



BILL RICHARDSON
Governor

DIANE DENISH
Lieutenant Governor

TA00
NEW MEXICO
ENVIRONMENT DEPARTMENT
Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone (505) 476-6000 Fax (505) 476-6030
www.nmenv.state.nm.us



RON CURRY
Secretary

JON GOLDSTEIN
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

July 29, 2009

David Gregory
Federal Project Director
Los Alamos Site Office
Department of Energy
3747 West Jemez Road, Mail Stop A316
Los Alamos, NM 87544

David McInroy
Remediation Services Deputy Project Director
Los Alamos National Laboratory
P.O. Box 1663, MS M992
Los Alamos, NM 87545

**RE: REVIEW OF PERIODIC MONITORING REPORT FOR
PAJARITO WATERSHED; DECEMBER 2 - DECEMBER 18, 2008
LOS ALAMOS NATIONAL LABORATORY
EPA ID #NM0890010515
HWB-LANL-09-018**

Dear Messrs. Gregory and McInroy:

The New Mexico Environment Department (NMED) has received the United States Department of Energy (DOE) and the Los Alamos National Security L.L.C.'s (LANS) (collectively, the Permittees) *Periodic Monitoring Report for Pajarito Watershed, December 2 – December 18, 2008* (PMR), dated May 2009, and referenced by LA-UR-09-3072 and EP2009-0260. NMED has reviewed the PMR and is providing the following comments:

Specific Comments:

1. Section 4.2 (Analytical Data) of the PMR indicates that United States Environmental Protection Agency (EPA) Region 6 tap water screening levels were used for constituents having no other regulatory standard and for which toxicological information is published. EPA now uses Regional Screening Levels (RSLs) which have replaced the EPA Region 3 RBC Table, the Region 6 HHMSSL Table and the Region 9 PRG Table. The most recent version of the RSL table is available at <http://www.epa.gov/reg3hwmd/risk/human/rb->



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[concentration_table/index.htm](#). Text, affected tables and appendices in future Pajarito and other watershed PMRs must reference the most recent RSL tap water values where appropriate.

2. The listing for well 03-B-9 in PMR Table 3.4-1 (Observations and Deviations) indicates that only water level measurements were obtained at the well due to well casing damage. The table's comment column for the well indicates the location will be checked again during the next sampling period. Table 5.4-1 (page 57) of the 2008 Interim Facility-Wide Groundwater Monitoring Plan (2008 IFGMP) notes that the well casing is damaged and that only water level measurements are collected at that location. Unless other types of deviations occur at this location, it would be appropriate to remove the listing as a deviation for this well in future Pajarito Watershed PMRs.
3. Section 4.2.2.1 (Previously Unreported Results) indicates 1,4-dioxane was present in September 2008 at regional aquifer well R-20 at a concentration greater than the EPA tap water screening level used for comparison (see also Comment 1. above). The Permittees indicated the volatile organics method for this compound was "...unreliable" and noted that the sample was analyzed after the sample holding time had expired for that method. They further noted that the "...more precise semi-volatile organic method" also used for analyses of the compound indicated 1,4-dioxane was not present in the sample. The Permittees did not provide documentation or further explanation for either assertion relative to selection of appropriate laboratory methodologies.

Since the semi-volatile method has a lower reported detection limit compared to the volatile method, it could be viewed as being more precise in that regard. At the same time, it can be argued that analysis of the sample (typically, immediately acid-preserved [or with mercuric chloride] with subsequent refrigeration in zero headspace sample containers) past its accepted holding time (14 days using the volatile methodology) could result in some sample volatilization losses or microbial degradation of the compound and understate the compound concentration relative to what it might have been if analyzed within the accepted holding time. By contrast, the semi-volatile method requires unpreserved samples (other than refrigeration), a seven day holding time for sample extraction and a 40 day holding time for the extracts. Filled sample containers for semi-volatile analysis typically contain headspace from the time of sample collection until sample extraction. Since the Permittees did not include paper or electronic copies of the laboratory reports for the September samples, NMED cannot determine when the samples were analyzed relative to accepted holding times for volatiles or when the samples were extracted and analyzed for semi-volatiles.

Electronic copies of laboratory data for previously unreported results must be provided in future Pajarito Watershed PMRs and must be included in all other future watershed PMRs submitted by the Permittees.

In light of the fact that 1,4-dioxane is completely water miscible, quite soluble in water, very mobile in soils, and has been reported present previously at very high (greater than 2,000 and 4,500 parts per billion) concentrations in shallow wells 03-B-10 and 03-B-13 respectively, that are located northwest of and potentially hydraulically upgradient of R-20, its apparent presence at regional well R-20 is a matter of concern to NMED. Review of available data in the RACER database indicates that 1,4-dioxane is also reported present at concentrations which exceed current screening levels in three intermediate perched wells located within the Mortandad watershed (MCOI-4, -5 and -6). A potential source (or sources) of this compound, within either watershed, has not been identified by the Permittees.

A related area of concern to NMED, with respect to specific analysis of 1,4-dioxane by either volatile or semi-volatile methodologies, is the appropriateness of continued use of either of the two methods currently used by the Permittees' contract laboratories. According to PMR Table E-4, the Permittees' contract laboratory uses U.S. Environmental Protection Agency (EPA) methods SW-846 8260B and SW-846 8270C for analyses of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs), respectively.

NMED believes the Permittees need to research the current status of EPA method development efforts underway for analyses of 1,4-dioxane. As a starting point, http://www.tallevast.info/pdfs/dioxane_may19.pdf provides a summary of a comparative analysis study performed by a private contractor for a former industrial facility located in Tallevast, Florida. The study compares analytical results for 1,4-dioxane using EPA methods 8260B, 8270C and 8270 with isotope dilution. The Permittees are encouraged to review the methods discussed in the Tallevast comparative study and to consider other available and potentially appropriate methods.

After reviewing available methods for analyses of 1,4-dioxane, the Permittees must propose future use of a method (or methods) that will result in reliable sample to sample and quarter to quarter detection capabilities for 1,4-dioxane at concentrations below applicable screening levels for the compound, that minimizes sampling and analytical constituent losses and provides the best possible accuracy, precision and reproducibility by the Permittees' contract laboratories.

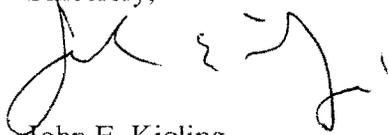
The Permittees' completed evaluation of proposed methods must be submitted on or before November 1, 2009.

4. PMR Appendix B (Field Parameter Results) indicates that some surface water sampling locations (Bulldog Spring, Kieling Spring, and Pajarito below confluences of South and North Anchor East Basin) are somehow “purged” of various volumes of water prior to sample collection while other surface water sampling locations are not “purged”. The PMR does not provide discussion about how locations are selected for the “purging” process or about how and why any purging is done at the selected sampling locations. Future Pajarito Watershed PMRs (and other affected watershed PMRs as applicable) must discuss the purging methodology, including a description of how, when and why the “purging” process is done and assess the validity of the process in terms of how and whether the process affects the representativeness of collected surface water samples at a given sample location, particularly in regard to sampling for VOCs.

5. PMR Appendix D-1, page D-1 indicates that the ‘J’ qualifier signifies “(Organic/Inorganic) The required extraction or analysis holding time for this result was exceeded.” This may be a cut and paste error since the same qualifier description was used for the ‘H’ qualifier (also for sample holding time exceeded) on the same page. The ‘J’ qualifier is typically used by the Permittees to denote estimated concentration values for analytes which are greater than the method detection limit but less than the practical quantitation limit (see also, PMR, Appendix E, page E-7, Lab Qualifier Code J). Future Pajarito Watershed PMR data qualifier listings should be reviewed for completeness and accuracy prior to submittal of the documents to NMED.

Please contact Daniel Comeau at (505) 476-6043, if you have any questions concerning this letter.

Sincerely,



John E. Kieling
Program Manager
Permits Management Program

Messrs. Gregory and McInroy
July 29, 2009
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cc: J. Bearzi, NMED HWB
J. Kieling, NMED HWB
D. Cobrain, NMED HWB
K. Roberts, NMED HWB
N. Dhawan, NMED HWB
D. Comeau, NMED HWB
M. Dale, NMED HWB
J. Kulis, NMED HWB
S. Yanicak, NMED DOE OB, MS J993
T. Skibitski, NMED DOE OB
M. Graham, LANS ADEP, MS M991
L. King, EPA 6PD-N
G. Rael, DOE LASO, MS A316

File: LANL 2009 - Pajarito Canyon PMR (Report of December 2008)