Request for RCRA Class 2 Permit Modification
in Accordance with 20 NMAC 4.1.900
(40 CFR Part 270)

Waste Isolation Pilot Plant
Carlsbad, New Mexico

April 20, 2000

THIS MODIFICATION WAS APPROVED BY THE NMED ON AUGUST 8, 2000

Request for RCRA Permit Modification
in Accordance with 20 NMAC 4.1.900 (40 CFR Part 270)

Consistent with requirements of 20 New Mexico Administrative Code (NMAC) 4.1.900 (incorporating 40 CFR §270.42), the U.S. Department of Energy, Carlsbad Area Office (CAO) is submitting to the New Mexico Environment Department (NMED) a request for class 2 modifications to the Hazardous Waste Permit (#NM4890139088-TSDF) for the Waste Isolation Pilot Plant (WIPP). Specifically, this information is provided to comply with the requirements of 20 NMAC 4.1.900 (incorporating 40 CFR §270.42(b)).

Requested modifications are listed in Table 1. Listed information includes a reference to the applicable section of the permit, the title of the item and the relevant permit modification category as identified in 20 NMAC 4.1.900 (incorporating 40 CFR §270.42, Appendix I). More complete descriptions of the class 2 modifications are provided in Attachment A.

The changes do not reduce the capacity of the facility to protect human health or the environment.

Table 1. Class 2 Hazardous Waste Facility Permit Modification

No.	Affected Permit Section	Item	Category	Attachment A Page #
1.	B1 B6	Three Sub-sample Requirement for VOCs During Solid Sampling	B.1.d	A-1
2.	B2 B6	Miscertification Rate on a Waste Stream Basis	B.1.d	A-4
3.	V.D. Table L-3	Substitute radionuclide-specific data for gross alpha and gross beta measurements	C.5.b	A-10

Attachment A

Descriptions of RCRA Permit Modification

Item 1 - Class 2 Modification

Three Sub-sample Requirement for VOCs During Solid Sampling

Description:
Add the allowance for one sub-sample to be taken for VOCs during solid sampling.

Basis:
The hazardous waste regulations require that analysis for the purposes of waste characterization be performed on a representative sample of the waste. {20 NMAC 4.1.500(incorporating 40 CFR 264.13)} For a homogeneous matrix, representativeness is achieved by random sampling. The matrix of the homogeneous solids is such that a single random sample has the same likelihood of generating a representative sample of the entire population as does three subsamples. For metals and semi-volatile compounds (SVOCS), in order to obtain the required representative sample, the permit allows the Permittees to collect one sample ". . .by splitting or compositing the representative subsection of the core." Alternately, the Permittees may composite subsamples. ". . . in the same manner as the sample collected for VOC analysis." However, only a composite sample made up of three sub-samples can be used for VOC sampling. This is not necessary to ensure representativeness for the VOC samples. Furthermore, the requirement for three sub-samples to be taken for VOCs during solid sampling is not necessary to confirm hazardous waste code assignment for VOCs.

Because data from the homogeneous solids sampling program are only used to confirm the assignment of hazardous waste codes and do not provide information used to demonstrate compliance with facility performance parameters necessary to protect human health and the environment, the additional steps to assure representativeness are not warranted.

Discussion:
In written testimony submitted at the Hazardous Waste Facility permit hearing, the NMED indicated its intent of allowing the Permittees the option of using either a single sub-sample or compositing three sub-samples for the sampling of homogeneous solids and soils/gravels. (See NMED Testimony on Composite Sampling, 1. Introduction).

Section B-3a(2) of the WIPP Hazardous Waste Facility Permit states that:

> Sampling of homogeneous and soil/gravel wastes shall result in the collection of a sample that is used to confirm hazardous waste code assignment by acceptable knowledge.

In order to meet this requirement, the NMED has specified that one sub-sample is sufficient for SVOCS and metals. On the other hand, the NMED has specified that three sub-samples are necessary to confirm the hazardous waste code assignment associated with VOCs. The primary argument for using different sampling protocols centers around discussions of the representativeness of the sample. That is, in order to obtain a representative SVOC or metal sample, a single sub-sample is adequate. However, for VOCs, three sub-samples are required. However, this position is not justified based on the EPA guidance indicating that the representativeness of a VOC sample is related to the distance the VOC is from the surface of the sample, (i.e., the size of the sample) and not the number of sub-samples composited to make up a sample. Therefore, a single sample that is larger in size and which has less exposed surface area will experience less VOC loss than three smaller sub-samples.

The NMED provided written testimony regarding the importance of consistent sampling methodologies in order to assure representativeness at the public hearing on the draft permit. This testimony states:

> Representativeness is the degree to which data represent a population. While the samples cannot be wholly representative of the waste stream, they should be collected in a similar manner to impart a similar degree of representativeness. Because the Applicants proposed dissimilar sample methodologies for VOC and non-VOC samples, these samples would have different degrees of representativeness. While the Applicants may not be able to achieve identical degrees of representativeness between different samples, the level of representativeness between sample methods should be normalized to the extent practicable.

The mechanisms for distributing the VOCs, SVOCs and metals in the waste being sampled are the same (i.e., physical mixing). Therefore, additional sub-samples are not necessary to increase the degree of representativeness of VOC sampling results to account for a different distribution mechanism. The potential for VOCs to be lost during the collection and analysis of a single, larger sub-sample is no greater than the potential for VOCs to be lost during the collection and analysis of three, smaller sub-samples. Therefore, using one large sub-sample will not adversely affect the representativeness of the VOC sample results for the intended use of the data collected in the solids sampling and analysis program, and will assure that sampling methods used for all solids sampling are normalized to the extent practicable.

Revised Permit Text:

Section B1-2a(2):

C Samples of homogenous solids and soil/gravel for VOC analyses shall be collected prior to extruding the core from the liner. These samples may be collected by collecting a single sample from the representative subsection of the core, or t~~T~~hree sub-samples ~~will~~may be collected from the vertical core to form a single 15-gram composite sample. Smaller sample sizes may be used if method PRQL requirements are met for all analytes. The sampling locations shall be randomly selected. If a single sample is used, the representative subsection is chosen by randomly selecting a location along the portion of the core (i.e. core length). If the three sub-sample method is used, the sampling locations shall be randomly selected within three equal-length subsections of the core along the long axis of the liner and access to the waste shall be gained by making a perpendicular cut through the liner and the core. The Permittees shall require sites to develop documented procedures to select, and record the selection, of random sampling locations. True random sampling involves the proper use of random numbers for identifying sampling locations. The procedures used to select the random sampling locations will be subject to review as part of annual audits by the Permittees. A sampling device such as the metal coring cylinder described in EPA's SW-846 Manual (1996), or equivalent, shall be immediately used to collect the sample once the core has been exposed to air. Immediately after sample collection, the sample shall be extruded into 40-ml volatile organics analysis (**VOA**) vials (or other containers specified in appropriate SW-846 methods), the top rim of the vial visually inspected and wiped clean of any waste residue, and the vial cap secured. Sample handling requirements are outlined in Table B1-4. Additional guidance for this type of sampling can be found in SW-846 (EPA 1996).

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C Are procedures in place to ensure that VOC samples are sampled prior to extruding the core from the liner and that the sample locations are documented? These samples may be collected by choosing a single sample from the representative subsection of the core, or three equal length VOC sample locations on the core are selected randomly along the long axis of the core to form a single 15-gram composite sample. Smaller sample sizes may be used if the method PRQL requirements are met for all analytes. (Section B1-2a(2)).

Item 2 - Class 2 Permit Modification

Miscertification Rate on a Waste Stream Basis

Description:
The miscertification rate should be applied by Summary Category Group (i.e., S3000-Homogeneous Solids, S4000-Soils/Gravel, and S5000-Debris Wastes).

Basis:
The Permit currently requires that the miscertification rate be applied on a waste stream basis. The NMED has indicated that it is necessary to apply the miscertification rate to allow for adequate checking of problematic waste streams. This is based on the fact that different physical waste forms may have a potential impact on radiography operations and the chance of miscertification is higher for some waste streams (such as debris) than for others (such as homogeneous solids). The Permit acknowledges this by indicating that radiography systems should have the capability to vary the voltage to provide "an optimum degree of penetration through the waste." In addition, the Permit anticipates this difference by imposing visual examination requirements on a waste-stream basis as opposed to an annual throughput basis. However, the use of waste streams in this fashion is not appropriate. This is because waste streams are identified by characteristics other than physical waste form (e.g., hazardous constituents, location of generation) that have no potential effects on radiography operations. However, the Summary Category Groups categorize the overall physical form of the waste and do provide the level of discrimination needed to assure the more problematic waste are adequately checked. These should be used instead of waste stream for applying the miscertification rate. Because the Summary Category Groups represent the overall physical form of the waste, using a Summary Category Group miscertification rate is no less protective of human health and the environment than a waste stream miscertification rate and it assures the NMED's goals are met.

Discussion:
The Permit requires that visual examination (VE) be performed as a quality check on radiography. The number of containers that must undergo VE is statistically selected based on a miscertification rate. This miscertification rate is based on the number of miscertified containers. Section B2-1 defines miscertified containers by stating that:

> Miscertified containers are those that radiography indicates meet the Waste Isolation Pilot Plant Waste Acceptance Criteria and Transuranic Package Transporter-II Authorized Methods for Payload Control but visual examination indicates do not meet these criteria.

Because, radiography and VE look at the physical form of the waste and the absence/presence of certain prohibited items, these are the conditions used to determine miscertification rate. The ability of a qualified radiography operator to evaluate the physical form of the waste and to identify prohibited items in the waste is based on image quality. The image quality is based on the physical waste form and the resolution of the radiography system.

As a quality check to ensure that the physical waste form and absence/presence of prohibited items is being identified correctly, VE is specified.

The Permit currently requires a miscertification rate based on waste stream. However, the waste stream designation is based on much more than just the physical waste form. Section B4-2b lists the minimum requirements for the waste process information that is used to delineate a waste stream as:

- Area(s) and/or building(s) from which the waste stream was or is generated
- Waste stream volume and time period of generation (e.g., 100 standard waste boxes of retrievable stored waste generated from June 1977 through December 1977)
- Waste generating process described for each building (e.g., batch waste stream generated during decommissioning operations of glove boxes)
- Process flow diagrams (e.g., a diagram illustrating glove boxes from a specific building to a size reduction facility to a container storage area). In the case of research/development, analytical laboratory waste, or other similar processes where process flow diagrams cannot be created, a description of the waste generating processes, rather than a formal process flow diagram, may be included if this modification is justified and the justification is placed in the auditable record
- Material inputs or other information that identifies the chemical content of the waste stream and the physical waste form (e.g., glove box materials and chemicals handled during glove box operations, if applicable)

This Permit citation demonstrates that a waste stream may be based on many things that do not impact the physical form of the waste (e.g., the area that the waste was generated in, the chemical content). Therefore, using waste stream miscertification rates is not necessary and using a miscertification rate based on the overall physical waste form is no less protective of human health and the environment.

The overall physical waste form is categorized using the Summary Category Group (i.e., S3000-Homogeneous Solids, S4000-Soils/Gravel, and S5000-Debris Wastes). This overall physical waste form is the one that may affect radiography operations and is what should be used to develop an appropriate miscertification rate. Using the Summary Category Group miscertification rates is also consistent with the existing path for waste characterization, which is determined by the Summary Category Group designation for each container. Section B-1b states:

> Once a waste stream has been delineated, generator/storage sites will assign a Waste Matrix Code to the waste stream based on the physical form of the waste. Waste streams are then assigned to one of three broad Summary Category

> Groups; S3000-Homogeneous Solids, S4000-Soils/Gravel, and S5000-Debris Wastes. These Summary Category Groups are used to determine further characterization requirements.

This indicates that the Permit intends for the "three broad Summary Category Groups" to take precedence over the specific waste stream definition found in the Waste Stream Profile Form for performing waste characterization. Therefore, referring to a Summary Category Group miscertification rate in Section B2-1 is consistent with using the Summary Category Group assigned to each waste stream to determine characterization requirements. This approach is also consistent with Section B-3c, which states:

> Radiography and/or visual examination will be used to examine every waste container to verify its physical form. These techniques can detect liquid wastes and containerized gases, which are prohibited for WIPP disposal. The prohibition of liquids and containerized gases prevents the shipment of corrosive, ignitable, or reactive wastes. Radiography and/or VE will also be able to confirm that the physical form of the waste matches its waste stream description (i.e. Homogeneous Solids, Soil/Gravel, or Debris Waste [including uncategorized metals])

Using a Summary Category Group miscertification rate is also consistent with the NMED view presented in their response to comments that a "stratified strategy [for visual examination] allows for checking of problematic waste streams, while allowing much less examination of waste streams that are not problematic." The stratified strategy view is based on the belief that prohibited items are more difficult to identify in some waste forms using radiography. Therefore, using miscertification rates based on the Summary Category Group designation provides assurances that waste forms that are more likely to be miscertified will be subject to more VE than those that are less likely to be miscertified.

Revised Permit Text:

> B2-1 <u>Approach for Statistically Selecting Waste Containers for Visual Examination</u>
>
> As a Quality Control check on the radiographic examination of waste containers, a statistically selected portion of the certified waste containers must be opened and visually examined. The data from visual examination shall be used to verify the matrix parameter category, waste material parameter weights, and absence of prohibited items as identified in Attachment B, Section B-1C, as determined by radiography.
>
> The data obtained from the visual examination shall also be used to determine, with acceptable confidence, the percentage of miscertified waste containers from the radiographic examination. Miscertified containers are those that radiography

indicates meet the Waste Isolation Pilot Plant Waste Acceptance Criteria and Transuranic Package Transporter-II Authorized Methods for Payload Control but visual examination indicates do not meet these criteria.

Participating sites shall initially use an eleven-percent (11%) miscertification rate to calculate the number of waste containers that shall be visually examined until a site-specific miscertification rate has been established. Sites may establish a site-specific miscertification rate by characterizing a ~~waste stream or waste stream~~ lot of no less than fifty containers in a single Summary Category Group at the initial 11% miscertification rate. The results of this initial characterization shall then serve as the site-specific miscertification rate until reassessed annually as described below.

The site-specific miscertification rate shall be applied initially to each ~~waste stream~~ Summary Category Group to determine the number of containers in that Summary Category Group requiring visual examination, as specified in Table B2-1. However, a ~~waste stream~~ Summary Category Group-specific miscertification rate shall be determined when either six months have passed since radiographic characterization commenced on a given ~~waste stream~~Summary Category Group, or at least 50% of a given ~~waste stream~~ Summary Category Group has undergone radiographic characterization, whichever occurs first. The ~~waste stream~~ Summary Category Group shall then be subject to the visual examination requirements of this reevaluated ~~waste stream~~ Summary Category Group-specific miscertification rate to ensure that the entire ~~waste stream~~ Summary Category Group is appropriately characterized. Table B2-1 provides the number of waste containers per ~~waste stream~~ Summary Category Group that shall be visually examined for various miscertification rates and waste container population sizes using a hypergeometric sampling approach. Sites shall use a miscertification rate of 1% for any ~~waste stream~~ Summary Category Group-specific miscertification rate calculated to be less than 1%.

The site-specific miscertification rate shall be reassessed annually by calculating a drum-weighted average of all historic ~~waste stream~~ Summary Category Group-specific miscertification rates. Each ~~waste stream~~ Summary Category Group-specific miscertification rate shall be rounded off to the nearest integer value before being used to calculate the new site-specific miscertification rate. Sites shall use a miscertification rate of 1% for any site-specific miscertification rate calculated to be less than 1%.

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! Do site procedures ensure that the site use the data obtained from the visual examination to determine the percentage of miscertified waste containers for each ~~waste stream~~ Summary Category Group? Is a ~~waste stream~~ Summary Category Group-specific miscertification rate determined

after 6 months or 50 percent of the ~~waste stream~~ Summary Category Group has undergone radiographic characterization? Is the entire ~~waste stream~~ Summary Category Group subject to the re-evaluated ~~waste stream~~ Summary Category Group miscertification rate.
(Section B2-1)

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! Do site procedures require that the site-specific miscertification rate be reassessed annually by calculating a drum-weighted average of all historic ~~waste stream~~ Summary Category Group–specific miscertification rates? Do procedures ensure that sites use a miscertification rate of 1 % for any site-specific or ~~waste stream~~ Summary Category Group–specific miscertification rate calculated to be less than 1 % (Section B2-1).

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! Table B2-1 presents the number of waste containers requiring visual examination by miscertification rate and annual number of waste containers per ~~waste stream~~ Summary Category Group undergoing characterization. Do procedures ensure that the annual number of waste containers per ~~waste stream~~ Summary Category Group undergoing characterization are within the range used in the table (50-2000)? (Section B2-1).

TABLE B2-1
NUMBER OF WASTE CONTAINERS REQUIRING VISUAL EXAMINATION

Annual Number of Waste Containers per ~~Waste Stream~~ Summary Category Group Undergoing Characterization	Number of Waste Containers Requiring Visual Examination Based on Percent of Waste Containers Miscertified to WIPP-WAC by Radiography in Previous Year(s)												
	1% or less	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14% or greater
50 or less	22[a]	22	22[a]	22	29[a]	29	41[a]	41	46[a]	46	50[a]	50	50[a]	50
100	15	24	24	33	33	41	48	62	69	81	87	96	100	100
200	15	26	26	35	44	52	68	83	105	126	152	176	196	200
300	15	26	26	35	44	53	70	94	116	153	202	247	287	300
400	15	26	26	36	45	62	79	103	134	178	235	316	377	400
500	16	26	26	36	45	63	80	104	143	196	268	364	465	500
1000	16	27	27	36	46	64	81	114	162	239	359	568	848	1000
1500	16	27	27	37	46	64	81	123	171	257	416	701	1176	1500
2000	16	27	27	37	46	64	90	123	172	266	441	795	1453	2000

[a] Number of containers for the higher even-number percent of miscertified containers is used because an odd percent implies a noninteger number of containers are likely to be miscertified.

Item-3

Substitution of Radionuclide-Specific Data for Gross Alpha and Gross Beta Data

Description:
The Final Permit requires that the Permittees submit gross alpha and gross beta measurements as part of the Groundwater Detection Monitoring Program. These data are replaced with radionuclide-specific data.

Basis:
The measurement of gross alpha and gross beta in high ionic strength groundwaters is problematic. In order to meet the analytical method requirements, excessive dilution of samples is needed. This results in minimum detectable activities (MDAs[1]) that are too high to be diagnostic of radionuclide concentrations in the groundwater. Alternatively, the Permittees routinely measure radionuclide-specific activities in groundwater for americium 241, plutonium 238, plutonium 239/240, uranium 234, uranium 235, uranium 238, strontium 90, potassium 40, cesium 137, and cobalt 60. These analytes are representative of the radionuclides in TRU mixed waste and, therefore are more diagnostic of a release to groundwater than gross alpha and gross beta. The Permittees propose to provide the radionuclide-specific data annually to the NMED in lieu of the gross alpha and gross beta data required by the permit.

Discussion:
The Environmental Protection Agency has established a maximum contaminant level (MCL) for gross alpha of 15 pCi/L and a gross beta average annual concentration of 50 pCi/L. The concentrations are based on an annual dose equivalent to the total body or any internal organ of less than 4 millirem/year from typical uses of groundwater.

The EPA has classified WIPP's groundwater wells as Class III. Class III wells are not considered potential sources of drinking water and are of limited beneficial use because the salinity or total dissolved solids (TDS) is greater than 10,000 mg/L. High TDS in groundwater poses a large problem during chemical analysis of samples. The gross alpha/beta analysis procedure must be performed on samples with less than 100 mg of residue, because the alpha attenuation becomes too great if the100 mg maximum is exceeded. Because of the high TDS encountered with WIPP's groundwaters, the laboratory has to reduce the aliquot size used for the analysis to ensure less than 100 mg of residue. This small aliquot size results in a large MDA because the aliquot size is used in computing the MDA and as the aliquot taken gets smaller, the computed MDA gets larger.

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[1] Minimum detectable activities are equipment thresholds established for radionuclide counting equipment and are functionally equivalent to minimum detection limits established for chemical analytical equipment.

Table 2 summarizes the gross alpha/beta results from sampling rounds 6 through 8 of the WIPP Groundwater Detection Monitoring Program. Because of the high TDS in the groundwater, it was necessary to use aliquot sizes ranging from 1 milliliter to 15 milliliters during the laboratory analysis to ensure valid results (i.e., that 100 mg of residue was not exceeded).

The values in the table show that the detection limits and errors are too high for the sample results to be reliably used to identify the presence of radioactive contamination in the wells. The table shows that all of the calculated MDAs for gross alpha exceed the 15 PCi/L MCL and the MDAs for gross beta exceed the 50 PCi/L value. Therefore, the results of these analyses are of limited use in identifying potential releases to the groundwater.

The Permittees have performed radionuclide analysis on groundwater samples for the following analytes: americium 241, plutonium 238, plutonium 239/240, uranium 234, uranium 235, uranium 238, strontium 90, potassium 40, cesium 137, and cobalt 60. The analyses are administered under the same program as the Detection Monitoring Program and are reported on a yearly basis in the Site Environmental Report. The results of the specific radionuclide analyses should be used as the basis for identifying potential releases to the groundwater.

TABLE 2 GROSS ALPHA AND GROSS BETA RESULTS FOR GROUNDWATER SAMPLING ROUNDS 6, 7, 8, AND 9

WELL #	TDS (mg/L)	Sampling Round	Gross Alpha			Gross Beta		
			Activity pCi/L	2 s Error pCi/L	MDA pCi/L	Activity pCi/L	2 s Error pCi/L	MDA pCi/L
1	69,000	6	270	320	500	420	360	570
1	60,000	7	600	370	420	470	360	550
1	63,000	8	150	320	570	470	270	400
2	60,400	6	200	300	510	120	330	560
2	59,000	7	430	380	540	310	350	570
2	63,000	8	150	300	530	270	260	430
3	193,000	6	1700	880	970	1100	460	640
3	200,000	7	-450	1000	2100	770	720	1100
3	220,000	8	26	1000	2000	820	810	1300
4	99,300	6	650	640	940	400	700	1200
4	100,000	7	790	690	1000	660	420	650
4	100,000	8	590	680	1100	510	440	690
5	32,000	6	330	230	300	22	170	290
5	34,000	7	290	230	320	230	130	190
5	31,000	8	260	220	280	120	140	240
6	16,900	6	81	74	110	140	81	120
6	14,000	7	210	120	130	210	87	120
6	15,000	8	93	130	210	41	71	120

Permit Text Changes:

A. Module V

1. Table V.D

Table V.D - Parameter or Constituent	
pH	Specific conductance
Total organic carbon (**TOC**)	Total organic halogen (**TOH**)
Total dissolved solids (**TDS**)	Total suspended solids (**TSS**)
Density	Calcium
Magnesium	Potassium
Chloride	Iron (Total Fe)
Chloroform	1,2-dichloroethane
Carbon tetrachloride	Chlorobenzene
1,1-dichloroethylene	1,1-dichloroethane
Methylene chloride	1,1,2,2-tetrachloroethane
Toluene	1,1,1-trichloroethane
Cresols	1,4-dichlorobenzene
1,2-dichlorobenzene	cis-1,2-dichloroethylene
2,4-dinitrophenol	2,4-dinitrotoluene
Hexachloroethane	Hexachlorobenzene
Isobutanol	Methyl ethyl ketone
	Pentachlorophenol
Pyridine	Tetrachloroethylene
1,1,2-Trichloroethane	Trichloroethylene
Trichlorofluoromethane	Xylenes
Nitrobenzene	Vinyl chloride
Arsenic	Barium
Cadmium	Chromium
Lead	Mercury

Table V.D - Parameter or Constituent	
Selenium	Silver
Antimony	Beryllium
Nickel	Thallium
~~Gross alpha~~	~~Gross beta~~

2. Module V.J.2.c.

V.J.2.c. Ground-water flow and radionuclide sampling results - the Permittees shall submit to the Secretary an evaluation of the ground-water flow data specified in Permit Condition V.H and the results of radionuclide-specific analysis of groundwaters sampled from the DMWs in the Annual Site Environmental Report by October 1 of each calendar year.

B. Attachment L

1. Attachment L-5c

L-5c Annual Site Environmental Report

Data collected from this DMP will be reported to NMED as specified in Permit Module V, and to the EM Manager and NMED in the ASER. The ASER will include all applicable information that may affect the comparison of background ground-water quality and ground-water surface elevation data through time. This information will include but is not limited to:

- Well configuration changes that may have occurred from the time of the last measurement (i.e., plug installation and removal, packer removal and reinstallation, or both; and the type and quantity of fluids that may have been introduced into the test wells).

- Any pumping activities that may have taken place since publication of the last annual report (i.e., ground-water quality sampling, hydraulic testing, and shaft installation or grouting activities).

- Radionuclide-specific data collected during the previous year

The DMP data used in generating the ASER will be maintained as part of the WIPP operating record and will be provided to NMED for review as specified in the permit.

2. Table L-3

TABLE L-3
ANALYTICAL PARAMETER LIST FOR THE WIPP DETECTION MONITORING PROGRAM

Background Ground-water Quality	Operational Detection Monitoring Ground-water Quality
<u>Indicator Parameters</u> pH, SC, TOC, TOH, TDS, TSS, density <u>Parameters Listed in</u> 20 NMAC 4.1.500 (incorporating 40 CFR §264) Appendix IX, Calcium, Magnesium, Potassium <u>Field Analyses</u> pH, SC, temperature, chloride, Eh, alkalinity, total Fe, specific gravity	<u>Indicator Parameters</u> pH, SC, TOC, TOH, TDS, TSS, density <u>Organic Parameters</u> Chloroform 1,2-dichloroethane Carbon tetrachloride Chlorobenzene 1,1-dichloroethylene 1,1-dichloroethane Methylene chloride 1,1,2,2-tetrachloroethane Toluene 1,1,1-trichloroethane Cresols 1,4-dichlorobenzene 1,2-dichlorobenzenecis-1,2-dichloroethylene 2,4-dinitrophenol 2,4-dinitrotoluene Hexachloroethane Hexachlorobenzene Isobutanol Methyl ethyl ketone Pentachlorophenol Pyridine Tetrachloroethylene 1,1,2 Trichloroethane Trichloroethylene Trichlorofluoromethane Xylenes Nitrobenzene Vinyl Chloride <u>Metals</u> Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver Antimony Calcium Beryllium Magnesium Nickel Potassium Thallium ~~Other Parameters~~ ~~Gross Alpha~~ ~~Gross Beta~~ <u>Field Analyses</u> pH, SC, temperature, chloride, Eh, alkalinity, total Fe, specific gravity

Note: Because of the lack of sophisticated weights and measures equipment available for field density assessment, field density evaluations are expressed in terms of specific gravity, which is a unitless measure.