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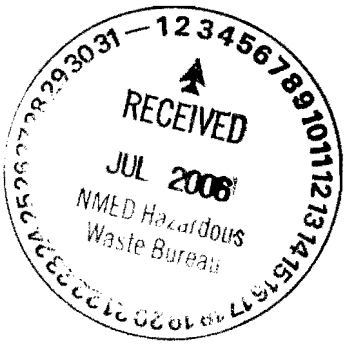
560 Golden Ridge Road, Suite 130
Golden, CO 80401
(303) 763-7188
(303) 763-8889 FAX
www.techlawinc.com

June 29, 2006



Mr. David Cobrain
State of New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building One
Santa Fe, New Mexico 87505-6303

Reference: Work Assignment No. 06110.310.0002; State of New Mexico Environment Department, Santa Fe, New Mexico; Human Health and Ecological Risk Assessment Support; Review of Public Comments on the *Probabilistic Performance-Assessment Modeling of the Mixed Waste Landfill at Sandia National Laboratories*, presented in Appendix E of the Sandia National Laboratories (SNL) *Mixed Waste Landfill Corrective Measures Implementation Plan*, dated November 2005; Task 2 Deliverable.

Dear Mr. Cobrain:

Enclosed please find the deliverable for the above-referenced work assignment. The deliverable consists of compiled and summarized public comments on the *Probabilistic Performance-Assessment Modeling of the Mixed Waste Landfill at Sandia National Laboratories*, presented in Appendix E of the Sandia National Laboratories (SNL) *Mixed Waste Landfill Corrective Measures Implementation Plan* (the CMI plan), dated November 2005. The current deliverable presents additional public comments received by NMED during the reopening of the public comment period, which began with the technical discussion public meeting on May 25, 2006 and closed on June 9, 2006.

The public comments cover a wide range of concerns. Some of the main concerns and objections are summarized in condensed form below:

- Suggestions to enhance the fate and transport model.
- Recommendations to perform geophysical surveys of the mixed waste landfill (MWL) to take advantage of recent advances in technology.
- Significant comments regarding the current groundwater monitoring system and its capability to detect the constituents of concern, including both volatile organics and metals.
- Recommendations for triggers and parameters that will be addressed by the Long-Term Monitoring (LTM) Plan, as well as suggestions to require its approval prior to cap construction.

- Suggestions for vadose zone monitoring as an early warning of releases.

In order that the SNL Matrix maybe transmitted separately to the public we have placed the cover letter and the Matrix in different files. The documents are formatted in Word. The deliverables were emailed to you on June 29, 2006 at david.cobrain@state.nm.us and to Mr. Will Moats at WPMOATS@Sandia.gov. A formal hard (paper) copy of the deliverables will be sent via mail. If you have any questions, please call me at (303) 646-6525 or Mr. Gary Walvatne at (503) 557-9698.

Sincerely,

June K. Dreith

June K. Dreith
Program Manager

Enclosure
cc: Mr. Will Moats, NMED

SNL MATRIX

SANDIA NATIONAL LABORATORIES EXPERT WITNESS AND GENERAL SUPPORT

Submitted by:

TechLaw, Inc.
3920 West 98th Place
Westminster, CO 80031

Submitted to:

Mr. David Cobrain
State of New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building 1
Santa Fe, New Mexico 87505

In response to:

Work Assignment No. 06110.310

June 2005

Index of Comments Received by NMED on the *Probabilistic Performance-Assessment Modeling of the MWL at Sandia National Laboratories* (SNL), Presented in Appendix E of the SNL *MWL Corrective Measures Implementation Plan* (the CMI plan), Dated November 2005

Commenter ID	Comment Number	Date of Letter or e-mail	Commenter - Association	Subject: Issue or Comment	Response
A	1	1/25/06 (rec'd 1/27/06)	Citizen, Donna Detweiler	The commenter was concerned regarding possible contamination of groundwater resulting from releases from the MWL (MWL), particularly contamination of the Burton Well serving the Kirtland Addition neighborhood. Commenter stated that the fate and transport model indicates contamination may reach groundwater in as little as 50 years.	None of the modeled radionuclides and heavy metals was simulated to reach groundwater during the 1,000-year performance period or the extended 10,000-year period. However, the model indicates that aquifer concentrations of perchloroethene (PCE) will peak in less than 50 years for the majority of the model runs. Only 1 of 100 model runs indicates that PCE concentrations will exceed the regulatory maximum contaminant level (MCL) of 5 µg/L (approximately 5 parts per billion) at the point where the PCE reaches the groundwater. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL. NMED will consider this comment further under the MWL Long-Term Monitoring (LTM) Plan.
A	2	1/25/06 (rec'd 1/27/06)	Citizen, Donna Detweiler	The commenter believes there is "much good housing stock here," an apparent reference to the Kirtland Addition neighborhood, and expresses concern that it will be condemned as unlivable in the future.	NMED understands the issue addressed by the commenter; however, this comment addresses a subject area that is beyond the scope of the fate and transport model.
A	3	1/25/06 (rec'd 1/27/06)	Citizen, Donna Detweiler	The commenter would like to see the waste removed and disposed elsewhere away from a large population area.	The NMED previously held a public comment period and public hearing regarding the corrective measures study (CMS) conducted for the MWL. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's report. The corrective measures implementation (CMI)

Commenter ID	Comment Number	Date of Letter or e-mail	Commenter - Association	Subject: Issue or Comment	Response
					plan, which includes the fate and transport model, was developed as a result of the remedy selection.
B	4	1/28/06 (rec'd 1/31/06)	Citizen, Floy J. Barrett	The commenter is concerned that Sandia's fate and transport model is not comprehensive and does not consider biological transport of contaminants.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of biological transport of contaminants is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.
B	5	1/28/06 (rec'd 1/31/06)	Citizen, Floy J. Barrett	The comment is concerned that Sandia's fate and transport model is not comprehensive and does not consider human intrusion.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of human intrusion into the MWL is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.
B	6	1/28/06 (rec'd 1/31/06)	Citizen, Floy J. Barrett	The commenter is concerned that Sandia's fate and transport model is not comprehensive and does not consider beryllium and metallic sodium as potential contaminants of concern.	Concentrations of contaminants of concern (COCs) in the groundwater are considered by the fate and transport model. Beryllium and metallic sodium are not among the compounds qualified as COCs and, therefore, not considered within the scope of the model.
B	7	1/28/06 (rec'd 1/31/06)	Citizen, Floy J. Barrett	The commenter is concerned that Sandia's fate and transport model is not comprehensive and does not consider animals, plants, and humans as "triggers."	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Trigger levels are proposed for contaminant releases to the atmosphere and to the groundwater. Consideration of other triggers is beyond the scope of the model, however, NMED will consider this comment further under the MWL

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					LTM Plan.
B	8	1/28/06 (rec'd 1/31/06)	Citizen, Floy J. Barrett	The commenter is concerned that Sandia's fate and transport model is not comprehensive and does not consider appropriate "trigger levels" for all contaminants in the known inventory.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Trigger levels are proposed for contaminant releases to the atmosphere and to the groundwater. Consideration of other triggers is beyond the scope of the model, however, NMED will consider this comment further under the MWL LTM Plan.
B	9	1/28/06 (rec'd 1/31/06)	Citizen, Floy J. Barrett	The commenter is concerned that Sandia's fate and transport model is not comprehensive and does not consider conducting a risk assessment for the fate and transport model that includes all waste types buried at the MWL, not just the risk posed by tritium as currently considered by the assessment.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Concentrations of COCs in the groundwater are considered by the model. As COCs are considered, the scope of the model does not require a risk assessment for all wastes disposed in the MWL.
B	10	1/28/06 (rec'd 1/31/06)	Citizen, Floy J. Barrett	The commenter is concerned that Sandia's fate and transport model is not comprehensive and uses data that are outdated. Commenter believes new data should be gathered to verify the validity of the modeling.	The data collected in 1993 are the most recent for all parameters. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL.
B	11	1/28/06 (rec'd 1/31/06)	Citizen, Floy J. Barrett	The commenter stated that the people of New Mexico deserve to have the laboratories of this state (apparently a reference to Sandia National Laboratories and Los Alamos National Laboratory) comply with every possible safety procedure. The commenter believes the MWL model for containment does not insure long-term safety of groundwater and soil.	NMED understands the issue addressed by the commenter, however, the fate and transport model does not address safety procedures. The model addresses the probability of contaminant transport from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. NMED will consider this comment further under the MWL LTM Plan.
B	12	1/28/06 (rec'd	Citizen, Floy J. Barrett	The commenter stated there is still time to continue to study and reassess the issues noted by the	The NMED previously held a public comment period and public hearing regarding the

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		1/31/06)		commenter. The commenter also stated NMED has an obligation to require that Sandia National Laboratories complete reassessments.	corrective measures study (CMS) conducted for the MWL. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's report. The CMI plan, which includes the fate and transport model, was developed as a result of the remedy selection.
B	13	1/28/06 (rec'd 1/31/06)	Citizen, Floy J. Barrett	The commenter expects NMED to respond to each of his concerns.	NMED has responded to each of the commenter's concerns and noted that each will be considered further as the model results are reviewed.
C	14	1/28/06 (rec'd 1/31/06)	Citizen, David M. Brugge	The commenter reviewed the fate and transport model for the Sandia MWL and states, "I am in agreement with all contained therein...." However, based on the remainder of the commenter's letter, a number of technical comments on the model are presented. These technical comments are presented as Comment Numbers 15, 16, and 17.	NMED specifically addresses all of the technical comments presented in the commenter's letter under Comment Numbers 15, 16, and 17.
C	15	1/28/06 (rec'd 1/31/06)	Citizen, David M. Brugge	The commenter states that biological transport of contaminants is not limited to reptiles, mammals, birds, and amphibians. The commenter believes that invertebrates, surface and subsurface flora, fungi, molds, bacteria, and other species should be considered. The commenter suggests that the model should address soil bacteria and possibly viruses that become airborne during windy drought conditions at the MWL area. The commenter also suggested that the agent responsible for valley fever may mutate in the MWL area.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of biological transport of contaminants is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.
C	16	1/28/06 (rec'd 1/31/06)	Citizen, David M. Brugge	The commenter believes that human intrusion into the MWL is a serious issue requiring further consideration. The commenter suggested there is potential for terrorist explosion in or adjacent to the MWL, which would effectively create a "dirty bomb."	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of human intrusion into the

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					MWL is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.
C	17	1/28/06 (rec'd 1/31/06)	Citizen, David M. Brugge	The commenter acknowledges New Mexico's oversight is limited to the effects that are predictable during the next 30 years. The commenter suggests that the State should review the threat of adverse impacts on water, air, and safety within the Mesa del Sol development area and possibly impacts to land values, even though the critical stages of these threats are beyond the 30-year oversight period. The commenter suggests that impacts to land values will prevent the University of New Mexico from receiving the full benefit of the Mesa del Sol development. The commenter suggests that the university and the State may have potential liability for any damages.	NMED understands the issue addressed by the commenter; however, this comment addresses a subject area that is beyond the scope of the fate and transport model.
D	18	1/28/06 (rec'd 1/31/06)	Citizen, Maurice Weisberg, MD	The commenter stated that the protection of the integrity of our aquifers is a matter of urgent national security for public health and economic stability. The commenter referenced the National Academy of Science, which reported in 2000 that most of the nuclear bomb sites will never be cleaned up enough to allow public access to the land and the plan for guarding these sites cannot guarantee the safety of the public.	NMED understands the issue addressed by the commenter; however, this comment addresses a subject area that is beyond the scope of the review of the fate and transport model.
D	19	Not dated (rec'd 2/05/06)	Citizen, Maurice Weisberg, MD	The commenter stated that biotransport of radioactive contaminants is likely to occur over time and increasingly over the long term.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of biological transport of contaminants is beyond the current scope of the model. NMED will consider this comment further under the MWL LTM Plan.
D	20	Not dated (rec'd	Citizen, Maurice Weisberg, MD	The commenter referenced Dr. Peter Montague, director of Rachel's Environment and Health	The NMED previously held a public comment period and public hearing regarding the CMS

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		2/05/06)		Weekly, who indicated 5 or 6 reasons why dirt caps and vegetative covers fail. Among the problems are deep root systems extending as much as 20-30 feet below the surface, burrowing rodents and insects, erosion, and cave-ins due to collapsing wastes, drums, and debris.	conducted for the MWL. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's report. NMED will consider this comment further under the MWL LTM Plan.
D	21	Not dated (rec'd 2/05/06)	Citizen, Maurice Weisberg, MD	The commenter supports the excavation of all mixed wastes buried in unlined, unregulated, and unpermitted pits and trenches and their transfer for storage in hardened facilities above ground.	The NMED previously held a public comment period and public hearing regarding the CMS conducted for the MWL. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's report. The CMI plan, which includes the fate and transport model, was developed as a result of the remedy selection.
D	22	Not dated (rec'd 2/05/06)	Citizen, Maurice Weisberg, MD	The commenter is concerned about the leaching of radioactive materials from the MWL and their transport through the vadose zone to groundwater. The commenter references the SNL Chemical Waste MWL and the Liquid Waste Disposal Area as sources of groundwater contamination through a similar pathway.	As part of the CMI plan, the fate and transport model addresses the probability that radioactive contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. None of the modeled radionuclides were simulated to reach groundwater during the 1,000-year performance period or the extended 10,000-year period.
D	23	Not dated (rec'd 2/05/06)	Citizen, Maurice Weisberg, MD	The commenter is concerned that liquid waste was disposed in the MWL prior to 1972 and that it has leached from the MWL to groundwater.	None of the modeled radionuclides and heavy metals was simulated to reach groundwater during the 1,000-year performance period or the extended 10,000-year period. However, the model indicates that aquifer concentrations of PCE will peak in less than 50 years for the majority of the model runs. Only 1 of 100 model runs indicates that PCE concentrations will exceed the regulatory MCL of 5 µg/L (approximately 5 parts per billion) at the point where the PCE reaches the groundwater.

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					Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL. NMED will consider this comment further under the MWL LTM Plan.
D	24	Not dated (rec'd 2/05/06)	Citizen, Maurice Weisberg, MD	The commenter referenced Dr. Arjun Makhijani, of the Institute of Energy and Environmental Research (IEER), who supports excavating buried nuclear waste sites as a priority for shipment to a repository.	The NMED previously held a public comment period and public hearing regarding the CMS conducted for the MWL. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's report. The CMI plan, which includes the fate and transport model, was developed as a result of the remedy selection.
E	25	Not dated (rec'd 2/06/06)	Albuquerque Center for Peace and Justice and Citizens for Alternatives to Radioactive Dumping, Dorelen Bunting and Janet Greenwald	The commenter supports the comments submitted by Citizen Action concerning the MWL at Sandia National Laboratories and specifically the Fate and Transport model.	NMED received comments from Citizen Action, which are addressed in another portion of this comment response table.
E	26	Not dated (rec'd 2/06/06)	Albuquerque Center for Peace and Justice and Citizens for Alternatives to Radioactive Dumping, Dorelen Bunting and Janet Greenwald	The commenter is concerned regarding the proposed "triggers" for releases from the MWL. The commenter believes that plants and animals, if found to be contaminated, should be considered a trigger. The comment also supports consideration of all the contaminants for trigger levels. In addition, the commenter believes that contaminants in the vadose zone should be a trigger.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Trigger levels are proposed for contaminant releases to the atmosphere and to the groundwater. Consideration of other triggers is beyond the scope of the model, however, NMED will consider this comment further under the MWL LTM Plan.
E	27	Not dated (rec'd	Albuquerque Center for Peace	The commenter requests consideration of all contaminants in the MWL when calculating the risk	As part of the CMI plan, the fate and transport model addresses the probability that

Commenter ID	Comment Number	Date of Letter or e-mail	Commenter - Association	Subject: Issue or Comment	Response
		2/06/06)	and Justice and Citizens for Alternatives to Radioactive Dumping, Dorelen Bunting and Janet Greenwald	to the surrounding community.	contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Concentrations of COCs in the groundwater are considered by the model. As COCs are considered, the scope of the model does not require a risk assessment for all wastes disposed in the MWL.
F	28	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope McMullen	The commenter states the fate and transport model concluded that contaminants from the MWL will reach Albuquerque's sole-source aquifer within 50 years. The commenter considers the seriousness of potentially contaminated drinking water and states that the fate and transport model and the Corrective Measure Implementation Plan are dangerously inadequate.	None of the modeled radionuclides and heavy metals was simulated to reach groundwater during the 1,000-year performance period or the extended 10,000-year period. However, the model indicates that aquifer concentrations of PCE will peak in less than 50 years for the majority of the model runs. Only 1 of 100 model runs indicates that PCE concentrations will exceed the regulatory MCL of 5 µg/L (approximately 5 parts per billion) at the point where the PCE reaches the groundwater. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL. NMED will consider this comment further under the MWL LTM Plan.
F	29	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope McMullen	The commenter states the fate and transport model needs to be revised to consider possible transport of contaminants through animals and plants.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of biological transport of contaminants is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.
F	30	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members,	The commenter states the fate and transport model needs to be revised to consider the ineffectiveness of a rock bio-intrusion barrier.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and

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			Penelope McMullen		considers releases to the atmosphere. Evaluation of the effectiveness of the bio-intrusion barrier is beyond the scope of the model. The NMED, however, previously held a public comment period and public hearing regarding the CMS conducted for the MWL. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's report. The CMI plan, which includes the fate and transport model, was developed as a result of the remedy selection.
F	31	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope McMullen	The commenter states the fate and transport model needs to be revised to consider the comprehensive modeling of institutional controls against human intrusion.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of institutional controls to prevent human intrusion is beyond the current scope of the model. NMED will consider this comment further under the MWL LTM Plan.
F	32	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope McMullen	The commenter states the fate and transport model needs to be revised to consider the comprehensive analysis of potential human intrusion.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of human intrusion is beyond the current scope of the model. NMED will consider this comment further under the MWL LTM Plan.
F	33	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope	The commenter states the fate and transport model needs to be revised to consider the modeling of all hazardous chemicals and volatile organic compounds known or suspected to be in the MWL.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere.

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			McMullen		Concentrations of COCs in the groundwater are addressed by the model. As COCs are considered, the scope of the model does not require a risk assessment for all wastes disposed in the MWL. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL. NMED will consider this comment further under the MWL LTM Plan.
F	34	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope McMullen	The commenter states the fate and transport model needs to be revised to consider the modeling of all potential new compounds which could be formed as a result of mixing radionuclides with non- radioactive materials.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. The scope of the model considers COCs selected from the wastes disposed in the MWL. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL. NMED will consider this comment further under the MWL LTM Plan.
F	35	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope McMullen	The commenter states the fate and transport model needs to be revised to consider a plan for monitoring, testing and dealing with contaminants that may show up in the future.	NMED understands the issue addressed by the commenter; however, this comment addresses a subject area that is beyond the scope of the fate and transport model. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL. NMED will consider this comment further under the MWL LTM Plan.
F	36	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope McMullen	The commenter states the fate and transport model needs to be revised to consider performing a risk assessment for all waste types buried in the MWL.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Concentrations of COCs in the groundwater are considered by the model. As COCs are considered, the scope of the model does not

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					require a risk assessment for all wastes disposed in the MWL.
F	37	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope McMullen	The commenter states the fate and transport model needs to be revised to consider recent data to verify the validity of the fate and transport model, since the data used are outdated by at least 10 years.	The data collected in 1993 are the most recent for all parameters. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL.
F	38	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope McMullen	The commenter states the fate and transport model needs to be revised to consider the analysis of possible deterioration of each type of "container" for each type of waste buried in the MWL.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Concentrations of COCs are considered by the model. As COCs are considered, the scope of the model does not require a risk assessment for all wastes disposed in the MWL.
F	39	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope McMullen	The commenter states the CMI plan should be revised to include all of the analysis of the revised fate and transport model.	NMED understands the issue addressed by the commenter and will consider the comment further as the CMI plan and the fate and transport model results are reviewed.
F	40	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope McMullen	The commenter states the CMI plan should be revised to include full long-term monitoring and maintenance program for public review and comment.	NMED understands the issue addressed by the commenter; however, this comment addresses a subject area that is beyond the scope of the fate and transport model. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL. NMED will consider this comment further under the MWL LTM Plan.
F	41	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope McMullen	The commenter states the CMI plan should be revised to include a demonstration showing how the proposed monitoring system will detect migration of contaminants.	NMED understands the issue addressed by the commenter; however, this comment addresses a subject area that is beyond the scope of the fate and transport model. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL.

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					NMED will consider this comment further under the MWL LTM Plan.
F	42	2/06/06 (rec'd 2/06/06)	Loretto Community of Catholic Sisters and Co-members, Penelope McMullen	The commenter supports the excavation of the MWL and development of a comprehensive clean up plan to contain the waste in a safer area.	The NMED previously held a public comment period and public hearing regarding the CMS conducted for the MWL. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's report. The CMI plan, which includes the fate and transport model, was developed as a result of the remedy selection.
G	43	2/07/06 (rec'd 2/07/06)	Citizen, John Tauxe, Ph.D., PE	The commenter stated that the general approach taken by the fate and transport model is proper and commendable. The commenter stated the model is aimed at identifying appropriate locations and properties or constituents for long-term monitoring, and that the stochastic (probabilistic) modeling provides information for performing a sensitivity analysis, which in turn informs the monitoring program. The commenter believes this is an example of appropriate application of stochastic modeling, but also noted that several technical flaws (presented below) bring the overall results into question.	NMED understands the issue addressed by the commenter and specifically addresses all of the technical comments presented in the commenter's letter.
G	44	2/07/06 (rec'd 2/07/06)	Citizen, John Tauxe, Ph.D., PE	The commenter states that the uncertainty distribution for the inventory of radionuclides in the MWL is undefended, applying a uniform distribution with a minimum at the values reported in SNL (1993) (from the document references) and a maximum of only twice the minimum. Commenter notes that no justification for this distribution is provided in the document, and believes the distribution is narrow based on the uncertainties regarding the inventory that are apparent in the source document. The commenter believes it is highly unlikely that all inventory constituents share the exact same uncertainty distribution, so the uniform (x,2x)	The uniform uncertainty distribution (for the radionuclides considered by the model) was used since there was no indication within the available inventory information to indicate that each radionuclide required its own uncertainty distribution. Comparative analyses were performed between simulated and measured soil levels for tritium. Also, sensitivity analyses indicated that the inventory parameter was not the most significant factor in mobility of radionuclides.

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				distribution seems *ad hoc*. The commenter notes that inventory uncertainty is often the greatest source of modeling uncertainty at other DOE sites and suggests that a more thorough analysis of these distributions should be performed.	
G	45	2/07/06 (rec'd 2/07/06)	Citizen, John Tauxe, Ph.D., PE	The commenter believes that the most significant oversight in the contaminant transport modeling of the MWL is the lack of any contributions to transport by biotic activity. The commenter believes this should have been identified in the preliminary exercise of identifying significant features, events, and processes affecting contaminant transport at the site. The commenter notes that recent work at other DOE sites (including Los Alamos National Laboratory and Nevada Test Site) has found that biotic activity in the form of plant uptake and redistribution of contaminants and animal translocation of bulk (contaminated) materials can be significant or even dominant modes of contaminant transport. The commenter states that in arid environments, plants tend to extend roots to significant depths in search of water, while ants have been found to construct nests to depths of several meters. The commenter believes that a cap thickness of a meter is ineffective at keeping these biota out of the waste in the MWL.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of biological transport of contaminants is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.
G	46	2/07/06 (rec'd 2/07/06)	Citizen, John Tauxe, Ph.D., PE	The commenter notes that the model document includes the development of a method for predicting the ground surface flux of radon-222 (^{222}Rn) above the MWL, as a linear function of the concentration of its parent, radium-226 (^{226}Ra), at depth in the MWL. The commenter believes this model is fine under the assumption that all the ^{226}Ra stays at depth, but notes that if biotically-induced transport of waste materials is included as a contaminant transport process, the ^{226}Ra parent material (as well as its parents, such as uranium-238 [^{238}U]) will move into the cap itself and	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of biological transport of contaminants is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.

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				onto the ground surface. The commenter notes that this does not fit the current radon diffusion model assumptions, and suggests that this modeling must employ more sophisticated techniques.	
G	47	2/07/06 (rec'd 2/07/06)	Citizen, John Tauxe, Ph.D., PE	The commenter states that decay cascades can produce significant doses, and should not be neglected in the dose assessment process. The commenter notes that when coupled with biotic processes in the cap, there is a possibility of bringing radionuclides to the surface.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of biological transport of contaminants is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.
G	48	2/07/06 (rec'd 2/07/06)	Citizen, John Tauxe, Ph.D., PE	The commenter notes that external exposures from radionuclides in the ground surface and near surface was overlooked in the model and that this is a potentially significant exposure pathway. The commenter believes this exposure should be included with inhalation of gases and particulates and incidental ingestion of soils by potential future receptors that would have access to the site.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of external exposures from radionuclides is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.
G	49	2/07/06 (rec'd 2/07/06)	Citizen, John Tauxe, Ph.D., PE	The commenter believes that a reasonable potential future receptor scenario includes a residence built directly on top of the MWL. The commenter notes that with ongoing development in the Albuquerque area and a precedent of residential construction on MWLs (e.g., Love Canal, New York), this would trigger the analysis of additional exposure pathways as well, such as exposure to indoor air with its elevated concentrations of gaseous radionuclides and volatile organic carbon (VOC) compounds.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of a future receptor living on the MWL cap is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.
G	50	2/07/06 (rec'd 2/07/06)	Citizen, John Tauxe, Ph.D., PE	The commenter notes that the period of performance for the model is 1,000 years, but suggests that modeling for peak dose analysis can still be useful in providing perspective on the long-term significance of waste disposal.	None of the modeled radionuclides and heavy metals was simulated to reach groundwater during the 1,000-year performance period or the extended 10,000-year period. However, the model indicates that aquifer concentrations of

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					PCE will peak in less than 50 years for the majority of the model runs. Only 1 of 100 model runs indicates that PCE concentrations will exceed the regulatory MCL of 5 µg/L (approximately 5 parts per billion) at the point where the PCE reaches the groundwater. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL. NMED will consider this comment further under the MWL LTM Plan.
G	51	2/07/06 (rec'd 2/07/06)	Citizen, John Tauxe, Ph.D., PE	The commenter believes that transport and fate of tetrachloroethylene (or perchloroethylene, PCE) is modeled reasonably, including decay from biotic degradation, but notes that future releases of PCE from as-yet unbreached containers was not performed. The commenter notes that PCE decay products are not modeled and yet can be significant sources of cancer risk. The commenter states that some of these decay products have higher hazard indices than that of PCE, and cancer risk from them should be included in the model, as well as consideration of variable biodegradation rates, which will vary with location in the model.	The fate and transport model assumes that the entire inventory of PCE was released at one time. Consequently, phased future releases are not considered. In addition, long-term monitoring parameters proposed by SNL include several of the PCE breakdown products. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL. NMED will consider this comment further under the MWL LTM Plan.
G	52	2/07/06 (rec'd 2/07/06)	Citizen, John Tauxe, Ph.D., PE	The commenter notes that the model indicates it is conservative in its assumptions, but this philosophy was applied inconsistently between groundwater infiltration and surface water runoff pathways. When one is modeled conservatively, the other is not conservative, if the pathways are linked to the same conditions. The commenter recommends abandoning the attempt to be "conservative" in favor of trying to be realistic in all assumptions.	A model parameter was conservatively estimated where there was no consequent effect on another parameter. In the case of the infiltration rate parameter, the minimum value of the range is based on present-day climate, while the maximum value assumes climate change will occur, based on history, and is based on twice as much precipitation as currently received at the MWL. When the precipitation rate exceeds the infiltration rate, surface water runoff occurs. The cap is designed to drain and divert surface water away from the MWL, through the full range of the

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					infiltrate rate, which also appears to be a realistic outcome.
G	53	2/07/06 (rec'd 2/07/06)	Citizen, John Tauxe, Ph.D., PE	The commenter notes that the model document proposes monitoring of tritium and radon at the site boundary. The commenter, however, suggests that more valuable and interesting data will be obtained by monitoring these constituents on the MWL as they emanate from the cap. The commenter believes monitoring on the MWL cap will provide a more immediate and sensitive indication of gas emanation than can be provided by monitoring at the boundary.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of long-term monitoring of tritium and radon is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.
G	54	2/07/06 (rec'd 2/07/06)	Citizen, John Tauxe, Ph.D., PE	The commenter notes that the sensitivity analysis performed for the fate and transport model attempts to identify those model parameters and processes that most influence the results and recommends them for future monitoring. The commenter believes, however, that the sensitivity analysis is *ad hoc*, rather than comprehensive. The commenter recommends performance of a comprehensive sensitivity analysis and that the inventory distributions should be revisited, or if this was done, that sufficient details be provided for the reader to understand the method.	The sensitivity analyses consider all parameters, but the results of these analyses, which are graphically presented in figures, only present the parameters with statistical significance. NMED understands that additional details may be needed in the explanation of the sensitivity analyses, as presently explained in Section 2.2.1. The comment will be considered further as the model results are reviewed.
H	55	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter requests that NMED convene a "technical discussion group" to serve as a public meeting to provide a forum for interested stakeholders regarding the adequacy of the fate and transport model and the CMI plan. The commenter recommends that this technical discussion group include representatives of the permittee, the NMED, and members of the public who have expressed an interest in the studies conducted by Sandia and/or submitted comments to the NMED on the CMI plan and/or the fate and transport model. The commenter also recommends convening this technical discussion group prior to determining that the CMI plan and the fate and transport model are either "comprehensive" or complete" with respect to the technical	NMED understands the issue addressed by the commenter and will consider the comment further as the model results are reviewed. NMED will convene a public meeting in late May 2006.

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				requirements applicable to the wastes at the MWL.	
H	56	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter stated that the fate and transport model is not comprehensive with respect to the volume of each individual waste product and physical state of containers for the full range of contaminants at the MWL.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Concentrations of COCs in the groundwater are considered by the model. As COCs are considered, the scope of the model does not require a risk assessment for all waste containers disposed in the MWL.
H	57	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter stated that the fate and transport model is not comprehensive with respect to the potential for releases including vadose zone and groundwater contamination due to transport not considered in the model, including mechanisms such as biological transport of contaminants through the ground surface, human intrusion, and movement of contaminants by wind/air.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of biological transport of contaminants, human intrusion, and airborne movement of contaminants is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.
H	58	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter stated that the fate and transport model is not comprehensive with respect to the modeling for the complete suite of radionuclides and daughter products, metals, and volatile and semi-volatile organic compounds in the known inventory of the MWL.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. The scope of the model considers COCs selected from the wastes disposed in the MWL.
H	59	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson,	The commenter stated that the fate and transport model does not address biological transport of contaminants resulting from plant and animal uptake of contaminants and subsequent dispersion of soil, plant and animal material by wind. The commenter believes this information is required for a	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of biological transport of

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			Southwest Research and Information Center)	comprehensive model.	contaminants is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.
H	60	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter stated that the fate and transport model does not address transport of contaminants resulting from human intrusion associated with accidental events and the eventual failure of the land use restriction portions of the institutional controls proposed by Sandia for the MWL. The commenter believes this information is required for a comprehensive model.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of human intrusion into the MWL and institutional controls is beyond the scope of the model. NMED will consider this comment further under the MWL LTM Plan.
H	61	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter stated that the fate and transport model does not provide a comprehensive fate and transport analysis as it does not include calibrated model "realizations" for the full range of radioactive and hazardous constituents identified at the MWL, including a wide range of radionuclides, a wide range of metals and inorganic compounds including beryllium, nickel, chromium, sodium, lithium, and the range of volatile organic compounds (VOCs) present at the MWL. The commenter believes this information is required for a comprehensive model.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. The scope of the model considers COCs selected from the wastes disposed in the MWL. None of the modeled radionuclides and heavy metals was simulated to reach groundwater during the 1,000-year performance period or the extended 10,000-year period. However, the model indicates that aquifer concentrations of PCE will peak in less than 50 years for the majority of the model runs. Only 1 of 100 model runs indicates that PCE concentrations will exceed the regulatory MCL of 5 µg/L (approximately 5 parts per billion) at the point where the PCE reaches the groundwater. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL.
H	62	2/07/06 (rec'd	Citizen Action New Mexico,	The commenter stated that the model does not identify or address fate and transport dynamics	As part of the CMI plan, the fate and transport model addresses the probability that

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		2/07/06)	Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	associated with the potential for formation of mobile, potential hazardous compounds by radiolysis - the process by which radionuclides can mix with non-radioactive constituents and form new compounds. The commenter believes this information is required for a comprehensive model.	contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. The scope of the model considers COCs selected from the wastes disposed in the MWL. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL. NMED will consider this comment further under the MWL LTM Plan.
H	63	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter stated that the "triggers" identified in the model do not include monitoring mechanisms to reflect either human intrusion, biological transport, or the waste constituents identified at the MWL. The commenter believes this information is required for a comprehensive model.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of biological transport of contaminants and human intrusion is beyond the scope of the model. The scope of the model considers COCs selected from the wastes disposed in the MWL. NMED will consider this comment further under the MWL LTM Plan.
H	64	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter stated that the fate and transport model does not identify means to monitor, model and assure the effectiveness of institutional controls or the consequences of the failure of such passive site protection measures. The commenter believes this information is required for a comprehensive model.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Consideration of institutional controls is beyond the scope of the model. The NMED previously held a public comment period and public hearing regarding the corrective measures study (CMS) conducted for the MWL. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's report. The

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					corrective measures implementation (CMI) plan, which includes the fate and transport model, was developed as a result of the remedy selection.
H	65	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter stated that the fate and transport model does not provide a risk assessment/performance assessment analysis in its evaluation of the potential for release of contaminants from the MWL. The commenter believes this information is required for a comprehensive model.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. The scope of the model considers COCs selected from the wastes disposed in the MWL. The performance of the COCs in the fate and transport model is compared against regulatory performance standards (e.g., MCLs). Sensitivity analyses were used to identify the factors that affected model performance against these standards.
H	66	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter states that the model relies on data regarding releases of radionuclides, heavy metals, and volatile organic compounds from the Phase 1 and Phase 2 RCRA Feasibility Investigation (RFI) gathered in 1993 – 1995. The commenter states that no new data gathering was conducted or proposed to calibrate or verify the modeling.	The data collected in 1993 are the most recent for all parameters. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL.
H	67	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter states that the model does not appear to identify or consider either the mechanisms for deterioration of waste containers or the consequences of the deterioration of waste containers during development of the input parameters and assumptions for its VOC, heavy metal and radionuclide models, with the exception of the radon model runs in which radium-226 containers were determined to deteriorate in 1,000 years.	The fate and transport model does not identify mechanisms for deterioration of waste containers since all model realizations were run without containment of the COCs, except for radon-222 (radium-226) which is contained in sealed sources. The realizations for radon-222 transport assumed that up to 100 percent of the sealed sources were broken.

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H	68	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter states the model concludes that PCE, the only organic compound modeled, would reach groundwater for all 100 model runs ("realizations") with the majority of the model runs showing PCE reaching groundwater within 50 years. The commenter states that the model also does not identify or present model realizations for the decay products of PCE and the other VOCs and semi-volatile compounds (SVOCs) that were known to have escaped the MWL in 1993. The commenter requests that NMED consider requiring improvements in the Corrective Measure proposed for the MWL to prevent future releases of VOCs and SVOCs.	The model indicates that aquifer concentrations of perchloroethene (PCE) will peak in less than 50 years for the majority of the model runs. Only 1 of 100 model runs indicates that PCE concentrations will exceed the regulatory MCL of 5 µg/L (approximately 5 parts per billion) at the point where the PCE reaches the groundwater. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL. NMED will consider this comment further under the MWL LTM Plan.
H	69	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter states that the model identifies a 1995 Argonne National Laboratory report [cited as Johnson 1995 in the FTM] at p. 16 that showed that VOCs released from the MWL could reach the water approximately 250 years from the time of disposal. This study was not provided to NMED as part of the CMS, CMI plan, or the references for either of those reports. The commenter states that NMED should require Sandia to provide the agency with copies of the 1995 Argonne Study, review the Study, and consider its relevance regarding the adequacy of the Corrective Measure identified in the Permit Modification since Sandia did not present the Study to NMED or the public or consider it during the development of the CMS. The commenter requests that NMED review the Corrective Measure approved in the Permit Modification as the conclusions of the 1995 Argonne Report are contrary to the conclusions presented in the CMS and Sandia's MWL hearing, i.e., that contaminants such as VOCs could not reach groundwater at the MWL site.	The 1995 Argonne National Laboratory study is discussed on pages E-16 and E-17 of the fate and transport model report. The last paragraph of this discussion states that screening calculations for aqueous-phase transport of PCE and trichloroethene (TCE) predicted these VOCs could reach groundwater approximately 250 years from the time of disposal. Details of this study were provided to NMED in 1996 in the Phase 2 RCRA Facility Investigation (RFI) Report and the entire report was provided to the Warehousing Education and Research Council (WERC) and the public during the WERC peer review of the MWL conducted during 2001. The CMI Plan presents a summary of the study in Appendix E. The Argonne study was previously reviewed and the screening calculations were available for consideration in the selection of the corrective measure for the MWL.
H	70	2/07/06 (rec'd	Citizen Action New Mexico,	The commenter states that the "trigger levels" identified in the model do not provide for early	As part of the CMI plan, the fate and transport model addresses the probability that

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		2/07/06)	Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	detection and early response to releases prior to the exceedance of health–based standards. The commenter states that the proposed trigger levels do not provide either early detection or early response as they are set at values at or near regulatory standards, rather than at levels that would demonstrate the "edge of the plume." The commenter suggests trigger levels that provide "detection of contamination," which would be established at a level 25–50% above initial concentrations for contaminants of concern.	contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. The proposed trigger levels for groundwater COCs are half of their corresponding MCL values. The trigger levels for releases to the atmosphere are proposed as orders of magnitude less than the modeled values that would result in exceedances of regulatory standards. NMED will consider this comment further under the MWL LTM Plan.
H	71	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter states that the model does not identify trigger levels for waste constituents that apply at the edge of the MWL or in the vadose zone below the site, but above the water table.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Trigger levels are proposed for contaminant releases to the atmosphere and to the groundwater. Consideration of other triggers is beyond the scope of the model, however, NMED will consider this comment further under the MWL LTM Plan.
H	72	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter states that the model discussion of "Trigger Levels"' does not address the degree to which monitoring for moisture content changes would reflect vapor phase movement of VOCs. The commenter requests that the model identify technologies that could be used to monitor moisture content.	As part of the CMI plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. Trigger levels are proposed for contaminant releases to the atmosphere and to the groundwater. Consideration of other triggers is beyond the scope of the model, however, NMED will consider this comment further under the MWL LTM Plan. NMED will consider this comment further as the model results are reviewed, particularly the possibility of monitoring moisture content in association with vapor phase movement of VOCs. Identification of

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					moisture content technologies is beyond the scope of the fate and transport model.
H	73	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter states that a broad range of sources of uncertainty in the model were identified by the model's lead author Dr. Clifford Ho in a PowerPoint presentation at a DOE-sponsored public meeting on the model in January 2006. The "uncertainty variables" identified by Dr. Ho included: waste inventory and size; thickness of cover and vadose zone; and transport parameters including: infiltration, adsorption coefficient, saturated conductivity, moisture content; tortuosity coefficients, and boundary-layer thickness. The commenter suggests that the model should be revised to identify the full range of uncertainty variables associated with each of the constituents addressed in the FTM, as well as to identify the range of values used in model realizations to account for the uncertainty associated with each variable.	Tables E-2 through E-5 present all of the uncertainty variables and their respective ranges of values.
H	74	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter states that the CMI plan does not effectively incorporate the content and findings of the model in either the evaluation or design of the Corrective Measure proposed for the MWL. The commenter requests revision of the CMI plan to incorporate the analyses and findings in the model when it is determined to be comprehensive and meet the requirements of the permit modification and associated guidelines and regulations by NMED.	The NMED previously held a public comment period and public hearing regarding the corrective measures study (CMS) conducted for the MWL. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's report. The CMI plan, which includes the FTM, was developed as a result of the remedy selection.
H	75	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and	The commenter is concerned that the CMI plan does not provide a comprehensive or detailed long-term operation and maintenance plan for public comment or review. The commenter requests that the CMI plan include a long-term monitoring and maintenance program that addresses: all parameters to be monitored, all media – including air, soil, vadose zone, groundwater and biota (plants and animals);	NMED will consider long-term monitoring and maintenance requirements under the MWL LTM Plan.

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			Information Center)	recommended limits of detection for analytic equipment to be used; frequency of sampling and analysis; quality control and quality assurance measures; monitoring and maintenance cost estimates; MWL cover inspections and maintenance activities; and measures to verify that all institutional control aspects of the proposed corrective measure are in place and enforced for the full closure and post-closure period at the MWL.	
H	76	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter states that the CMI plan proposes only three vadose zone monitoring boreholes and does not provide a demonstration that this number of instruments will provide comprehensive vadose zone monitoring.	NMED will consider long-term monitoring and under the MWL LTM Plan.
H	77	2/07/06 (rec'd 2/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter states that the CMI plan does not address the technical literature related to bio-intrusion barriers or identify monitoring systems appropriate for detection of releases associated with bio-intrusion into the MWL. The commenter requests revision of the CMI plan to include a thorough investigation and re-sampling of the soil at the MWL to identify bio-intrusion mechanisms and biological transport of contaminants, and consider the applicability of findings of such investigations to the Corrective Measure for the MWL.	The NMED previously held a public comment period and public hearing regarding the corrective measures study (CMS) conducted for the MWL. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's report. The CMI plan, which includes the fate and transport model, was developed as a result of the remedy selection.
I	78	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest	The commenter states that NMED should defer final approval of Mixed Waste Landfill CMI Plan pending review of a remedy based on new information in the FTM and additional information provided in response to NMED queries.	The NMED previously held a public comment period and public hearing regarding the CMS conducted for the MWL. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's

Commenter ID	Comment Number	Date of Letter or e-mail	Commenter - Association	Subject: Issue or Comment	Response
			Research and Information Center)		report. The CMI plan, which includes the FTM, was developed as a result of the remedy selection.
I	79	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter states that NMED should revise its MWL "Permit Modification" to require submittal, review, and approval of a LTM Plan on a schedule parallel to the schedule for the remaining portions of the CMI Plan rather than deferring the submittal of the LTM Plan until 180 days following completion of the construction of the corrective measure.	NMED will consider long-term monitoring and maintenance requirements under the MWL LTM Plan. The schedule for submittal of the CMI plan, including the FTM, and the LTM Plan was developed as a result of the Secretary of NMED's remedy selection.
I	80	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter states that the following recommendations are based on information presented in the CMI Plan, the FTM, public comments, and the Technical Discussion Public Meeting of May 25, 2006. This information demonstrates that the effectiveness of the CMI Plan is dependent on the implementation of the LTM Plan. The commenter states that the CMI Plan already provides substantial information regarding critical portions of the LTM Plan, including trigger levels and moisture monitoring systems. The commenter indicates that the LTM Plan should include, but not be limited to: • Bio-monitoring program, including establishment of bio-monitoring triggers at a significant increase over background to establish baseline and identify bio-accumulation, if any, in plant, animal and insects species in and around the MWL for as long as the waste remains in place. The commenter proposes that this program should include the identification of specific species to be monitored, frequency of sampling, and type of contaminants to be	NMED agrees that the CMI Plan presents proposed trigger levels and moisture monitoring systems that may be applicable to the LTM Plan. However, the schedule for submittal of the CMI Plan, including the fate and transport model (FTM), and the LTM Plan was developed as a result of the Secretary of NMED's remedy selection. NMED will consider long-term monitoring and maintenance requirements under the MWL LTM Plan, including the commenter's specific suggestions for inclusion in the LTM Plan.

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				monitored [radiological, volatile organic compounds (VOCs), and heavy metals]. • Require SNL/DOE to establish and maintain site access controls and use restrictions as identified in the CMS and Administrative Order on Consent Based immediately. • Vadose zone monitoring of VOCs, moisture, and an appropriate suite of radionuclides and metals to verify model outputs; establishment of a statistically defensible baseline; and consideration of continuous monitoring. • Reinstalled monitoring wells before any cover is installed to insure that drilling equipment does not damage the evapotranspirative cover for the MWL. The commenter provided specific details regarding these summary points.	
I	81	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter recommends that the ground water monitoring wells at the MWL be replaced with wells that meet regulatory standards, including RCRA standards capable of meeting applicable data quality objectives and providing reliable and verifiable water quality and soil column data. The commenter also recommends that NMED conduct an independent analysis of the effectiveness of the monitoring wells to identify the occurrence of VOCs and other constituents of concern, including those modeled in the FTM.	The Secretary of the NMED selected the remedy for the MWL, which was based on the administrative record and the Hearing Officer's report. The remedy selection considered the current groundwater monitoring network for the MWL. NMED will consider the adequacy of the groundwater monitoring network during the review of the LTM Plan.
I	82	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information	The commenter recommends that NMED require a revised set of geophysical surveys of the MWL to update and enhance the Phase 2 data to provide detailed information about the shape, distribution and content of containers in the MWL, the distribution of metals and other materials in landfill, and otherwise expand knowledge of inventory. This updated geophysical baseline should include replication of geophysical investigations in the RFI Phase 2 Report	As part of the CMI Plan, the FTM addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. The FTM assumes that all containers are breached, except for the sealed radium-226 sources. Consequently, it does not appear that any further benefit is achieved by performing another geophysical survey to

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			Center)	with contemporary equipment and analytic capabilities, as well as conduct of additional geophysical analyses including, but not limited to, sonar, ground penetrating radar, and magnetic resonance.	reassess the shape, distribution, and content of containers in the MWL.
I	83	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter recommends full disclosure of FTM model input data.	NMED understands the commenter's recommendation and will consider this point further during our review of the FTM.
I	84	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter recommends a revised and expanded FTM to address the range of parameters associated with "model uncertainties/sensitivities" – including vadose zone profile (Kd), half-life (degradation), inventory of VOCs, as identified at FTM p. 57.	NMED understands the commenter's recommendation, however, the FTM employs conservative assumptions to address model uncertainties and sensitivities.
I	85	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter recommends implementation of a subsurface sampling program to identify distribution of VOCs detected in the MWL RFI Phase 2 Report to verify and/or refine FTM model results, applying appropriate QA/QC methods including split sampling with NMED incorporating duplicates and blank samples to verify analytic accuracy.	The Secretary of the NMED selected the remedy for the MWL, which was based on the administrative record and the Hearing Officer's report. The remedy selection considered site characterization data. The FTM considers the simultaneous release of all PCE, as the surrogate for all VOCs, which is a more conservative assumption than staged release of VOCs that may depend on distribution within the MWL. Groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL. NMED will

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					consider this comment further under the MWL LTM Plan.
I	86	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter recommends establishment of trigger levels for agency and public notification and initiating responsive action at values 50% - 100% above background and/or 50% above detection limit for VOCs identified in 1993-4 and technogenic radionuclides, and an appropriate suite of metals and naturally-occurring radionuclides	NMED understands the comment, however, the establishment of trigger levels as a percentage above background level or detection limit does not necessarily correspond to health risk or a regulatory standard that may be enforced. As part of the CMI Plan, the fate and transport model addresses the probability that contaminants will move from the MWL through the vadose zone to groundwater and considers releases to the atmosphere. The proposed trigger levels for groundwater COCs are half of their corresponding MCL values, which are health risk-based. The trigger levels for releases to the atmosphere are proposed as orders of magnitude less than the modeled values that would result in exceedances of regulatory standards. NMED will consider this comment further under the MWL LTM Plan.
I	87	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter recommends establishment of a shallow (less than 50 foot depth) subsurface monitoring program in the vadose zone for detection of VOCs as part of long-term a maintenance and monitoring plan and apply triggers at those sites	NMED will consider long-term monitoring and maintenance requirements under the MWL LTM Plan, including the commenter's specific suggestions for inclusion in the LTM Plan.
I	88	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest	The commenter recommends that an enhanced version of the FTM be run for the full range of VOCs identified in soil in the MWL RFI Phase 2 Report including, but not limited to dichloro-difluoromethane; trichloroethene; 1,1,1-trichlorethane (TCA), toluene, ethylbenzene, xylene, 1,1,2-tri-chloro-trifluoroethane, dichloroethyne,	The FTM employs PCE as the surrogate for all VOCs due to its presence in the MWL and its enhanced mobility in the environment, which is a conservative input for the model since other VOCs are not as mobile. Also, constituents with greater concentrations than PCE are not necessarily a more significant problem since

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			Research and Information Center)	acetone, isopropyl ether, 1,1-dichloroethene and styrene. The MWL RFI Phase 2 Report identifies dichloro-difluoromethane concentrations of 29,000 ppb at 10 feet and 21,500 ppb at 30 feet at Fig. 4.5 – 16 and Fig. 4.5-22, which are 4-5 times higher than the concentrations of PCE detected at those depths in the same report.	the compound may not be as mobile as PCE and the compound may not be as toxic as PCE, which has an MCL of 5 µg/L (approximately 5 parts per billion). Therefore, NMED supports the use of PCE as a conservative surrogate for all VOCs present at the MWL.
I	89	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter recommends that enhanced FTM realizations include considerations of VOC concentrations 100x and 1000x the concentrations identified in soil the MWL RFI Phase 2 Report.	In order to request the enhanced FTM runs, NMED must have some basis in the soil characterization data. Without said basis, the request may be determined to be arbitrary and capricious. At this time, NMED can not support the commenter's recommendation.
I	90	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter recommends the identification, compilation, and review of container deterioration data applicable to containers identified at or likely to have been disposed of at the MWL including information from other SNL, Lockheed, and DOE sites to determine container patterns applicable to the MWL.	The FTM assumes that all containers are breached, except for the sealed radium-226 sources. It is not clear how the identification, compilation, and review of container deterioration data would supplement the FTM's conservative assumption regarding breach of all containers. Further, groundwater monitoring during the past 16 years has not indicated contaminants in groundwater from the MWL.
I	91	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter recommends the identification and submittal to NMED and review of other models of VOC movement conducted by Sandia for other waste sites at SNL including, but not limited to, the Chemical Waste Landfill, Liquid Waste Disposal System, and Lurance Canyon sites located at SNL.	NMED is familiar with the referenced waste sites; however, there appears to be no basis at this time to review those models since they are site-specific and not applicable to the MWL site.

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I	92	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter recommends locating run-off and run-on collection and diversion canals and swales approximately 25 to 50 meters away from the perimeter of cover system to manage flows from peak precipitation events.	This point was considered and discussed during the Technical Discussion Public Meeting sponsored by NMED on May 25, 2006. Due to physical constraints around the MWL, this recommendation does not appear to be practicable. For example, a 3,000-foot long "sled track" for rocket engine testing and a road are located east of the edge of the proposed MWL cap.
I	93	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter recommends including an erosion resistant layer (armor) to reduce wind erosion effects.	This point was considered and discussed during the Technical Discussion Public Meeting sponsored by NMED on May 25, 2006. The topsoil used in the cap will include a 25 percent mix of pea gravel that will become a desert pavement if the top soil is eroded away.
I	94	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest Research and Information Center)	The commenter recommends identifying specific vegetative cover standards for determination of re-vegetation success including, but not limited to, species diversity, plant survival, and ground cover parameters.	NMED will consider long-term monitoring and maintenance requirements under the MWL LTM Plan, including the commenter's specific suggestions for inclusion in the LTM Plan.
I	95	6/07/06 (rec'd 6/07/06)	Citizen Action New Mexico, Susan Dayton (Comments compiled by Paul Robinson, Southwest	The commenter also presented recommendations submitted by Robert H. Gilkeson to the NMED under this comment period. The comments are regarding construction of the monitoring wells and sampling methods currently used to detect contaminants at the MWL.	NMED provides responses to Mr. Gilkeson's comments, dated June 8, 2006, as submitted to the Department, rather than through the commenter's attachment, which was apparently an earlier version dated June 5, 2006.

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			Research and Information Center)		
J	96	6/08/06 (rec'd 6/08/06)	Citizen, Robert H. Gilkeson	The strategy to leave chemical and radioactive waste at the Sandia mixed waste landfill and to assure protection of the regional aquifer by long-term monitoring of the existing set of monitoring wells is unacceptable because of the poor quality of the water samples produced from the wells. There are many important factors for why the wells do not meet the regulatory requirements for detection monitoring: • Drilling additives with well known chemical properties to mask the detection of contamination were allowed to invade the strata that surround the wells. • The drilling additives lowered the permeability of the strata surrounding the wells so that the wells produce stagnant water that was in contact for a long period of time with the strata affected by the drilling additives. • The wells are sampled with procedures that strip from the water the volatile chemical solvent contaminants that are known to be released from the landfill (e.g., PCE, TCE, and TCA). • The wells are sampled with procedures that expose the water to oxygen and therefore, many metal and radioactive contaminants known to be disposed of at the landfill are hidden from being detected. • The wells are not installed in the aquifer strata with high permeability – the strata where the highest levels of contamination are expected and the strata that are fast pathways for horizontal travel of contaminated groundwater over great distance. • The wells are not installed in the unsaturated	NMED understands the commenter's concerns as these issues were previously raised during a public comment period and public hearing regarding the CMS conducted for the MWL. The Secretary of the NMED reviewed the CMS and selected the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's report. NMED will consider long-term monitoring and maintenance requirements under the MWL LTM Plan, including the commenter's specific suggestions for inclusion in the LTM Plan.

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				strata beneath the landfill to monitor the levels of toxic volatile contaminants (e.g., PCE, TCE, TCA, etc.) and tritium that are released over time from the landfill. The commenter indicates that because of the above factors, the existing network of monitoring wells at the Sandia mixed waste landfill does not meet the requirements of the RCRA Statute, the NMED Sandia Consent Order, or the DOE Orders for the detection of contamination released from the waste buried in the landfill. The commenter suggests that the monitoring wells do not provide the scientifically sound and legally defensible data that are required to identify the required long-term remedy for the mixed waste landfill.	
J	97	6/08/06 (rec'd 6/08/06)	Citizen, Robert H. Gilkeson	The commenter indicates that the current strategy to cover the waste disposed of at the mixed waste landfill with an engineered earthen cover is not supported by the data from the monitoring wells. The decision on corrective measures for the Sandia mixed waste landfill must wait until a network of monitoring wells are installed that produce reliable data on the presence or absence of contamination in soil, air and in groundwater now and in the future. A reliable network of monitoring wells must be installed before the earthen cover is installed because the heavy weight of drilling equipment will cause great damage to the expensive, engineered earthen cover.	The Secretary of the NMED selected the remedy for the MWL, which was based on the administrative record and the Hearing Officer's report. The remedy selection considered the current groundwater monitoring network for the MWL. NMED will consider the adequacy of the groundwater monitoring network during the review of the LTM Plan.
J	98	6/08/06 (rec'd 6/08/06)	Citizen, Robert H. Gilkeson	The commenter states that the collection of water samples after the wells are purged dry is unacceptable because of aeration and oxidation of the water that trickles into the wells, and therefore, a loss of many contaminants from the water and especially volatile solvents. The commenter suggests that PCE, one of the parameters for compliance monitoring, is a volatile solvent that will be stripped from the	The Secretary of the NMED selected the remedy for the MWL, which was based on the administrative record and the Hearing Officer's report. The remedy selection considered the current groundwater monitoring network for the MWL. NMED will consider the adequacy of the groundwater monitoring network during the review of the LTM Plan.

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				groundwater that recharges into the wells after they are purged dry.	
J	99	6/08/06 (rec'd 6/08/06)	Citizen, Robert H. Gilkeson	The commenter states that there is a fundamental requirement of RCRA Subpart F is for the monitoring wells to be installed in the geologic strata that have a sufficient permeability to provide a continuous flow of groundwater with a minimum of drawdown of the water level in the well during the collection of groundwater samples. It is essential for the monitoring wells at the Sandia mixed waste landfill to provide a continuous flow of water for monitoring of sensitive water parameters with a closed flow-through cell with the collection of water samples after the sensitive parameters stabilize and during the continuous flow of water.	The Secretary of the NMED selected the remedy for the MWL, which was based on the administrative record and the Hearing Officer's report. The remedy selection considered the current groundwater monitoring network for the MWL. NMED will consider the adequacy of the groundwater monitoring network during the review of the LTM Plan.
J	100	6/08/06 (rec'd 6/08/06)	Citizen, Robert H. Gilkeson	The commenter states that there is a need to install wells in the vadose zone beneath the mixed waste landfill for monitoring the concentrations of volatile chemical contaminants and tritium in the soil gas. The commenter indicates that monitoring wells in the vadose zone are required by DOE Order 450.1 for early identification of the release of contamination from the MWL.	The Secretary of the NMED selected the remedy for the MWL, which was based on the administrative record and the Hearing Officer's report. The remedy selection considered the current groundwater monitoring network for the MWL. NMED will consider the adequacy of the vadose zone monitoring network during the review of the LTM Plan.
K	101	6/08/06 (rec'd 6/08/06)	Nuclear Watch of New Mexico, Scott Kovac (Comments compiled by Paul Robinson, Southwest Research and Information Center; and Robert H. Gilkeson)	The commenter states that Nuclear Watch of New Mexico endorses the recommendations of the comments submitted to NMED by: • Citizen Action, which were compiled by Paul Robinson, Southwest Research and Information Center; and • Robert H. Gilkeson. Nuclear Watch of New Mexico provided copies of the referenced comments.	NMED provides responses to Citizen Action's comments, dated June 7, 2006, as submitted to the Department. NMED provides responses to Mr. Gilkeson's comments, dated June 8, 2006, as submitted to the Department, rather than through the commenter's attachment, which was apparently an earlier version dated June 5, 2006.
L	102	6/08/06 (rec'd 6/08/06)	Citizens for Alternatives to Radioactive Dumping, Janet	The commenter states that Citizens for Alternatives to Radioactive Dumping endorses Citizen Action's recommendations concerning the MWL.	NMED provides responses to Citizen Action's comments, dated June 7, 2006, as submitted to the Department.

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			Greenwald		
M	103	6/08/06 (rec'd 6/08/06)	Embudo Valley Environmental Monitoring Group, Sheri Kotowski (Comments compiled by Paul Robinson, Southwest Research and Information Center; and Robert H. Gilkeson)	The commenter states that the Embudo Valley Environmental Monitoring Group endorses the recommendations of the comments submitted to NMED by: • Citizen Action, which were compiled by Paul Robinson, Southwest Research and Information Center; and • Robert H. Gilkeson. The Embudo Valley Environmental Monitoring Group provided copies of the referenced comments.	NMED provides responses to Citizen Action's comments, dated June 7, 2006, as submitted to the Department. NMED provides responses to Mr. Gilkeson's comments, dated June 8, 2006, as submitted to the Department, rather than through the commenter's attachment, which was apparently an earlier version dated June 5, 2006.
N	104	6/08/06 (rec'd 6/08/06)	Concerned Citizens for Nuclear Safety, Joni Arends	The commenter recommends that NMED deny the CMI Plan, including the FTM, until such time as the recommendations made by Citizen Action are resolved to their satisfaction. The commenter states that issues related to the quality of the groundwater monitoring data must be resolved before NMED provides any type of approval of the CMI Plan.	NMED provides responses to Citizen Action's comments, dated June 7, 2006, as submitted to the Department.
N	105	6/08/06 (rec'd 6/08/06)	Concerned Citizens for Nuclear Safety, Joni Arends	The commenter recommends that the issues and comments raised by Robert H. Gilkeson must be addressed by Sandia National Laboratories and NMED prior to any type of approval of the CMI Work Plan is made by NMED.	NMED provides responses to Mr. Gilkeson's comments, dated June 8, 2006, as submitted to the Department.
N	106	6/08/06 (rec'd 6/08/06)	Concerned Citizens for Nuclear Safety, Joni Arends	The commenter states that Concerned Citizens for Nuclear Safety has been involved with groundwater issues at Los Alamos National Laboratory (LANL) for many years. As the Department of Energy (DOE) owns both LANL and Sandia, the commenter was not surprised to learn that the same types of problems exist at Sandia as at LANL. The commenter states this raises questions about NMED's ability to carefully evaluate data from groundwater characterization and/or monitoring wells. The commenter requests, as part of the review and response to its comments, that NMED re-evaluate its	NMED understands the commenter's requests, noting that they are not directly related to the CMI Plan and the FTM. NMED presently maintains an office of compliance staff at SNL.

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					of the LTM Plan. Consequently, verification of the FTM does not appear to be needed at this time.
O	110	6/08/06 (rec'd 6/08/06)	Citizen, Jamie Wells	The commenter recommends validation of the FTM by using the code at other sites selected by the NMED.	NMED is familiar with modeling conducted for other SNL waste sites; however, there appears to be no basis at this time to review those models since they are site-specific and not applicable to the MWL site.
O	111	6/08/06 (rec'd 6/08/06)	Citizen, Jamie Wells	The commenter recommends establishing a program to monitor plants and animals to ensure bioaccumulation and/or transportation of constituents of concern from the MWL do not occur.	NMED will consider long-term monitoring and maintenance requirements under the MWL LTM Plan, including the commenter's specific suggestions for inclusion in the LTM Plan.
O	112	6/08/06 (rec'd 6/08/06)	Citizen, Jamie Wells	The commenter recommends establishing human population level triggers and corrective actions if these trigger are reached.	NMED will consider long-term monitoring and maintenance requirements under the MWL LTM Plan, including the commenter's specific suggestions for inclusion in the LTM Plan.
O	113	6/08/06 (rec'd 6/08/06)	Citizen, Jamie Wells	The commenter recommends developing, establishing, and approving a Long-Term Monitoring and Maintenance Plan before construction of the cap.	NMED will consider long-term monitoring and maintenance requirements under the MWL LTM Plan. The schedule for submittal of the CMI plan, including the FTM, and the LTM Plan was developed as a result of the Secretary of NMED's remedy selection.
P	114	5/30/06	Citizen, Krishan Wahi	The commenter recommends approval of the CMI Plan recognizing that parameter and model uncertainty can be reduced, but not eliminated, no matter how much money is spent. The commenter states that more complicated facilities use the principle of ALARA (as low as reasonably achievable) to provide the balance in protecting human health. The commenter states that indefinite delays do not contribute to public health and safety.	NMED understands the commenter's position and will consider this comment during the review of the CMI Plan, FTM, and LTM Plan.
Q	115	6/08/06 (rec'd 6/08/06)	Citizen, Willard Hunter	The commenter states that he has rarely seen a more proud organization than SNL and notes that he is a former employer. The commenter states, however, that money should be spent on proper waste disposal.	The NMED previously held a public comment period and public hearing regarding the CMS conducted for the MWL. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the

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					administrative record and the Hearing Officer's report. The CMI plan, which includes the FTM, was developed as a result of the remedy selection.
Q	116	6/08/06 (rec'd 6/08/06)	Citizen, Willard Hunter	The commenter states that he is concerned regarding the level of security provided for the MWL.	NMED will consider long-term monitoring and maintenance requirements, including site security, under the MWL LTM Plan. The commenter's suggestions for security will be considered during NMED's review of the LTM Plan.
Q	117	6/08/06 (rec'd 6/08/06)	Citizen, Willard Hunter	The commenter states that DOE has experience with clean-up alternatives, including rehabilitation of nuclear waste sites, which could be applied to the MWL.	The NMED previously held a public comment period and public hearing regarding the CMS conducted for the MWL. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's report. The CMI plan, which includes the FTM, was developed as a result of the remedy selection.
Q	118	6/08/06 (rec'd 6/08/06)	Citizen, Willard Hunter	The commenter is concerned that the potential for a seismic threat does not appear to be addressed by the CMI Plan and the FTM. The commenter indicates that DOE requires new seismic design requirements in SNL buildings and questions why similar seismic analysis does not apply to the MWL.	The NMED previously held a public comment period and public hearing regarding the CMS conducted for the MWL. The CMS phase considers site characterization in support of remedy design and selection. The Secretary of the NMED selected a vegetative soil cover with a bio-intrusion barrier as the remedy for the MWL. This selection was based on the administrative record and the Hearing Officer's report. The CMI plan, which includes the FTM, was developed as a result of the remedy selection and does not consider seismic analysis.