

MWL

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NEW MEXICO
ENVIRONMENT DEPARTMENT



Hazardous Waste Bureau

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CERTIFIED MAIL, RETURN RECEIPT REQUESTED

February 14, 2008

Patty Wagner
Manager
Sandia Site Office/NNSA
U.S. Department of Energy
P.O. Box 5400, MS 0184
Albuquerque, NM 87185-5400

Francis B. Nimick
Deputy Director
Nuclear Energy & Global Securities Technologies
Sandia National Laboratories
P.O. Box 5800, MS 0701
Albuquerque, NM 87185

**RE: RESPONSE TO PUBLIC COMMENT AND APPROVAL WITH MODIFICATIONS
SOIL-VAPOR SAMPLING AND ANALYSIS PLAN FOR THE U. S. DEPARTMENT
OF ENERGY/SANDIA NATIONAL LABORATORIES' MIXED WASTE
LANDFILL
SANDIA NATIONAL LABORATORIES, EPA ID NM5890110518
HWB-SNL-05-025**

Dear Ms. Wagner and Mr. Nimick:

The Soil-Vapor Sampling and Analysis Plan (SV SAP) for the Sandia National Laboratories' (SNL's) Mixed Waste Landfill (MWL) was required by the New Mexico Environment Department (NMED) in the Notice of Disapproval (NOD) issued on November 20, 2006, for the MWL Corrective Measures Implementation Plan. The SV SAP was submitted to the NMED in December 2006 as part of SNL's response to the NOD.

Public comment was received on the SV SAP from February 5, 2007, through March 7, 2007, and from April 15, 2007, through May 15, 2007. Additionally, a public meeting on the SV SAP was held at the Los Griegos Health and Social Services Center in Albuquerque on May 1, 2007. Representatives from the U. S. Department of Energy and Sandia Corporation (Permittees) attended this meeting. A copy of NMED's response to public comment on this matter is enclosed.

Based on our review of the SV SAP, and in consideration of the public comment received NMED hereby approves the SV SAP with the following modifications:

1. Six boreholes for the collection of soil gas and soil samples shall be drilled at the locations shown on the enclosed map (at locations DP1-DP6). Two other boreholes (DP7 and DP8), planned for background locations southwest of the landfill, may be drilled at the background locations as proposed in the SV SAP.

Soil-gas and soil samples from DP1-DP8 are to be analyzed for volatile organic compounds (VOCs) and tritium, as appropriate, as described in the SV SAP. As shown on the enclosed map, the locations for DP4 and DP5 shall be the same as those shown on Figure 2-1 of the SV SAP; the rest of the boreholes, DP1-DP3 and DP6, are to be moved to different locations (see the enclosed map) because of the heterogeneous nature of waste placed into the MWL. To protect workers, the borehole locations for DP1-DP6 may be adjusted by a maximum of 20 feet in any horizontal direction to avoid drilling directly through waste buried in the MWL.

As discussed in the SV SAP, duplicate samples are to be taken from DP5 and DP6. Because the location of DP6 is to be changed, the Permittees may choose a different borehole than DP6 for the collection of the second set of duplicate samples.

The Permittees shall collect soil samples to be analyzed for tritium prior to collecting soil-gas samples in each borehole, opposite of the sequence noted in the SV SAP.

2. Soil-gas and soil samples from boreholes DP2, DP3, and DP5 shall be collected at depths of 10, 30, and a minimum of 50 feet. Samples from all other boreholes shall be collected at depths of 10 and 30 feet.

3. The radon detectors proposed in the SV SAP (track-etch type) are not the same type as those used in the 1997 radon survey for the MWL. To ensure that radon data are directly comparable with the 1997 data, the Permittees shall use the same radon detector type as those used in the 1997 survey (*i.e.*, 4-inch diameter activated-charcoal radon canisters to be analyzed for radon by gamma spectroscopy).

4. Nine radon detectors (RN1-RN9) shall be deployed at the locations shown on the enclosed map. These locations were selected, in part, based on the highest flux rates for radon as determined in the 1997 survey, and do not include the two background locations proposed in the SV SAP. The locations for RN1, RN3, RN4, RN5, RN6, RN7, and RN8 correspond to locations 30, 5, 8, 44, 13, 64, and 18 of the 1997 survey, respectively. The locations of RN2 and RN9 are new.

5. The radon data shall be submitted at the same time as the VOC and tritium data.

6. In addition to VOCs, all soil-gas samples shall be analyzed for methane.

Ms. Wagner and Mr. Nimick
February 14, 2008
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7. The data and results of the SV SAP shall be submitted in writing to the NMED for its review and approval no later than July 31, 2008.

If you have any questions regarding this matter, please contact William Moats of my staff at (505) 222-9551.

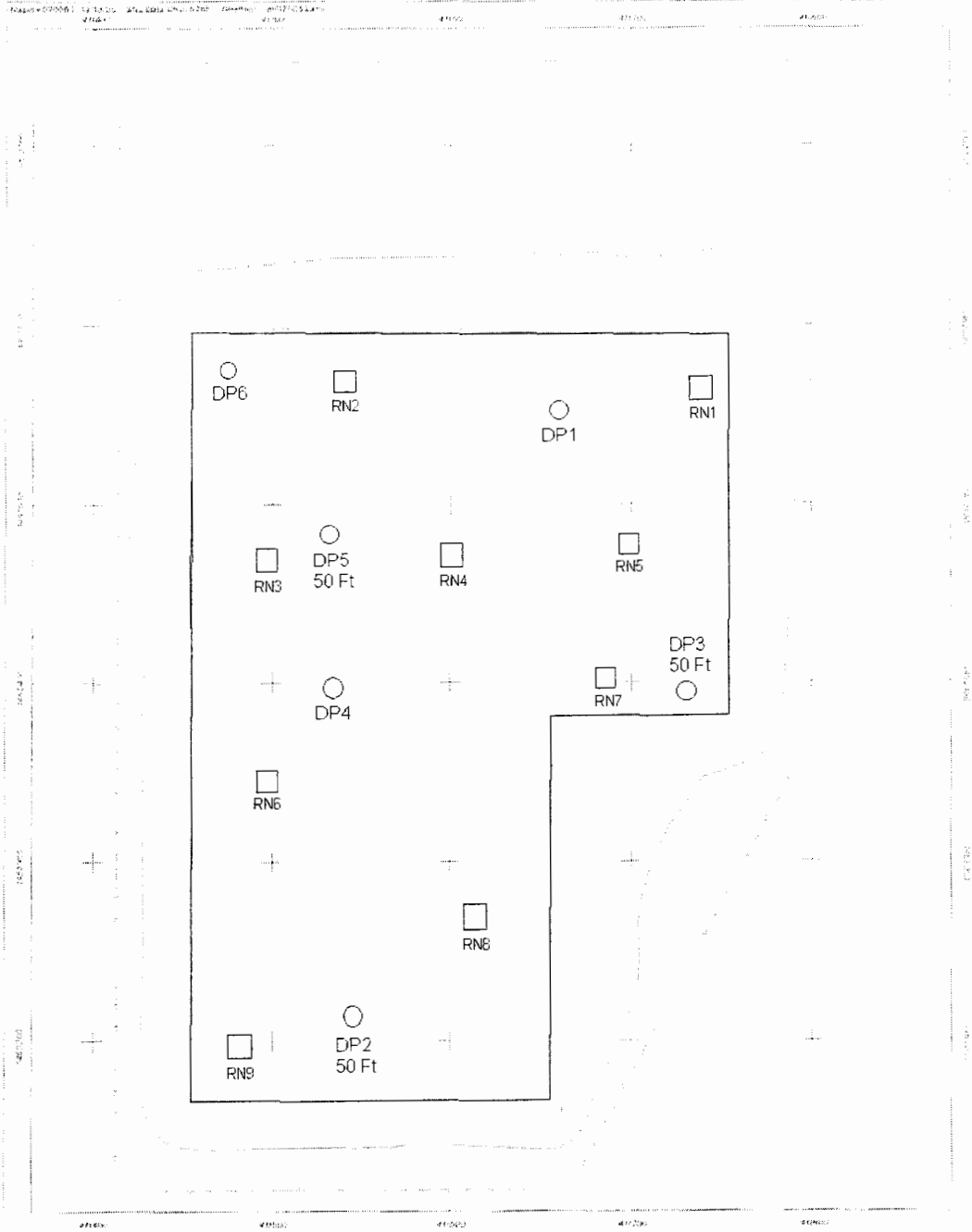
Sincerely,



James P. Bearzi
Chief
Hazardous Waste Bureau

enclosures

cc: J. Kieling, NMED HWB
T. Skibitski, NMED DOE-OB
L. King, EPA-6
P. Freshour, SNL MS 1089
J. Gould, DOE, MS 0184
File: SNL 2008 and Reading
SNL-05-025

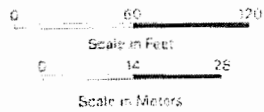


Legend

- Soil Vapor and Tritium Sampling Location (DP1-DP6)
- Radon Sampling Location (RN1-RN9)

--- Proposed Final Fence
 - - - - - Proposed Top of Landfill Cover
 SWMU 76, Former MWL Extent

Soil Gas VOC, Tritium, and Radon Sampling Locations, Mixed Waste Landfill





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RON CURRY
Secretary

JON GOLDSTEIN
Deputy Secretary

February 15, 2008

**SUBJECT: NOTICE OF APPROVAL AND RESPONSE TO PUBLIC COMMENT ON
SOIL-VAPOR SAMPLING AND ANALYSIS PLAN FOR THE
U. S. DEPARTMENT OF ENERGY/SANDIA NATIONAL
LABORATORIES' MIXED WASTE LANDFILL**

Dear Interested Person:

The New Mexico Environment Department (NMED) has approved, with modifications, the Soil-Vapor Sampling and Analysis Plan (SV SAP) for the Sandia National Laboratories' Mixed Waste Landfill. Public comment was received on the SV SAP from February 5, 2007, through March 7, 2007, and from April 15, 2007 through May 15, 2007. Additionally, a public meeting on the SV SAP was held at the Los Griegos Health and Social Services Center in Albuquerque on May 1, 2007. NMED's response to public comment on this matter can be found on the NMED website at <http://www.nmenv.state.nm.us/hwb/snlperm.html> under Mixed Waste Landfill (MWL).

The SV SAP was modified after consideration of public comment. The approval letter may also be reviewed at website above.

Sincerely,

John E. Kieling
Program Manager
Permits Management Program
Hazardous Waste Bureau

**Index of Public Comments Received On Time:
Sandia National Laboratories Mixed Waste Landfill Soil Vapor Plan
February 2008**

| Commenter ID | Date of Letter or e-mail | Commenter and Association (if Applicable) |
|---------------------|---------------------------------|---|
| A | 2/13/07 | Deirdre Lennihan |
| B | 2/28/07 | Citizen Action New Mexico/David McCoy |
| C | 4/27/07 | Citizen Action New Mexico/David McCoy |
| D | 5/1/07 | Citizen Action New Mexico/David McCoy |
| E | 5/15/07 | Citizen Action New Mexico/David McCoy |
| F | 5/15/07 | Robert H. Gilkeson |
| G | 3/1/07 | Southwest Research and Information Center/Paul Robinson |
| H | 5/15/07 | Southwest Research and Information Center/Paul Robinson |
| I | 3/5/2007 | Jeanne House |

**NMED Response to Public Comments on the Mixed Waste Landfill (MWL) Soil-Vapor (SV) Sampling and Analysis Plan (SAP)
February 2008**

| Commenter ID | Association/ Commenter | Topic Area | Comment Summary | NMED Response Number | NMED Response |
|--------------|---|--|--|----------------------|---|
| A | Deirdre Lennihan | Regulation of hazardous and radioactive wastes | The commenter expressed that the New Mexico Environment Department (NMED) should strictly enforce the hazardous waste management regulations at the federal government laboratories in the state. The commenter assumes the NMED has the authority to also strictly enforce regulations concerning radioactive waste management. | R1 | <p>The NMED enforces the state's Hazardous Waste Management Regulations (HWMR), 20.4.1 NMAC, at all facilities in New Mexico, including the federal facilities. Over the past several years NMED has taken several enforcement actions against federal facilities in New Mexico for violations of the HWMR. Some of these enforcement actions have included the issuance and recovery of some of the largest fines ever levied for violations of the HWMR.</p> <p>The NMED has the authority under the Resource Conservation and Recovery Act (RCRA) and the HWMR to regulate the hazardous component of mixed waste (mixed waste contains both radioactive and hazardous components). However, under federal law, the NMED does not have authority to regulate the radioactive component of mixed waste or a radioactive waste that lacks a hazardous component.</p> |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | | The commenter asks why NMED did not require waste in Pits SP-4, SP-35, and SP-36 be removed and disposed of elsewhere, in accordance with applicable regulatory requirements. | R2 | <p>The comment is not relevant to the Soil-Vapor Sampling and Analysis Plan (SV SAP).</p> <p>The SV SAP concerns the one-time sampling of soil vapor and soil moisture at the Mixed Waste Landfill (MWL). The SV SAP, once implemented, will provide current data regarding releases of volatile organic compounds (VOCs), radon, and tritium at specifically targeted locations. The new data at minimum will be compared with historical data to determine if there has been any significant increase in contaminant levels in the vadose zone over the past 10 years.</p> <p>With respect to the development of the SV SAP, SNL was</p> |

| Commenter ID | Association/ Commenter | Topic Area | Comment Summary | NMED Response Number | NMED Response |
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| | | | | | directed by the NMED to propose a plan to investigate contaminants in the vadose zone at two depths at a minimum of three locations for the aforementioned reason. Thus, the SV SAP was never intended to be a plan to investigate contaminant releases from individual pits and trenches, or repeat the extensive soil-vapor studies done under the RCRA Facility Investigation (RFI). Additionally, the SV SAP is also not a plan to conduct corrective measures (such as to excavate pits), to conduct groundwater monitoring, or to conduct long-term monitoring and maintenance. |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | Regulatory framework of the MWL | The commenter states that the Consent Order requires vadose zone monitoring that is compliant with the Technical Enforcement Guidance Document (TEGD) issued by the U. S. Environmental Protection Agency in November 1992 and RCRA regulations at 40 CFR § 264.98. | R3 | The comment is not relevant to the SV SAP because it concerns long-term monitoring (see response R2 concerning the scope of the SV SAP). The Sandia Consent Order does not require that vadose zone monitoring be conducted in accordance with the TEGD. Additionally, the RCRA regulations at 40 CFR § 264.98 (which are not applicable to the MWL in any case) do not address vadose-zone monitoring. |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | | The commenter argues that the MWL is subject to the detection monitoring requirements for groundwater under 40 CFR § 264.98. | R4 | The comment is not relevant to the SV SAP (see response R2 concerning the scope of the SV SAP). The MWL is not subject to the groundwater monitoring requirements of 40 CFR § 264.98. |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | | The commenters state that vadose-zone monitoring of soil gas is required under RCRA, but such monitoring does not exist at the landfill. | R5 | The comment is not relevant to the SV SAP because it concerns long-term monitoring (see response R2 concerning the scope of the SV SAP). There are no RCRA regulations that explicitly require the |

| Commenter ID | Association/ Commenter | Topic Area | Comment Summary | NMED Response Number | NMED Response |
|--------------|--|----------------------|---|----------------------|--|
| F | Robert H. Gilkeson (5/15/07) | | | | installation of vadose-zone monitoring systems. However, the regulations at 40 CFR § 264.101 require that the owner/operator of a facility seeking a permit for the management of hazardous waste to institute corrective action as necessary to protect human health and the environment from all releases regardless of the time at which waste was placed into a unit. These regulatory requirements could include vadose monitoring at solid waste management units, where and when the NMED finds it necessary. |
| E | Citizen Action New Mexico/ David McCoy (5/15/07) | | The commenter argues that the landfill is subject to permitting requirements under RCRA for post-closure care. The commenter also states that the landfill is subject to DOE Orders, including 5820.2A | R6 | The comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. The NMED does not have the authority to enforce DOE Orders. |
| F | Robert H. Gilkeson (5/15/07) | | The commenter states that the MWL contains commingled radioactive and hazardous waste that would not be acceptable for land disposal under RCRA. The commenter further states that RCRA regulations would prohibit disposal in unlined pits and trenches. | R7 | The comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. Waste disposal at the MWL began prior to the existence of RCRA and the HWMR. Even if the landfill had operated as an interim status unit, the MWL closed prior to any effective date that a lining system would have been required under RCRA (see 40 CFR § 265.301(a)). |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | Long-term monitoring | The commenters are concerned that a program needs to be required for continuous monitoring of soil gas, not just occasional monitoring of | R8 | The comments received about long-term monitoring are not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. Long-term monitoring, which will include regularly scheduled monitoring events, is to be conducted under |

| Commenter ID | Association/ Commenter | Topic Area | Comment Summary | NMED Response Number | NMED Response |
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| E | Citizen Action New Mexico/ David McCoy (5/15/07) | | soil-gas, although one commenter recommended that semi-annual monitoring be implemented. One commenter states that all sampling must be in accordance with Section g.4 of the "HSPA Permit". Other | | a different plan ordered by the NMED Secretary. The long-term monitoring plan was submitted by SNL earlier than required (September 25, 2007); however, this plan has not been reviewed or approved by the NMED at this time. It has, however, been subject to public comment. |
| F | Robert H. Gilkeson (5/15/07) | | comments on long-term monitoring included discussion that real time monitoring should be done because the landfill was not constructed with a liner, that three | | There is no Section g.4 in Module IV of the SNL RCRA Permit (Module IV is entitled <i>Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments (HSPA) to RCRA for Sandia National Laboratory, EPA I.D. Number NM5890110518</i>). |
| H | Southwest Research and Information Center/Paul Robinson (5/15/07) | | FLUTE wells for long-term monitoring of soil gas is inadequate, and that because the landfill doesn't have an engineered liner or other features, a large network of deep vertical and angle monitoring wells is needed for long-term monitoring of soil gas and soil moisture. | | |
| II | Southwest Research and Information Center/Paul Robinson (5/15/07) | Baseline for long-term monitoring | The commenter recommends that data obtained from the implementation of the SV SAP be used as baseline data for long-term monitoring. | R9 | See response R2. The SV SAP is not a long-term monitoring plan. Although the data may be thought of as "baseline data", the Department may choose different sampling locations and other methods of monitoring for the purpose of long-term monitoring. It will likely be necessary to install permanent soil-vapor wells for the purpose of long-term monitoring, whereas, only temporary boreholes will be utilized to implement the SV SAP. |
| E | Citizen Action New Mexico/ David McCoy (5/15/07) | Trigger levels | The commenters provide extensive discussion that trigger levels for tritium, soil moisture, and volatile organic compounds are set too high. | R10 | The comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. Triggers are to be included in the long-term monitoring plan, and are being developed under the CMI Plan. |
| F | Robert H. Gilkeson (5/15/07) | | | | |

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| C | Citizen Action New Mexico/ David McCoy (4/27/07) | Relationship of SV SAP to CMI Plan | The commenter argues that the SV SAP should be considered a part of the CMI Plan, and thus the public is being denied the right to a public hearing and a right to appeal. | R11 | <p>The SV SAP is not part of the CMI Plan. The two plans are not related. The CMI Plan concerns the implementation of the remedy (installation of the cover system), development of a Fate and Transport Model, and developing triggers for long-term monitoring. These triggers are to be incorporated into the long-term monitoring and maintenance plan for the landfill.</p> <p>See response R2 concerning the scope of the SV SAP.</p> <p>Regardless of whether the SV SAP would be considered a part of the CMI Plan (which it is not), the CMI Plan is not subject to the requirements for hearings and appeal as provided under the HWMR (20.4.1.901 NMAC) and the New Mexico Hazardous Waste Act (NMSA 1978, 74-4-14). The CMI Plan, however, is subject to review and comment from the public, and consideration and response by NMED under the Secretary's Final Decision on the MWL.</p> |
| B G | Citizen Action New Mexico/ David McCoy (2/28/07) Southwest Research and Information Center/Paul Robinson (3/1/07) | Extend public comment period | The commenters request that the public comment period for the SV SAP be extended. One commenter also argues that construction of the subgrade has created confusion, and thus, additional time was needed for the public to review the SV SAP. | R12 | After the initial 30-day comment period was held from February 5, 2007, to March 7, 2007, the NMED extended the public comment period for another 30 days from April 15, 2007, to May 15, 2007. |
| G | Southwest Research and Information Center/Paul Robinson (3/1/07) | Public meeting | The commenter requested that a public meeting be convened to discuss technical issues about the SV SAP. | R13 | The NMED conducted a public dialogue meeting on May 1, 2007 at the request of the commenter to discuss technical issues related to the SV SAP. |
| B | Citizen Action New Mexico/ | Public hearing | The commenter requested that a public hearing be granted regarding | R14 | The comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. |

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| | David McCoy (2/28/07) | | the construction of the subgrade at the landfill and the efficacy of the monitoring systems. | | The request for a public hearing was denied. Instead, a public technical meeting (see response R13) was held that allowed members of the public to discuss these issues and the SV SAP with NMED and SNL, and was a more appropriate forum for such a discussion. The commenter was in attendance at this public meeting. |
| B | Citizen Action New Mexico/ David McCoy (2/28/07) | Cease and desist order for cover construction | The commenter requested that the NMED issue a cease and desist order for construction of the evapotranspiration cover system at the Mixed Waste Landfill. | R15 | The comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. The Corrective Measures Implementation (CMI) Plan is the controlling document for cover construction, not the SV SAP. NMED understands that no additional work on the cover has occurred at the MWL since subgrade preparation was completed. |
| B | Citizen Action New Mexico/ David McCoy (2/28/07) | Subgrade | The commenter is concerned that construction of the subgrade for the MWL cover system will adversely impact implementation of the SV SAP by having to account for the additional depth of the boreholes to reach the targeted depths for sampling. | R16 | The NMED does not expect the additional 2-3 feet (average) of fill in the subgrade to present any problems with implementation of the SV SAP. |
| F | Robert H. Gilkeson (5/15/07) | | The commenter recommends coring the landfill surface to measure the thickness of the subgrade. | R17 | The comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. |
| B | Citizen Action New Mexico/ David McCoy (2/28/07) | Revising Fate and Transport Model based on new data from SV SAP | The commenter is concerned about how data obtained from implementation of the SV SAP will be utilized in the Fate and Transport Model that has been prepared by SNL for the landfill. | R18 | The NMED Secretary's Final Order issued on May 26, 2005, requires that SNL update the Fate and Transport Model every five years. It is possible that data derived from the SV SAP may be used to update the Fate and Transport Model. However, other data obtained from future monitoring of the landfill may be available and may be used instead for this purpose. |

| Committer ID | Association/Committer | Topic Area | Comment Summary | NMED Response Number | NMED Response |
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| | | | | | Should the data from the SV SAP indicate that a significant increase in contaminant levels has occurred, the NMED will require SNL to conduct whatever corrective action is necessary, if any. As part of any such additional corrective action, the NMED may require portions of the Fate and Transport Model to be updated immediately using the newly acquired data for the contaminant(s) of concern. |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | Public meeting for Fate and Transport Model | The commenter states that a public meeting should be held on the Fate and Transport Model because the model is, in his opinion, lacking of any predictive value for releases of contaminants. The commenter also provides quotes from an article by Shlomo P. Nueman indicating that models are sometimes used to demonstrate that site characterization has been completed such that additional sampling would be of little benefit. Additionally, the commenter states that the Fate and Transport Model should be subject to a public hearing. | R19 | The comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. Additionally, a meeting was held on May 25, 2006, to discuss the CMI Plan. The Fate and Transport Model, being a part of the CMI Plan, was discussed at this public meeting and dominated much of the discussion at the meeting. |
| D E F | Citizen Action New Mexico/ David McCoy (5/1/07) Citizen Action New Mexico/ David McCoy (5/15/07) | Validity of the Fate and Transport Model | A number of comments were received concerning the Fate and Transport Model that was developed for the MWL. Comments included the following topics: the Fate and Transport Model relies on assumed values rather than data obtained from the field, current and comprehensive data are needed to verify and calibrate the Fate and Transport Model, the model predicts that | R20 | These comments are not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. The Fate and Transport Model predicts that PCE (the primary volatile organic compound at the MWL) has only a small (1 %) chance of contaminating groundwater to a level that would exceed the drinking water standard. This result is based on PCE concentrations of up to ten times those actually detected and conservative assumptions that maximize the rate of migration of PCE. Groundwater has not been contaminated by releases of contaminants from the MWL. |

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| G | Robert H. Gilkeson (5/15/07) Southwest Research and Information Center/Paul Robinson (3/1/07) | | VOCs will reach groundwater, the detection of any VOCs should be considered "high" no matter the level because there are no natural background concentrations for these compounds, and that the Fate and Transport Model should be abandoned because the model was not based on physical data, did not predict groundwater contamination by the migration of chromium and nickel, and because models may be misused to predict a pre-determined outcome. | | There are no natural background concentrations for volatile organic compounds listed as hazardous constituents under RCRA. However, low detections should not necessarily be considered as "high" (significant) if they do not represent unacceptable risk to human health or the environment. See also response R57. |
| H | Southwest Research and Information Center/Paul Robinson (5/15/07) | | | | |
| H | Southwest Research and Information Center/Paul Robinson (5/15/07) | Characterization of containers | The commenter recommends that a geophysical survey be conducted to investigate the condition of containers and their distribution. | R21 | The comment is not relevant to the SV SAP. See response R2 concerning the intended scope of the SV SAP. |
| B | Citizen Action New Mexico/ David McCoy (2/28/07) | Ruptured Containers | The commenters are concerned that buried containers could have been ruptured as a result of heavy equipment used during subgrade preparation of the landfill's surface. | R22 | The comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | | The ruptured containers could then release contaminants to the environment. | | If any containers were ruptured, and the containers released contaminants in the form of vapors, any such release that would pose unacceptable risk to human health and the environment would likely be revealed by implementation of the SV SAP or during long-term monitoring of the landfill. Vadose zone monitoring will be conducted under the Long-Term Monitoring and Maintenance Plan. |
| G | Southwest Research and Information Center/Paul Robinson (3/1/07) | | | | |
| H | Southwest | | | | |

| Commenter ID | Association/ Commenter | Topic Area | Comment Summary | NMED Response Number | NMED Response |
|------------------|---|--|---|----------------------|---|
| F | Research and Information Center/Paul Robinson (5/15/07) Robert H. Gilkeson (5/15/07) | | | | |
| B G H F | Citizen Action New Mexico/ David McCoy (2/28/07) Southwest Research and Information Center/Paul Robinson (3/1/07) Southwest Research and Information Center/Paul Robinson (5/15/07) Robert H. Gilkeson (5/15/07) | Compaction effects on soil-gas migration | The commenter is concerned that compaction of the subgrade would cause the migration of soil-gases. | R23 | The comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. The fill materials used for the subgrade are clean soils imported from off-site of the MWL. Thus, there were no contaminants to migrate from this soil during construction. |
| F H | Robert H. Gilkeson (5/15/07) Southwest Research Information Center/Paul Robinson (5/15/07) | Sampling Locations | The commenters state that soil-gas data obtained during the RFI are too few in number to properly characterize soil-gas at the MWL. | R24 | The comment is not relevant to the SV SAP. Questions concerning the adequacy of the RFI were asked and answered by the NMED at the hearing on the MWL Corrective Measures Study. For the MWL, a 2.6 acre site, SNL deployed 92 passive soil-gas samplers at locations ranging from about 20-50 feet apart, and later conducted active soil-gas sampling at 43 locations at depths of 10 and 30 feet at each location; most of the 43 locations selected were predicted to have the highest concentrations of |

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| D F E | Citizen Action New Mexico/ David McCoy (5/1/07) Robert H. Gilkeson (5/15/07) Citizen Action New Mexico/ | | One commenter states that the proposed sampling in the SV SAP is too little and should be increased to at least 100 sampling points in three-dimensions. The other commenter suggested that about 30 locations be sampled at depths of 10, 30, and 60 feet in and around the classified portion of the landfill, and that 30 or more locations also be sampled at points surrounding and within the unclassified portion of the landfill and at the same three depths. The commenter indicates that wastes containing volatile organic compounds, semi-volatile organic | R25 R26 | <p>VOCs based on the results of the passive soil-gas survey. Additionally, in 1992-1993, 42 samplers for measuring the surface flux of tritium, and in 1997, 89 samplers for measuring the surface flux of radon were also deployed.</p> <p>The number and locations of samples collected and analyzed for tritium, radon, and VOCs were adequate to characterize these contaminants at the landfill. Any plume with concentrations or activity levels high enough to represent unacceptable risk to human health or the environment would have been discovered by the density and locations of the various samplers deployed.</p> <p>NMED did not intend nor is it necessary for the SV SAP to duplicate the characterization effort and comprehensive coverage of samplers that were deployed as part of the RFI (see response R2). It is also not necessary for the SV SAP to include 100 or more locations for the purpose of sampling soil-gas for comparison to historical data. Any plume with concentrations or activity levels high enough to represent unacceptable risk to human health or the environment would be discovered by a smaller number of sampling devices.</p> <p>NMED will require that some samples be collected at deeper depths below the landfill as explained in response R31.</p> <p>Metals are not detectable using soil-gas sampling technologies, and are not among the contaminants that will easily migrate from the landfill.</p> |

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| | David McCoy (5/15/07) | | compounds, and metals were placed into the landfill in a heterogeneous manner, thus the SV SAP should include soil-gas sampling locations that are more widely distributed across the landfill. The commenter specifically recommends that tritium hot spots and the acid pit area are sampled under the SV SAP. | | <p>Although the Department originally directed the Permittees to select locations for soil-gas sampling in the SV SAP to correspond to where the highest soil-gas concentrations for volatile organic compounds were found during the RFI, the NMED agrees that wastes were placed in the landfill in a heterogeneous manner. Thus, the Department will direct the Permittees to move some of the sampling locations proposed in the SV SAP to other places within and along the boundary of the landfill. This includes sampling for volatile organic compounds and tritium near the acid pit.</p> <p>Some radon samplers will be deployed at or near areas where the highest activity levels (hot spots) were found.</p> <p>The soil-gas surveys conducted during the RFI clearly indicated that the highest soil-gas concentrations of PCE and other volatile organic compounds are in the northern half of the unclassified portion of the landfill. The active soil-gas survey specifically targeted the areas where PCE was detected by passive soil-gas sampling (compare Figures 4.5-3 and 4.5-11 with 4.5-21 and 4.5-27 in the Phase 2 RFI Report).</p> <p>Soil and tritium flux sampling indicate that the highest levels of tritium contamination are located at the classified portion of the landfill, not the unclassified portion (see Figures 4.4-1, 4.4.-2, 4.4-3, 4.4-4, 4.6-1, 4.6-2, 4.6-3, 4.6-4, and Tables 4.6-2 and 4.6-8 of the Phase 2 RFI Report). This finding was expected based on the landfill's inventory and previous sampling. Thus, future tritium monitoring should especially target the classified portion of the landfill.</p> |

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| F | Robert H. Gilkeson (5/15/07) | | The commenter states that the SV SAP is inadequate to identify releases from discrete pits and trenches. | R27 | See response R2 concerning the scope of the SV SAP. |
| F | Robert H. Gilkeson (5/15/07) | | The commenter states that the SV SAP is inadequate because the proposed monitoring wells are to be installed at locations outside the boundary of the MWL. | R28 | <p>The comment is not relevant to the SV SAP because it concerns long-term monitoring (see response R2 concerning the scope of the SV SAP).</p> <p>The locations proposed by SNL for soil-gas sampling are all located within or along the proposed fenced boundary of the landfill other than the two locations selected as background points. The sampling locations are not monitoring well locations, as soil-vapor samples will be collected only once during implementation of the SV SAP (see response R2 concerning the scope of the SV SAP and response R26 concerning modifications to the SV SAP).</p> |
| F | Robert H. Gilkeson (5/15/07) | | The commenter states that the proposal by SNL to obtain soil-gas samples from 6 locations is nonresponsive to the NOD issued by the NMED. He states that none of the sampling locations are above or below the disposal trenches and pits. | R29 | <p>SNL was required by NMED to propose a minimum of three locations and to sample soil gas at each location at two different depths. SNL proposed six locations within the landfill and agreed to sample soil-vapor at each of the two required sampling depths of 10 and 30 feet. Thus, SNL was responsive through its submittal of the SV SAP and has addressed NMED's original requirements.</p> <p>A depth of 10 feet corresponds to an elevation near the top of the waste. A depth of 30 feet corresponds to an elevation just below the waste. NMED does not recommend the sampling of soil gas via drilling purposely through any of the pits and trenches due to the need to protect the health and safety of site workers.</p> |

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| | | | | | Boreholes placed near the pits and trenches are sufficient to accomplish the objectives of the SV SAP and also protect workers. |
| D E F G | Citizen Action New Mexico/ David McCoy (5/1/07) Citizen Action New Mexico/ David McCoy (5/15/07) Robert H. Gilkeson (5/15/07) Southwest Research and Information Center/Paul Robinson (3/1/07) | Sampling depths | Two commenters state that soil-gas monitoring and sampling should be conducted through the vadose zone from the surface to the uppermost aquifer. One commenter states that soil gas should be sampled to a depth that soil vapor may have been released by compaction of the subgrade or to a depth where VOCs are no longer detected. | R30 | That part of the comment concerning monitoring is not relevant to the SV SAP (see response R2 concerning long-term monitoring). If soil vapor concentrations remain sufficiently low at the level of the waste (at 10 feet), and just below the waste (at 30 feet), there is no critical need to sample for soil gas at greater depths. See also response R31. |
| D F | Citizen Action New Mexico/ David McCoy (5/1/07) Robert H. Gilkeson (5/15/07) | | The commenters argue that soil-gas concentrations generally increase with depth based on Department comments in a NOD issued in 1997, and as demonstrated by the Phase 2 RFI Report. | R31 | There does not appear to be a significant increase in soil-gas concentrations between the depths of 10 and 30 feet. Nonetheless, the NMED will direct SNL to modify the SV SAP to collect at least three samples at a minimum depth of 50 feet instead of a maximum depth of 30 feet. The soil-gas samples are to be analyzed for VOCs; tritium will be analyzed in soil-moisture samples. |

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| F | Robert H. Gilkeson (5/15/07) | Passive Soil-Gas Surveys | The commenter argues that there were insufficient samplers deployed to characterize VOC concentrations. The commenter also argues that passive soil gas samples should be collected now. | R32 | See response R2 concerning the scope of the SV SAP. See also response R24. An active soil-gas sampling method will be employed so that the concentrations of VOCs can be quantified and directly compared to historical data. Passive soil-gas surveys, while they can be more sensitive, provide only qualitative information and cannot be used to rigorously assess concentration levels of contaminants. |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | Tritium characterization | The commenter indicated, according to the NOD, that the Department found that tritium activity levels in soil at depths below the water table in well boring MW4 exceeded background. | R33 | The comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. Data included in the Phase 2 RCRA Facility Investigation Report for the MWL indicated that tritium activity levels at depths below the water table exceeded the background level. However, it was later determined that most tritium levels originally reported in the Phase 2 RFI Report were incorrect due to an error in converting activity levels from pCi/L of soil water to pCi/g of soil. The actual tritium levels are 100 times lower than originally reported in the Phase 2 RFI Report, and thus are actually below the background level in well MW4 at depths at and below the water table. |
| E | Citizen Action New Mexico/ David McCoy (5/15/07) | | The commenters state that tritium should be measured in soil gas. | R34 | The NMED originally required tritium to be measured in soil gas. However, for the new data to be directly comparable to historical data, tritium should be measured in soil moisture. |
| F | Robert H. Gilkeson (5/15/07) | | | | However, NMED may require soil gas to be monitored for tritium as part of long-term monitoring at the MWL. |

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| E | Citizen Action New Mexico/ David McCoy (5/15/07) | | The commenter argues that a proposed trigger level of 20,000 pCi/L of tritium in soil moisture is too high for the early detection of tritium. | R35 | The comment is not relevant to the SV SAP. Trigger levels meant for long-term monitoring requirements are being developed as part of the CMI Plan. See response R2 concerning the scope of the SV SAP. |
| E | Citizen Action New Mexico/ David McCoy (5/15/07) | | The commenter argues that tritium should be monitored around the entire perimeter of the landfill and at all previously identified hot spots. | R36 | The comment is not relevant to the SV SAP because it concerns long-term monitoring (see response R2 concerning the scope of the SV SAP). |
| F | Robert H. Gilkeson (5/15/07) | | The commenter claims that the Permittees have developed a "scheme... to shirk from the responsibility to monitor tritium...". | R37 | The comment is not relevant to the SV SAP because it concerns long-term monitoring (see response R2 concerning the scope of the SV SAP). The SV SAP contains provisions for the sampling of tritium. |
| F | Robert H. Gilkeson (5/15/07) | Helium monitoring | The commenter suggests that helium isotopes should be monitored and studied as a possible surrogate for tritium. | R38 | The comment is not relevant to the SV SAP because it concerns long-term monitoring (see response R2 concerning the scope of the SV SAP). The NMED believes that tritium should be monitored by direct methods, especially given that is possible to do so. |
| F | Robert H. Gilkeson (5/15/07) | Methane monitoring | The commenter believes that methane should be sampled for at the landfill. | R39 | NMED will direct SNL to modify the SV SAP to analyze soil-vapor samples for methane in addition to other VOCs. |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | Radon characterization | The commenter states that radon has not been characterized in the vadose zone beneath the MWL. | R40 | The primary concern for radon is emissions to the atmosphere. The NMED believes that sampling the radon flux on the surface of the landfill is adequate for the purpose of the SV SAP (see response R2 regarding the scope of the SV SAP). |

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| E | Citizen Action New Mexico/ David McCoy (5/15/07) | | The commenter argues that radon should be monitored around the entire perimeter of the landfill and at all previously identified hot spots. | R41 | <p>The radon flux from the ground into the atmosphere was evaluated by deploying sampling devices on the surface of the landfill. The sampling method proposed in the SV SAP is different than that used to characterize the radon flux from the landfill during the RFI. However, the Department will require SNL to employ the same method to measure radon flux as was used in the RFI so that the data obtained through implementation of the SV SAP are directly comparable.</p> <p>If emissions of radon are detected on the surface of the MWL at levels that are appreciably above background, then it may become necessary to monitor the groundwater beneath the landfill for radon.</p> <p>The comment is not relevant to the SV SAP because it concerns long-term monitoring (see response R2 concerning the scope of the SV SAP).</p> |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | | The commenter states that radon gas monitoring should be conducted before construction of the cover. | R42 | <p>The comment is not relevant to the SV SAP because it concerns long-term monitoring (see response R2 concerning the scope of the SV SAP).</p> <p>The cover will not prevent radon emissions from the landfill. Thus, the sampling of radon can be done either prior to or after cover construction. NMED prefers that the radon samplers be deployed prior to cover construction so that new data for radon will be available sooner.</p> |

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| E | Citizen Action New Mexico/ David McCoy (5/15/07) | | The commenter argues that radon should be measured in soil gas. | R43 | The method used to measure radon in the past, and that which will be required for the SV SAP, is a method that measures radon in soil gas. See also response R40. |
| H | Southwest Research and Information Center/Paul Robinson (5/15/07) | | The commenter recommends that the radon samplers be deployed at ground level. | R44 | The method used to measure radon in the past, and that which will be required for the SV SAP, is a method where the radon samplers are deployed at ground level. See also response R40. |
| E | Citizen Action New Mexico/ David McCoy (5/15/07) | Laboratory analysis of VOCs | The commenters state that analysis of VOCs should include all volatile organic compounds known to occur in the landfill. One commenter also states that detection limits should be less than 20 ppmv. | R45 | All VOCs detected by EPA method TO-14 are to be analyzed for and reported on an individual basis. Detection limits for each type of VOC are expected to be lower than 20 ppmv. |
| F | Robert H. Gilkeson (5/15/07) | | | | |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | Storm-water runoff | The commenter recommends that surface soil samples be collected and analyzed to characterize storm-water runoff from the MWL. | R46 | This comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. The subgrade is constructed of clean soil, thus no contaminants will be released by storm events. |
| E | Citizen Action New Mexico/ David McCoy (5/15/07) | | | | |
| D | Citizen Action New Mexico/ David McCoy | Timing of monitoring relative to cover | The commenter states that long-term monitoring should be initiated prior to cover construction | R47 | This comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. |

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| E | (5/1/07) Citizen Action New Mexico/ David McCoy (5/15/07) | construction | | | |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | Extraction of Soil Gas | The commenter states that the extraction and treatment of soil gas should be anticipated and may be necessary. | R48 | Based on the results of the Phase 2 RFI, the remediation of soil gas is not expected to be necessary. See also response R18. |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | Risk Assessment | The commenter states that a risk assessment should be done after characterization of the soil-gas, groundwater, and surface water pathways. The commenter also states that NMED should evaluate a 1995 risk assessment done for the MWL. | R49 | These comments are not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. Risk assessments have already been completed under the RFI and the Corrective Measures Study for the MWL. NMED will review the 1995 report prior to approving the CMI Plan. |
| E | Citizen Action New Mexico/ David McCoy (5/15/07) | Waste inventory | The commenter states that the waste inventory is incomplete, so more characterization is necessary and the selected remedy should be reconsidered. | R50 | The comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. |
| E | Citizen Action New Mexico/ David McCoy (5/15/07) | Hydraulic characterization of surface soil | The commenter claims that determination of certain soil characteristics from a test location 500 feet away from the landfill was not justified because the distance is too large. | R51 | The comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. |
| E | Citizen Action New Mexico/ David McCoy (5/15/07) | Long-term risk of fire and explosion | The commenter states that the SV SAP does not consider risks for fire and explosions. | R52 | The planned intrusive sampling methods will not penetrate trenches and pits where waste is buried at the landfill. Thus, the risk of fire or explosions is expected to be small. |

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| G | Southwest Research and Information Center/Paul Robinson (5/15/07) | Erosion Control | The commenter states that a March 13, 2007, letter to the Department from the Permittees containing a request for precautionary erosion controls not be approved unless NMED receives detailed documentation on subgrade construction, and conducts a visual inspection of erosion and the landfill's surface. | R53 | The comment is not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. |
| I | Jeanne House (3/5/07) | What constitutes a major document | The commenter wants an explanation as to why the SV SAP is considered to be a major document for the MWL. | R54 | The SV SAP describes a sampling effort intended to retrieve data that will be used to determine if contaminant levels have remained low at the MWL since the RFI. Given the need for this information, and because historical data are 10 years old, the SV SAP should be subject to public comment as a major document. |
| I | Jeanne House (3/5/07) | Approval of SV SAP | The commenter recommends that the SV SAP be approved and that construction of the cover begin immediately. | R55 | The SV SAP will be approved with conditions. The conditions will be posted on the NMED web site in the approval letter for the SV SAP at: http://www.nmenv.state.nm.us/hwb/snlperm.html . Construction of the cover (beyond the subgrade) cannot begin until NMED grants approval of the CMI Plan, which cannot be further considered until SNL reports the results of the SV SAP implementation. |
| D | Citizen Action New Mexico/ David McCoy (5/1/07) | Environmental Justice | The commenter states that there has been a lack of concern for monitoring and controlling past, present, and future exposure to communities. | R56 | Long-term monitoring will be implemented at the MWL to ensure that public health and the environment will remain protected at all times. The comment period for the SV SAP was conducted pursuant to the NMED Secretary's Final Order on the MWL remedy, which was formulated as a result of testimony received during the public hearing held on the Corrective Measures Study. The Secretary considered not only the technical testimony given by experts, but also non-technical testimony received from various communities in the area. |

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| D E F | Citizen Action New Mexico/ David McCoy (5/1/07) Citizen Action New Mexico/ David McCoy (5/15/07) Robert H. Gilkeson (5/15/07) | Groundwater | Two commenters presented numerous comments concerning their opinion that there has been a release of many contaminants, including heavy metals from the landfill. Comments are made suggesting that groundwater beneath the MWL has been contaminated by releases from the landfill (such as chromium and nickel), that the groundwater monitoring well network is flawed and inadequate, that too few wells exist to monitor the site, that various hydrologic properties of the aquifer and groundwater flow direction have not been adequately characterized, and that the landfill is not being properly regulated under RCRA with respect to groundwater. Other comments include a recommendation that the detection level of tritium in groundwater be no more than 1 pCi/L, that a large network of groundwater monitoring wells is needed because the landfill does not meet regulatory requirements for the disposal of hazardous waste, that "The NMED NOD instructed DOE/SNL to propose the location of new groundwater monitoring wells at locations within the MWL where past studies identified hot spots of contamination", that cover construction should be delayed, that the monitoring of nickel isotopes in groundwater would provide | R57 | Comments regarding groundwater are not relevant to the SV SAP. See response R2 concerning the scope of the SV SAP. SNL was instructed by the NMED to conduct soil-vapor sampling at hot spots, not to install groundwater monitoring wells. |

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| | | | important information on the source of nickel (given the corrosion of stainless steel well screens), and that groundwater monitoring wells MW1, MW2, MW3, MW4 and MW5 should be replaced. | | |