

Class 2 Permit Modification Request
Removal of Deteriorating/Non-Essential Water Level Monitoring Program Wells

**Waste Isolation Pilot Plant
Carlsbad, New Mexico**

WIPP Permit Number - NM4890139088-TSDF

August 2019

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Acronyms and Abbreviations

CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
DMP	Detection Monitoring Program
NMAC	New Mexico Administrative Code
Permit	Hazardous Waste Facility Permit
PMR	Permit Modification Request
SNL	Sandia National Laboratories
WIPP	Waste Isolation Pilot Plant
WLMP	Water Level Monitoring Program

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Overview of the Permit Modification Request

This document contains a Class 2 Permit Modification Request (**PMR**) for the Waste Isolation Pilot Plant (**WIPP**) Hazardous Waste Facility Permit (**Permit**) Number NM4890139088-TSDF.

This PMR is being submitted by the U.S. Department of Energy (**DOE**) and Nuclear Waste Partnership LLC, collectively referred to as the Permittees, in accordance with the Permit, Part 1, Section 1.3.1 (20.4.1.900 New Mexico Administrative Code (**NMAC**) incorporating Title 40 of the Code of Federal Regulations (**CFR**) Part 270 Section 270.42 Paragraph (b), i.e., §270.42(b)). The modification request proposes the following change:

- Removal of Deteriorating/Non-Essential Water Level Monitoring Program (**WLMP**) Wells

This change does not reduce the ability of the Permittees to provide continued protection to human health and the environment.

The requested modification to the Permit and related supporting documents are provided in this PMR. The proposed modification to the text of the Permit has been identified using red text and double underline and a ~~strikeout~~ font for deleted information. All direct quotations are indicated by italicized text. The following sections specifically address how this Class 2 PMR submission complies with the requirements of the Permit, Part 1, Section 1.3.1.

1. **20.4.1.900 NMAC (incorporating 40 CFR 270.42(b)(1)(i)) requires the applicant to describe the exact change to be made to the permit conditions and supporting documents referenced by the Permit.**

The Permittees are proposing changes to the following items in Permit Attachment L, *WIPP Groundwater Detection Monitoring Program Plan*:

- *List of Tables*
- Section L-3a, *Scope*
- Table L-4, *List of Culebra Wells in the WLMP, Current as of October 2017*
- Figure L-2, *WIPP Facility Boundaries Showing 16-square-Mile Land Withdrawal Boundary*
- Figure L-6, *Detection Monitoring Well Locations*
- Figure L-14, *Groundwater Level Surveillance Wells*

The Permittees are proposing to remove the WLMP wells listed below from Permit Attachment L, Table L-4, *List of Culebra Wells in the WLMP, Current as of October 2017* (as shown in Table 1) and Permit Attachment L, Figure L-14, *Groundwater Level Surveillance Wells* (as shown in Figure 1).

- ERDA-9

- H-02b2
- H-03b2
- H-07b1
- H-17
- WIPP-13
- WIPP-19

This proposed change will allow for the plugging and abandonment of deteriorating WLMP wells that do not require replacement because they are no longer essential to the monitoring network. Note that these wells are not part of the Detection Monitoring Program (**DMP**) and, therefore, do not require periodic sampling/analysis.

As a result of this change, the Permittees are proposing the following additional changes:

- Permit Attachment L, *List of Tables* – Change the table title from “*List of Culebra Wells in the WLMP, Current as of February 2014*” to “*List of Culebra Wells in the WLMP, Current as of August 2019.*”
- Permit Attachment L, Section L-3a, *Scope* – Delete “as of January 1, 2011.”
- Permit Attachment L, Table L-4 – Change the table title from “*List of Culebra Wells in the WLMP, Current as of October 2017*” to “*List of Culebra Wells in the WLMP, Current as of August 2019,*” add a period at the end of the table footnote, and change the well identification numbers (as shown in Table 1) as follows:
 - Replace “H-04bR” with “H-4bR”
 - Replace “H-05b” with “H-5b”
 - Replace “H-06bR” with “H-6bR”
 - Replace “I-461” with “IMC-461”
 - Replace “SNL-01” with “SNL-1”
 - Replace “SNL-02” with “SNL-2”
 - Replace “SNL-03” with “SNL-3”
 - Replace “SNL-05” with “SNL-5”
 - Replace “SNL-06” with “SNL-6”
 - Replace “SNL-08” with “SNL-8”
 - Replace “SNL-09” with “SNL-9”

- Permit Attachment L, Figure L-2, *WIPP Facility Boundaries Showing 16-square-Mile Land Withdrawal Boundary* – Modify the Exclusive Use Area and Property Protection Area boundaries and add section labels for sections “20” and “21.”
- Permit Attachment L, Figure L-6, *Detection Monitoring Well Locations* – Modify the Exclusive Use Area boundary and the figure labels for “WIPP Site,” “Exclusive Use Area,” “Property Protection Area” and “Off Limits Area.”
- Permit Attachment L, Figure L-14, *Groundwater Level Surveillance Wells*
 - Remove wells H-18, WIPP-18, H-14, DOE-2, CB-1, and H-8 (as shown in Figure 1).
 - Modify the Exclusive Use Area boundary.
 - Delete “ASER 3-11-09” from the bottom right corner of the figure.
 - Change the well identification numbers (as shown in Figure 1) in the figure as follows:
 - Replace “AEC-7” with “AEC-7R”
 - Replace “H-4” with “H-4bR”
 - Replace “H-5” with “H-5b”
 - Replace “H-6” with “H-6bR”
 - Replace “H-9” with “H-9bR”
 - Replace “H-10” with “H-10cR”
 - Replace “H-11b4” with “H-11b4R”
 - Replace “H-12” with “H-12R”
 - Replace “H-15” with “H-15R”
 - Replace “H-19” with “H-19 pad”

Table 1. Proposed Changes to Table L-4, *List of Culebra Wells in the WLMP, Current as of October 2017*

WELL ID	WELL ID	WELL ID
AEC-7R	H-17	SNL-15
C-2737	H-19 pad*	SNL-16
ERDA-9	I-461 <u>IMC-461</u>	SNL-17
H-02b2	SNL-01 <u>SNL-1</u>	SNL-18
H-03b2	SNL-02 <u>SNL-2</u>	SNL-19
H-04bR <u>H-4bR</u>	SNL-03 <u>SNL-3</u>	WQSP-1
H-05b <u>H-5b</u>	SNL-05 <u>SNL-5</u>	WQSP-2
H-06bR <u>H-6bR</u>	SNL-06 <u>SNL-6</u>	WQSP-3
H-07b4	SNL-08 <u>SNL-8</u>	WQSP-4
H-9bR	SNL-09 <u>SNL-9</u>	WQSP-5
H-10cR	SNL-10	WQSP-6
H-11b4R	SNL-12	WIPP-11
H-12R	SNL-13	WIPP-13
H-15R	SNL-14	WIPP-19
H-16		

*The water level for the H-19b0 well on the H-19 pad is measured monthly; the fluid density measured annually at well H-19b0 will be used to correct for freshwater head for the other wells on the H-19 pad (H-19b2, H-19b3, H-19b4, H-19b5, H-19b6, and H-19b7).

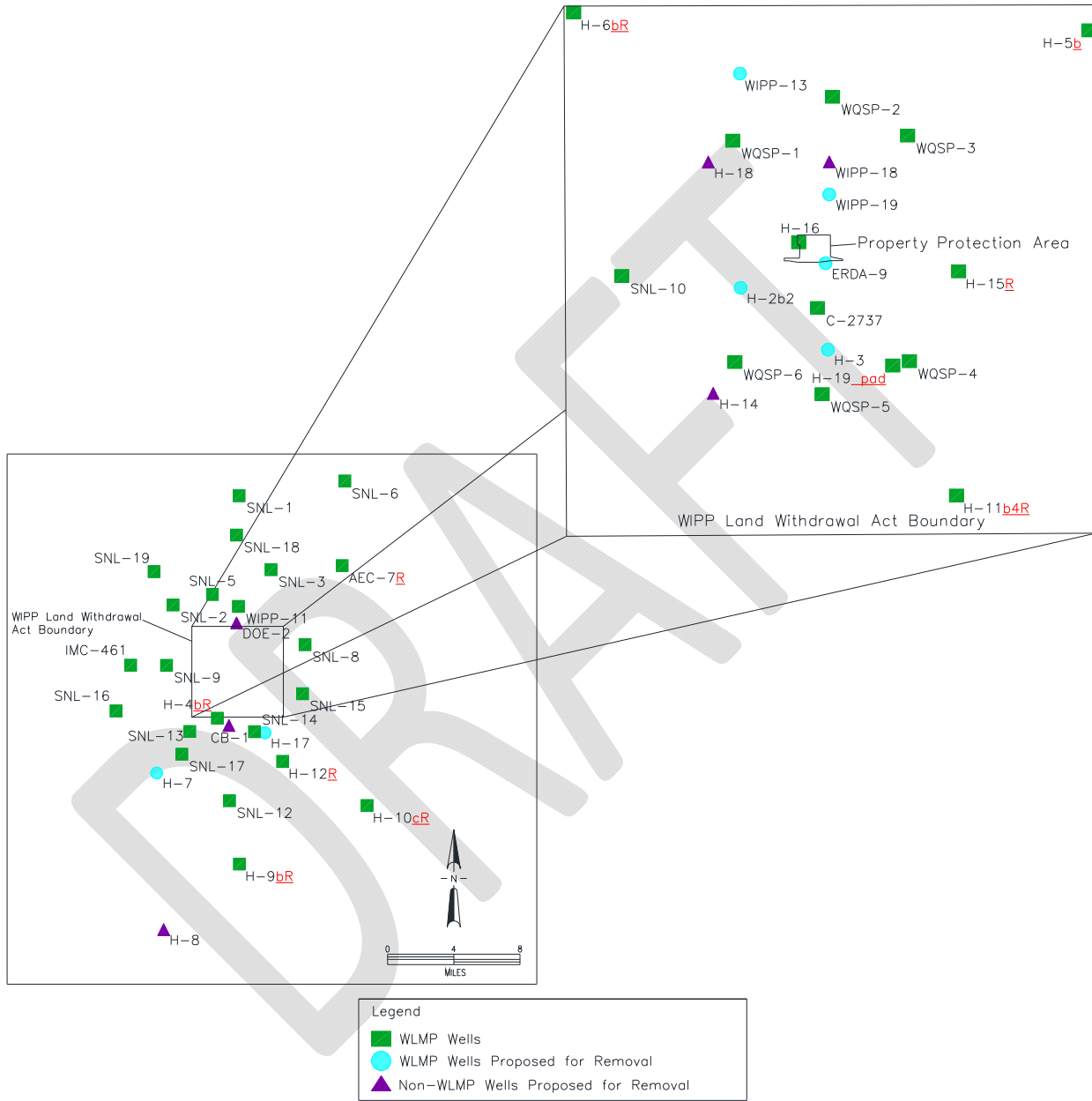


Figure 1. Proposed Changes to Wells in Permit Figure L-14, *Groundwater Level Surveillance Wells*

The Table of Changes (Appendix A) describes each change that is being proposed and the Proposed Revised Permit Text (Appendix B) shows the changes to the Permit text in redline strikeout.

2. 20.4.1.900 NMAC (incorporating 40 CFR 270.42(b)(1)(ii)), requires the applicant to identify that the modification is a Class 2 modification.

This PMR is classified as a Class 2 modification for the reason indicated below:

20.4.1.900 NMAC incorporating 40 CFR 270.42, Appendix I, Item C. "Ground-Water Protection, 1. Changes to wells: a. Changes in the number, location, depth, or design of upgradient or downgradient wells of permitted ground-water monitoring system...2"

This PMR proposes to remove some groundwater wells from the WLMP, thus changing the number of wells in the groundwater monitoring system.

3. 20.4.1.900 NMAC (incorporating 40 CFR 270.42(b)(1)(iii)), requires the applicant to explain why the modification is needed.

The Permittees are proposing to remove WLMP wells ERDA-9, H-02b2, H-03b2, H-07b1, H-17, WIPP-13, and WIPP-19 from Permit Attachment L, Table L-4, *List of Culebra Wells in the WLMP, Current as of October 2017*, and Permit Attachment L, Figure L-14, *Groundwater Level Surveillance Wells*. The wells being removed are completed in the Culebra Dolomite (**Culebra**) of the Rustler Formation (**Rustler**), overlying the repository. The WLMP is described in Permit Part 5, *Groundwater Detection Monitoring*, and Permit Attachment L, *WIPP Groundwater Detection Monitoring Program Plan*. The WIPP Groundwater Detection Monitoring Program satisfies the requirements prescribed in 20.4.1.500 NMAC (incorporating 40 CFR Part 264, Subparts F and X). The WIPP Groundwater Detection Monitoring Program consists of the WLMP and the Detection Monitoring Program. The Detection Monitoring Program is not the subject of this PMR. The Permittees are only proposing changes to the WLMP; these changes are needed to allow for the plugging and abandonment of deteriorating wells that will not be replaced because they are no longer essential to the monitoring network.

The WLMP consists of 43 wells, listed in Permit Attachment L, Table L-4, that are measured monthly pursuant to the Permit Attachment L, Section L-4a, *Monitoring Frequency*, to determine if assumptions described in Permit Attachment L, Section L-3b, *Current WIPP DMP* regarding groundwater flow and direction remain valid. Monthly measurements of the water level in Culebra wells, coupled with annual determinations of water density, allow the reporting of equivalent freshwater heads over a broad network of monitoring wells. These data are used to monitor the general flow rate and direction of the groundwater in the Culebra as required by Permit Part 5, Section 5.8, *Groundwater Flow Determination*. The methodology for calculating [predicting] flow rate and direction using the deterministic groundwater flow model, MODFLOW, is described in Permit Attachment L, Section L-5c, *Semi-Annual Groundwater Surface Elevation Report and Annual Culebra Groundwater Report*. The groundwater flow model uses the water level measurements as the initial head input for running the model, as well as defining the boundary conditions of the model domain. The WLMP wells, as of October 2017, are presented in Permit Attachment L, Table L-4. As stated in Permit Attachment L, Section L-3a, *Scope*, the list of wells is subject to change due to plugging and abandonment and drilling of new wells. The data generated from these wells are submitted to the New Mexico Environment Department semi-annually (by May 31 and November 30 of each year) in accordance with Permit Part 5, Section 5.10.2.2, *Groundwater Surface Elevation Results*.

The seven monitoring wells proposed for removal in this PMR are steel-cased wells installed in the 1970s and 1980s. The steel casing in these wells is corroding due to the high salinity of the Culebra water. Although at various stages of deterioration, these wells are nearing the point where they must either be replaced or plugged and abandoned. The poor condition of these wells poses a risk of causing comingling of groundwaters, which would result in a violation of the monitoring well permits issued by the New Mexico Office of the State Engineer. The Permittees are proposing to remove these wells from the WLMP since they are not necessary for ongoing groundwater modeling efforts, which are used to generate the potentiometric surface map. From 2004 through 2006, a number of new fiberglass wells were completed to provide information where data gaps were determined. The installation of the new wells increased the density of monitoring points in the model domain. It has been determined that removal of these select wells will not impact the ability of the groundwater flow model (i.e., MODFLOW) to predict flow rate and direction because of the increased density of new wells in the WLMP. With the increased density, wells that are close together collect water level data that are redundant to each other. This is because new wells have been installed in close proximity of the wells selected for removal, will provide equivalent initial heads to run the model, and validate predicted head versus measured head at the monitoring points.

Sandia National Laboratories (SNL) performed a well network optimization study (SNL, 2010) to determine if removing these wells from the water level monitoring network would adversely impact groundwater modeling efforts. The conclusion was that removing these wells from the network would not affect the ability to effectively simulate groundwater flow at the WIPP facility nor would it affect the accuracy of the potentiometric surface map submitted with the Annual Culebra Groundwater Report. This study was submitted with the Class 2 PMR entitled "Revise the WIPP Groundwater Detection Monitoring Program Plan," dated September 29, 2011 (DOE, 2011) that was approved by New Mexico Environment Department on January 31, 2012 (NMED, 2012). Removing these wells from the WLMP network does not affect the ability of the Permittees to monitor general flow rate and direction of the Culebra as described in Permit Attachment L.

The well optimization study (SNL, 2010) was performed to provide the best monitoring well network design, thereby removing redundancy in data collection through identification of wells that could be plugged and abandoned with minimal effect on the ability of the monitoring network to predict groundwater elevations at locations where there are no monitoring wells. The optimization study used three modeling approaches to determine the need to keep existing well locations or plug and abandon the redundant wells. Through various scenarios of the model, wells ERDA-9, H-2b2 (H-02b2), H-3b2 (H-03b2), H-7b1 (H-07b1), H-17, WIPP-13, and WIPP-19 were ranked of low statistical importance and could be plugged and abandoned. Therefore, if this PMR is approved, the Permittees will proceed with plugging and abandoning these wells.

The WLMP wells proposed for removal in this PMR provide duplicative data to the following wells:

- Well ERDA-9 and well H-3b2 (H-03b2) data is redundant to data obtained at well C-2737.
- Well H-2b2 (H-02b2) data is redundant to data obtained at well SNL-10.
- Well H-7b1 (H-07b1) data is redundant to data obtained at well SNL-17.
- Well H-17 data is redundant to data obtained at well SNL-14.

- Well WIPP-13 data is redundant to data obtained at wells WQSP-1 and WQSP-2.
- Well WIPP-19 data is redundant to data obtained at wells WQSP-1, WQSP-2 and WQSP-3.

As a result of the changes described above, the Permittees are proposing some additional editorial changes to Permit Attachment L. In addition to the need to update and ensure the accuracy of the Permit, these editorial changes are being proposed for the following reasons:

- Permit Attachment L, *List of Tables* – The table title, “*List of Culebra Wells in the WLMP, Current as of February 2014,*” needs to be changed to “*List of Culebra Wells in the WLMP, Current as of August 2019*” to correspond with the date of this proposed Permit modification, consistent with the proposed changes to Permit Attachment L, Table L-4.
- Permit Attachment L, Section L-3a, *Scope* – Permit text, “as of January 1, 2011,” needs to be deleted since it is outdated; the correct date is captured in the revised table title for Permit Attachment L, Table L-4.
- Permit Attachment L, Table L-4 – The table title, “*List of Culebra Wells in the WLMP, Current as of October 2017,*” needs to be changed to “*List of Culebra Wells in the WLMP, Current as of August 2019*” to correspond with the date of this proposed Permit modification. In addition, some of the well identification numbers in Table L-4 require revision to ensure consistency with the identification numbers in Figure L-14 and in the well permits issued by the New Mexico Office of the State Engineer, as listed in Permit Attachment B, *Hazardous Waste Permit Application Part A, Appendix B1, Other Environmental Permits*.
- Permit Attachment L, Figure L-2, *WIPP Facility Boundaries Showing 16-square-Mile Land Withdrawal Boundary* – The Exclusive Use Area and Property Protection Area require modification to more accurately depict the boundaries and ensure consistency with the Property Protection Area boundary in Figures L-6 and L-14. In addition, missing section labels need to be added for sections “20” and “21” for completeness.
- Permit Attachment L, Figure L-6, *Detection Monitoring Well Locations* – The Exclusive Use Area boundary requires revision to provide a more accurate depiction, and the figure labels for “WIPP Site,” “Exclusive Use Area,” “Property Protection Area” and “Off Limits Area” need to be modified to enhance the clarity of the figure.
- Permit Attachment L, Figure L-14, *Groundwater Level Surveillance Wells*
 - Wells H-18, WIPP-18, H-14, DOE-2, CB-1, and H-8 need to be removed from this figure because they monitor the Bell Canyon Formation and the Magenta Formation; the WLMP only consists of wells monitoring the Culebra, and as a result, wells H-18, WIPP-18, H-14, DOE-2, CB-1, and H-8 are not listed in Permit Attachment L, Table L-4. These wells had been included in the figure because they were part of the Annual Site Environmental Report in 2009. These wells need to be removed to provide an update to this figure and to assure accuracy and consistency with Table L-4.
 - The Exclusive Use Area requires modification to more accurately depict the boundary.

- “ASER 3-11-09” needs to be deleted from the bottom corner of the figure because, with the proposed changes to the figure, it will become an incorrect reference.

Some of the well identification numbers need to be changed to ensure consistency with the identification numbers in Table L-4 and in the well permits issued by the New Mexico Office of the State Engineer, as listed in Permit Attachment B, *Hazardous Waste Permit Application Part A*, Appendix B1, *Other Environmental Permits*.

It should be noted that Permit Attachment L, Figure L-5, *Culebra Freshwater-Head Potentiometric Surface*, is not proposed for revision at this time even though it depicts the WLMP wells that are proposed for deletion. The reason this change is not being made is that the potentiometric map is generated by SNL on an annual basis, and the revised map is planned to be included in the *Annual Culebra Groundwater Report* to be submitted in November 2020. If this PMR is approved, the Permittees will revise the map (Figure L-5) via a future Permit modification.

References

New Mexico Environment Department (NMED). 2012. RE: Approval and Partial Denial of Permit Modification Request to Update Ventilation Language, Add A Shielded Container, and Revise the WIPP Groundwater Detection Monitoring Program Plan, WIPP Hazardous Waste Facility Permit, EPA I.D. Number NM4890139088, WIPP-11-010. January 31, 2012. AR120128. Santa Fe, New Mexico.

Sandia National Laboratories (SNL). 2010. Analysis Report, AP-111: Analysis Plan for Optimization and Minimization of the Culebra Monitoring Network for the WIPP, Revision 1, Culebra Water Level Monitoring Network Design. August 4, 2010. AR110932. Carlsbad, New Mexico.

U.S. Department of Energy (DOE). 2011. Class 2 Permit Modification Request for the Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Permit Number: NM4890139088-TSDF. September 29, 2011. AR110932. Carlsbad, New Mexico.

- 4. 20.4.1.900 NMAC (incorporating 40 CFR 270.42 (b)(1)(iv)), requires the applicant to provide the applicable information required by 40 CFR 270.13 through 270.21, 270.62 and 270.63.**

The regulatory crosswalk describes those portions of the WIPP Permit that are affected by this PMR. Where applicable, regulatory citations in this modification reference Title 20, Chapter 4, Part 1, NMAC, revised December 1, 2018, incorporating 40 CFR Parts 264 and 270. 40 CFR §§270.16 through 270.21, 270.62, and 270.63 are not applicable at WIPP. Consequently, they are not listed in the regulatory crosswalk table.

- 5. 20.4.1.900 NMAC (incorporating 40 CFR 270.11(d)(1) and 40 CFR 270.30(k)), requires that any person signing under paragraph (a) or (b) must certify the document in accordance with 20.4.1.900 NMAC.**

The transmittal letter for this PMR contains the signed certification statement in accordance with Permit Part 1, Section 1.9.

Regulatory Crosswalk

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the Permit or Permit Application	Yes	No
§270.13		Contents of Part A permit application	Attachment B, Part A		✓
§270.14(b)(1)		General facility description	Attachment A		✓
§270.14(b)(2)	§264.13(a)	Chemical and physical analyses	Attachment C		✓
§270.14(b)(3)	§264.13(b)	Development and implementation of waste analysis plan	Attachment C		✓
	§264.13(c)	Off-site waste analysis requirements	Attachment C		✓
§270.14(b)(4)	§264.14(a-c)	Security procedures and equipment	Part 2.6		✓
§270.14(b)(5)	§264.15(a-d)	General inspection requirements	Attachment E		✓
	§264.174	Container inspections	Attachment E		✓
§270.23(a)(2)	§264.602	Miscellaneous units inspections	Attachment E		✓
§270.14(b)(6)		Request for waiver from preparedness and prevention requirements of Part 264 Subpart C	NA		✓
§270.14(b)(7)	264 Subpart D	Contingency plan requirements	Attachment D		✓
	§264.51	Contingency plan design and implementation	Attachment D		✓
	§264.52 (a) & (c-f)	Contingency plan content	Attachment D		✓
	§264.53	Contingency plan copies	Attachment D		✓
	§264.54	Contingency plan amendment	Attachment D		✓
	§264.55	Emergency coordinator	Attachment D		✓
	§264.56	Emergency procedures	Attachment D		✓
§270.14(b)(8)		Description of procedures, structures or equipment for:	Part 2.10		✓
§270.14(b)(8) (i)		Prevention of hazards in unloading operations (e.g., ramps and special forklifts)	Part 2.10		✓
§270.14(b)(8) (ii)		Runoff or flood prevention (e.g., berms, trenches, and dikes)	Part 2.10		✓
§270.14(b)(8) (iii)		Prevention of contamination of water supplies	Part 2.10		✓
§270.14(b)(8) (iv)		Mitigation of effects of equipment failure and power outages	Part 2.10		✓
§270.14(b)(8) (v)		Prevention of undue exposure of personnel (e.g., personal protective equipment)	Part 2.10		✓
§270.14(b)(8) (vi) §270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Part 4 Attachment A2 Attachment N		✓
	264 Subpart C	Preparedness and Prevention	Part 2.10		✓
	§264.31	Design and operation of facility	Part 2.10		✓
	§264.32	Required equipment	Part 2.10 Attachment D		✓
	§264.33	Testing and maintenance of equipment	Attachment E		✓
	§264.34	Access to communication/alarm system	Part 2.10		✓
	§264.35	Required aisle space	Part 2.10		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the Permit or Permit Application	Yes	No
	§264.37	Arrangements with local authorities	Attachment D		✓
§270.14(b)(9)	§264.17(a-c)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Part 2.10		✓
§270.14(b)(10)		Traffic pattern, volume, and controls, for example: Identification of turn lanes Identification of traffic/stacking lanes, if appropriate Description of access road surface Description of access road load-bearing capacity Identification of traffic controls	Attachment A4		✓
§270.14(b)(11)(i) and (ii)	§264.18(a)	Seismic standard applicability and requirements	Part B, Rev. 6 Chapter B		✓
§270.14(b)(11)(iii-v)	§264.18(b)	100-year floodplain standard	Part B, Rev. 6 Chapter B		✓
	§264.18(c)	Other location standards	Part B, Rev. 6 Chapter B		✓
§270.14(b)(12)	§264.16(a-e)	Personnel training program	Part 2 Attachment F		✓
§270.14(b)(13)	264 Subpart G	Closure and post-closure plans	Attachment G & H		✓
§270.14(b)(13)	§264.111	Closure performance standard	Attachment G		✓
§270.14(b)(13)	§264.112(a), (b)	Written content of closure plan	Attachment G		✓
§270.14(b)(13)	§264.112(c)	Amendment of closure plan	Attachment G		✓
§270.14(b)(13)	§264.112(d)	Notification of partial and final closure	Attachment G		✓
§270.14(b)(13)	§264.112(e)	Removal of wastes and decontamination/dismantling of equipment	Attachment G		✓
§270.14(b)(13)	§264.113	Time allowed for closure	Attachment G		✓
§270.14(b)(13)	§264.114	Disposal/decontamination	Attachment G		✓
§270.14(b)(13)	§264.115	Certification of closure	Attachment G		✓
§270.14(b)(13)	§264.116	Survey plat	Attachment G		✓
§270.14(b)(13)	§264.117	Post-closure care and use of property	Attachment H		✓
§270.14(b)(13)	§264.118	Post-closure plan; amendment of plan	Attachment H		✓
§270.14(b)(13)	§264.178	Closure/containers	Attachment G		✓
§270.14(b)(13)	§264.601	Environmental performance standards-Miscellaneous units	Attachment G		✓
§270.14(b)(13)	§264.603	Post-closure care	Attachment G		✓
§270.14(b)(14)	§264.119	Post-closure notices	Attachment H		✓
§270.14(b)(15)	§264.142	Closure cost estimate	NA		✓
	§264.143	Financial assurance	NA		✓
§270.14(b)(16)	§264.144	Post-closure cost estimate	NA		✓
	§264.145	Post-closure care financial assurance	NA		✓
§270.14(b)(17)	§264.147	Liability insurance	NA		✓
§270.14(b)(18)	§264.149-150	Proof of financial coverage	NA		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the Permit or Permit Application	Yes	No
§270.14(b)(19)(i), (vi), (vii), and (x)		Topographic map requirements Map scale and date Map orientation Legal boundaries Buildings Treatment, storage, and disposal operations Run-on/run-off control systems Fire control facilities	Attachment B Part A		✓
§270.14(b)(19)(ii)	§264.18(b)	100-year floodplain	Attachment B Part A		✓
§270.14(b)(19)(iii)		Surface waters	Attachment B Part A		✓
§270.14(b)(19)(iv)		Surrounding Land use	Attachment B Part A		✓
§270.14(b)(19)(v)		Wind rose	Attachment B Part A		✓
§270.14(b)(19)(viii)	§264.14(b)	Access controls	Attachment B Part A		✓
§270.14(b)(19)(ix)		Injection and withdrawal wells	Attachment B Part A		✓
§270.14(b)(19)(xi)		Drainage on flood control barriers	Attachment B Part A		✓
§270.14(b)(19)(xii)		Location of operational units	Attachment B Part A		✓
§270.14(b)(20)		Other federal laws Wild and Scenic Rivers Act National Historic Preservation Act Endangered Species Act Coastal Zone Management Act Fish and Wildlife Coordination Act Executive Orders	Attachment B Part A		✓
§270.15	§264 Subpart I	Containers	Attachment A1		✓
	§264.171	Condition of containers	Attachment A1		✓
	§264.172	Compatibility of waste with containers	Attachment A1		✓
	§264.173	Management of containers	Attachment A1		✓
	§264.174	Inspections	Attachment E Attachment A1		✓
§270.15(a)	§264.175	Containment systems	Attachment A1		✓
§270.15(c)	§264.176	Special requirements for ignitable or reactive waste	Part 2		✓
§270.15(d)	§264.177	Special requirements for incompatible wastes	Part 2		✓
	§264.178	Closure	Attachment G		✓
§270.15(e)	§264.179	Air emission standards	Part 4 Attachment N		✓
§270.23	264 Subpart X	Miscellaneous units	Attachment A2		✓
§270.23(a)	§264.601	Detailed unit description	Attachment A2		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the Permit or Permit Application	Yes	No
§270.23(b)	§264.601	Hydrologic, geologic, and meteorologic assessments	Part 5 Attachment L	✓	
§270.23(c)	§264.601	Potential exposure pathways	Part 4 Attachment A2 Attachment N		✓
§270.23(d)		Demonstration of treatment effectiveness	NA		✓
	§264.602	Monitoring, analysis, inspection, response, reporting, and corrective action	Part 2 Part 4 Part 5 Attachment A2 Attachment N	✓	
	§264.603	Post-closure care	Attachment H Attachment H1		✓
	264 Subpart E	Manifest system, record keeping, and reporting	Part 2 Attachment C		✓

**Appendix A
Table of Changes**

Table of Changes

Affected Permit Section	Explanation of Change
Permit Attachment L, List of Tables	Replaced "February 2014" with "August 2019."
Permit Attachment L, Section L-3a	Deleted "as of January 1, 2011."
Permit Attachment L, Table L-4	<p>Replaced "October 2017" with "August 2019."</p> <p>Deleted "ERDA-9."</p> <p>Deleted "H-02b2."</p> <p>Deleted "H-03b2."</p> <p>Replaced "H-04bR" with "H-4bR."</p> <p>Replaced "H-05b" with "H-5b"</p> <p>Replaced "H-06bR" with "H-6bR"</p> <p>Deleted "H-07b1."</p> <p>Deleted "H-17."</p> <p>Replaced "I-461" with "IMC-461."</p> <p>Replaced "SNL-01" with "SNL-1."</p> <p>Replaced "SNL-02" with "SNL-2."</p> <p>Replaced "SNL-03" with "SNL-3."</p> <p>Replaced "SNL-05" with "SNL-5."</p> <p>Replaced "SNL-06" with "SNL-6."</p> <p>Replaced "SNL-08" with "SNL-8."</p> <p>Replaced "SNL-09" with "SNL-9."</p> <p>Deleted "WIPP-13."</p> <p>Deleted "WIPP-19"</p> <p>Added a period at the end of the footnote.</p>
Permit Attachment L, Figure L-2,	<p>Moved the Property Protection Area to the west.</p> <p>Moved the north Exclusive Use Area fence line to the north.</p>
Permit Attachment L, Figure L-6,	<p>Moved the north Exclusive Use Area fence line to the north.</p> <p>Updated figure labels for "WIPP Site," "Exclusive Use Area," "Property Protection Area," "Off Limits Area" and added section labels for sections "20" and "21."</p>
Permit Attachment L, Figure L-14,	<p>Deleted "H-18."</p> <p>Deleted "WIPP-18."</p> <p>Deleted "H-14."</p> <p>Deleted "DOE-2."</p> <p>Deleted "CB-1."</p> <p>Deleted "H-8."</p> <p>Moved the north Exclusive Use Area fence line to the north.</p> <p>Replaced "AEC-7" with "AEC-7R."</p> <p>Replaced "H-4" with "H-4bR."</p> <p>Replaced "H-5" with "H-5b."</p> <p>Replaced "H-6" with "H-6bR."</p> <p>Replaced "H-9" with "H-9bR."</p> <p>Replaced "H-10" with "H-10cR."</p> <p>Replaced "H-11b4" with "H-11b4R."</p> <p>Replaced "H-12" with "H-12R."</p> <p>Replaced "H-15" with "H-15R."</p> <p>Replaced "H-19" with "H-19 pad."</p> <p>Deleted "ASER 3-11-09" from the bottom right corner of the figure.</p>

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**Appendix B
Proposed Revised Permit Text**

Proposed Revised Permit Text:**LIST OF TABLES**

Table	Title
Table L-1	Hydrological Parameters for Rock Units above the Salado at WIPP
Table L-2	WIPP Groundwater Detection Monitoring Program Sample Collection and Groundwater Surface Elevation Measurement Frequency
Table L-3	Standard Operating Procedures Applicable to the DMP
Table L-4	List of Culebra Wells in the WLMP, Current as of February 2014 <u>August 2019</u>
Table L-5	Details of Construction for the Six Culebra Detection Monitoring Wells
Table L-6	Analytical Parameter and Sample Requirements

L-3a Scope

There are two separate components of the Groundwater Monitoring Program, the Detection Monitoring Program (DMP) and the Water Level Monitoring Program (WLMP). The first component consists of a network of six Detection Monitoring Wells (DMWs). The DMWs (WQSP 1-6) were constructed to be consistent with the specifications provided in the Groundwater Monitoring Technical Enforcement Guidance Document and constitute the RCRA groundwater monitoring network specified in the DMP. The DMWs were used to establish background groundwater quality in accordance with 20.4.1.500 NMAC (incorporating 40 CFR § 264.97 and 264.98 (f)). The second component of the Groundwater Monitoring Program is the WLMP, which is used to determine the groundwater surface elevation and flow direction. Table L-4 is a list of the wells used in the WLMP as of ~~January 1, 2011~~. The list of wells is subject to change due to plugging and abandonment and drilling of new wells.

Table L-4
List of Culebra Wells in the WLMP, Current as of ~~October 2017~~ August 2019

WELL ID	WELL ID	WELL ID
AEC-7R	H-17	SNL-15
C-2737	H-19 pad*	SNL-16
ERDA-9	I-461	SNL-17
H-02b2	SNL-04	SNL-18
H-03b2	SNL-02	SNL-19
H-04bR	SNL-03	WQSP-1
H-05b	SNL-05	WQSP-2
H-06bR	SNL-06	WQSP-3
H-07b4	SNL-08	WQSP-4
H-9bR	SNL-09	WQSP-5
H-10cR	SNL-10	WQSP-6
H-11b4R	SNL-12	WIPP-11
H-12R	SNL-13	WIPP-13
H-15R	SNL-14	WIPP-19
H-16		

*The water level for the H-19b0 well on the H-19 pad is measured monthly; the fluid density measured annually at well H-19b0 will be used to correct for freshwater head for the other wells on the H-19 pad (H-19b2, H-19b3, H-19b4, H-19b5, H-19b6, and H-19b7).

<u>WELL ID</u>	<u>WELL ID</u>	<u>WELL ID</u>
<u>AEC-7R</u>	<u>IMC-461</u>	<u>SNL-15</u>
<u>C-2737</u>	<u>SNL-1</u>	<u>SNL-16</u>
<u>H-4bR</u>	<u>SNL-2</u>	<u>SNL-17</u>
<u>H-5b</u>	<u>SNL-3</u>	<u>SNL-18</u>
<u>H-6bR</u>	<u>SNL-5</u>	<u>SNL-19</u>
<u>H-9bR</u>	<u>SNL-6</u>	<u>WQSP-1</u>
<u>H-10cR</u>	<u>SNL-8</u>	<u>WQSP-2</u>
<u>H-11b4R</u>	<u>SNL-9</u>	<u>WQSP-3</u>
<u>H-12R</u>	<u>SNL-10</u>	<u>WQSP-4</u>
<u>H-15R</u>	<u>SNL-12</u>	<u>WQSP-5</u>
<u>H-16</u>	<u>SNL-13</u>	<u>WQSP-6</u>
<u>H-19 pad*</u>	<u>SNL-14</u>	<u>WIPP-11</u>

*The water level for the H-19b0 well on the H-19 pad is measured monthly; the fluid density measured annually at well H-19b0 will be used to correct for freshwater head for the other wells on the H-19 pad (H-19b2, H-19b3, H-19b4, H-19b5, H-19b6, and H-19b7).

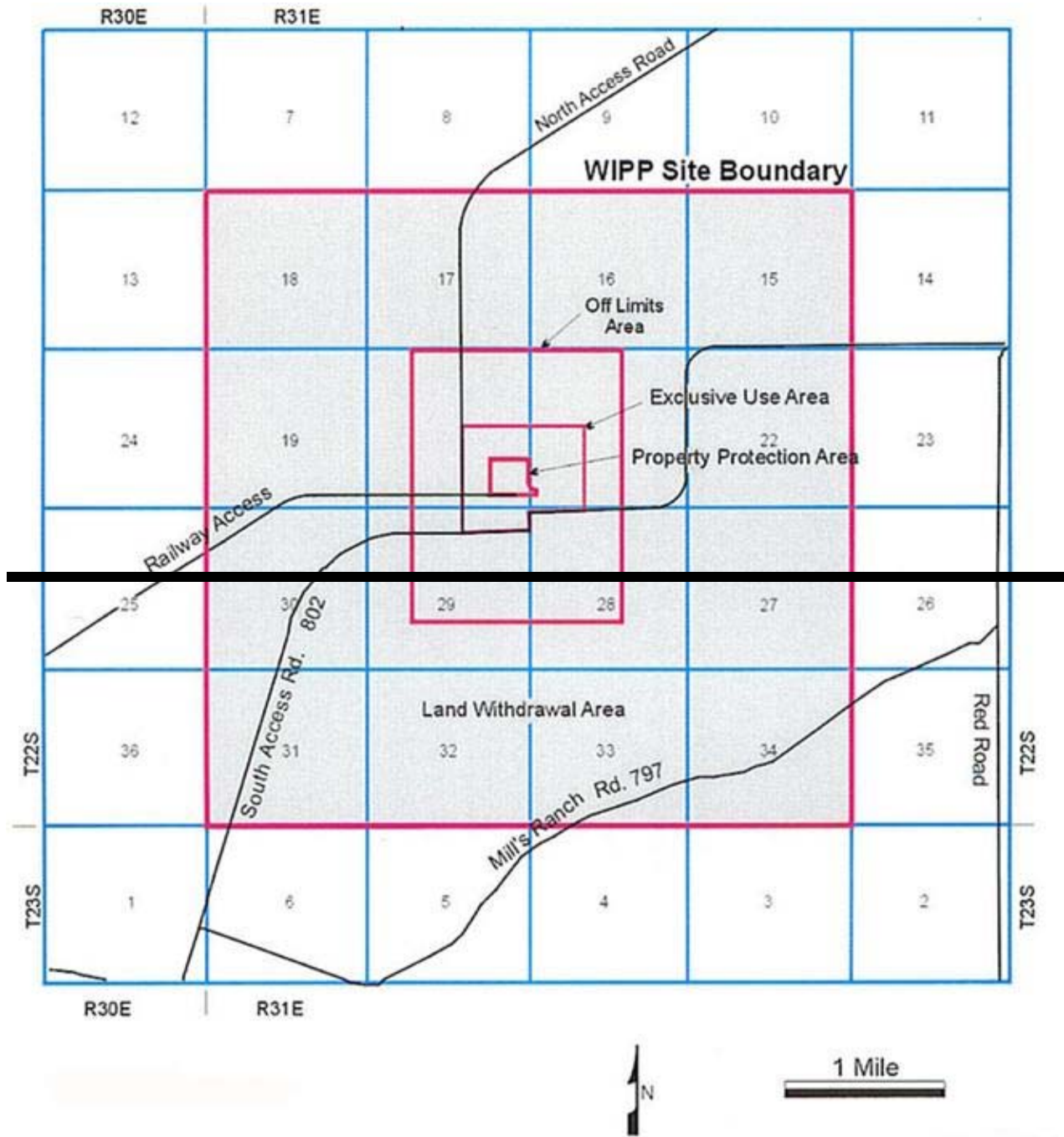


Figure L-2
WIPP Facility Boundaries Showing 16-square-Mile Land Withdrawal Boundary

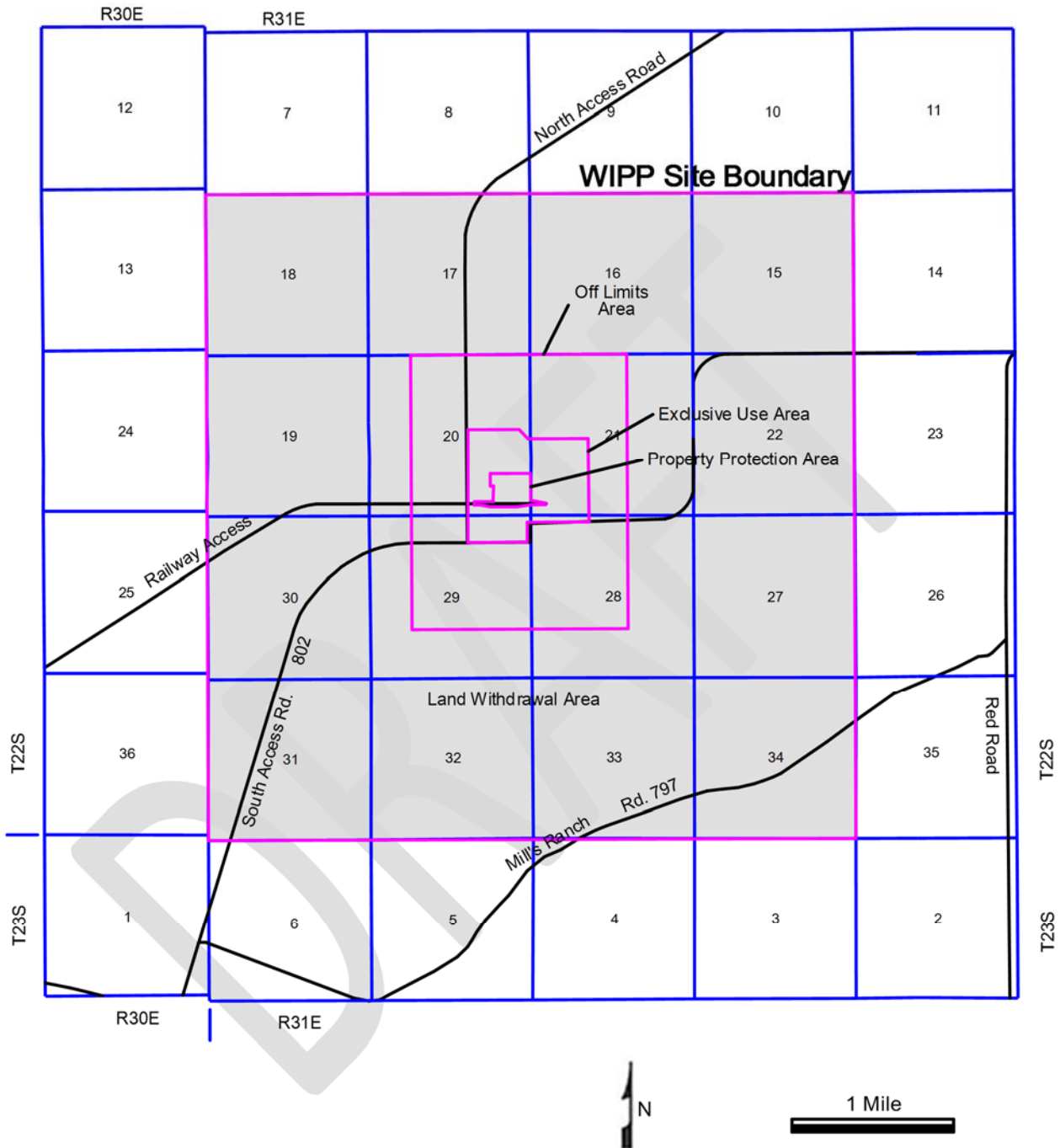
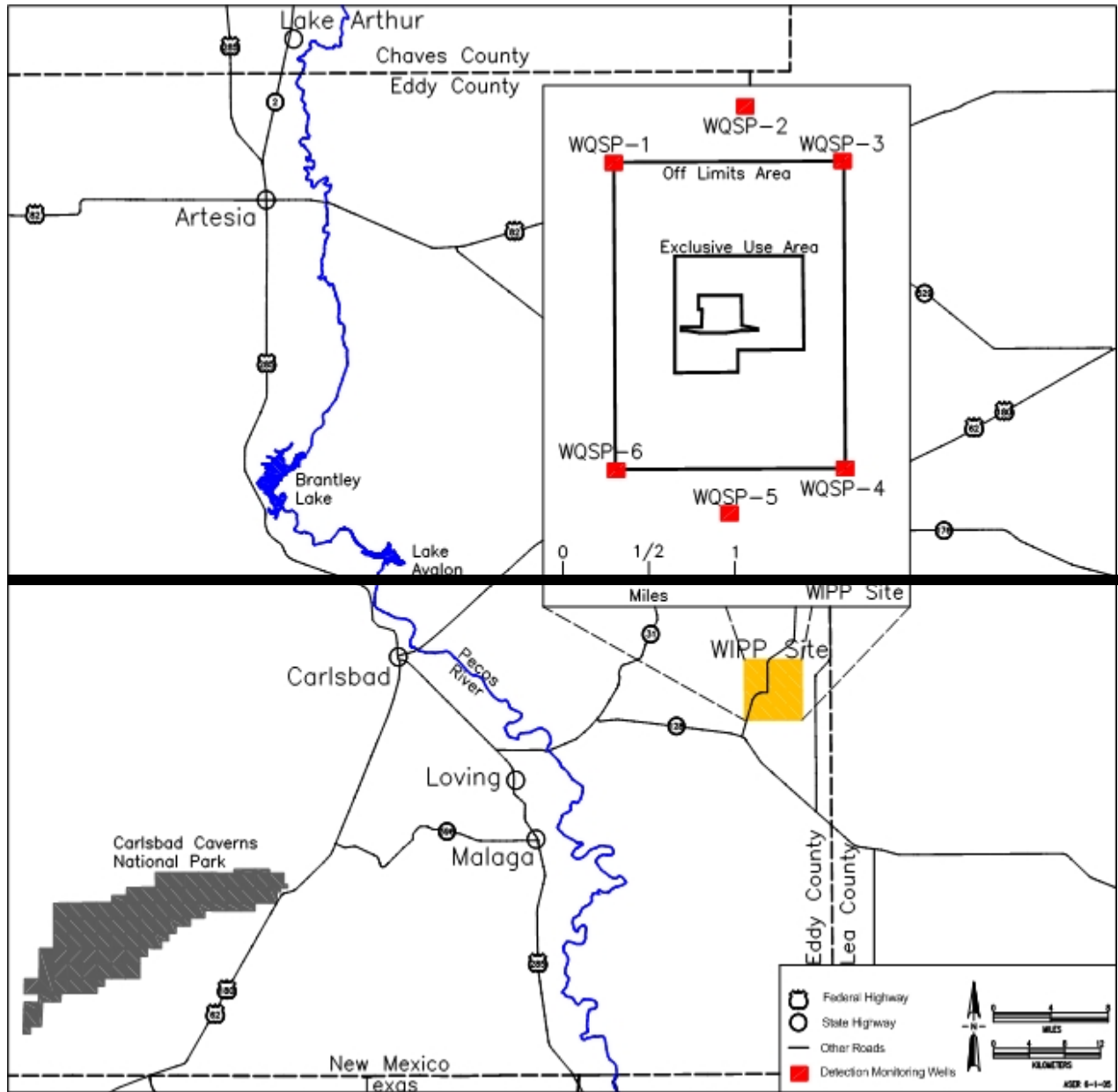


Figure L-2
WIPP Facility Boundaries Showing 16-square-Mile Land Withdrawal Boundary



NOTE: Point of compliance is defined in Part 5.3.1.

Figure L-6
Detection Monitoring Well Locations

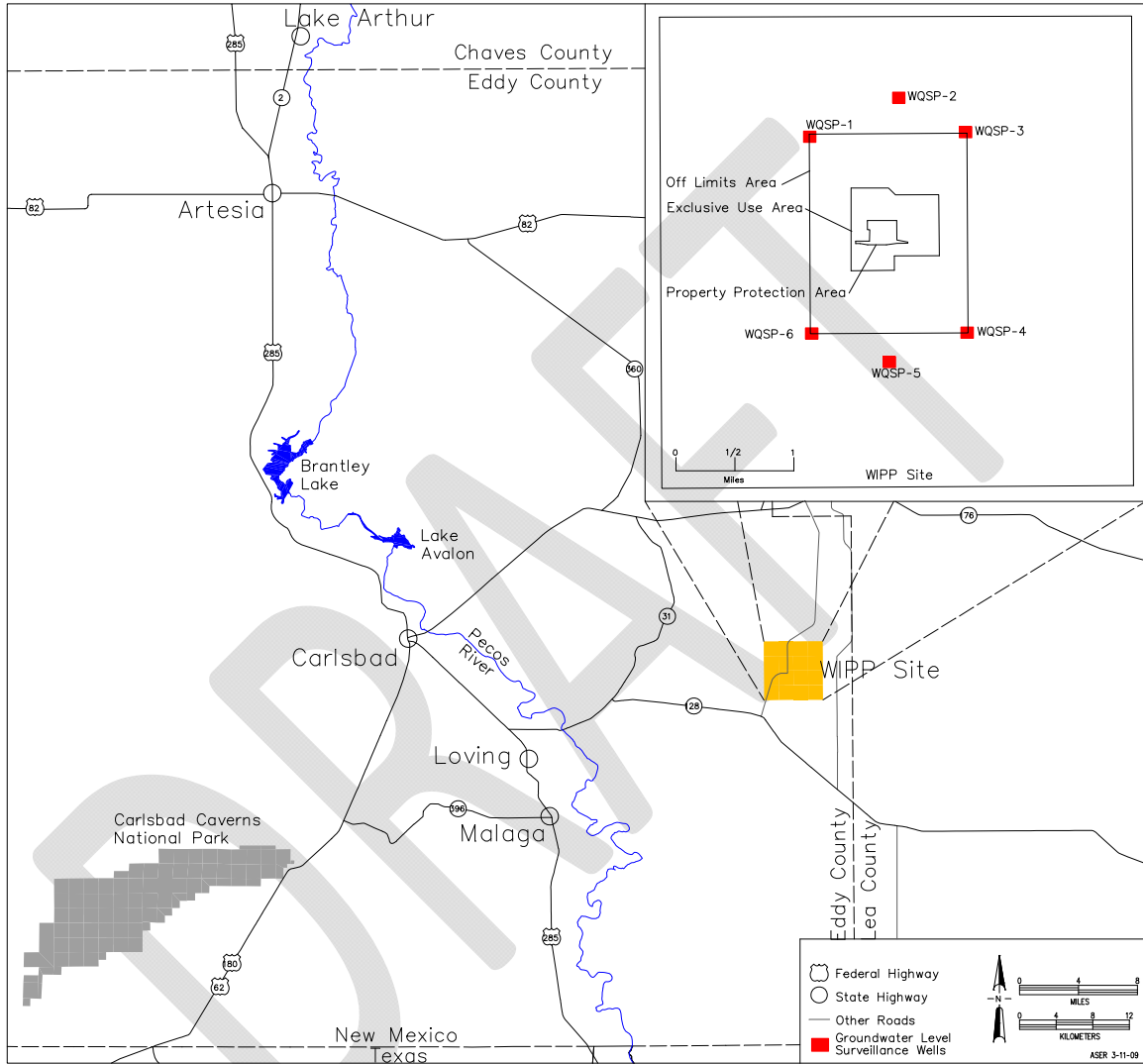


Figure L-6
Detection Monitoring Well Locations

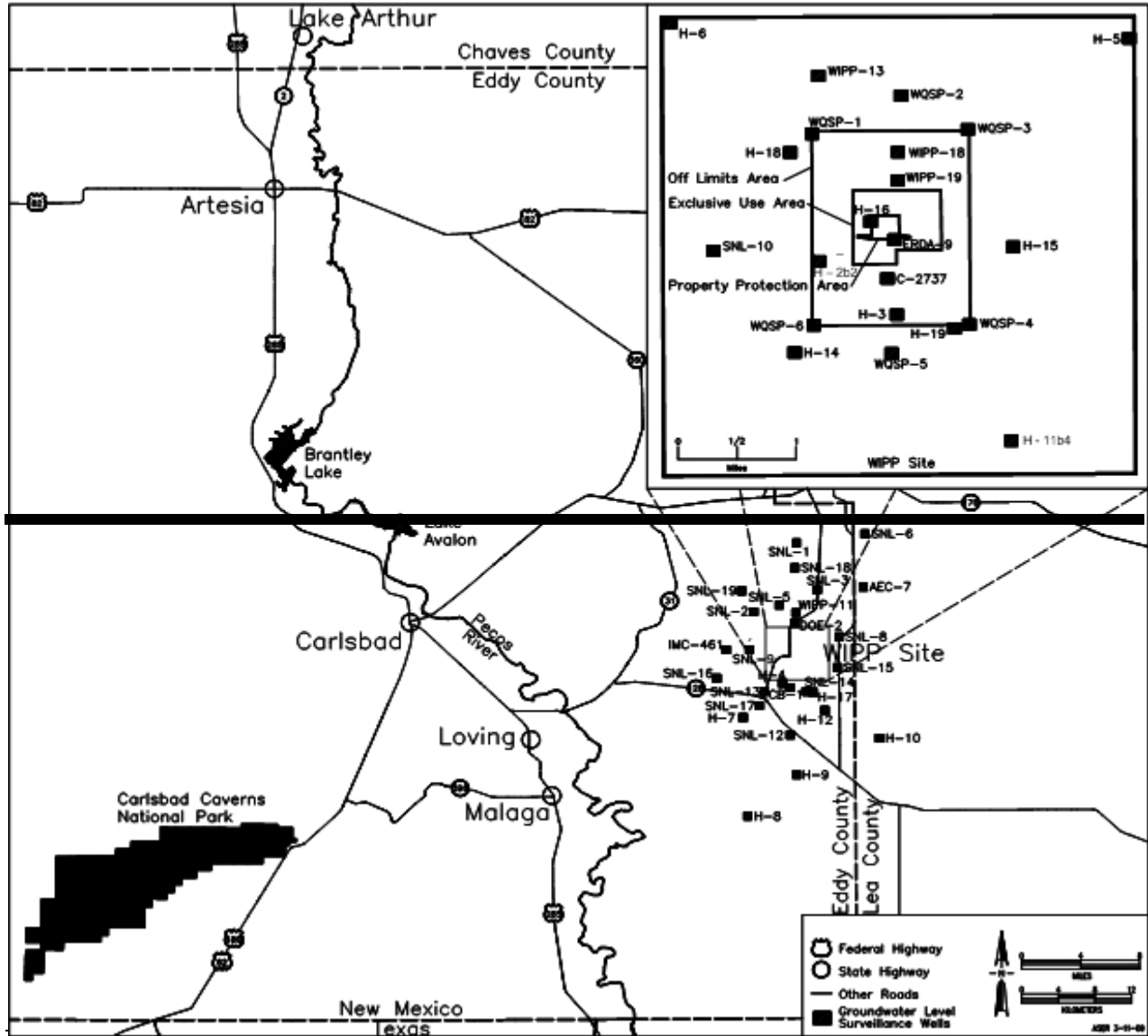


Figure L-14
Groundwater Level Surveillance Wells
(inset represents the groundwater surveillance wells in WIPP Land Withdrawal Area)

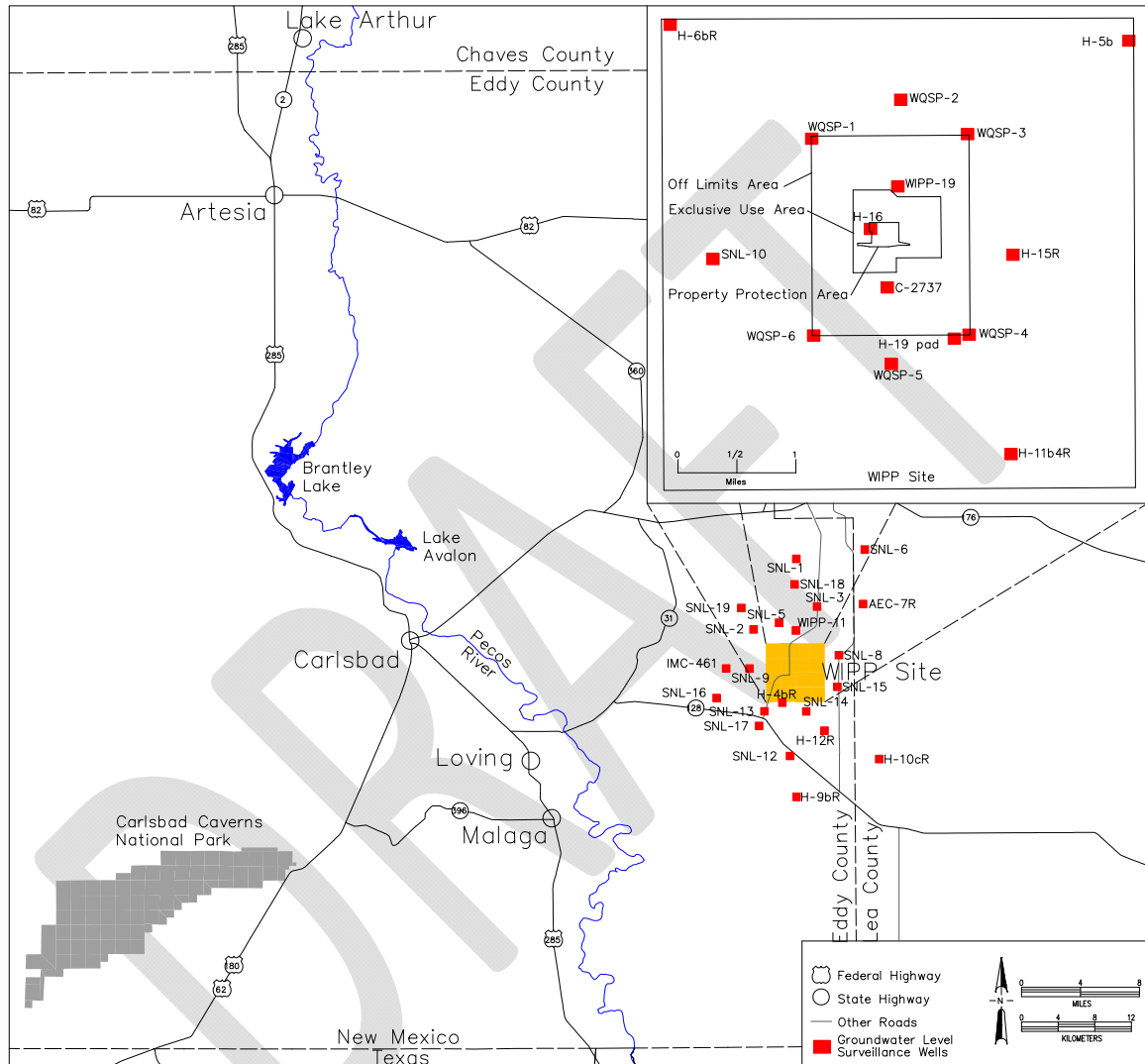


Figure L-14
Groundwater Level Surveillance Wells
(inset represents the groundwater surveillance wells in WIPP Land Withdrawal Area)