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June 28, 2023

Arturo Duran
Designated Agency Manager
Environmental Management
U.S. Department of Energy
Los Alamos Field Office
1200 Trinity Drive, Suite 400
Los Alamos, New Mexico, 87544

RE: REVIEW
FATE AND TRANSPORT MODELING AND RISK ASSESSMENT REPORT FOR RDX
CONTAMINATION IN DEEP GROUNDWATER REVISION 1
LOS ALAMOS NATIONAL LABORATORY
EPA ID#NM0890010515
HWB-LANL-22-100

Dear Mr. Duran:

The New Mexico Environment Department (NMED) has received the United States Department of Energy's (DOE) *Fate and Transport Modeling and Risk Assessment Report for RDX Contamination in Deep Groundwater Revision 1* (Report), dated September 2022 and referenced by EM2022- 0581. The Report was received by NMED on September 29, 2022.

Please note that the nature and extent of contamination for RDX plume has not been sufficiently characterized. The risk assessment must be conducted again when the RDX plume in the groundwater and the source of contamination in the vadose zone has been sufficiently characterized.

However, NMED has reviewed the revised report and has the following comments:

The report has been adequately revised to address previous risk assessment comments and issues raised in technical exchange meetings. However, we do not agree with the conclusions of the assessment. The risk assessment was based on risks conducted at specific wells and did not address impacts of groundwater and risks to receptors in areas where a well does not currently exist.

LANL evaluated risk to human health under current conditions, where land-use control restricting potable groundwater wells is exercised by LANL within the facility's administrative boundary. The evaluation of Scenario 1, which takes into account the location of water-supply wells with respect to the impacted groundwater bodies and the extent of contamination within the impacted groundwater bodies, leads to the conclusion that there is no present-day risk to human health from groundwater contamination, either within or outside of LANL administrative boundaries. Under this scenario, groundwater has been impacted above-risk-based levels; however, LANL is using land use controls to mitigate risk. Further, risk was restricted to specific wells, and did not evaluate concentrations across

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the plume or extrapolated to future wells (potential locations) and usage (USEPA, 2014, Exposure Point Concentrations in Groundwater).

Scenario 2 included performing a screening-level groundwater risk assessment for RDX and all other detected constituents under present-day and potential future baseline conditions. This screening level assessment indicated that concentrations of chemicals detected in perched-2 intermediate groundwater warrant institutional controls to eliminate the possibility of the use of impacted groundwater for consumption now and in the foreseeable future.

Scenario 3 evaluated future plume expansion in the regional aquifer, as predicted by the fate and transport model using the estimated mass of RDX above the aquifer, focusing on the probability that RDX will reach and impact existing water-supply wells. The fate and transport model indicated that by year 2200 there is effectively no probability that RDX groundwater concentrations at the tap water screening level (9.66 µg/L) will reach the three nearest water-supply wells. The median concentrations that do arrive at water-supply wells fall below 0.25 ppb, and the middle 50% of simulations fall below 0.5 ppb, suggesting that if RDX were ever to reach these wells it would likely be below current analytical detection limits.

Groundwater has been impacted at levels above risk-based levels warranting controls to limit use. The above scenarios were based on current wells and did not take into consideration future well placement or the fact that groundwater is a receptor. Further, it is improbable that there is no possibility of any off-site transport of impacted groundwater, especially when trend analysis shows increasing concentrations of RDX in several wells.

As DOE has contaminated the groundwater resource, and demonstrated that excess risk is present, mitigation of the on-site source as well as remediation of impacted groundwater is required.

NMED will hold further review of this Report as discussed in Technical Meetings with DOE. It has been agreed that the major focus of resources should be placed on the Chromium Plume, and the RDX plume will be characterized and evaluated at a later date.

Should you have any questions regarding this correspondence, please contact Michael Petersen of my staff at (505) 690-5107.

Sincerely,

**Rick
Shean**

Rick Shean

Designated agency Manager

Director, Resources Protection Division

Digitally signed by

Rick Shean

Date: 2023.06.28

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File: LANL 2023, Fate and Transport Modeling and Risk Assessment Report for RDX Contamination in
Deep Groundwater Revision 1
September 2022
LANL 22-100

