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CERTIFIED MAIL – RETURN RECEIPT REQUESTED

November 3, 2020

Arturo Q. Duran
Designates Agency Manager
Environmental Management
U.S. Department of Energy
Los Alamos Field Office
P.O. Box 1663 MS M984
Los Alamos, NM 87544

**RE: AMENDED APPROVAL LETTER
DRILLING WORK PLAN FOR REGIONAL WELL R-72
LOS ALAMOS NATIONAL LABORATORY
EPA ID #NM0890010515
HWB-LANL-20-015**

Dear Mr. Duran:

The New Mexico Environment Department (NMED) approved the United States Department of Energy (DOE) *Drilling Work Plan for Regional Well R-72* (Work Plan), referenced by EM2020-0042, on March 23, 2020. The March 23rd approval was based on the November 5, 2019 technical team meeting between NMED and DOE and the approval of the proposed location for R-72 issued by NMED via e-mail on November 6, 2019. However, during recent technical team meetings, issues regarding the design and purpose of R-72 have surfaced which are of concern to NMED. To clarify our technical position, NMED issues this amendment to the March 23rd approval letter.

Regarding the purpose and design for R-72, the Work Plan states on page 1:

- *“The primary objective for R-72 is to further characterize the lateral and vertical extent of chromium and perchlorate contamination in the southwestern portion of the chromium plume...”*
- *“The well will be constructed like other chromium interim measure infrastructure wells to enable potential repurposing for either extraction or injection if remediation is necessary in that portion of the plume.”*
- *“Because of the potential for using R-72 as a remediation well in the future, it may be appropriate to balance the objectives of shorter screen lengths (nominally approximately 20 ft) with longer screens (e.g., 30–50 ft) that can provide good integrated characterization information and also result in better injection or extraction hydraulics.”*

The Work Plan specifies that NMED will approve the final well design at the time of drilling. Consequently, the final design was excluded from the March 23rd approval letter. NMED is amending the approval of the Work Plan to specify that the screen lengths for R-72 must not be longer than 20 feet. This is because the excessively long screens proposed by DOE, to allow for repurposing later as part of remediation infrastructure, will negate the ability of R-72 to meet its primary objective.

Proper evaluation of subsurface conditions is entirely dependent upon the ability of the monitoring well network to provide representative groundwater data that are necessary to perform the scientific studies, aquifer testing and to conduct the corrective measures evaluation required by the Compliance Order on Consent. While NMED recognizes DOE's concern of the drilling costs, NMED does not concur with DOE's repurpose design for R-72 due to the following technical reasons:

- U.S. EPA guidelines limit monitoring well screen lengths to between 2 feet and 20 feet.
- The highly layered nature of the regional aquifer geology mandates discrete sample intervals.
- The potential for sample dilution from the penetration of different geologic strata.
- The potential to spread contamination from one geologic stratum to other geologic strata.
- The potential for the sample to reflect conditions from a stratum of unknown stratigraphic position in the aquifer.
- The loss of the ability to compare its chemical and hydraulic data to data from properly designed existing nearby monitoring wells.
- The potential to jeopardize the final remediation design by using misrepresented data.
- The suspect anomalous result obtained from screen 1 at R-70; the only repurpose well design with a screen exceeding 20 feet (screen 1 is 40 feet long).
- There is no approved remediation strategy at the southwest portion of the plume that justifies the repurpose design proposed by DOE for R-72.
- The need for a properly designed monitoring well at the R-72 location during remediation.

Lastly, NMED requires that DOE submit a detailed aquifer-performance testing plan for R-72 based on the numerous issues NMED identified in the May 7, 2020 draft comment letter and the outcome of the September 8, 2020 technical team meeting concerning the aquifer testing procedure, analyses and conclusions drawn by DOE for monitoring well R-70. Submittal and approval of a detailed aquifer-performance testing plan will provide greater assurance that conclusions can be relied upon for plume characterization and remedy development. This will also provide critical information for selection of the final remediation approach. NMED also requires that DOE provide the geophysical logs it intends to run. NMED requires at a minimum that flowmeter "spinner" logs and water quality profiling be conducted in the open borehole for characterization and optimal screen placement.

In conclusion, as discussed during technical meetings, NMED is amending the approved Work Plan for monitor well R-72 to require a screen length of no more than 20-feet.

If you have any questions regarding this correspondence, please contact Christopher Krambis at (505) 476-3078.

Sincerely,

**Kevin
Pierard**  Digitally signed by
Kevin Pierard
Date: 2020.11.03
15:09:50 -07'00'

Kevin M. Pierard, Chief
Hazardous Waste Bureau

Cc w/out Attachment:

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File: Reading and LANL 2020, TA-05 Amended Approval for Drilling Workplan for Regional Well R-72,
HWB-LANL-20-015.