Response to the Notice of Disapproval for the Investigation Report for DP Site Aggregate Area Delayed Sites and DP East Building Footprints at TA-21, Los Alamos National Laboratory (LANL), EPA ID No: NM0890010515, HWB-LANL-11-097, Dated January 18, 2012

INTRODUCTION

To facilitate review of this response, the New Mexico Environment Department's (NMED's) comments are included verbatim. The comments are divided into general and specific categories, as presented in the notice of disapproval. Los Alamos National Laboratory's (LANL's or the Laboratory's) responses follow each NMED comment. This response contains data on radioactive materials, including source, special nuclear, and byproduct material. Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to NMED in accordance with U.S. Department of Energy policy.

GENERAL COMMENTS

NMED Comment

1. Data Summary Tables

In describing the nature and extent of soil and rock contamination, the Permittees frequently state that "concentrations decreased with depth at this location because the concentration in the shallower sample was below the soil BV but above the concentration in the deeper tuff sample" and reference data tables in Appendix C. This practice has been accepted in the past but creates difficulties for reviewers. All detected analytes, whether below BVs or not, must be included in the data summary tables in the IR and in future reports.

Section XI.C.12 (Tables) of the Consent Order states "[d]ata presented in the tables shall include the current data, dates of data collection, analytical methods, detection limits, and significant data quality exceptions. The summary analytical data tables shall include only detected analytes and data quality exceptions that could potentially mask detections." Item 4 in Section XI.C.12 of the Consent Order requires the inclusion of "[a] table summarizing soil, rock, and/or sediment laboratory analytical data. It shall include the analytical methods, detection limits, and significant data quality exceptions that would influence interpretation of the data."

Dates of data collection were not included in any of the summary analytical data tables, nor were detected analyte concentrations that fell below the BV s or FV s, analytical methods, or detection limits. The Permittees must include all detected analyte data in the summary analytical data tables, whether or not they are below BVs or FVs. The Permittees must also include all data that has a detection limit above BVs, because these data qualify as "significant data quality exceptions". The Permittees must include dates of data collection in the summary analytical tables. All requirements listed above are specific requirements in the Consent Order and must be included in the revised IR and all future investigation report summary analytical data tables. The nature and extent discussions in the IR cannot be reviewed adequately until complete summary analytical tables are submitted.

In order to facilitate review of documents and evaluation of the extent of contamination, the Permittees must also provide an electronic appendix of SWMU/AOC specific analytical data tables

which include all data for all samples collected at the AOCs and SWMUs, including non-detects. These tables need only be provided electronically and must follow the same format as the summary analytical data tables included in the IR. These data tables must be included in the revised IR and all subsequent submittals where analytical results are presented. The MS Excel spreadsheets provided in Appendix C will not suffice for this requirement, because they are not in the same format as the summary data tables provided in the IR and are not SWMU/ AOC specific.

LANL Response

1. This comment was discussed with NMED on February 15, 2012, to clarify the information to be presented in the data summary tables. As explained in these discussions, the changes to the table format may require significant modifications to the Laboratory's data management software. Because the database is undergoing a change in applications, the Laboratory proposes deferring the requested changes to the main text tables until the Phase II investigation report is submitted. In the interim, the Laboratory has revised the Excel tables in Appendix C to present the information requested by NMED and to better support the extent discussions in the text. The Laboratory has created separate tables in Appendix C (Tables C-1 through C-18) for inorganic chemicals, organic chemicals, and radionuclides for each site presented in the report. These tables present all results regardless of whether they are above or below detection limits or background concentrations. In addition, the tables provide collection dates for each sample and detection limits for nondetected results. These tables better enable review of the decreasing concentration trends with depth addressed in the nature and extent section of the report (section 7.0) and allow identification of potential data quality exceptions noted in NMED's comment.

NMED Comment

2. Borehole Logs

Section 8.4, Subsurface Sampling, of the Investigation Work Plan for Delta Prime Site Aggregate Area Delayed Sites, Revision 1 *(IWP) states, "[s]ubsurface samples will be collected using a drill rig with a hollow-stem auger advanced with a split spoon sampler or by hand augering. Field documentation will include detailed borehole logs to document the matrix material in detail; fractures and matrix samples will be assigned unique identifiers."*

Section B-5.2, Borehole Logging, of the IR states, "[t]he required sampling depths at all locations were reached by hand augers or a power auger attachment. A drill rig with a hollow-stem auger was not used to collect subsurface samples. Therefore, there were no boreholes to log."

The last sentence of the quoted statements above is not accurate. Whether augering with a hollow-stem auger or a hand auger, a borehole is created. The approved IWP provided by the Permittees states that detailed borehole logs would be provided for all sampling locations for either hollow-stem augering or hand augering. The borehole logs were not provided. The IR is incomplete without detailed boring logs. In addition, the Permittees neglected identifying fracture and matrix samples, as required by the approved work plan. The Permittees must provide detailed boring logs for all boreholes advanced more than five feet below ground surface in the revised IR.

LANL Response

2. In all previous investigation reports, detailed boring logs have been provided only when boreholes were advanced using a drill rig. Borehole logs have not been prepared for hand- or power-augered holes because the depths of these holes are relatively shallow and the degree of disturbance caused by hand or power augering makes accurate determination of stratigraphic changes impossible. For hand- or power-augered sampling locations, details of each sample collected are provided on the sample collection logs, including identification of the soil matrix and whether any fractures were encountered. A reference to the sample collection logs for detailed sample information has been added to the text in section B-5.2. The statement "Therefore, there were no boreholes to log" has been deleted from the text in Appendix B.

SPECIFIC COMMENTS

NMED Comment

3. Section 4.3, Deviations, SWMU 21-011(b), page 20

Permitees' Statement: *In Section 5.2.3, Scope of Activities, in the IWP, the Permittees state, "20% of all samples will be analyzed for extended suite consisting of dioxins/furans, explosive compounds, and PCBs."*

NMED Comment: *Only six of 50 samples for SWMU 21-011(b) were analyzed for the extended suite of contaminants, resulting in a 12% extended suite analysis. No mention of this change from the approved IWP was included in the Deviation section and no explanation was provided for this reduction in extended suite analysis. The Permittees must propose to collect samples for extended suite analysis in the Phase II Investigation Work Plan (Phase II IWP), including the samples required below sump structure 21-223, which were also omitted from the investigation with no explanation, in order to fulfill the 20% requirement from the approved work plan.*

LANL Response

3. The report states that the portion of Solid Waste Management Unit (SWMU) 21-011(b) located within Material Disposal Area (MDA) T will be investigated at a later time (section 4.3, p. 20; Table 1.3-1; Figure 2.3-1). The remaining portion of the SWMU contains the majority of extended-suite sampling locations; therefore, the total percentage of extended-suite samples will increase to 20% after this SWMU has been sampled. The first bullet under the subsection that discusses deviations planned activities at SWMU 21-011(b) (section 4.3, Deviations, p. 20) describes the sampling approach for the acid waste line at MDA T. Additional proposed sampling will be included in the Phase II investigation work plan. Information on sampling beneath sump structure 21-223 has been added to the discussion of deviations for SWMU 21-011(b) (p. 20).

NMED Comment

4. Section 4.3, Deviations, Former Building 21-155, page 21, bullet 2

Permittees' Statement: *"Location 21-614015 (LANL 2010, 110082.4, Figure 2.2-1) was moved 8 ft east of planned sampling location 39 because of the presence of concrete."*

NMED Comment: *The presence of concrete is not suitable justification for movement of a sampling location which was specifically located within the pit in order to characterize the extent of contamination from the pit. The Permittees were aware of the concrete at the bottom of the pit when the location was proposed for sampling in the* Delta Prime East Building Building Footprints Letter Work Plan *(Footprint WP). Concrete can easily be cored with readily available equipment to obtain samples from below the pit. The Permittees must propose to sample the original location below the northeast pit of building 21-155 in the Phase II IWP.*

LANL Response

4. Comment noted. Sampling at planned location 39 will be addressed in the Phase II investigation work plan. This information has been added to Sections 4.3 and 9.

NMED Comment

5. Section 4.3, Deviations, Former Building 21-155, page 21

NMED Comment: *Sample location 42 shown on Figure 2.2-1 of the Footprint WP was apparently relocated to location 21-614023 shown on Figure 2.5-1 of the IR. This location was chosen to sample below cooling tower 21-220 piping, but was relocated approximately 30-ft to the east and below cooling tower 21-420 piping. This change was not listed in the Deviation section, or any other place in the IR, and no explanation was provided for the deviation from the approved Footprint WP. The Permittees must discuss this change in the Deviation section and must propose to collect samples at the original location 42 in the Phase II Work Plan.*

LANL Response

5. A sample should have been collected at location 21-614023 west of location 21-614024, not east of location 21-614024 (attached Figure 1 shows the deviation). Table 4.2-1 has been updated to indicate the incorrect area was sampled. This information has also been added to the deviations (section 4.3) as the last bullet under the section titled "Former Building 21-155" (p. 21). The appropriate sampling location will be included in the Phase II investigation work plan.

NMED Comment

6. Section B-5.1, Surface Sampling Methods, page B-2

Permittees' Statement: *"Surface samples were collected in accordance with approved subcontractor procedures technically equivalent to SOP-06.10, Hand Auger and Thin-Wall Tube Sampler, or SOP-06.09, Spade and Scoop Method for the Collection of Soil Samples. A hand auger or spade and scoop were used to collect material in prescribed sampling increments. Samples for volatile organic compound (VOC) analysis were immediately transferred from the sample collection device to the sample container to minimize the loss of subsurface VOCs during the sample collection process.*

Containers for VOC samples were filled as completely as possible, leaving no or minimal headspace, and sealed with a Teflon-lined cap."

NMED Comment: *Surface samples were not collected for VOC analysis. The Permittees must remove the reference to VOC analysis from the Surface Sampling Methods discussion or provide an explanation for its inclusion.*

LANL Response

6. The text indicating surface sample collection for volatile organic compound analysis has been removed.

NMED Comment

7. Section B-5.3, Subsurface Tuff Sampling Methods, page B-2

Permittees' Statement: *"Subsurface samples were collected in accordance with approved subcontractor procedures technically equivalent to SOP-06.1 0, Hand Auger and Thin-Wall Tube Sampler, or SOP-06.26, Core Barrel Sampling for Subsurface Earth Materials."*

"Samples for VOC analysis were immediately transferred from the sample collection device to the sample container to minimize the loss of subsurface VOCs during the sample collection process. Containers for VOC samples were filled as completely as possible, leaving no or minimal headspace, and sealed with a Teflon-lined cap."

NMED Comment: *Core barrel sampling was not utilized on this project; therefore, specifying that samples were collected in accordance with SOP-06.26 in the quoted statements above is not accurate. The Permittees must remove the reference to SOP-06.26 or provide an explanation for its inclusion.*

References to SOPs are inadequate for description of sampling activities in the IR. Section IX.A of the Order specifically requires descriptions of the methods and procedures proposed for use or used during site investigations and remediation activities. In addition, Section XI.C.9.a of the Order states the requirements for description of soil, rock and sediment sampling in an Investigation Report. The Permittees must describe in detail the methods used for collection of samples for analysis. Detailed description must include specifications of the "sample collection device" referenced in the quotation above, specifications of the hand auger and/or thin-walled tube sampler utilized, specifications of the power auger attachment, and the specific methodology (step by step) followed when using these devices. The Permittees must also provide a detailed description of how sampling was conducted in the 20-ft deep isotope separation pit below building 21-155, as well as how 21-22 ft deep samples were collected using a power auger attachment and/or a hand auger.

LANL Response

7. The reference to Standard Operating Procedure (SOP) 06.26 has been removed from section B-5.3. The use of the power auger allowed the hand auger to reach the specified depths of approximately 20 to 30 ft below ground surface (bgs). The power auger was used to drill down to within 0.5 ft of the depth at which the sample was collected. Subsequently, a hand auger was used to collect the sample material at the designated sampling depth in a manner equivalent to SOP-06.10, Hand Auger and Thin-Wall Tube Sampler. This information has been added to section B-5.3. In addition, for consistency, "sample collection device" has been changed to "auger bucket" throughout Appendix B.

NMED Comment

8. Section B-8.0, Deviations from the Work Plans (SWMU 21-011(b)), page B-5, bullet 3

Permittees' Statement: *"Sump structure 21-223, which extended at least 15 ft belowgrade, was demolished to below 10 ft belowgrade. The remaining lower portion of this cast-in-place sump was poured against competent tuff bedrock. Because of the sump's location on a relatively steep sloping site area, the presence of active fire water lines on parts of two sides of the excavation, and a nearby power pole, the Laboratory's site engineer determined that complete removal of the sump was impracticable; at the direction of the Laboratory's subcontractor technical representative, it was left in place. The remaining portion of the sump was filled with bentonite and soil before the excavation was filled to grade with clean soil. This did not prevent planned sample collection at the site."*

NMED Comment: *Planned sample collection included Location 14 from Table 5.2-1 and Figure 4.1-1 of the approved Delayed Sites IWP. These samples were not collected and no explanation was provided to justify their omission. The Permittees must propose to sample below Sump structure 21-223 in the Phase II IWP.*

LANL Response

8. Samples were collected at locations 21-613815, 21-613827, and 21-614319 in the area of the sump (structure 21-223) at the inlet and outlet lines (see attached Figure 2). The sump foundation appeared fully intact and was formed within the tuff. The samples to be collected from under the sump could not be collected because the concrete foundation had formed within the tuff at depths greater than 10 ft bgs. This information has been added to section 4.3, Deviations, and to section B-8.0 in Appendix B. Additional sampling to depths below the sump structure will be proposed in the Phase II investigation work plan.

ADDITIONAL COMMENT

NMED Comment

1. The Permittees must address all comments herein and submit a revised IR by ***March 23, 2012****. Any additional work proposed for the next phase of investigation (Phase II) must be listed in the Recommendations Section of the IR.*

LANL Response

1. All the sites will be proposed for further investigation in the Phase II investigation work plan. The second paragraph in the recommendations section (section 9) has been revised to include the following statement: "A Phase II investigation work plan will be developed specifying sampling locations, numbers of samples, and analytical suites required to define the extent of contamination for each of the sites." Additionally, each of the sites is listed in section 9, and references to section 8.1, where the specific constituents for which extent is not defined are listed, have been added.

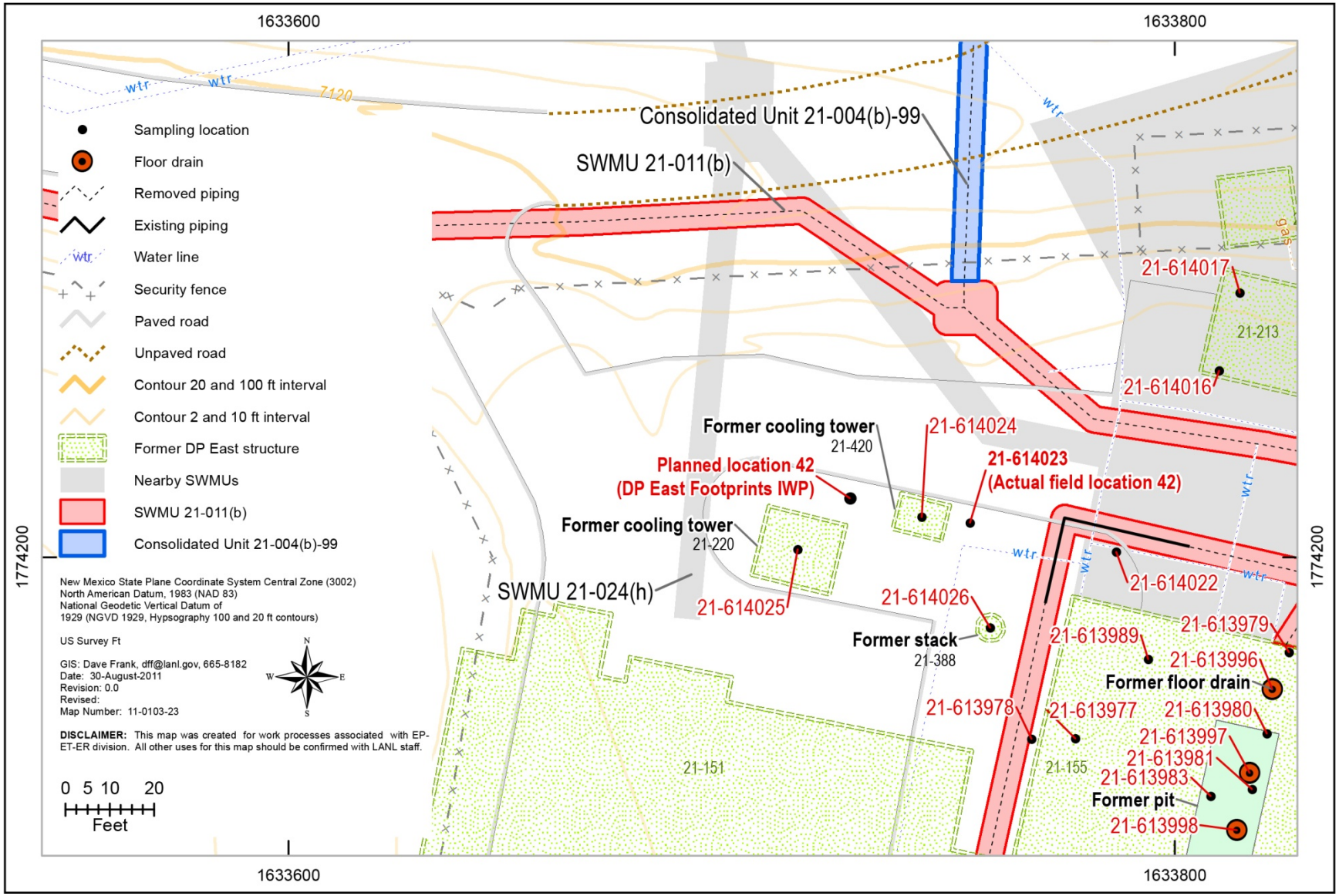

Figure 1 Comparison of planned versus actual sampling location 42 at former building 21-155

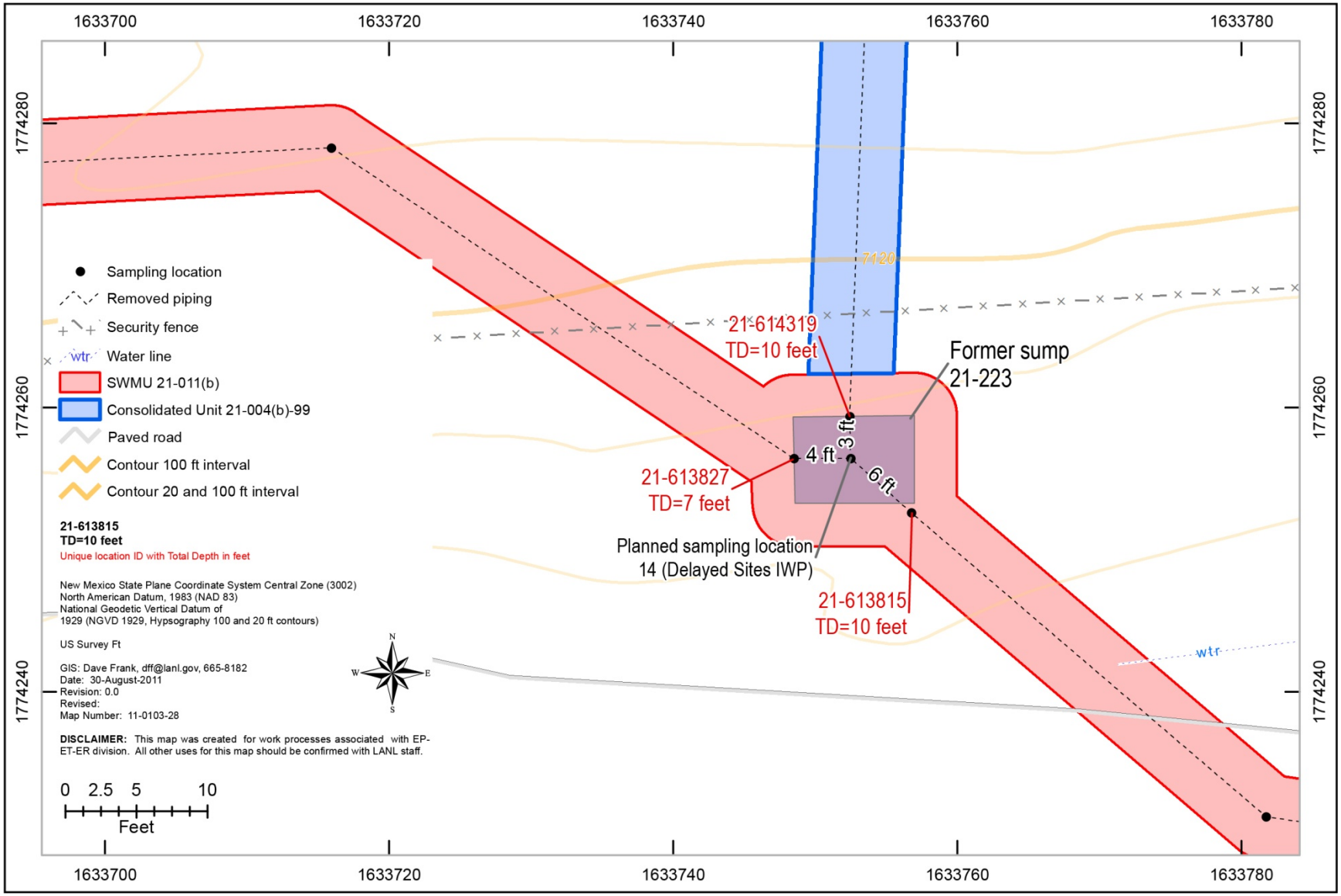

Figure 2 Sampling locations under inlet and outlet lines at former sump 21-223