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NMED Hazardous Waste Bureau

Los Alamos NATIONAL LABORATORY

Environmental Protection Division
Environmental Compliance Programs (ENV-CP)
PO Box 1663, K490
Los Alamos, New Mexico 87545
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Date: JUN 1 1 2013
Symbol: ENV-DO-13-0007
LAUR: 13-24047

Ms. Susan von Gonten
Petroleum Storage Tank Bureau
New Mexico Environment Department
2905 Rodeo Park Drive, Building 1
Santa Fe, NM 87505

Dear Ms. von Gonten:

SUBJECT: ESTIMATED VOLUME OF DIESEL IN EXCAVATED SOIL REMOVED FROM THE RADIOLOGICAL LABORATORY/UTILITY/OFFICE BUILDING (RLUOB) ABOVEGROUND STORAGE TANK DIESEL RELEASE SITE #4670

Pursuant to your request, enclosed is a brief report, LA-UR 13-24047, entitled "*Estimated Volume of Diesel in Excavated Soil Removed from the Radiological Laboratory/Utility/Office Building (RLUOB) Aboveground Storage Tank Diesel Release Site*". The report estimates the volume of diesel removed with the soil excavated from the RLUOB diesel release site as part of clean-up efforts. Please note the estimated volume of diesel released from aboveground storage tank used in the attached report is the volume reported in Los Alamos National Laboratory's 7 day Release Report dated January 19, 2013, i.e., 419 gallons. The conservatively estimated volume of diesel removed with excavated soil is approximately 340 gallons. This would suggest that approximately 80 gallons were not recovered. No loss of diesel due to volatilization was included in the estimate although the excavation site has been open to the air for several months now. We had previously proposed to the New Mexico Petroleum Storage Tank Bureau to not remove any additional contaminated soil from the excavation site. This report provides additional support for that proposal, because the residual diesel fuel poses minimal risk of future impact to groundwater quality.

As a side note, Mr. Albert Dye of the Environmental Compliance Programs (ENV-CP) received an email dated May 20, 2013 from Neelam Dhawan of the New Mexico Environment Department's Hazardous Waste Bureau regarding this release. The issue raised in her email was referred to the Los Alamos National Laboratory's Waste Management Programs (WM-PROG) and will be addressed in a separate response.

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If you have any questions, please contact Mr. Dye at dyea@lanl.gov or at (505) 667-4715.

Sincerely,

Anthony R. Grieggs
Group Leader
Environmental Compliance Programs, (ENV-CP)
Los Alamos National Security, LLC

ARG:AD/lm

Enclosure: Estimated Volume of Diesel in Excavated Soil Removed from the Radiological Laboratory/Utility/Office Building (RLUOB) Aboveground Storage Tank Diesel Release Site

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ENCLOSURE 1

Estimated volume of released diesel removed from RLUOB aboveground storage tank excavation site

ENV-DO-13-0007

LAUR-13-24047

Date: JUN 1 1 2013

Estimated Volume of Diesel in Excavated Soil Removed from the Radiological Laboratory/Utility/Office Building (RLUOB) Aboveground Storage Tank Diesel Release Site

Assumptions*
Porosity of weathered Qbt3: 20% to 30%

Porosity of backfill material: 20% to 30%

Natural soil moisture of weathered Qbt3 and backfill material: 5% to 10% by volume

Degree of soil saturation due to diesel fuel: 30% to 50%

The area of visibly stained soil removed from the western end of the AST 55-560 foundation measured approximately 15'x 9' by 7.5' deep; the in situ volume of this soil would be approximately 37.5 yds3 (7573.5 gallons). The excavated soils consisted of engineered backfill overlying weathered tuff (Qbt3); these soils are estimated to have a porosity of approximately 25% and a pre-existing volumetric moisture content of approximately 10%. These assumptions yield an open available pore space of 15%. The visibly stained soils that were excavated appeared moist with diesel, but not saturated. Assuming that30% of the available pore space within the excavated soil contained diesel fuel results in an estimated diesel fuel volume within the excavated soil of approximately 4.5%, or 340 gallons.

The estimated volume of the diesel fuel released from the AST 55-560 system was 419 gallons, based on inventory records. Based on the conservative assumption that 340 gallons of diesel fuel were removed with the soil from the western end of the AST 55-560 foundation, the soil removal activities conducted to date have removed approximately 80% of the mobile diesel fuel associated with the release from AST 55-560.

The site of the diesel-fuel release is approximately 1300 ft. above the first groundwater occurrence based on groundwater investigations conducted in the vicinity of TA-55. Additionally, there are no public water-supply wells within a one mile radius of the storage tank system and no surface water within 500 feet of the storage tank system. Therefore, the residual diesel fuel remaining in the soil does not pose an unacceptable environmental condition.

* Rogers, D. B., and B. M. Gallaher, The Unsaturated Hydraulic Characteristics of the Bandelier Tuff, Los Alamos National Laboratory Report LA-12968-MS, September 1995.