Response to the Approval with Modifications for the Completion Report for Sandia Canyon Grade-Control Structure, Los Alamos National Laboratory, EPA ID No. NM0890010515, HWB-LANL-13-069, Dated September 5, 2014

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 approval with modifications. Los Alamos National Laboratory's (LANL's or the Laboratory's) responses follow each NMED comment.

NMED Comment

1. *NMED notes that a stockpile of sediment (estimated volume of approximately 150 cubic) located in a small south-entering ravine, had not been characterized and addressed in the Report. NMED is concerned with both the characterization and final disposition of the material. The Permittees appear to have relocated the excavated material to an area both sloped and upstream of the sediment retention basin above the Sandia grade-control structure. The Permittees must document in the Report the erosion controls implemented to prevent the sediment from continuing to be eroded and mobilized downstream. The Permittees must also specify for what type of flood event the fill site can withstand and describe procedures that will be implemented in the event of a significant rainfall event.*

LANL Response

1. During the week of September 10, 2013, the site was inundated with unprecedented rainfall, exceeding 7 in. in a 1-wk time period in some areas of the Laboratory, with much of it falling during an extremely intense event that occurred between September 12 and 13, 2013. Roughly 600 yd^3 of material was eroded from the site of the closed Los Alamos County (the County) landfill and deposited between the first and second steel-sheet piles. During the construction phase, the sediment was removed from that area by the contractor and stockpiled to construct a large run-on control north of the valley floor west of sheet piles one and two to retain additional materials that may erode from the landfill area. Los Alamos County (the County) has installed temporary controls above the project area and is working towards a final solution in the near future.

   The remaining sediment was then placed in a small south-entering swale measuring approximately 50 by 120 ft southwest of the grade-control structure, and erosion controls were put in place to stabilize the area. The swale and fill area are above the canyon 100-yr floodplain and are not susceptible to significant upgradient run-on. The 100-year flood plain levels have been calculated and plotted for the Sandia Canyon drainage basin by LANL (LANL Engineering Standards Manual ISD 341-2). The established vegetation will resist potential erosion caused by rainfall falling directly on the fill area. Erosion controls for this area included lining the ravine with a polypropylene liner, track-walking the sediment to match existing contours, and hydroseeding. Four rows of wattles were also placed perpendicular to the slope of the swale. An earthen berm measuring approximately 30 ft was also constructed below the swale and hydroseeded to prevent any potential run-on from entering the wetlands area (Appendix D). The sediments in the stockpile were not sampled because much of it either came from the County landfill cover or was imported clean fill material and not material from the wetlands.

The wetland area and fill area has since withstood four additional flow events during the summer of 2014 over 50 cubic feet per second (cfs), with the largest storm being a 25-yr, 30-min event that generated an estimated peak discharge of 110 cfs. No significant erosion occurred after these events. The south-entering ravine and fill area as well as the entire project area have been inspected under the current construction general permit Storm Water Pollution Prevention Plan (SWPPP). The grade-control structure will continue to be inspected following rain events with discharges greater than 50 cfs and quarterly. If erosion or any indications of instability are observed, appropriate actions will be taken to ensure continued stability and functionality and will be documented in the annual performance report.

The text in section 3.4.2 of the report has been revised.

NMED Comment

2. *The Permittees report that a significant amount of rainfall (seven inches) occurred September 10 – 13th, 2013. NMED notes that this amount is greater than the 25-year, two-hour storm event that the grade-control structure was designed to withstand. Should regular storm events of this magnitude continue, the structure design may be inadequate.*

LANL Response

2. The September 2013 rain event has a 1000-year return period based on information provided by NOAA. The grade-control structure was designed to withstand a 25-yr 2-h peak flow event of 500 cfs. NMED approved and accepted the design parameters in the "Approval with Modification, Work Plan and Final Design for Stabilization of the Sandia Canyon Wetland" (NMED 2011, 208094). The overall project goals and objectives were to arrest the headcut in the lower portion of the wetland and to maintain hydrologic and geochemical conditions to minimize contaminant migration. The September 2013 rain event occurred after sheet piles two and three had already been constructed. Estimates vary on the return-interval magnitude of the event, but it was significantly greater than a 25-yr return interval. With the exception of the loss of newly planted vegetation and the displacement of some boulders in the cascade pool, no unusual erosion was noted above or below the sheet piles. Since that time, significant additional vegetation has been established (Appendix D). The wetland area has since had four additional flow events during the summer of 2014 over 50 cfs with the largest storm being a 25-yr, 30-min event that generated an estimated peak discharge of 110 cfs. No significant erosion occurred after these events. The south-entering swale as well as the entire project area is currently being inspected under the construction general permit SWPPP. The grade-control structure will also be inspected after every runoff event greater than 50 cfs and quarterly. If erosion or any indications of instability are observed, appropriate actions will be taken to ensure continued stability and function and will be documented in the annual performance report.

The text in section 3.4.2 of the report has been revised.

REFERENCES

NMED (New Mexico Environment Department), November 15, 2011. "Approval with Modification, Work Plan and Final Design for Stabilization of the Sandia Canyon Wetland," New Mexico Environment Department letter to G.J. Rael (DOE-LASO) and M.J. Graham (LANL) from J.E. Kieling (NMED-HWB), Santa Fe, New Mexico. (NMED 2011, 208094)