



July 8, 2021

Arturo Duran
Designated Agency Manager
U.S. Department of Energy
Environmental Management
Los Alamos Field Office
1200 Trinity Drive, Suite 150
Los Alamos NM 87544

**RE: APPROVAL WITH COMMENTS
2021 MONITORING PLAN AND 2020 MONITORING REPORT FOR LOS ALAMOS/PUEBLO
WATERSHED SEDIMENT TRANSPORT MITIGATION PROJECT
LOS ALAMOS NATIONAL LABORATORY
EPA ID#NM0890010515
HWB-LANL-21-020 and HWB-LANL-21-022**

Dear Mr. Duran,

The New Mexico Environment Department (NMED) has received the United States Department of Energy (DOE) Environmental Management Los Alamos Field Office (EM-LA) *2021 Monitoring Plan for Los Alamos/Pueblo Watershed Sediment Transport Mitigation Project* (2021 Plan), dated March 2021, and received April 1, 2021 and referenced by EM2021-0010. NMED also received the *2020 Monitoring Report for Los Alamos/Pueblo Watershed Sediment Transport Mitigation Project* (2020 Report), referenced by EM2021-0009, on April 8, 2021.

NMED provided draft comments prior to discussion with DOE on May 10th and discussed the comments with DOE on May 26, 2021. Following the discussion, NMED provided revised draft comments on May 27, 2021, and DOE provided their responses on June 11, 2021.

For clarity, NMED's comments and DOE's response are included in Enclosure 1 attached to this letter. DOE's response comments are provided in red font. NMED has reviewed the DOE response and approves the DOE's proposed changes and responses to items 1, 2.a, and 3.

For item 2.b, DOE has proposed removing sediment from Basins 1, 2, and 3 when the sediment overall detention capacity of basins is at 75%, or more of the total system capacity of 306,158

cubic feet. Based on the information provided in Table 3, the total system is currently filled to 154,358 cubic feet capacity, or approximately at 50.41%, and can retain an additional 75,260 cubic feet before the 75% threshold is reached.

NMED notes under this plan it is possible that individual basins may become overwhelmed during storm events and be at full capacity before the total system is at 75% full. It is also unclear how the capacities will be evaluated during site inspections. The DOE must propose a method to assess the capacity for each basin, *e.g.*, with drawing fill lines which can be easily photographed by field personnel for future monitoring reports, so that decisions whether to remove sediment can be made annually, prior to scheduled LiDAR evaluations.

The next annual plan and report must be submitted to NMED no later than April 30, 2022. If you have any questions regarding this letter, please contact Siona Briley (505) 690-5160.

Sincerely,

Ricardo Maestas Digitally signed by Ricardo Maestas
Date: 2021.07.08 13:49:14 -06'00'

Ricardo Maestas
Acting Chief
Hazardous Waste Bureau

Attachment: Enclosure 1- NMED's Draft Comments and DOE's Responses

Cc with Attachment 1:

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File: 2021 LANL, Fee Assessment for 2021 Monitoring Plan and 2020 Report Los Alamos/Pueblo Watershed Sediment Transport Mitigation Project
LANL-21-020 and LANL-21-022

Enclosure 1-NMED's Draft Comments and DOE's Responses

N3B/DOE Response on the NMED draft comments on the *2021 Monitoring Plan for Los Alamos/Pueblo Watershed Sediment Transport Mitigation Project* (2021 Plan), March 2021 and the *2020 Monitoring Report for Los Alamos/Pueblo Watershed Sediment Transport Mitigation Project*, April 2021 (2020 Report).

1. 2021 Plan: Section 5.1, Lack of Samples from the 2020 Monitoring Season, page 7:

In 2020 the DOE was not able to collect surface water from the deployed ISCO samplers due to the current trip value of five cubic feet per second (cfs) being greater than the discharge volumes received during storm events. If reduced discharge continues to be an issue at the sampling locations during the 2021 monitoring season, the DOE has proposed to notify NMED and provide a proposal to reduce the trip value. NMED agrees with this proposal, and based on review of past discharged data (Figure 2.1-2, and 3.2-3 of the 2020 Los Alamos Pueblo Canyon Report), NMED recommends that if the DOE has not been able to collect the required number of samples by July 31 of the next monitoring year (2021), the trip value be reduced by at least one half to:

- 50 cfs for E038,
- 25 cfs for E039.1, E040, E042.1, E055, E055.5, E056;
- 2 cfs for E026, E050.1, E059.5, E059.8, and E060.1.

N3B/DOE Response:

N3B/DOE proposes to begin the current monitoring season (June 1, 2021) with the lower trip levels suggested by NMED above. Once one sample has been collected at a location, N3B/DOE proposes raising the trip level to focus on larger storm events (Table 1). The sampler trip mechanisms for E050.1 and E060.1 (Buckman Direct Diversion Early Notification System gaging stations) have been changed to liquid-level actuators this year with the intent of collecting samples from very low flow events. At E050.1 and E060.1, the trip level will be raised after two samples are collected. E030 was not included in the list suggested by NMED, thus N3B/DOE added it to Table 1 below.

Table 1
2021 Los Alamos/Pueblo Storm Water Sampling Locations and Trip Level Information

Gaging Station	EIM Location ID	Sampler Trip Mechanism	Trip Discharge June 1, 2021 (cfs)	Trip Discharge After One Sample is Collected (cfs)
CO101038 ^a	CO101038	Liquid-level actuator	n/a ^b	n/a ^b

Gaging Station	EIM Location ID	Sampler Trip Mechanism	Trip Discharge June 1, 2021 (cfs)	Trip Discharge After One Sample is Collected (cfs)
CO111041 ^a	CO111041	Liquid-level actuator	n/a	n/a
E026	Los Alamos below Ice Rink	Gaging station discharge	2	5
E030	Los Alamos above DP Canyon	Gaging station discharge	25	50
E038	DP above TA-21	Gaging station discharge	50	100
E039.1	DP below grade ctrl structure	Gaging station discharge	25	50
E040	DP above Los Alamos Canyon	Gaging station discharge	25	50
E042.1	Los Alamos above low-head weir	Gaging station discharge	25	50
E050.1	Los Alamos below low-head weir	Liquid-level actuator	n/a	5 ^c
E055	Pueblo above Acid	Gaging station discharge	25	50
E055.5	South Fork of Acid Canyon	Gaging station discharge	25	50
E056	Acid above Pueblo	Gaging station discharge	25	50
E059.5	E059.5 Pueblo below LAC WWTF	Gaging station discharge	2 above baseflow	5 above baseflow
E059.8	E059.8 Pueblo Below Wetlands	Gaging station discharge	2	5
E060.1	Pueblo below GCS	Liquid-level actuator	n/a	5 ^c

^a LA-SMA-2 ponds or upper LA detention basins.

^b n/a = Not applicable.

^c At E050.1 and E060.1 the trip level will be raised after two samples.

2. 2020 Report: Attachment C

- a. Several repairs were recommended in Attachment C of the 2020 Report. However, the 2020 Report and the Plan do not address the repairs that will be implemented in 2021. DOE must discuss proposed response actions and repairs planned for 2021 and a general schedule of implementation.

N3B/DOE Response:

Below in Table 2 is a summary of the recommendations made in Appendix C of the 2020 Report, and the current status of N3B/DOE's action(s).

Table 2
Recommendations made in Appendix C and N3B/DOE Actions on Issue

Photo ID	Recommendation Made	Action Taken/Action Planned
C-2.2-3	Recommend Trash pickup.	Trash pickup has occurred.
C-2.2-4	Recommend placing rock from nearby and on-site riprap pile within the two voids upslope of weir near the north abutment.	The voids upslope of the weir have been filled.
C-2.5-4	Recommend removal of tire.	Tire has been removed.
C-3.1-1	Recommend removal of vegetation on the maintenance access path on the pond bank north of the Canyon Road.	Removal of vegetation is pending, however the current condition poses no impact to the structural functionality of the system.
C-3.6-1	Recommend replacement of trash rack with one that is not in line with pipe inlet.	This action is pending. In the interim, needle cast and any other debris is cleared from the inlet grate regularly.
C-3.6-3	Rebar sticking up on headwall is a tripping hazard. Recommend removal.	Rebar has been cut flush with concrete.
C-3.6-8	Recommend relocation of fallen tree, repair of bridge.	Downed tree has been moved. After additional review, repair of the bridge handrail was determined to be unnecessary, as the stair height does not warrant a railing. Exposed staples due to the handrail damage were removed.
C-3.6-10	Recommend repair of bridge.	Repair of the bridge handrail was determined to be unnecessary, as the stair height does not warrant a railing. Exposed staples due to the handrail damage were removed.
C-4.3-3 and C-4.3-4	Recommend placement of gravel bags at top of gabion on north bank downstream of the Los Alamos Canyon Weir.	This action has not been completed, internal discussions are occurring to determine what the appropriate next steps are.
C-4.7-2, C-4.7-3, C-4.7-4, C-4.7-6, and C-4.7-6	Recommend repair of holes in gabion basket.	The holes in the gabion basket have been repaired.
C-4.11-3 and C-4.11-6	Recommend notifying Los Alamos County to have materials removed.	The County has been notified to have materials removed, the removal has not yet occurred.
C-5.4-1 and C-5.4-3	Recommend removal of tall vegetation located on upstream side of spillway.	Vegetation has been removed.
C-5.4-2 and C-5.4-4	Recommend removal of tree.	Tree has been removed.
C-6.3-2	Recommend placement of jute erosion-control matting, wire	This action has not been completed, recent removal of feral cows from Pueblo

Photo ID	Recommendation Made	Action Taken/Action Planned
	enclosed riprap, or brush barriers at toe of slope on south bank downstream of Pueblo Canyon Wetland grade-control structure.	Canyon may allow better vegetation growth on banks. N3B/DOE will continue to monitor.

- b. Additionally, NMED notes that the Photographs C-4.4-1 and C-4.5-1 of the 2020 Report, describe Los Alamos Canyon Sediment Ponds 1 and 2 as being at the sediment capacity; however, no actions are recommended to address this. Please provide information on proposed actions that would be undertaken to empty the sediment ponds to prevent migration of contaminated sediments downgradient or provide a rationale for not proposing corrective action.

N3B/DOE Response:

N3B/DOE does not believe that removal of sediment from the two upper sediment detention basins is necessary at this time. The upper 2 basins (Basin 1 and Basin 2) comprise less than 5% of the total detention capacity behind the weir structure (baseline detention capacity was calculated using the 2014 LIDAR imagery). Based on a review of past reports and biannual inspection notes, the upper two basins have been at capacity since 2015.

An analysis was performed of the basin detention capacity of the basins over time. The 2014 LIDAR was used as the baseline capacity, as that was when sediment removal last occurred. The 2018 LIDAR was used as the current capacity, as no major storm events have occurred since 2018, thus sediment deposition in the basins has likely not changed significantly and which is also consistent with biannual inspection notes since 2018. Using the difference between the 2014 and 2018 LIDAR, the basin capacity was estimated (see Table 3 below). This analysis has shown that the current remaining detention capacity behind the weir structure is approximately 50%. For reference, when sediment removal last occurred in 2014, the remaining overall detention capacity was 25%, which is our recommended capacity for removing sediment.

In addition, recent hydrologic conditions in the watershed have largely stabilized after the Los Conchas fire and the 1000-year flood in September 2013. Further, Los Alamos County's dam and reservoir (located above the Los Alamos weir and detention basins) have been repaired and the reservoir now serves as a significant storm water dissipation feature below the historic burn areas in the upper watershed. Alluvial groundwater levels in Los Alamos Canyon have also been quite low, which provides ample opportunity for channel transmission loss and deposition of suspended solids upstream of the detention basins.

LIDAR imagery will be collected via fixed-wing aerial techniques in the fall of 2021, and change detection of the capacity of the basins will be performed. The results and findings of this analysis will be included in the *2021 Monitoring Plan for Los Alamos/Pueblo Watershed*

Sediment Transport Mitigation Project. N3B/DOE proposes to evaluate the need for sediment removal from the detention basins using the 2021 LIDAR comparison with LIDAR from 2014 and 2018. If the remaining overall detention capacity is 25% or less, we will initiate the removal of sediment after the LIDAR analysis is complete, per the NMED-approved Sediment Management Decision Tree Guidance (LANL, April 2017).

Table 3
Los Alamos Weir Sediment Detention Basins Storage Capacity

Year	Upper Basin (ft ³) Basin 1	Middle Basin (ft ³) Basin 2 (included in Lower Basin Capacity)	Lower Basin (ft ³) Basin 3	Total System (ft ³)
2014	7,015	4,448	299,143	306,158
2018	0	0	154,358	154,358

3. NMED notes that the two hard copies of the 2021 Plan and the 2020 Report were not submitted. In the future, the DOE must ensure that the required numbers of hard and electronic copies of the complete data set are provided with the submittals in accordance with the Consent Order.

N3B/DOE Response:

N3B/DOE will ensure that the required number of hard and electronic copies of the complete data set are provided with the submittals in accordance with the Consent Order.