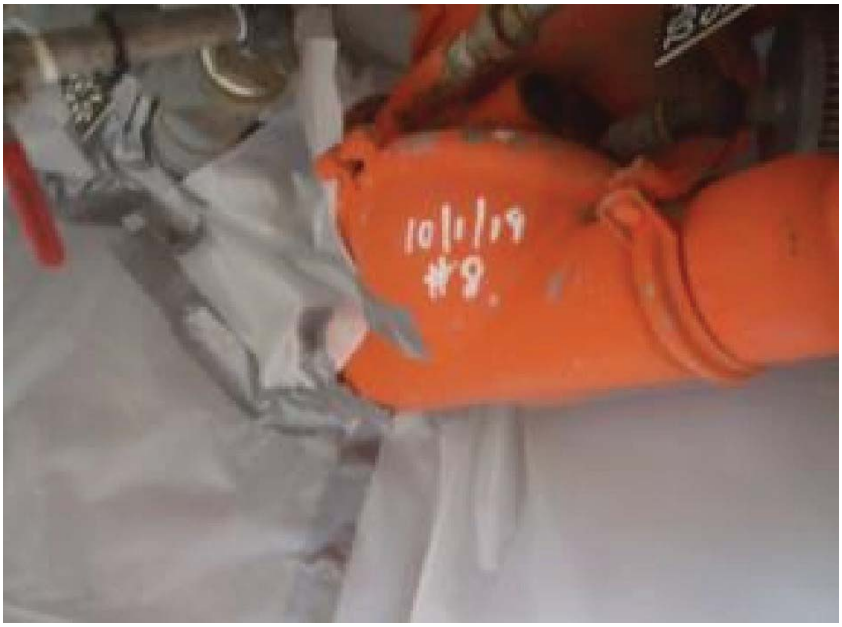
- Date: 10/1/19
- Description: #3

- Date: 10/1/19
- Description: #4

XRF Shots: October 1, 2019



- Date: 10/1/19
- Description: #5



- Date: 10/1/19
- Description: #8

XRF Shots: October 1, 2019

- Date: 10/1/19
- Description: #16

- Date: 10/1/19
- Description: #17

XRF Shots: October 1, 2019

- Date: 10/1/19
- Description: #18

- Date: 10/1/19
- Description: #19

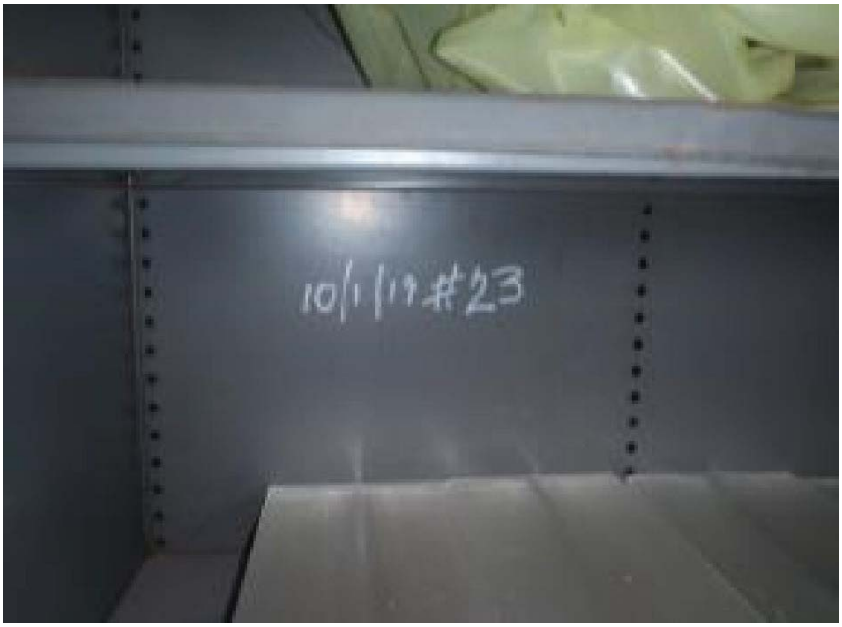
XRF Shots: October 1, 2019

- Date: 10/1/19
- Description: #20

- Date: 10/1/19
- Description: #21

XRF Shots: October 1, 2019

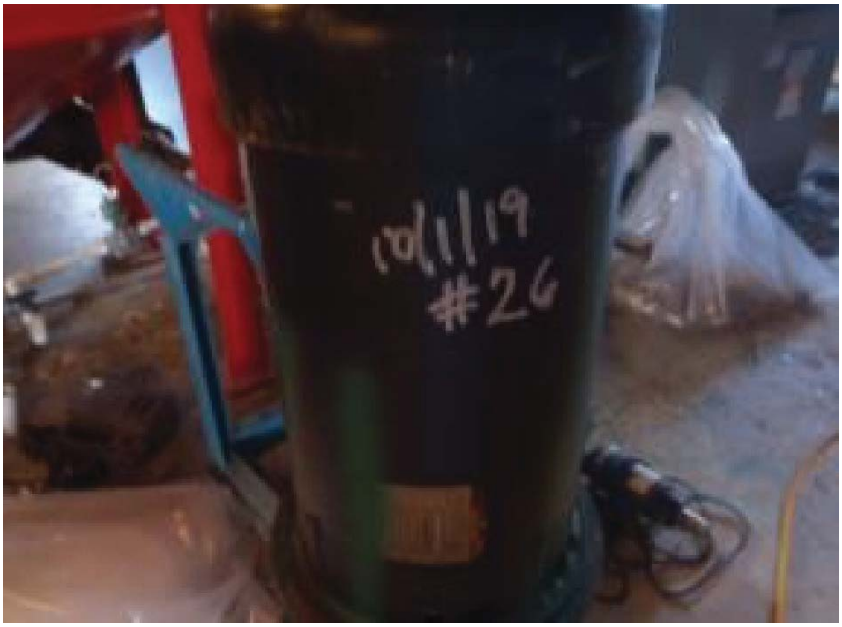
- Date: 10/1/19
- Description: #22



- Date: 10/1/19
- Description: #23

XRF Shots: October 1, 2019

- Date: 10/1/19
- Description: #25



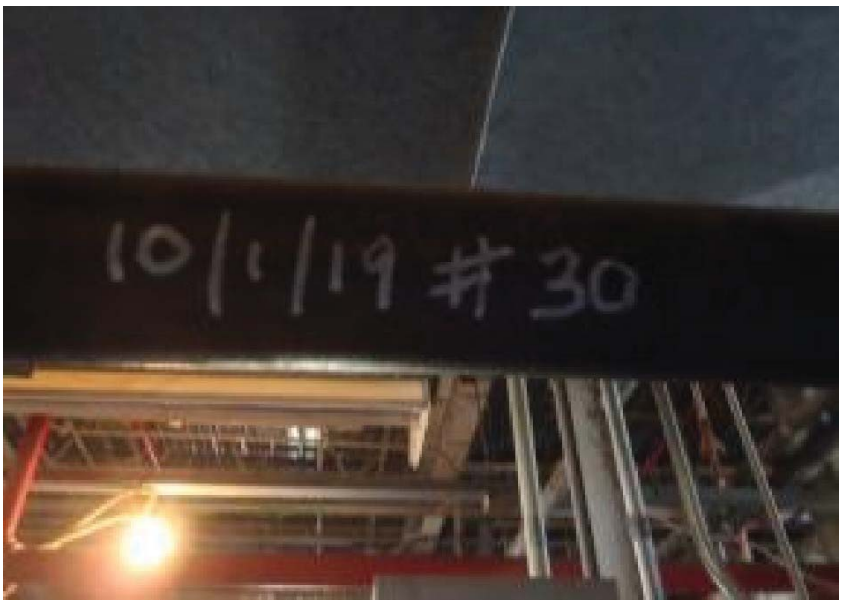
- Date: 10/1/19
- Description: #26

XRF Shots: October 1, 2019

- Date: 10/1/19
- Description: #27

- Date: 10/1/19
- Description: #29

XRF Shots: October 1, 2019



- Date: 10/1/19
- Description: #30

- Date: 10/1/19
- Description: #31

XRF Shots: October 1, 2019

- Date: 10/1/19
- Description: #33

- Date: 10/1/19
- Description: #34

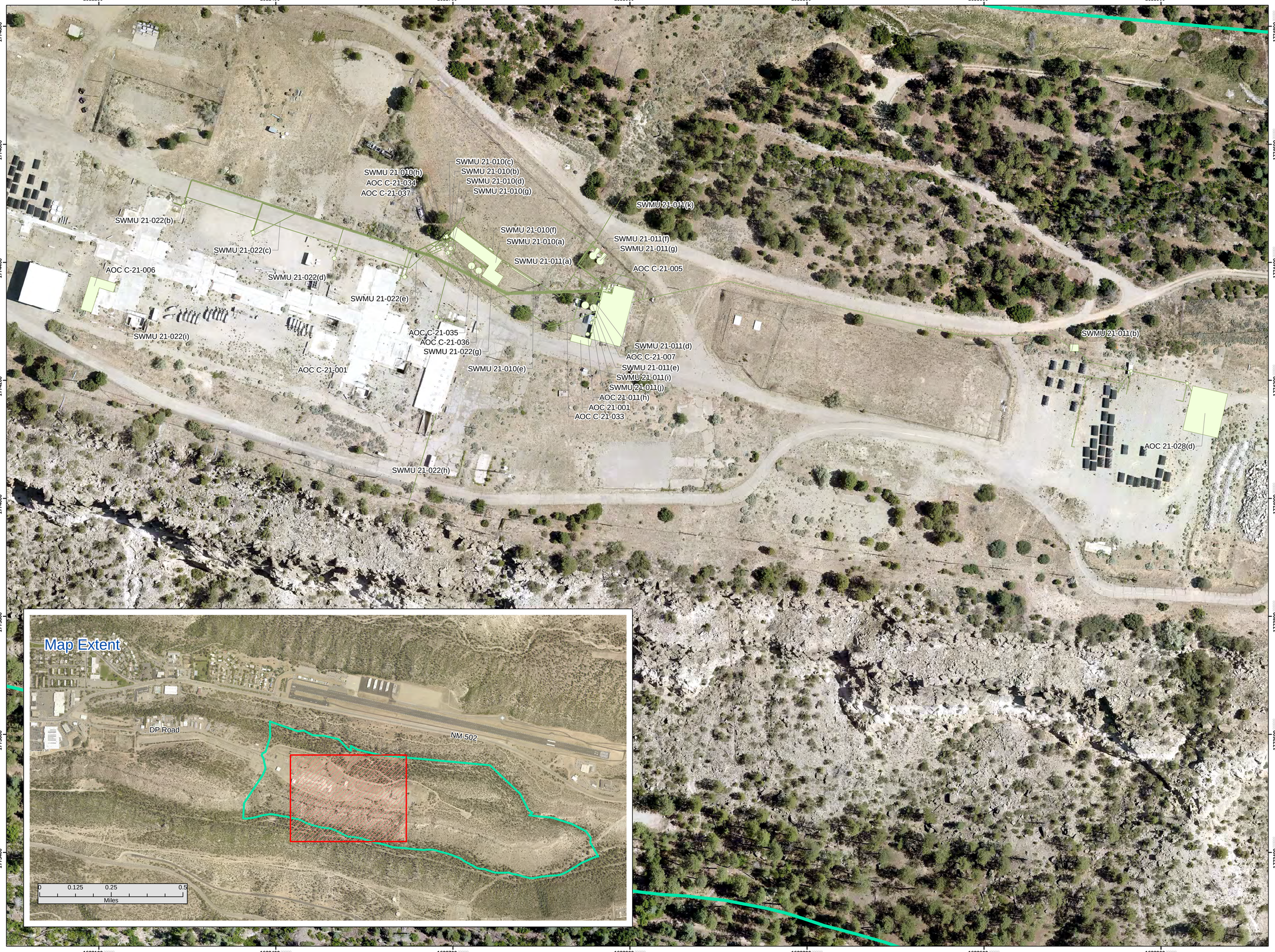


Plate 1

TA-21 D&D and Cleanup Campaign SWMUs and AOCs

Legend

- SWMU or AOC boundary
- TA-21 Boundary

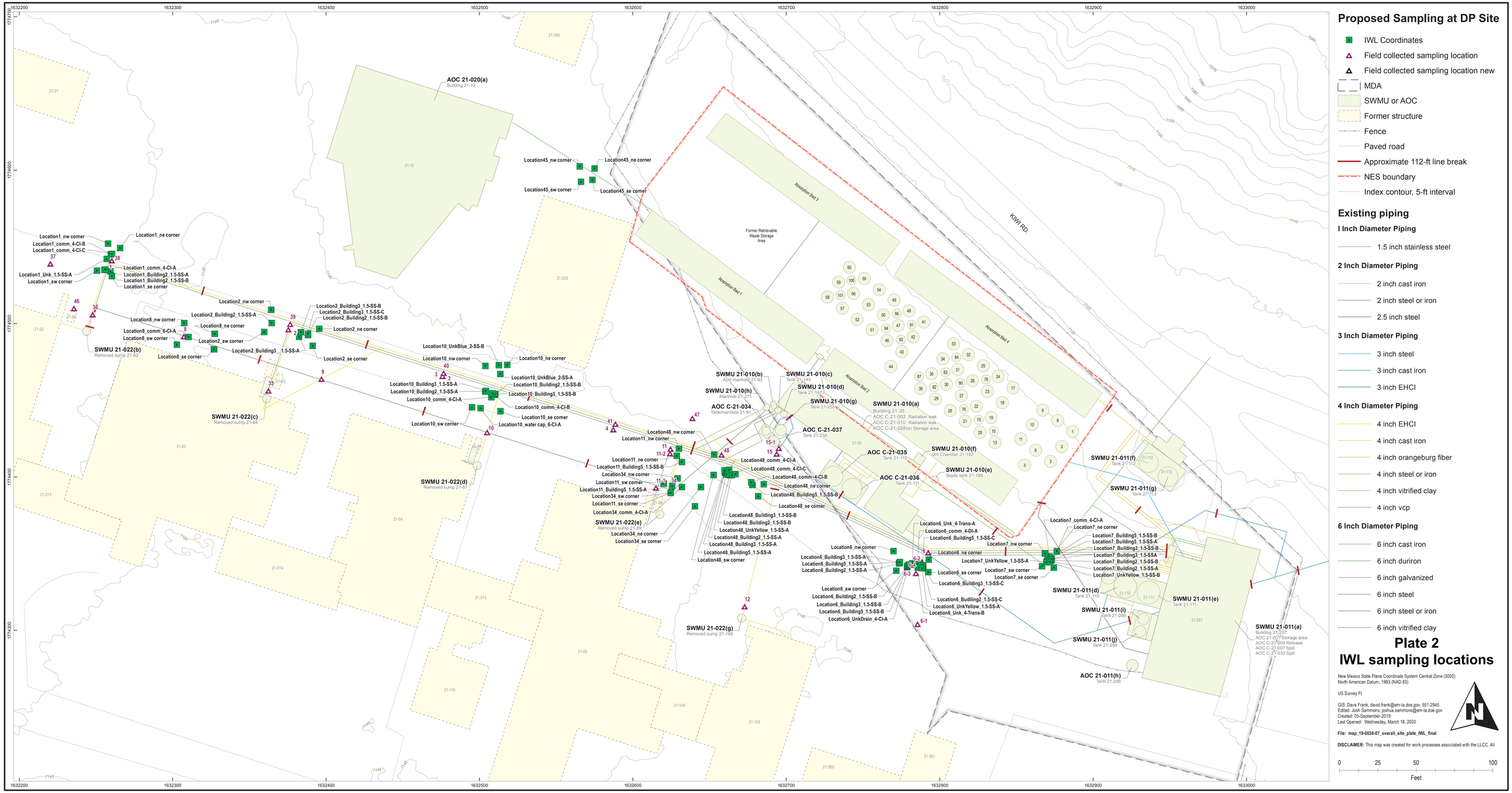
New Mexico StatePlane Coordinate System
Central Zone (3002)
North American Datum, 1983 (NAD 83)
US Survey Ft

DISCLAIMER: This map was created for work processes associated with the TA-21 Closure Project. All other uses for this map should be confirmed with N3B TA-21 Program Manager.

MAP: 19-0037_07_TA21_swmu_aoc
TYPE: REGULAR
SIZE: 22x34 D

GIS: Jeffrey Lyon
EDITED: Dave Frank
DATE: 8/11/2020
REVISION NUMBER: 2.0

N
0
55
110
220 Feet



Proposed Sampling at DP Site

- IWL Coordinates
- Field collected sampling location
- Field collected sampling location new
- MDA
- SWMU or AOC
- Former structure
- Fence
- Paved road
- Approximate 112-ft line break
- NES boundary
- Index contour, 5-ft interval

Existing piping

1 Inch Diameter Piping

- 1.5 inch stainless steel

2 Inch Diameter Piping

- 2 inch cast iron
- 2 inch steel or iron
- 2.5 inch steel

3 Inch Diameter Piping

- 3 inch steel
- 3 inch cast iron
- 3 inch EHCI

4 Inch Diameter Piping

- 4 inch EHCI
- 4 inch cast iron
- 4 inch orangeburg fiber
- 4 inch steel or iron
- 4 inch vitrified clay
- 4 inch vcp

6 Inch Diameter Piping

- 6 inch cast iron
- 6 inch duriron
- 6 inch galvanized
- 6 inch steel
- 6 inch steel or iron
- 6 inch vitrified clay

Plate 2
IWL sampling locations

New Mexico State Plane Coordinate System Central Zone (3002)
North American Datum, 1983 (NAD 83)

US Survey Ft

GIS: Dave Frank, david.frank@em-la.doe.gov, 551-2945
Edited: Josh Sammons, joshua.sammons@em-la.doe.gov
Created: 05-September-2019
Last Opened: Wednesday, March 18, 2020

File: map_19-0038-07_overall_site_plate_IWL_final

0 25 50 100
Feet

Path: Q:\19-Projects\19-0038\mxd\map_19-0038-07_overall_site_plate_IWL_final.mxd