NEW MEXICO ENVIRONMENT DEPARTMENT'S RESPONSE TO PUBLIC COMMENT RECEIVED ON THE JANUARY 2019 MIXED WASTE LANDFILL FIVE-YEAR REPORT U. S. DEPARTMENT OF ENERGY/ NATIONAL TECHNOLOGY AND ENGINEERING SOLUTIONS OF SANDIA, LLC SANDIA NATIONAL LABORATORIES

Public comment concerning the January 2019 Mixed Waste Landfill Five-Year Report, at the U. S. Department of Energy/National Technology & Engineering Solutions of Sandia, LLC (NTESS) Sandia National Laboratories (SNL) Facility was accepted by the New Mexico Environment Department (NMED) from May 14, 2019, to July 23, 2019. The May 2005 Final Order requires that NMED provide a process whereby members of the public may comment on the Mixed Waste Landfill (MWL) Five-Year Report and its conclusions and respond to those comments in its final approval of the MWL Five-Year Report. On January 8, 2014 NMED approved the MWL Long-Term Monitoring and Maintenance Plan (LTMMP), which started the first five-year evaluation period.

Table 1 of this document lists the members of the public who commented on the MWL Five-Year Report. Table 2 summarizes the comments and contains the NMED's responses to the comments received. NMED's response to public comment includes a description of any modifications that are required to be made to the Five-Year Report because of public comment.

Commenter ID	Date of Letter, email, or comment	Commenter / Organization	Comment #(s)
A	May 31, 2019	Sarina Carruthers	R1, R5, R16
B	June 3, 2019	William P. Moats	R2
C	July 13, 2019	Timothy D. McCullough	R3, R4
D	July 17, 2019	Janet Field	R4, R6, R7, R8, R9, R10, R11, R30
E	July 17, 2019	Eileen Shaughnessy	R3, R4, R8, R19
F	July 17, 2019	Cheyenne Starnes	R3, R4
G	July 18, 2019	Christina Lucas	R3, R4
H	July 19, 2019	Ilsa and Rey Garduño, Citizens Against Radioactive Dumping	R4, R6, R7, R8, R9, R10, R11, R30
I	July 19, 2019, July 20, 2019, July 23, 2019	Dave McCoy, Citizen Action New Mexico (3 emails)	R3, R4, R6, R7, R8, R11, R12, R13, R14, R15, R17, R18, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R32, R33, R34, R35, R36, R37, R38, R39

Commenter ID	Date of Letter, email, or comment	Commenter / Organization	Comment #(s)
J	July 19, 2019	Susan Selbin	R3, R4, R6, R8, R19
K	July 19, 2019	Janet Greenwald	R4, R6, R7, R8, R9, R10, R11, R30
L	July 20, 2019	Ross Lockridge	R4, R6, R7, R8, R9, R10, R11, R30
M	July 20, 2019	Noel Marquez	R4, R6, R7, R8, R9, R10, R11, R30
N	July 21, 2019	Susan and Dario Rodriguez	R4, R6, R7, R8, R9, R10, R11, R30
O	July 21, 2019	Terry Burns, Alamo Group, Lone Star Chapter, Sierra Club	R4, R6, R8, R19
P	July 22, 2019	Carolina Van Stone	R3, R4, R8, R19
Q	July 22, 2019	Linda Seeley	R3, R4, R6, R8, R19
R	July 22, 2019	Maria Martinez Sanchez	R4, R6, R7, R8, R9, R10, R11, R30
S	July 22, 2019	Karen Bonime	R4, R6, R7, R8, R9, R10, R11, R30
T	July 22, 2019	Tiffany Stevens	R4, R6, R7, R8, R9, R10, R11, R30
U	July 22, 2019	Mike Swick	R4, R6, R7, R8, R9, R10, R11, R30
V	July 23, 2019	Sally Davis	R4, R6, R7, R8, R9, R10, R11, R30
W	July 23, 2019	Melora Palmer	R4, R6, R7, R8, R9, R10, R11, R30
X	July 23, 2019	Timothy Peterson	R4, R6, R7, R8, R9, R10, R11, R30
Y	July 23, 2019	Eric Nuttall (2 emails)	R4, R6, R7, R8, R9, R10, R23, R24, R27, R28, R31
Z	July 23, 2019	Claudia Klesert	R4, R6, R7, R8, R9, R10, R11, R30
AA	July 23, 2019	Phillip Robinson	R4, R6, R7, R8, R9, R10, R11, R30
BB	July 23, 2019	George Richmond	R4, R6, R8
CC	July 23, 2019	Sharret Rose	R4, R6, R7, R8, R9, R10, R11, R30
DD	July 23, 2019	Sam Weisberg	R4, R6, R7, R8, R9, R10, R11, R30
EE	July 23, 2019	Sandra Cleisz	R4, R6, R7, R8, R9, R10, R11, R30
FF	July 23, 2019	John E Wilks III	R4, R6, R7, R8, R9, R10, R11, R30
GG	July 23, 2019	Joni Arends, Concerned Citizens for Nuclear Safety	R4, R6, R7, R8, R9, R10, R11, R30
HH	July 23, 2019	Jon Block, New Mexico Environmental Law Center	R4, R6, R7, R8, R9, R11, R30, R34
II	July 23, 2019	Ruth Striegel	R4, R6, R7, R8, R9, R10, R11, R30
JJ	July 23, 2019	Paige Murphy-Young	R4, R6, R7, R8, R9, R10, R11, R30
KK	July 23, 2019	Carl Peterson	R4, R6, R8, R17
LL	July 23, 2019	Sarah Walker	R4, R6, R7, R8, R9, R10, R11, R30
MM	July 23, 2019	Cynthia McNamara	R4, R6, R7, R8, R9, R10, R11, R30

Commenter ID	Date of Letter, email, or comment	Commenter / Organization	Comment #(s)
NN	July 23, 2019	Leona Morgan, Nuclear Issues Study Group (284 hard copy letters)	R4, R6, R7, R8, R9, R10, R11, R30
OO	July 23, 2019	Marla Painter, Community Action Mountain View	R4, R6, R7, R8, R9, R10, R11, R30
PP	July 23, 2019	Charles Gregory	R4, R6, R8
QQ	July 22, 2019	Robert Dinwiddie	R36, R38, R39, R40
RR	July 23, 2019	Amelia Gonzalez	R4, R6, R8
SS	July 22, 2019	Mike Swick	R4, R6, R7, R8, R9, R10, R11, R30

NMED Response Number	Commenter ID	Summary of Public Comment	NMED Response
R1	A	Commenter states that future generations could dig the MWL up and build over it and contaminate themselves. Commenter states that a solution should be found for the MWL instead of covering up the problem and pretending it isn't there.	Long-term monitoring and maintenance under the LTMMP, which includes institutional controls, will continue indefinitely to ensure protection of human health and the environment. NMED must assume that the federal government will exist and can be held accountable for the MWL into the future. It is likely that RCRA or some successor statute will be available in the future to ensure protection of human health and the environment. Should a release of a hazardous waste or constituent that occurs in the future pose an unacceptable risk, NMED has the authority to require corrective action as necessary to protect human health and the environment from the release. Modification: None.

R2	B	Commenter states that a lot of work went into the reevaluation of the excavation alternative. Sandia National Laboratories did a good job laying out in the Report the complexity of the project, should excavation be performed, as well as providing time and cost estimates to accomplish it. Although one may argue that there may be ways to reduce time to perform some of the tasks, and cut costs, excavation of the MWL due to its unique contents would undoubtedly be expensive and take considerable time to complete. Furthermore, the entire operation would be difficult to implement from both a technical and regulatory standpoint, and from the perspective of accomplishing the work in a safe manner. Commenter states that although excavation is technically feasible, it is unnecessary because as indicated in Chapter 2 of the Report monitoring of the groundwater and other environmental media show that the remedy implemented for the landfill is protective of human health and the environment. Furthermore, revision of the Fate and Transport Model for tetrachloroethylene (PCE) (Chapter 3 of the Report) predicts little chance that PCE, the mobile hazardous constituent of most concern, will contaminate groundwater in excess of the water quality standard. It also clear that the MWL cover and related systems are being inspected and maintained. Because the remedy is protective, the risk to workers from any exposure to the radioactive component of waste contained in the MWL via excavation would be unwarranted, even if that risk is now lower due to the radioactive decay that has occurred since the final remedy has been implemented. In conclusion, the MWL should not be excavated given the current conditions and the reasonable expectation that these conditions will not change for the worse in the foreseeable future. Commenter states that the Report meets the requirements found in the 2005 Final Order for Corrective Measures, the 2012 Long-Term Monitoring and Maintenance Plan, and the 2016 Final Order for Corrective Action Complete with Controls (CAC), and should be approved by the New Mexico Environment Department.	NMED agrees that environmental monitoring indicates that the current remedy is protective of human health and the environment and that excavation, while feasible, would be technically challenging, prolonged, very expensive, and present an exposure risk to workers. Modification: None.

R3	C, E, F, G, I, J, P, Q	Commenter states that NMED should hold public hearings where all voices can be heard.	The Final Order dated May 26, 2005 requires that NMED respond to comments on the Five-Year Report. This is that response. The MWL Five-Year Report is not a document that is subject to the requirements of 20.4.1.901.A NMAC. Modification: None.
R4	C, D, E, F, G, H, I, J, K, L, M, N O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, BB CC, DD, EE, FF, GG, HH, II, JJ, LL, PP, RR	Commenter requests that NMED immediately order SNL to proceed with a Corrective Measures Implementation Plan for the evacuation of the MWL.	The Five-Year Report lays out in detail the feasibility, costs, and risks of implementing excavation of the MWL both on-site and off-site. Groundwater and environmental media monitoring indicate that the current remedy is protective of human health and the environment. Modification: None.
R5	A	Commenter states that the radioactive waste at the site needs to be cleaned up and removed altogether and stored in secure containers at Waste Isolation Pilot Plant (WIPP).	The landfill cover provides adequate shielding of the radiation hazards of the landfill. Radiation levels at the surface of the landfill are at background levels and do not pose unacceptable risk to human health or the environment. If these wastes were to be excavated, the radiation hazard they exhibit will not disappear, and the risk of human exposure would increase. WIPP would not be able to receive all of the mixed waste located in the MWL due to restrictions on the types of waste that can be disposed at the WIPP Facility. Modification: None.

R6	D, H, I, J, K, L, M, N, O, R, S, T, U, V, W, X, Y, Z, AA, BB, CC, DD, EE, FF, GG, HH, II, JJ, LL, RR	Commenter states that SNL's plan for excavation and offsite disposal of radioactive and toxic chemical wastes in the MWL is feasible and can be done safely. Commenter states that SNL says the process can begin by the NMED issuance to Sandia of an Order to produce an excavation Corrective Measures Implementation (CMI) Plan. Commenter states that SNL's Five-Year Report provides the evidentiary basis for the NMED to go forward with an Order for excavation. Commenter states that Sandia recognizes that the best alternative for the MWL is excavation with offsite disposal. The Environment Department Secretary's 2016 Final Order specifies that the existing dirt cover "may not be the most appropriate long-term solution for the [MWL] site." Commenter says that the preferred alternative is excavation with offsite disposal as a remedy rather than the onsite disposal alternative.	The Five-Year Report does affirm that excavation and offsite disposal of mixed waste is feasible, and that off-site excavation and disposal is preferable to on-site excavation and disposal. The Report also reviews the results of monitoring under the Long Term Monitoring and Maintenance Plan (LTMMP), which includes required periodic sampling of groundwater, soil moisture, soil vapor, radon, soil tritium, and biota. There is no past or current evidence that any constituents of concern, including radionuclides and chlorinated solvents, are migrating downward toward groundwater. The data indicate that the MWL, in its current condition with the cover installed, does not pose a significant threat to human health or the environment. NMED recognizes that continued monitoring is necessary to ensure protection of human health and the environment. Monitoring will continue to be conducted under the LTMMP to identify any releases, should any occur. Landfills that do not pose unacceptable risk are not normally excavated to remove their contents. Additionally, removal of waste from the landfill generates new waste, which has legal implications under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act (HWA) on how the waste would need to be stored, inspected, treated, disposed, and otherwise managed. These include requirements that would likely cause workers to be exposed to radiation hazards after the landfill had been excavated. Given that the landfill does not pose unacceptable risk, there is no rational justification to warrant exposing workers to the radiation hazards of the landfill's contents by excavating the landfill and subsequently managing the waste. Modification: None.

R7	D, H, I, K, L, M, N, R, S, T, U, V, W, X, Z, AA, CC, DD, EE, FF, GG, HH, II, JJ, LL	Commenter states that according to the Sandia Five-Year Report: • the disposal pathways currently exist offsite for the disposal of all the wastes along with available onsite processing facilities; • excavation could allow the current site of the MWL to become available for industrial use; • excavation can be accomplished by conventional and remote controlled robotic equipment; and • radionuclides, such as Cobalt 60 and Tritium, have decayed to levels that are acceptable for worker safety.	This matter has been addressed, in part, previously by the NMED in Response R42 for the LTMMP. The NMED believes that the radiological hazard of waste buried in the MWL exceeds the chemical hazard. The risk assessment prepared under the MWL Corrective Measures Study (CMS) predicts that the radiological risk to workers would be unacceptable if an excavation alternative was selected. Robotic equipment and site controls could limit radiation exposure to workers and the public, if the landfill was to be excavated. Although robotic technology exists, there is no compelling reason to excavate the landfill, which, in its current condition, does not pose unacceptable risk to the environment or human health under an industrial land use scenario, which is the foreseeable future land use for the site. Modification: None.
R8	D, E, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, BB CC, DD, EE, FF, GG, HH, II, JJ, LL, RR	Commenter states that the MWL should be excavated because it is a threat to the safety of the Albuquerque community, that the cover cannot protect the public and Albuquerque's drinking water aquifer from the long-lived radionuclides and toxic chemicals. The commenter states that the MWL contains hundreds of solvents, heavy metals, and radionuclides in unlined pits and trenches leaking to Albuquerque's drinking water aquifer. They include Plutonium-239, Americium-241, Cesium-137, U-235, mercury, lead, PCE, PCBs, beryllium, and cadmium. Chlorinated solvents, such as trichloroethylene (TCE), are already leaking from the MWL to Albuquerque's drinking water aquifer.	The MWL is not a source of groundwater contamination as demonstrated by over two decades of groundwater monitoring and subsurface soil and soil gas data obtained during the RCRA Facility Investigation. As discussed in previous responses to public comment, the landfill cover will maintain a low, and thus acceptable, level of risk to the public, workers, and the environment, is a proven reliable and effective technology, and will further reduce waste mobility. The cover will prevent wastes from endangering human health, ground water, and the environment by minimizing the infiltration and percolation of moisture into the landfill, preventing the intrusion of small animals into waste, and shielding people, workers, and the environment from harmful radiation. No comments were received that provide any credible scientific evidence that the remedy is not protective of human health and the environment. Modification: None

R9	D, H, K, L, M, N, R, S, T, U, V, W, X, Z, AA, CC, DD, EE, FF, GG, HH, II, JJ, LL	Commenter states that Sandia has experience excavating its landfills as evidenced by the Chemical Waste Landfill that was completed without incident. Commenter states that ordering excavation sets a good precedent for cleanups/excavation at other DOE facilities in New Mexico, including Los Alamos National Laboratory.	Setting a good example to other facilities does not constitute an adequate reason to excavate a landfill that does not pose unacceptable risk, when excavating would cause workers to be exposed to the radiation hazards of the landfill's contents. Modification: None.
R10	D, H, K, L, M, N, R, S, T, U, V, W, X, Z, AA, CC, DD, EE, FF, GG, II, JJ, LL	Commenter states that there is no plan for monitoring wastes forever.	Long-term monitoring and maintenance is required and performed under the LTMMP and will continue indefinitely to ensure protection of human health and the environment. Modification: None.

R11	D, H, I, K, L, M, N, R, S, T, U, V, W, X, Z, AA, CC, DD, EE, FF, GG, HH, II, JJ, LL	Commenter states that canisters in the MWL that contain metallic sodium and high level spent fuel from nuclear reactor meltdown experiments can corrode and catastrophically explode, breaching the landfill's dirt cover and spreading radiation into Albuquerque's air, soil, and water.	This issue has been previously addressed by the NMED (see response R38 for the Corrective Action Complete (CAC) and response R1 for the Corrective Measures Study (CMS).) Metallic sodium can react violently when mixed with water. If sodium is present in the canisters, provided that the canisters remain buried and are not exposed to water beyond typical soil moisture contents, chemical reaction of the sodium will not proceed at a rate that will threaten human health or the environment. As an example, that an explosion is unlikely, metallic sodium residue was present in large concrete crucibles which were buried in soil at SNL SWMU 117, located at the Large Melt Facility. Fifteen tests, each utilizing 220-440 lbs of sodium were conducted at the facility to study reactor safety concerns. Sodium residue in the crucibles disposed of in the small landfill at SWMU 117 was in direct contact with soil for likely many years before the crucibles were excavated. Upon being excavated, it was found that the metallic sodium had not reacted explosively as a result of being directly exposed to soil moisture. There simply was not enough moisture in the soil to react with the sodium metal residue in a substantial manner, much less in an explosive manner. Corrective action sites must be evaluated on an individual basis to assess risk, because, in general, conditions at any given site are often different from other sites, including sites that may be located near to or adjacent to other sites. The Beatty, Nevada site referenced in the comment is not an exception to this rule as climatic and other conditions at these sites are dissimilar to those found at the MWL. Regardless, the NMED has the authority to reopen sites for corrective action should a remedy fail to be protective of human health and the environment with respect to hazardous wastes and constituents. Modification: None.

R12	I	Commenter states that a Freedom of Information Act ("FOIA") request to the National Nuclear Safety Administration/DOE regarding metallic sodium disposal at the MWL has gone unanswered for more than two years. Commenter also states that the SNL/DOE/NNSA has relevant materials and records but has failed to provide them to Citizen Action New Mexico (CANM) so that the information can be utilized for review of the MWL Five-Year Report. Commenter requests an extension from the closing date for the Comment period (July 23, 2019) until SNL/DOE/NNSA has provided the requested records and materials.	NMED has no control over DOE response times to DOE FOIA requests. Regardless, the Facility provided both CANM and the public with the complete set of MWL inventory disposal records and supporting information in 2002. The MWL inventory uncertainty was a major topic at the December 2004 public hearing for selection of the MWL final remedy, and the MWL inventory was extensively discussed and considered. During the July 2015 public hearing for the CAC with controls determination, selected disposal records were cited as proof of high-level radioactive waste disposal by CANM; these records were confirmed to be low-level radioactive waste. As required by the Final Order issued February 12, 2016 by NMED Secretary Flynn, DOE and Sandia provided a records disclosure affirmation on May 16, 2016. Since the relevant records have been available since 2002, as affirmed in May 2016, a time extension is unnecessary. Modification: None.
R13	I	Commenter states that sodium metal and fuel pins from the Annular Core Research Reactor (ACRR) tests were disposed of in the MWL.	This issue was previously addressed during the 2015 Corrective Action Complete hearing. Items containing sodium, including items from the sodium debris experiments referenced by the commenter, with accountable nuclear materials are tracked in the same manner as other accountable items. Similar to the irradiated reactor fuel or spent nuclear fuel, fuel contaminated with sodium from the tests referenced by the commenter was managed appropriately (i.e., stored at SNL or sent offsite for disposal or processing) and is not located in the MWL. Modification: None.

R14	I	Commenter states that an April 14, 2010 EPA Office of Inspector General Hotline Report described concerns for defective groundwater monitoring that the EPA Region 6 and NMED colluded to hide from Citizen Action and the public. Defective groundwater monitoring samples were relied upon in 2004 for approving the dirt cover to be placed over the MWL instead of excavation.	This issue has been previously addressed by the NMED (see response R18 for the CAC, response R2 for the LTMMP, and response 19 for the Corrective Measures Implementation (CMI) Report.) The EPA Office of Inspector General (OIG) report of April 14, 2010 disagreed with the EPA conclusion that the MWL does not present a hazard to the public. The EPA OIG does not have the expertise to overturn a technical opinion of the EPA. Thus, NMED disagrees with the commenter's implication that the OIG concluded that the MWL poses a threat to the public. Groundwater samples from 2004 were not defective. Modification: None.
R15	I	Commenter states that the groundwater monitoring network at the MWL is defective for finding evidence of contamination.	This issue has been previously addressed by the NMED (see response R17 for the CAC, Responses R10, R18, and R32 for the LTMMP; Responses R29, R38, R39, R40, R42, R44, R46, R47, R48, R49,R50, R52, R53, R54 and R56 for the CMI Plan; and Responses 4,6, 7, 8, 11, 17, 25, 26, and 28 for the CMI Report.) The past and current groundwater monitoring networks are adequate. Wells at the MWL provide reliable data to assess groundwater quality and hydraulic head. Modification: None.
R16	A	Commenter states that NMED selected a vegetative soil cover with a biointrusion barrier (ET cover as the remedy for the MWL) that includes unsaturated zone groundwater monitoring.	Vapor monitoring wells rather than groundwater monitoring wells are installed in the unsaturated zone. There are groundwater monitoring wells screened at and below the water table to enable groundwater from the saturated portion of the aquifer to flow into the well. Modification: None

R17	I	Commenter states that there are millions of gallons of jet fuel and aviation gasoline released by Kirtland Air Force Base, and NMED should not risk the release of long-lived radionuclides and chemicals to further contaminate Albuquerque's drinking water aquifer.	As stated above, the MWL is not a source of groundwater contamination and groundwater beneath the MWL is unlikely to become contaminated. The KAFB Bulk Fuels Facility (BFF) is separated physically from the MWL by several miles. Regardless of contamination and cleanup activities at the BFF, continued monitoring under the LTMMP will ensure that radionuclides and chemicals will not further contaminate the groundwater aquifer at the MWL. Modification: None.

R18	I	Commenter states that tetrachloroethylene (PCE) and trichloroethylene (TCE) are at least 400 feet beneath the MWL if not already in the groundwater, that the MWL will likely cause increased groundwater contamination, and that groundwater was not considered as a pathway in the human health risk assessment for the MWL.	The MWL is not a source of groundwater contamination as demonstrated by over two decades of groundwater monitoring data and vadose zone monitoring data obtained during the Phase 1 and Phase 2 RCRA Facility Investigations. NMED previously responded to this issue in Responses R1 and R9 for the LTMMP, Responses R1, R42, R43, R46, R47, R48, R52, and R54 for the CMI Plan, and Response 12 for the CMI Report. Although PCE has been detected in soil gas beneath the MWL, the concentrations of PCE in the soil gas are too low to contaminate groundwater at levels that would result in concentrations above the water quality standard for PCE (0.005 mg/L). The issue of groundwater not being considered as a pathway was addressed previously by the NMED in Response 68 of the CAC and Response 2 for the CMI Report. A risk assessment for the MWL was presented as part of the Phase 2 RCRA Facility Investigation Report. An additional risk assessment was prepared as part of the MWL Corrective Measures Study. The comment is not accurate; the risk assessment reported in the Phase 2 RFI Report considered groundwater. Both the newer (2008) wells and the now-abandoned older wells at the MWL have yielded groundwater samples demonstrating that the landfill has not caused groundwater contamination. Furthermore, vadose-zone investigations completed since 2004 have yielded results that are consistent with data obtained during the RCRA Facility Investigation (RFI) completed in 1996 and continue to indicate that groundwater is unlikely to become contaminated. Because groundwater is not, and is unlikely to become, contaminated, a complete pathway to receptors does not exist and will not likely exist via the groundwater exposure pathway. Modification: None.

R19	E, J, O, P, Q	Commenter states that it is irresponsible, costly, and dangerous to trust that the dirt cover (i.e. evapotranspirative cover with a biointrusion barrier) will last for the duration of the long-lived toxic, radioactive, and hazardous materials that lie below it.	This issue has been previously addressed by the NMED (see Response R4 in the CAC, and Responses 13 and 15 in the CMI Report). The landfill is expected to last 1000 years without maintenance. Additionally, although NMED can't predict the future, NMED must assume that the federal government will continue to exist, and will do whatever is necessary to protect human health and the environment, including maintaining the landfill cover. The cover averages 4.12 feet thick (or 1255.8 mm, which is in addition to the 1.25-foot thickness of the bio-barrier, and up to 3 additional feet of subgrade). At an average erosion rate of 1 mm per year, the cover would last more than 1000 years even if no maintenance was performed to replace soil eroded from the cover. Additionally, the cover was designed to minimize maintenance. The landfill cover is graded to reduce the erosion capability of water flowing over the cover's surface. The cover is also vegetated to accomplish the same effect; vegetation will also transpire moisture from rainwater back into the atmosphere. Run-on water is diverted around the landfill by ditches. The LTMMP contains provisions that require inspection of the cover and repair of the cover as necessary. Modification: None.
R20	I	Commenter states that the 2016 Final Order required 1) evaluation of excavation, removal, and appropriate disposal of all waste in the MWL and; 2) construction and installation of a modern landfill, which shall at a minimum include a RCRA Subtitle C liner system, an ET cover with bio-intrusion barrier, and appropriate post-closure controls and monitoring.	The Five-Year Report evaluates excavation of the Mixed Waste Landfill to off-site location(s), which satisfies the first requirement cited by the commenter, and evaluation of transferring the Mixed Waste Landfill contents to an on-site modern landfill, which satisfies the second requirement cited by the commenter. Modification: None.

R21	I	Commenter states that the soil vapor monitoring wells at the MWL with neutron tube moisture detection known as FLUTe membrane sampling system are unsuitable, as proven by NMED's concern at LANL that FLUTe systems greater than 50 feet in length absorb volatile organic compounds (VOCs). Commenter states that soil vapor wells located outside the MWL boundaries will not produce reliable and representative soil gas samples.	Soil vapor samples obtained using FLUTe wells are reliable and representative. As demonstrated in the LANL Pilot Test Report for Comparing Packer and FLUTe Vapor-Sampling Systems at Material Disposal Area H, September 2008, approved by NMED in a letter dated September 30, 2008, there are no significant differences between samples taken from FLUTe wells with nylon tubing and those with stainless steel tubing and no evidence that absorption of VOCs is a problem. It is not necessary to install soil-gas monitoring wells beneath all or most trenches and pits at the landfill. The original footprint of the MWL covers 2.6 acres. Soil-gas plumes will migrate chiefly along the path of least resistance. Because sediments with near horizontal orientation underlie the MWL, and most are more permeable in the horizontal direction than the vertical direction, soil gas is likely to spread laterally as well as vertically through the vadose zone (for example, there are beds of sand and gravel that lie just beneath the MWL disposal trenches/pits where tritium vapor appears to be preferentially migrating). This was the case with the nearby Chemical Waste Landfill where geological conditions are similar and soil-gas concentrations prior to conducting soil-vapor extraction were once much higher on average than those found at the MWL. Any soil-gas plume at the MWL with concentrations high enough to pose an unacceptable risk to human health or the environment would spread laterally and would be detected by the deployment of a relatively small number of soil-vapor monitoring wells. Modification: None.

R22	I	Commenter states that NMED focused only on corrective action as a technical process for whether the dirt cover was properly constructed. Commenter states that the dirt cover is not designed for protection from the leaching of toxic metals, solvents, PCBs, spent fuel, Plutonium and Transuranic (TRU) waste.	The purpose of the evapotranspirative cover is to: a. separate the buried waste/contaminated materials from the surface; b. restrict infiltration of precipitation so as to minimize the formation of leachate by minimizing the contact of water with waste; and c. minimize the need for further MWL maintenance to ensure protection over time. The evapotranspirative cover consists of a compacted subgrade, a rock biointrusion layer and soil cover, a compacted native soil layer, and a topsoil layer, all of which ensure protection of human health and the environment by allowing for moisture to be stored and then returned to the atmosphere through evaporation. The soil also serves as a moisture reservoir for plants, which extract the stored water from the soil during the growing season and return it to the atmosphere via transpiration. Furthermore, the landfill surface has been graded to maximize surface water runoff. Ditches have been constructed to divert surface water run-on further reducing potential infiltration. The design relied upon soil thickness and evapotranspiration to provide long-term performance and stability. Considering conditions at the MWL, it was not necessary to construct a conventional RCRA cover to ensure protection of human health and the environment. It was successfully demonstrated by performance modeling that based on the average precipitation in Albuquerque, New Mexico, the cover design for the MWL is adequately protective. The MWL Corrective Measures Implementation Report, dated January 2010, documents that the evapotranspirative cover was constructed in accordance with the requirements, specifications, and design drawings presented in the November 2005 MWL Corrective Measures Implementation Plan. The thickness of the cover components in most instances exceeded the required thickness.

			The cover is designed to prevent precipitation from reaching the wastes beneath the cover, thus preventing any leaching of contaminants disposed in the MWL. The cover averages 4.12 feet thick (or 1255.8 mm, which is in addition to the 1.25-foot thickness of the bio-barrier, and up to 3 additional feet of subgrade). At an average erosion rate of 1 mm per year, the cover would last more than 1000 years even if no maintenance was performed to replace soil eroded from the cover. Additionally, the cover was designed to minimize maintenance. The landfill cover is graded to reduce the erosion capability of water flowing over the cover's surface. The cover is also vegetated to accomplish the same effect; vegetation will also transpire moisture back into the atmosphere. Run-on water is diverted around the landfill using ditches. The LTMMP contains provisions that require inspection of the cover and repair of the cover as necessary. Due to the uncertainty associated with the inventory, NMED recognizes that continued monitoring is prudent to ensure protection of human health and the environment. Monitoring will be conducted under the LTMMP to ensure the cover is maintained and identify any unexpected releases, should any occur. Modification: None.

R23	I, Y	Commenter states there is a potential for an explosion of metallic sodium and other incompatible ignitable chemicals that were disposed of in the MWL.	The MWL has not received any waste since 1988 (over 30 years ago) and the cover, completed in 2009, is designed to keep the waste/contaminated materials from the surface and to restrict infiltration of precipitation in order to minimize the contact of water with waste. Because the cover limits waste contact with air and water, mobilization of waste is unlikely, and the risk of fire or explosions is expected to be small. As stated above, to ensure protection of human health and the environment, monitoring will be conducted under the LTMMP to identify any damage to the cover or unexpected releases, should any occur. Modification: None.

R24	I, Y	Commenter states that Sandia has not provided full information about the inventory in the MWL. Another commenter states that the MWL disposal inventory was kept "Classified" for secrecy.	This issue has been previously addressed by the NMED (see R47 for the CAC and R5, R6, R8, R9, R13, R18, and R75 for the CMS). SNL produced a non-classified version of the inventory for wastes buried in the pits in the classified portion of the MWL and for wastes buried in the trenches in the unclassified portion. This version of the inventory was submitted as supplemental information to the Phase 2 RCRA Facility Investigation Report, and is available for public inspection. NMED believes that the inventory for the MWL is not complete, but is likely reasonably representative of the landfill contents. For most old landfills, no inventory is available. All records have been reviewed by SNL to prepare the unclassified inventory. No significant improvements of the MWL inventory can likely be made without excavating the landfill. Given that there is some uncertainty with the inventory, monitoring of the landfill is prudent to ensure that any unexpected release is detected, should any occur. The LTMMP contains provisions for monitoring various environmental media at the MWL to ensure that unexpected releases are detected, if any occur. Modification: None.

R25	I	Commenter states that the poorly managed disposal and maintenance practices at the MWL allowed a large amount of water to enter the buried wastes. For example, 270,000 gallons of reactor waste water from the ACRR was disposed of in Trench D. A uranium chip fire occurred at the MWL, and required 5,000 gallons of water to extinguish the fire.	This issue has been previously addressed by the NMED (see R67 for the CAC). NMED agrees that the cited incidents are examples of poor management in the past. However, the landfill is now inactive and similar practices will not be allowed (nor could they occur, as the trenches and pits are beneath the cover). Furthermore, the new landfill cover is designed and constructed such that overland flow is diverted away from the landfill, and the surface of the cover is graded to drain excess water from the cover. These design elements will be inspected and maintained in the future as provided for in the LTMMP. The 270,000 gallons of reactor coolant water and water used to extinguish fires has dissipated by now and will not cause contaminant migration. Modification: None.
R26	I	Commenter states that radioactive waste in the MWL is from the Nevada Test Site, Three-Mile Island, Kwajalein atomic bomb tests, Kirtland Air Force Base, and commercial reactor melt down tests. Commenter states that numerous Sandia publications describe that nuclear fuel meltdown tests were conducted in the Annular Core Research Reactor and used canisters that contained metallic sodium. Commenter states that Sandia management memoranda from 1997-2001 along with Radioactive and Hazardous Waste Disposal sheets indicate that canisters containing metallic sodium and high-level nuclear waste were processed in the Hot Cell Facility and disposed in the Mixed Waste Landfill.	This issue has been previously addressed by the NMED (see Response R55 for the CAC and Responses R10 and R23 of the CMS). The disposal sheets cited by the commenter indicate that items contaminated by irradiated nuclear fuel were part of the items placed in the MWL. Items contaminated by irradiated nuclear fuel are not high level waste. Materials including irradiated nuclear fuel, metallic sodium, or anything that could be defined as spent nuclear fuel or high level waste were managed appropriately (i.e., stored at SNL or sent offsite for disposal or processing) and are not in the MWL. Modification: None.

R27	I, Y	Commenter states that SNL already has robots that can safely excavate radioactive waste.	This issue has been previously addressed by the NMED (see Response R6 for the CAC and Response R42 for the LTMMP). The NMED believes that the radiological hazard of waste buried in the MWL exceeds the chemical hazard. The risk assessment prepared under the MWL Corrective Measures Study predicts that the radiological risk to workers would be unacceptable if an excavation alternative was selected. Robotic equipment and site controls could limit radiation exposure to workers and the public if the landfill was to be excavated. Although robotic technology exists, there is no compelling reason to excavate the landfill, which, in its current condition, does not pose unacceptable risk to the environment or human health under an industrial land use scenario, which is the foreseeable future land use for the site. Excavation of waste would generate a new waste and would only be the first step in the "cradle to grave" management of the waste. NMED is unaware that there is robotic technology that can be applied to store, inspect, declassify or demilitarize, sample, treat, and otherwise manage wastes in a safe manner that is compliant with law. RCRA has stringent requirements for all aspects of hazardous (mixed) waste management, which will likely require considerable human interaction with wastes (with potential for exposure to radiation hazards), and imposes time limits related to treatment and disposal of mixed and hazardous wastes. Modification: None.

R28	I, Y	Commenter states that high-level waste is defined as waste that requires permanent isolation.	This issue has been previously addressed by the NMED (see Response R55 for the CAC and Responses R10 and R23 of the CMS). The regulatory definition of high level waste is waste that is a result of reprocessing spent nuclear fuel or is spent (and/or irradiated) nuclear fuel. Low level waste is a "catch-all" category, and is waste that is not high level, transuranic, or mill tailings. One should note that there is no upper limit to the level of radioactivity that a low level waste may possess. Thus, low level wastes can be highly radioactive and dangerous due to their radioactive properties. The distinction between the two types has to do with how the waste was generated, not the level of radioactivity associated with it. Some low level wastes disposed of in the MWL exhibited very high and dangerous levels of radioactivity at the time of their disposal. The latter has been a matter of public record for many years (see the unclassified inventory for the MWL, Pit 30, for example, which lists an activated stainless steel pipe containing reactor instrumentation exhibiting 1000 rem/hour on contact at the time of disposal). However, the wastes are not a hazard to human health or the environment while buried in the MWL because the landfill cover provides adequate shielding from the radiation hazards. Modification: None.
R29	I	Commenter states that NMED and DOE/Sandia have ignored, misrepresented, and withheld crucial facts that, if fully considered, must result in the conclusion that excavation and offsite disposal of the MWL. Commenter states that DOE/Sandia has misinformed and deceived NMED to avoid having to excavate the MWL.	NMED has not provided false information to the public, and has made every effort to provide accurate information about the MWL and to explain its decisions. Additionally, NMED has not encountered any information to suggest that the SNL has provided false information. Modification: None.

R30	D, H, K, L, M, N, R, S, T, U, V, W, X, Z, AA, CC, DD, EE, FF, GG, HH, II, JJ, LL	Commenter states that an independent study by the New Mexico State University affiliated Environmental Education and Technology Development (WERC) concluded that the nature and amounts of hazardous and radioactive materials stored at the Mixed Waste Landfill, plus the location of the site next to a growing metropolitan city, represents a long-term potential hazard to both humans and the environment and unless excavated, the site will be a permanent legacy issue to DOE.	The WERC findings were discussed at the 2004 hearing for remedy selection for the MWL, and were included in the Administrative Record for that proceeding. SNL recommended at the hearing that the cover and monitoring should be the final remedy for the MWL, although excavation was assessed as part of the Corrective Measures Study. NMED made the final remedy decision to construct the cover (plus biobarrier) and conduct monitoring, which was made, in part, in consideration of the short term unacceptable risk to workers if the landfill was excavated (due to the radiation hazard). In addition, there have been no releases from the MWL that pose unacceptable risk to human health and the environment, and such releases are not expected to occur in the future. As stated above, long-term monitoring and maintenance performed under the LTMMP will continue indefinitely to ensure protection of human health and the environment. Modification: None.

R31	Y	Commenter states that the WERC panel would have had different conclusion if the panel had full knowledge of the MWL inventory. Commenter states that Sandia intentionally misled WERC panel.	This issue has been previously addressed by the NMED (see Response R56 for the CAC). The SNL Facility is a DOE facility that engages in research involving the use of nuclear materials. It is obvious from the unclassified inventory that radioactive substances were disposed in the MWL, including radioactive wastes generated from nuclear weapons testing and nuclear experiments. The unclassified inventory was prepared for two main reasons: 1) to produce an unclassified version of the landfill's contents in a manner that could be reviewed by the public and non-cleared NMED employees, and 2) to summarize the thousands of disposal sheets. The WERC panel relied on the unclassified inventory and chose not to pursue detailed waste records amounting to thousands of pages. NMED has not encountered any information to suggest that Sandia has provided false information. Modification: None.

R32	I	The commenter states that the NMED sued Citizen Action to keep secret a January 2006 TechLaw, Inc. report that pointed out defective construction, maintenance, and monitoring problems for the dirt cover and a flawed computer model for fate and transport of the wastes.	This issue has been previously addressed by the NMED (see Response R82 and R93 for the CAC and R4 for the LTMMP). NMED did not present a false record for the MWL to the public. TechLaw was tasked by the NMED to review the Fate and Transport Model (FTM) found in Appendix E of the CMI Plan, not the design of the cover. The draft comments asked that additional detail be provided regarding the modeling methods (codes) used, data quality objectives, quality assurance, details regarding specific inputs and outputs for modeling runs, sensitivities of input parameters, and bias. Without these details, the model could not be fully evaluated thus, it was referred to as a "black box" by TechLaw. SNL addressed the issues to the satisfaction of the TechLaw reviewer and the NMED in their response to the 2006 NOD submitted on January 19, 2007. This comment misconstrues both the litigation around the 2006 TechLaw Report, as well as the nature and content of the report. Citizen Action sued NMED to release the 2006 TechLaw Report, and eventually prevailed. The 2006 TechLaw Report, which was a draft set of comments prepared for the Fate and Transport Model by NMED Contractor TechLaw, Inc, did not conclude that a liner beneath the cover was needed. Instead, it suggested that the biointrusion layer could be designed with a geosynthetic drain to carry moisture to beyond the sides of the landfill. TechLaw was tasked by NMED at that time to review the Fate and Transport Model (FTM) found in Appendix E of the CMI Plan, not the design of the cover. Thus, the TechLaw representative, who did not review the cover design in any detail, could not have commented on the adequacy of the design of the cover in any credible manner. The 2006 TechLaw Report did not point out a flawed fate and transport model. Rather, TechLaw requested that additional detail be provided regarding the modeling methods (codes) used, data quality objectives, quality assurance, details regarding specific inputs and outputs for modeling runs, sensitivities of input parameters, and bias. Without these details, the model could not be fully evaluated thus, it was referred to as a "black box" by TechLaw. SNL addressed the issues to the satisfaction of the TechLaw reviewer and NMED in their response to the 2006 NOD submitted on January 19,

R33	I	Commenter states that the Five-Year Report and the MWL administrative record lack any information referring to documents describing the presence of metallic sodium and the various meltdown experiments.	The purpose of the Five-Year Report is to evaluate the effectiveness of the selected remedy (i.e., the ET Cover) and the likelihood of contaminants reaching groundwater, and to reevaluate the feasibility of MWL excavation with both on-site and off-site disposal. The landfill inventory has been comprehensively covered in previous documents and hearings and is part of the administrative record; thus, including the inventory in the Five-Year Report is not necessary. Modification: None.
R34	I, HH	Commenter states that the Five-Year Report indicates a long-term risk that canister seals and other containment can fail, something already recorded in the inventory of stored materials, but which otherwise would go undetected until either the contaminant reaches a monitoring well, causes an accident, or excavation is undertaken and discovers the problem, something foreseen and even expected in the feasibility evaluation.	It is unclear what is meant by this comment; NMED assumes that the commenter is concerned that container degradation will cause groundwater contamination, an accident, or problems during excavation. Given the nature of the wastes in the inventory, the degradation of containers will likely have little impact on contaminant releases, as the majority of the wastes disposed of in the MWL were in solid form. Additionally, the cover will limit infiltration of moisture into the landfill. Thus, if the landfill were to be excavated in the future, most waste items would not be any more difficult to excavate if their container, if any, was degraded. Modification: None.

R35	I	Commenter states that waste should be removed from the MWL before containers are completely disintegrated and release all contents. Sandia should identify licensed facilities where the wastes could be transported.	NMED believes that many of the steel containers within the MWL have or will eventually rust. Containers made of wood, paper, cardboard, and plastic will also degrade. Any liquids within the containers could migrate from the landfill if conditions are appropriate. However, this does not necessarily mean that any release would pose a risk to human health or the environment. It also does not mean that the landfill would need to be excavated to mitigate a release. Due to the uncertainty associated with the inventory, NMED recognizes that continued monitoring is necessary to ensure protection of human health and the environment. The results of monitoring will be used to screen for any unexpected releases, should any occur. The Facility will be directed to take remedial action, if NMED determines that such action is necessary. Modification: None.

R36	I, QQ	Commenter states that SNL has not provided a full inventory as required by RCRA. Commenter asserts that the MWL is a "regulated unit", that SNL must abide by 40 CFR § 264 or 40 CFR §265, that a Part A and Part B Permit Application were not submitted for the MWL, and that the landfill lost interim status and was operated illegally.	This issue has been previously addressed by the NMED (see Response R71 for the CAC, Response R13 for the LTMMP, Response R39 for the CMI Plan, and Response 30 for the CMI Report). The MWL is regulated as a Solid Waste Management Unit (SWMU) subject to corrective action pursuant to 20.4.1.500 NMAC incorporating 40 CFR§ 264.101. The EPA designated the MWL as a SWMU prior to delegating the NMED corrective action authority for RCRA subtitle C. The requirements for a regulated unit do not apply to the MWL. SNL did not submit a Part A or Part B Permit Application because they chose not to obtain a permit to operate the MWL as a hazardous (mixed) waste management unit. The MWL was not operated under interim status. Instead, the MWL was deactivated, and the unit later declared a SWMU subject to corrective action by the EPA. The MWL is a SWMU (see R13(A)). The MWL was not illegally operated under federal regulations or State law. Disposal of radioactive waste at the MWL from 1982 to 1988 did not require a RCRA permit, nor was such disposal subject to RCRA waste management provisions. Modification: None.

R37	I	Commenter states leaving MWL wastes in place would violate the following federal regulations: 10 CFR 61.59(b), 40 CFR 264.111(a), 40 CFR 264.111(b), 40 CFR 264.310 (a)(1), 40 CFR 264.310 (a)(2), 40 CFR 264.310 (a)(4), 40 CFR 264.312, 40 CFR 264.314 (f)(2), and 40 CFR 265.17, 40 CFR 265.111(b), 40 CFR 265.310 (a)(1), 40 CFR 265.310 (a)(2), 265.310 (a)(4), 265.315 (g)(2).	This issue has been previously addressed by the NMED (see Response R71 for the CAC, Response R13 for the LTMMP, Response R39 for the CMI Plan, and Response 30 for the CMI Report). 10 CFR 61.59 pertains to radioactive waste, over which NMED does not have regulatory authority. SNL has not violated the regulations at 20.4.1.500 NMAC incorporating 40 C.F.R. § 264.111, 40 C.F.R. § 264.310, 40 C.F.R. § 264.311, 40 C.F.R. § 264.312, 40 C.F.R. § 264.314, 40 C.F.R. § 264.315 or 20.4.1.600 NMAC incorporating 40 C.F.R. § 265.111, 40 C.F.R. § 265.310, 40 C.F.R. § 265.311, 40 C.F.R. § 265.314, 40 C.F.R. § 265.315 because the MWL is a solid waste management unit rather than an interim status or hazardous waste management unit. Modification: None.

R38	I, QQ	Commenter states that the compliance date of the administrative order was ignored and that the Five-Year Report is more than nine years overdue.	This issue has been previously addressed by the NMED (see Response R39 for the CAC and Response R3 for the LTMMP). The 5-year re-evaluation provision is found in paragraph five of the Final Order. This language is repeated nearly verbatim in Permit Section V, Module IV. The provision in paragraph five provides no indication of when the first 5-year report is due, nor does it contain any cross reference to other sections of the Final Order (or Permit) that might provide that information. Nothing in the Final Order specifies that the five year review period commences with the date of issuance of the order. NMED's determination that the first 5-year re-evaluation of the MWL is due 5 years after approval of the LTMMP does not violate any requirement of the New Mexico Hazardous Waste Act. The mechanism for establishing what monitoring data will be the subject of the 5-year review is the LTMMP. It therefore follows that the first 5-year report should be due five years after approval of the LTMMP. The LTMMP was approved January 8, 2014, after considerable public input was considered by NMED. The delay of nine years between issuance of the May 2005 Order and approval of the LTMMP was longer than expected due to lawsuits filed against NMED concerning the selected remedy and because NMED provided for much more public participation than is required by regulation (and as directed by the May 2005 Order) to implement the remedy for the MWL. Modification: None

R39	I, QQ	Commenter states that the MWL is not a RCRA landfill and that the name Mixed Waste Landfill is arbitrary. Commenter states that the dirt cover does not meet RCRA requirements for an unlined Hazardous/Mixed Waste Landfill that lost Interim Status twice, and that the approval of the cover was done with minimal public involvement.	This issue has been previously addressed by the NMED (see Response R73 for the CAC). Because the MWL is a SWMU, and not a hazardous waste management unit, the MWL is not subject to any specific design requirements under RCRA for new or replacement landfills or landfill cells. The corrective action regulations do not provide prescriptive requirements such as technical specifications for a landfill cover. Corrective action does require that all remedial measures and corrective actions protect human health and the environment given the anticipated future use of the site and maintain that protection over time. As stated above in Response 22, the primary objective of a final cover system is to: a) separate the buried waste/contaminated materials from the surface; b) restrict infiltration of precipitation so as to minimize the formation of leachate by minimizing the contact of water with waste; and c) minimize the need for further MWL maintenance to ensure protection over time. The hazardous waste landfill regulations (referred to as Subtitle C requirements) do not provide prescriptive cover designs. Instead, Subtitle C establishes performance standards for final cover systems as part of closure and post-closure care (see 40 CFR § 264.310). EPA did develop a technical guidance document for design of Subtitle C covers entitled Final Covers on Hazardous Waste Landfills and Surface Impoundments, EPA/530-SW-89-047, July 1989. However, RCRA Subtitle C regulations also allow alternative designs that consider site-specific conditions including climate and the nature of the waste as long as the alternative design also meets the intent of the regulations to protect human health and the environment (see 40 CFR § 264.301(b)). Approval of alternative cover designs is allowed provided they are protective of human health and the environment and meet the post-closure care performance standards at 40 CFR § 264.310.

			Notwithstanding the discussion in the above paragraph, and as mentioned previously, the MWL is a SWMU subject to corrective action and is not subject to regulation under 40 CFR §§ 264.301 and 264.310. Instead, these regulations are used as guidance under the corrective action program with the intent of developing a cover design that will be protective of human health and the environment. An alternative cover was proposed by SNL for the MWL consisting of a thick layer of native soil. The design relied upon soil thickness and evapotranspiration to provide long-term performance and stability. Considering conditions at the MWL, it is not necessary to construct a conventional RCRA cover to ensure protection of human health and the environment. It was successfully demonstrated by performance modeling that based on the average precipitation in Albuquerque, New Mexico, the cover design for the MWL is adequately protective. Thus, a RCRA compliant cover was constructed consisting of a compacted subgrade, a rock biointrusion layer and thin soil cover, a compacted native soil layer, and a topsoil layer. The MWL Corrective Measures Implementation Report, dated January 2010 documents that the evapotranspirative cover was constructed in accordance with the requirements, specifications, and design drawings presented in the November 2005 MWL Corrective Measures Implementation Plan. The thickness of the cover components in most instances exceeded the required thickness. The current evapotranspirative cover allows for moisture to be retained and then returned to the atmosphere by evaporation. Also, the soil serves as a moisture reservoir for plants, which extract the stored water from the soil during the growing season and transpire it to the atmosphere. The cover is designed to prevent precipitation from reaching the wastes beneath the cover. Monitoring under the LTMMP will be conducted to ensure that the cover is functioning as intended.

			Had the MWL been closed and subject to a post-closure permit as a regulated unit, there would have been considerably less opportunity for public input. The landfill simply would have been closed after construction of the cover and monitoring systems, and would be undergoing post-closure care, with but only one opportunity for public input on a proposed closure plan and postclosure care permit. In contrast, as a SWMU, the public was given the opportunity to comment on many major implementation steps to complete corrective action: the CMI Plan, the CMI Report, the Soil Vapor Sampling and Analysis Plan, the LTMMP, and the CAC proposal. The Five-Year Report provides yet another opportunity for the public to participate. Modification: None.

R40	QQ	Commenter states that daughter products and aerobic and anaerobic processes are ignored, and that vadose zone releases are ignored.	This issue has been previously addressed by the NMED (see Response R51 for the CAC). Although NMED does not generally have the authority to regulate radionuclides, daughter products of radioactive metals were considered during remedy selection. Daughter products are metals, and migrate according to their chemical properties, not their radiological properties. Being metals, they are not mobile under conditions where little moisture is available to facilitate their migration. The cover installed over the MWL will limit the amount of moisture that can infiltrate the cover and percolate through the waste, precluding migration of the daughter products to groundwater. The cover also provides adequate shielding from the radioactive hazards of the landfill, including that of daughter products. Volatile organic compounds that are products of biological activity in aerobic and anaerobic environments are monitored in groundwater on a regular basis, as required by the LTMMP. Vadose zone monitoring is also required in the LTMMP. Modification: None.