



Department of Energy

Carlsbad Field Office
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January 3, 2001



Mr. Steve Zappe, Project Leader
New Mexico Environment Department
Hazardous Waste Bureau
P.O. Box 26110
2044-A Galisteo Street
Santa Fe, NM 87505

Dear Mr. Zappe:

The purpose of this letter is to provide you with the enclosed response to the NMED's recent comments on the WIPP Facility Work Plan and the WIPP Sampling and Analysis Plan for Solid Waste Management Units and Areas of Concern. These documents were received by the NMED on February 24, 2000 and May 24, 2000 respectively.

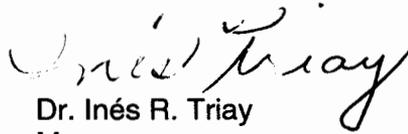
The NMED comments were transmitted to the WIPP in a letter dated December 4, 2000 and received by the WIPP on December 6, 2000. The NMED requested a response to the comments within 30 days. The enclosed document presents each NMED comment in italics and the comment is followed by the WIPP response.

The next WIPP Facility Work Plan is due to the NMED on February 23, 2001. That document will contain the appropriate corrections based on the NMED comments and the enclosed responses to those comments. The enclosed comment responses regarding the WIPP Sampling and Analysis plan will be considered an Addendum to the original document. Consequently, the WIPP does not propose to revise the original document.

The Carlsbad Field Office (CBFO) is pleased to provide this comment response letter and enclosure to comply with the NMED's request. The WIPP would like to request that the NMED expedite the review of these responses, and requests a written authorization to proceed with the investigations defined in the WIPP Sampling and Analysis Plan and this submittal.

If you have any questions regarding this letter or the enclosure, please contact Ms. Cynthia A. Zvonar at (505) 234-7495, or myself at (505) 234-7300.

Sincerely,


Dr. Inés R. Triay
Manager

Enclosure



Mr. Steve Zappe

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cc: w/o enclosure
Cynthia Zvonar, CBFO
Jody Plum, CBFO
Secretary Maggiore, NMED
James Bearzi, NMED
John Kieling, NMED

The New Mexico Environment Department (NMED) comments on the WIPP Facility Work Plan for Solid Waste Management Units and Areas of Concern (DOE/WIPP-00-2001) and the WIPP Responses

1. General comment - Based on current NMED policy, chemicals of concern detected in soil samples must be compared against the more stringent residential risk-based screening levels established by NMED (Soil Screening Levels, attached) or, for chemicals with no NMED values, EPA Region 6 (Human Health Medium-Specific Screening Levels) and not with industrial criteria as referenced in the Work Plan. This policy is based on the fact that, at the present time, NMED has no mechanism or authority to impose or enforce land-use restrictions at any facility in the State. NMED is unable to accept guarantees that the current land use of an individual site or facility will not change over time, even if such guarantees are a matter of federal law. As a result, NMED requires the Permittees to evaluate the more conservative assumption (i.e., residential) for soil screening values. NMED notes that soil analytical data available thus far from all the SWMUs and AOCs do not exceed the residential risk-based soil screening levels and, therefore, this requirement should not affect the general approach of investigations as proposed by the Permittees and those recommended in these comments.

Response: The WIPP facility is an industrial operation without residential land use. Land for the WIPP facility was made available by passage of the WIPP Land Withdrawal Act (WLWA) (Public Law 102-579) by the 102nd Congress of the United States of America on October 30, 1992. In accordance with Sections 3(a)(1) and (3) of the Act, these lands "...are withdrawn from all forms of entry, appropriation, and disposal under the public land laws..." and are reserved for the use of the Secretary of Energy "for the construction, experimentation, operation, repair and maintenance, disposal, shutdown, monitoring, decommissioning, and other authorized activities, associated with the purposes of WIPP as set forth in Section 213 of the Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980 (Public Law 96-164; 93 Statute 1259, 1265) and this Act." This guarantee established by Federal Law (WLW A) regarding future land use at the WIPP is a stronger guarantee than any state guarantee that the NMED could enforce.

The WIPP facility is operated under a Hazardous Waste Facility Permit issued by the NMED (Permit No. NM4890139088). Because the permit has the force of law, the NMED has the authority to enforce land use restrictions over the 25-30 year operating lifetime of the facility (Permit Condition I.E.11.a, Reporting Planned Changes).

The NMED can also exercise equivalent control over the post closure period of 30 years after certification of final closure of the WIPP (Permit Condition VI.C, Post-Closure Procedures and Use of Property; Attachment J1 Active Institutional Controls During Post-Closure; and 40 CFR §191.14). Also, EPA, in its Certification Decision (63 FR 27395, 27396), stated that DOE's plans to maintain active institutional controls for 100 years and passive institutional controls for at least 2000 years meet the regulatory requirements of 40 CFR §§ 191.41 and 191.43(a) and (b).

Decision making processes regarding risk assessment, remedy selection, and site cleanup have been described in EPA Office of Solid Waste and Emergency Response (OSWER) Directive No. 9355.7-04, *Land Use in the CERCLA Remedy Selection Process*. The directive discusses reasonably anticipated future land use at regulated facilities. EPA recognizes that RCRA facilities such as the WIPP are industrial properties that are actively managed, rather than abandoned sites that are addressed under other programs. Therefore "consideration of non-residential uses is especially likely to be appropriate for RCRA facility cleanups." (OSWER Directive No. 9355.7-04, p. 2). EPA states that the guidance is also relevant for federal facility sites where a federal agency will be maintaining control of the facility. (OSWER Directive No. 9355.7-04, p. 2). Further, the directive describes how future land use assumptions allow risk and corrective action alternatives to focus on the development of practicable and cost-effective remedial alternatives, leading to site activities which are consistent with the reasonably anticipated future land use (OSWER Directive No. 9355.7-04, p. 7).

The RCRA Corrective Action Plan (OSWER Directive 9902.3-2A) recommends evaluating future use of the RCRA facility including recreation, hunting, residential, commercial and industrial. By federal law, the Certification Decision, and the WIPP Hazardous Waste Facility Permit, no residential development is reasonably foreseeable for the 16-section land withdrawal area the WIPP will be managed, operated, and controlled as an industrial facility.

Human health risk assessment guidance is provided in the EPA's *Risk Assessment Guidance for Superfund* (EPA/540/1-89/002). As part of the human health risk assessment, an exposure assessment is conducted to estimate the magnitude of actual and/or potential human exposures to constituents of potential concern. Future exposure estimates are based on the likely populations to be exposed. For the WIPP facility, no residential development is reasonably foreseeable, and use of residential screening data as part of the human risk assessment would not be appropriate.

The NMED *Draft State of New Mexico Soil Screening Levels* (November 1, 2000) includes screening levels for residential, industrial/occupational and construction workers. By implication, the NMED anticipates either industrial or construction receptors in addition to residential receptors. These potential receptors parallel receptors provided in *EPA Region 6 Human Health Medium-Specific Screening Levels* (September 2000).

The conceptual site model for the WIPP does not include any residential receptors for the reasonably foreseeable future. The decision defined in the WIPP Facility Work Plan and the WIPP Sampling and Analysis Plan for future land use conforms to the EPA guidance documents referenced in the WIPP Hazardous Waste Permit (Module VII G, H, and M). These guidance documents, many of which have been cited above, require consideration of reasonably foreseeable future land use when evaluating potential receptors and corrective actions at a site. The WIPP is unaware of any NMED policy requiring assumptions of residential land use for RCRA facilities, such as the WIPP, where no future residential development is reasonably anticipated. However, the WIPP is aware of

at least one other federal facility in New Mexico where the NMED has allowed non-residential screening criteria to be used (i.e., Sandia National Laboratory).

In conclusion, the NMED's comment that residential land use should be assumed for the WIPP contradicts current EPA policy and guidance and the NMED precedent for other RCRA facilities in New Mexico. Accordingly, we maintain that industrial risk-based soil screening criteria represent a conservative estimate of potential exposure to SWMU constituents and these screening levels should be used for the WIPP Facility Work Plan and Sampling and Analysis Plan.

2. Section 2.2, first sentence, page 6 - Section 2.1.4 should be referenced instead of 2.1.3.

Response: The reference to Section 2.1.3 should be Section 2.1.4. This change will be incorporated into the next Facility Work Plan due to the NMED in February 2001.

3. Section 3.0, second bullet under DCQAP objectives, page 7 - Please provide more details or be more specific about the meaning of this particular item.

Response: For clarification, the second bullet will be changed to "Define data quality goals for data collection based on specifications for precision, accuracy, and completeness". This clarification will be incorporated into the next Facility Work Plan due to the NMED in February 2001.

4. Section 3.1.2, first sentence of the second paragraph under the title "Completeness", page 9 - Please justify how the 85 percent completeness goal was derived.

Response: In any sampling and analysis program, it is desirable to collect all planned samples. However, it is possible that not all collected samples will be valid. Based on previous experience with other analytical programs at the WIPP and in comparison with analytical programs at other environmental sites, 85 percent is a reasonable completeness goal (control point) for the program. This criterion requires that not more than 15 percent of the collected data be invalidated because of samples lost or damaged during shipping or in the laboratory, or laboratory quality control exceedances. The WIPP has proposed to collect 27 investigative samples and 6 QA/QC samples. The completeness goal will result in at least 23 valid investigative samples and 5 valid QA/QC samples.

5. Section 3.2.9, first sentence, page 14 - Note that laboratory bottleware typically consist of glass containers for the analysis of organic and inorganic soil samples; polyethylene containers are used for the analysis of inorganic water samples.

Response: As described in the WIPP Sampling and Analysis Plan (SAP), samples will be collected using a direct push methodology (forcing a sampling device constructed of stainless steel to the desired sampling depth using a hydraulic ram - e.g., ASTM D1587-94 *Standard Practice for Thin-walled Tube Geotechnical Sampling of Soils*). The direct push methodology will use a clean Teflon[®] liner for each sample.

6. Section 3.2.12, page 15 - Clarification: since a number of soil samples have shown concentrations of contaminants above background levels (i.e., barium, chromium, lead, nickel and methanol), the possibility of generating contaminated materials does exist. At a minimum, field personnel should use Level D person protection equipment and all waste generated from the investigations should be temporarily stored on-site pending analysis of samples.

Response: Based on previous analyses of SWMU materials for toxicity using the Toxicity Characteristic Leaching Procedure (TCLP) as part of the WIPP Voluntary Release Assessment, the SWMUs do not contain material that exhibits the characteristic of ignitability, corrosivity, reactivity, or toxicity (see CFR §261.24). Therefore, the material in the SWMUs is not a characteristic hazardous waste. The TCLP analysis results and not background concentrations define whether or not a material is a characteristic waste. Based on the TCLP results and the regulatory definition, the material in the SWMUs is not hazardous waste.

As a matter of policy and the WIPP standard operating procedures (SOPs) field personnel will use Level D personal protective equipment (PPE) during sample collection.

7. Section 3.3, first paragraph, page 15 - It is the Permittees' responsibility to make sure that the selected analytical laboratory meets the minimum requirements set forth by EPA's Contract Laboratory Program (CLP).

Response: For a RCRA site such as the WIPP, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)* analytical method criteria are appropriate. Contract Laboratory Program (CLP) analytical method criteria are appropriate for analyses of samples from Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites. The use of EPA's CLP analytical methods would be inappropriate at the WIPP SWMUs and would be in direct conflict with the Permit requirements for the WIPP. Section VII.M.2.d of the Permit requires that the SAP and reported data be consistent with EPA RCRA guidance including SW-846. Consequently, SW-846 Methods will be used for sample analyses as required by the Permit. Further, soil samples collected during previous site investigations were analyzed using SW-846 Methods. To ensure comparability with previous investigations and compliance with Permit conditions, analyses of collected soil samples should be performed using SW-846 Methods. WIPP maintains a comprehensive quality assurance program that includes laboratory audits and data reviews to ensure that subcontractor laboratory results meet or exceed quality control criteria specified in the EPA SW-846 analytical methods.

The NMED comments on the WIPP Sampling and Analysis Plan for Solid Waste Management Units and Areas of Concern (DOE/WIPP 00-2014) and the WIPP Responses

1. Table of Contents, page i - Acronyms and Abbreviations" are located in page xi and "Definitions" are located in page xiii.

Response: Page number corrections are noted.

2. Section 1.1, second sentence, page 1 - In addition to total metals, the objective of the SAP should include defining the extent of specific organic compounds, such as methanol detected in SWMU 004a (Portacamp Storage Yard, West Side).

Response: Methanol is included as a constituent of concern for the SWMU 004a (Portacamp Storage Yard, West Side) sampling and analysis. Previous sampling has demonstrated that no organic compounds (other than methanol) are present at concentrations of concern at any of the SWMU sites. Therefore, it is appropriate to sample for methanol at SWMU 004a.

The phrase "and organic" is hereby added to section 1.1.

"The objective of this SAP is to define the extent of concentrations of hazardous constituents that exceed background metal and organic concentrations in soil at specific SWMUs." Similarly, Section 1.4.2 is hereby changed to read "The decision to be made for each SWMU is whether the average metal and organic concentrations in soil exceed ... If the average metal and organic concentrations are less than..."

*3. Section 1.3.1.1, fifth bullet, page 3 - Remove the asterisks "***" for SWMU 001L (WIPP-12/P-5) since additional soil sampling to determine the extent of barium is proposed for this site.*

Response: Soil sampling will be conducted at the WIPP-12 drilling mud pit but not at the P-5 drilling mud pit. The asterisks apply to the P-5 drilling mud pit only (See Section 6.0 and Table 27.1 of the SAP and Attachments to this comment response).

4. Section 1.3.2, third paragraph, page 4 - The permittees will need to provide additional documentation to justify "closure" and, therefore, No Further Action (NFA) for the relevant sites. Provide hard copy documentation from "another regulatory authority" that state that the specific sites were properly closed under their authority and why they are exempt from RCRA. If possible, also include more detailed information on the procedures used to "close" these sites (provide guideline(s)/rule(s), etc.) This information should be included in the NFA request report for these sites.

Response: Section 1.3.2 of the SAP and the comment are in agreement. The requested information will be included in the NFA request report. This information will include: (1) drilling records, (2) U.S. Geological Survey and U.S. Bureau of Land Management

(USGS/BLM) Sundry Notices and Reports on Wells, for example, USGS/BLM Notices of Intention to Drill, and USGS/BLM Notices of Well Abandonment, (3) USGS/BLM regulatory authority, and (4) BLM closure letter for SWMUs and AOCs dated May 3, 2000. A copy of this letter was provided to NMED on May 4, 2000. On May 18, 2000, the NMED acknowledged receipt of the BLM letter and stated that the documentation was adequate to demonstrate closure under BLM authority.

5. Section 1.3.2.2, third sentence, page 5 - Note that there was a minor detection of thallium [0.13 parts per million (ppm)] in SWMU 001s ERDA-9. The permittees need to reference this exception in the text of this section.

Response: The detection of thallium occurred in a sample collected outside the potential source material at SWMU 001s. The WIPP considers this detection to be representative of background conditions and not part of the source area. No thallium was detected in any of the source material sampled. Appendix B describes the thallium sampling and reports this isolated detection.

6. Section 1.4.2, page 6 - See above NMED's comment #1 on the Work Plan. Residential (not industrial) risk-based soil screening levels established by NMED (or EPA Region 6, as applicable) will be used as action levels.

Response: Please see the response to NMED's comment #1 on the Facility Work Plan.

7. Section 1.4.4, page 6 - NMED agrees with the Permittees' definition of "study boundary" (physical boundary) as contained in this section. However, horizontal and vertical boundaries should also be based on the extent of contaminant migration, if any. Therefore, should contamination (chemicals of concern showing concentrations above background levels) be found beyond the initial horizontal and vertical boundaries, these boundaries should be expanded accordingly to accommodate the extent of the contaminant plume.

Response: As stated in Section 1.4.4 of the SAP, the study boundaries initially include the physical dimensions of the SWMUs to be sampled. The SWMU definitions in the Permit represent the initial physical dimensions. Consistent with the NMED comment, the proposed study boundaries expand the physical dimensions of the SWMUs 5 to 10 feet horizontally and 1 to 2 feet vertically to evaluate the extent of potential contaminant migration. The SAP is designed to achieve the exact result requested in the comment.

8. Section 1.4.5, last two sentences, pages 6 and 7 - As previously stated, residential (not industrial) risk-based soil screening levels established by NMED (or EPA Region 6, as applicable) will be used as action levels. For those sites with constituent concentrations exceeding screening criteria, ecological risk must be evaluated in addition to human health risk evaluations (in order to protect both human health and the environment) before NFA can be requested.

Response: Please see the response to NMED's comment #1 on the Facility Work Plan. The WIPP agrees that ecological risk should be evaluated if concentrations of metals in soil exceed industrial screening levels. The results of these evaluations will be included in the NFA request report.

9. Section 1.4.6, next to last sentence, page 7 - See above NMED's Comment #1 on the Work Plan [residential (not industrial) risk-based soil screening levels established by the NMED (or EPA Region 6, as applicable) will be used as action levels].

Response: Please see the response to NMED's comment #1 on the Facility Work Plan.

10. Section 1.4.7, third sentence, page 7 - Random sampling design does not seem appropriate. Sampling locations should target areas of concern (where soil impacts would most likely be found) and other areas that would fully delineate the extent of the contaminant plume, if one exists.

Response: The sample locations for samples collected during the RFA, and the samples collected in subsequent investigations were selected at random to characterize the highest possible concentrations of constituents in the SWMUs. The stratified random sampling approach defined in the SAP is appropriate for these SWMUs and is based on EPA guidance contained in Chapter 9 of SW-846. The sampling locations in the SAP were selected to define the horizontal and vertical extent of concentrations above background, beyond the physical boundaries of the SWMUs. In other words, the sampling will define the extent of the potential source material. The WIPP sample locations (and by the NMED in the figures attached to the comments) were selected randomly to achieve the objective. There is no evidence that there is a plume of elevated concentrations of inorganic or organic constituents in or around the respective SWMUs. The proposed sampling will allow the WIPP to delineate the extent of constituent concentrations that exceed background levels to an acceptable level of accuracy.

11. General comment - The SAP should include (map(s) showing the location of all the SWMUs and AOCs in respect to each other and to other relevant WIPP surface features (buildings and other structures, access roads, drainage features, etc.).

Response: The requested site maps were included in the WIPP RCRA Part B permit application. The WIPP also provided maps delineating the locations of SWMUs and AOCs in the *Final Solid Waste Management Unit Assessment Report* (DOE/WIPP 97-2220, January 10, 1997).

12. Section 1.5, last sentence, page 7 - Table 27.1 should be introduced in the text of this section so it can be used as reference to subsequent sections (Sections 2.0 through 24.0).

Response: The WIPP interprets this comment as an editorial preference on the part of the NMED. The WIPP notes this comment and will include an appropriate summary table in the introductory section of future reports submitted to the NMED.

13. Sections 2.0, 3.0, 6.0, 11.0, and 14.0 through 16.0, "Sampling "sections - The number of samples that are reported to have been collected under the "Sampling" section versus those shown on the respective figure and table need to be consistent. All samples locations (at a minimum the 1996 sampling events for sites 001g, 001h, 001L, 001x, and 004a) need to be shown on the respective table and figure including a summary of analytical results.

Response: All locations sampled for total metals (and methanol) are shown on the respective figures and on the accompanying tables. Only those constituents which exceeded background concentrations and were identified as constituents of concern in the *Technical Support Document, Exclusion/Inclusion of Solid Waste Management Units and Areas of Concern, Permit Module VII Correction Action for Sold Waste Management Units* (TSD) (October 27, 1999) are shown on the figures and presented in the tables. For a complete perspective of TCLP, and total constituent sampling and analysis results see Appendix B of the *Final Voluntary Release Assessment/Corrective Action Report* (DOE/WIPP 96-2209). The WIPP agrees that there are some typographical errors as noted by the NMED in later comments. The corrections for these typographical errors are discussed below.

14. Figure 2.1, page 11 - Note that the industrial criteria for lead is 1,000 ppm according to the NMED Soil Screening Levels table (vs. 780 ppm shown on the figure). The residential criteria for lead is 400 ppm. The figure should list the residential criteria.

Response: Please see the response to NMED's comment #1 on the Facility Work Plan. The value for lead on Figure 2.1 came from the 1999 version of the *Region 6 Human Health Medium-Specific Screening Levels*. Region 6 revised its screening levels in September 2000. The NMED draft screening levels are dated November 1, 2000. The SAP was prepared during 1999 and early 2000 and submitted to the NMED on May 24, 2000. Currently, the Region 6 industrial screening level for lead is 2,000 ppm and the NMED draft screening level for lead is 1,000 ppm. Both of these criteria are new since the SAP was submitted to the NMED in May 2000. The value for lead used in the SAP is more conservative than other more recent screening levels. As discussed above, industrial screening criteria should be used for the WIPP site. The WIPP proposes to use the 1,000-ppm draft NMED Industrial Screening Level for lead during implementation of the SAP.

15. General comment - In reference to those sites that have been closed under another authority, under the "Nature and Extent of Contamination" section, the SAP should mention results of analyses that were below method detection limits (or below background levels) and, therefore, further support a NFA request (i.e., thallium and mercury results).

Response: The SAP was not intended to serve as an NFA request report. For a complete perspective of TCLP, and total constituent sampling and analysis results see Appendix B of the *Final Voluntary Release Assessment/Corrective Action Report* (DOE/WIPP 96-

2209) and Appendices A and B of the SAP. The requested information will be included in the NFA request report.

16. Section 6.1.2, page 24 - It is not clear in this section if WIPP-12 borehole was a continuation of the P-5 borehole (the location of P-5 needs to be shown on Figure 6.1). Are there any details on the total depth of P-5? How does the closure of the P-5 site by USGS in 1976 relate to subsequent drilling of WIPP-12 on the same pad from 1978 through 1982?

Response: As stated in the SAP, the P-5 borehole was drilled in 1976 to a total depth of 1,830 feet. The P-5 borehole was part of a potash resource investigation. Upon abandonment, the casing was pulled except for 568 feet of salt string. The hole was cemented from 1,830 to the surface. The P-5 borehole was located 202 feet from the south line and 165 feet from the east line of the southeast quarter of Section 17, township 22S and range 31E.

The WIPP-12 borehole was drilled in 1978 and deepened in 1982. WIPP-12 was drilled to a total depth of 3,928 feet to investigate lithologic and stratigraphic details of the Salado and Castile formations. WIPP-12 was a new borehole and not a continuation of the P-5 borehole. There is no relationship between the two drilling programs. The mud pit prepared for the WIPP-12 drilling activity was entirely separate from the P-5 mud pit. The SWMUs are defined as the mudpits associated with the WIPP-12 borehole and the P-5 borehole (not the drill pad). The P-5 borehole mud pit was closed under USGS authority and is not germane to the sampling proposed for the WIPP-12 mud pit.

17. Figure 6.1 and Section 6.3.2.1, pages 26 and 28 respectively - NMED recommends the following:

- *Advance at least one borehole and collect two samples (shallow and deep from each of the two WIPP-12 mud pits that were not previously (see attached NMED Figure 1 which is based on Figure 6.1 of the SAP for location). These samples should be analyzed for total barium and lead.*
- *Collect a "deeper" sample at the location of Hole 6 in order to delineate the vertical extent of total barium contamination [suggested depth - 8 to 9 feet below land surface (bls)].*
- *Collect sufficient samples "around" Hole 6 location so as to fully determine the horizontal extent of barium impacts (see attached NMED Figure 1 for suggested locations).*
- *The Permittees should keep in mind that any drainage feature or "low point" that may lead away from Hole 6 should also be evaluated and/or sampled in order to determine if any migration of contaminants has occurred due to surface runoff.*

Response: Since submittal of the SAP to NMED, WIPP has obtained 1982 and 1985 aerial photographs of the facility. The aerial photographs show that the WIPP-12 mud pit was excavated as one large pit, rather than as a series of separate mud pits. Because there was one large mud pit, the original sampling locations proposed in the SAP are considered to be adequate. As stated in the SAP, samples will be collected below the horizon of the original mud pit (1 to 2 feet below) to evaluate the vertical extent of concentrations of barium above background.

The westernmost sampling location proposed by the NMED would require sampling through and below the compacted caliche drill pad. The drill pad area is not part of the defined SWMU. The primary purpose of the sampling is to evaluate the nature and extent of elevated metals concentrations in and near the physical boundaries of the mud pit. Consequently, no sample should be collected at that location.

Only barium should be included as a constituent of concern in the investigations at WIPP-12. Lead concentrations in soil samples previously collected at SWMU 001L were less than background concentrations. The WIPP has been consistent throughout the SAP. Constituents of concern for each SWMU to be investigated include only those compounds for which previous sample results exceed background. No additional lead concentration data are proposed to be obtained at WIPP-12.

Because the mud pit has been covered with native soil and other materials brought to the mud pit for cover (i.e., caliche) there is no possible way for mud pit material to migrate because of precipitation-induced surface runoff.

18. General comment - Under the "Nature and Extent of Contamination" section of those SWMUs that will be further investigated, the Permittees should specify the following in the text: 1) which borehole location exceeded background levels and 2) that the analytes that were detected above background levels were also significantly below the residential risk-based soil screening levels established by NMED (or EPA Region 6, as applicable).

Response: The WIPP sample location maps and tables included in the SAP list background concentrations and industrial screening criteria. In future submittals to the NMED, the WIPP will explicitly state which samples exceeded background levels and will include text comparing the results to the appropriate screening levels.

19. Section 11.2.1.2, first paragraph, page 38 - In order to be consistent, please state in the text the number of samples (and QA/QC collected from this SWMU. Please correct typographical error on second sentence: should be SWMU 001q instead of SWMU 001p. Also specify that the samples were collected only from the mud pit that was used (primary pit) if this is the case.

Response: As reported in the *Assessment of Solid Waste Management Units at the Waste Isolation Pilot Plant (RFA)* (NMED/WIPP 93-001), 12 separate samples were collected from the same general area of the primary mud pit. Separate samples were collected by the NMED and Westinghouse as part of the investigation. Samples were collected for

three separate analyses at two different depths. No samples were obtained from the northern reserve mud pit. The WIPP agrees that there is a typographical error in the SWMU designation (001q is the correct designation).

20. *Figure 11.1 and Section 11.2.3.1, pages 40 and 42, respectively - NMED recommends the following:*

- *Collect a "deeper" sample at the previous sample location in order to delineate the vertical extent of total chromium, nickel and lead contamination (suggested depth - 4 to 5 feet bls).*
- *Collect enough samples "around" previous sample location so as to fully determine the horizontal extent of total chromium, nickel and lead impacts (for suggested locations, see attached NMED Figure 2 which is based on Figure 11.1 of the SAP).*
- *The Permittees should keep in mind that any drainage feature or "low point" that may lead away from DOE-1 mud pit should also be evaluated and/or sampled in order to determine if any migration of contaminants has occurred due to surface runoff.*

Response: The NMED proposed sampling depths, depending on the depth of the mud pit, are similar to sampling depths already proposed in the SAP. The WIPP will collect deep samples 1 to 2 feet below the mud pit to evaluate the vertical extent of chromium, nickel, and lead concentrations above background. Locations previously sampled are not proposed to be resampled.

The NMED's Figure 2 suggest taking two additional samples that would potentially represent background. Based on the NMED's recommendations, two source samples and three background samples would be collected. In one case, the proposed sampling location requires sampling through and below the compacted caliche drill pad. The drill pad is not part of the SWMU. The objective of the SAP is to characterize the vertical and horizontal extent of contaminants above background. The additional samples recommended by NMED do not support this objective. Consequently, the WIPP does not propose to modify the SAP for this SWMU.

The mud pit has been covered with native soil. The mud pit material is below the surface of the ground. In addition, the mud pit is a low point relative to the surrounding terrain. Any surface runoff attributable to precipitation is towards the mud pit and not away from the mud pit. The WIPP has installed silt fences near this SWMU to control surface runoff into the mud pit. Surface runoff is not a potential pathway for site chemicals of concern at this SWMU.

21. *Table 11.1, page 41 - The table should include nickel concentrations that also exceeded background concentrations.*

Response: The WIPP agrees that Table 11.1 should include nickel concentrations. As indicated in Figure 11.1, the DOE sample results for nickel were 7 and 10 ppm and the NMED results were 6 and 10 ppm.

22. Section 11.2.3.2, first sentence, page 43 - Samples should be analyzed for total chromium, nickel and lead, not barium.

Response: The WIPP agrees with this comment. Samples will be analyzed for total chromium, nickel, and lead.

23. Section 12.2.2.1, third sentence, page 45 - Emphasize that thallium was detected only slightly above the method detection limit.

Response: The WIPP takes note of this comment. The emphasis requested will be included in the NFA request report for this SWMU.

24. Figure 14.1 and Section 14.2.3.1, pages 50 and 53, respectively - NMED recommends the following:

- *Collect a "deeper" sample at the location of Hole 4 in order to delineate the vertical extent of total barium, chromium and lead contamination (suggested depth - 8 to 9 feet bls).*
- *Collect enough samples "around" Hole 4 location so as to fully determine the horizontal extent of total barium, chromium and lead impacts (for suggested locations see attached NMED Figure 3 which is based on Figure 14.1 of the SAP).*

Response: The NMED proposed sampling depths, depending on the depth of the mud pit, are similar to sampling depths already proposed in the SAP. As stated in the SAP, the WIPP will collect deep samples 1 to 2 feet below the mud pit to evaluate the vertical extent of metal concentrations above background. The sampling locations proposed by the WIPP are deemed sufficient to meet the stated objectives of the plan.

The NMED proposed northernmost sampling location (NMED Figure 3) require sampling through and below the compacted caliche drill pad. The Permit defines the SWMU as the mud pit. The Permit definition does not include the drill pad. Solid waste was managed only in the mud pit. This definition was discussed at the meeting with the NMED in April 2000. The easternmost sampling location presented by the WIPP in the SAP will yield information regarding the extent of concentrations above background to the north and east of the mud pit, without sampling through the compacted caliche drill pad.

25. The Permittees should keep in mind that any drainage feature or "low point" that may lead away from Hole 4 should also be evaluated and/or sample in order to determine if any migration of contaminants has occurred due to surface runoff.

Response: The mud pit has been covered with native soil. The mud pit material is below the surface of the ground. In addition, the mud pit is a low point relative to the surrounding terrain. Any surface runoff attributable to precipitation is towards the mud pit and not away from the mud pit. The WIPP does not deem it necessary to evaluate surface runoff as a potential pathway for site constituents of concern.

26. Sections 15.2.1.2 and 15.2.2.1, pages 55 and 56, respectively - Numerous parameters (VOCs, metals and PCBs) were sampled at this SWMU; the text should specify the analyses performed on the samples. Regarding the last sentence of Section 15.2.1.2: Figure 15.1 does not show lead concentrations but does present nickel concentrations that are not mentioned in the text. Third sentence of Section 15.2.2.1: Table 15.1 does not (but should include lead concentrations).

Response: A complete list of samples collected and their analytical results is contained in Appendix B of the *Final Voluntary Release Assessment/Corrective Action Report* (DOE/WIPP 96-2209). The WIPP notes the NMED's comments and will include some additional discussion in the NFA request report describing the additional sampling and analysis for this SWMU. The WIPP agrees with the NMED that lead concentrations should have been included in Table 15.1 and on Figure 15.1 (Hole 1 - 1.6/1.5 ppm; Hole 2 - 1.7/1.2 ppm; Hole 3 - 4.2/2.4 ppm; Hole 4 - 2.6/4.8 ppm; and Hole 5 - 1.4/1.5 ppm). Because all lead concentrations were below background (the NMED NFA criterion), the constituents of concern for this SWMU are chromium, nickel, and methanol.

27. Table 15.1, Section 15.2.3.1 and Figure 15.1, pages 57, 58, and 59, respectively - NMED recommends the following:

- *To be consistent with other SWMUs (SWMU 001l and 001q), lead concentrations should be included in Table 15.1 and Figure 15.1 even if all concentrations of lead were below background.*
- *On Figure 15.1, show NMED residential risk-based soil screening level for nickel and show background concentration for lead.*
- *Collect "deeper" samples at the locations of Holes 1 through 4 in order to delineate the vertical extent of total chromium, nickel and methanol contamination (suggested depths - 8 to 9 feet bls).*
- *Collect enough samples "around" previous sample locations exceeding background levels so as to fully determine the horizontal extent of total chromium, nickel and methanol impacts (for suggested locations, see attached NMED Figure 4 which is based on Figure 15.1 of the SAP).*
- *The Permittees should keep in mind that any drainage feature or "low point" that may lead away from the SWMU 004a storage yard should also be evaluated and/or sampled in order to determine if any migration of contaminants has occurred due to surface runoff*

Response: The WIPP agrees that lead concentrations should be included in Table 15.1 and shown on Figure 15.1 (see response to Comment 26 for lead concentrations).

Please see the response to NMED's comment #1 on the Facility Work Plan.

The industrial screening criteria are appropriate for comparison to metal concentrations in soil. The SAP has been consistent in presenting industrial screening criteria on the figures.

The WIPP does not propose to repeat the sampling at Holes 1 through 4. The original samples were collected at a depth of 36 to 48 inches (rather than the 60 to 72 inches presented in Table 15.1). Consequently, the WIPP is planning on collecting its deep samples for this SWMU at a depth of 48 to 60 inches. In the NMED's Figure 4, two recommended sampling locations are located in and near the east side of the storage area, managed by Sandia National Laboratory. The NMED excluded the east side of the storage area from the Permit and the RFI Schedule of Compliance. Consequently, the WIPP believes it is prudent to focus the planned sampling in and around SWMU 004a (Portacamp Storage Yard, West Side) as required by the Permit. The WIPP proposes to retain the sample locations and depths originally identified in Section 15.0 of the SAP at this SWMU.

The Portacamp Storage Area is completely covered with compacted caliche. In addition, the metal constituents above background were measured below the compacted caliche. The Portacamp site is flat and there are no drainage features. The depth below ground surface for the measured constituents and the lack of drainage features, preclude constituents of concern migrating from the SWMU because of precipitation-induced surface runoff. Consequently, the WIPP proposes to implement the sampling protocol presented in the SAP.

28. Section 15.2.3.1, third sentence, page 58 - To be consistent with previous sample intervals, the second set of subsurface samples should be collected 60 to 72 inches bls instead of the proposed 48 to 60 inches bls.

Response: The original samples were collected at a depth of 36 to 48 inches as described in Section 15.2.3.1 of the SAP. No known excavation of the site has occurred that could result in downward transport of constituents. In addition, it is estimated that less than 0.5 inches of precipitation per year infiltrates the underlying strata. The proposed sampling depth of 48 to 60 inches is deemed appropriate. Consequently, as stated in the SAP, the WIPP proposes to collect its deep samples for this SWMU at a depth of 48 to 60 inches.

29. Table 16.1, page 61 - The table should include lead concentrations (< 5ppm) analyzed in the NMED sample collected from 12-24 inches bls.

Response: Appendix K of *Supplemental Information Requested by the New Mexico Environment Department for Solid Waste Management Units (DOE/WIPP 97-2220a)*

includes a March 11, 1993 analytical report for the 12-24 inch NMED soil sample. The report does not include a final analytical result for lead. At this time, the WIPP does not have the NMED lead result for this sample and cannot include the result in Table 16.1.

30. *Figure 16.1, page 63 - Please show the Permittees' and NMED's sample locations on this figure, if known.*

Response: Appendix K, *Supplemental Information Requested by the New Mexico Environment Department for Solid Waste Management Units, DOE/WIPP 97-2220a*, May 1, 1997, shows an approximate location for these samples on a small scale NMED Site Sketch. The approximate location is at the former location of the evaporation pond.

31. *Section 16.2.3, page 62 - Based on historical information provided for this site, NMED does not see the need to perform additional sampling at the subject SWMU. This suggestion is based on : 1) the evaporation pond presumably received only grey water from personnel showers and currently receives storm water and domestic water resulting from fire flow performance testing, and 2) detected concentrations of lead and nickel and only slightly above background concentrations. NMED believes that enough information is available from this site to warrant NFA. However, the Permittees may proceed with the proposed scope of work if they believe that additional sampling is warranted for this SWMU.*

Response: The WIPP agrees with the NMED and will not perform the sampling proposed in the SAP at SWMU 007b.

32. *Section 25.1, last paragraph, second sentence, page 82 - in addition to metals, VOCs need to be included in the text (i.e., methanol at SWMU 004a).*

Response: The WIPP agrees with the NMED. Methanol is a constituent of concern for SWMU 004a. Samples will be collected for methanol analysis at each location proposed in the SAP for SWMU 004a.

33. *Section 25.3.2, first paragraph, page 83 - See above NMED's Comment #7 on the Work Plan.*

Response: For a RCRA site such as the WIPP, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846) analytical method criteria are appropriate. Contract Laboratory Program (CLP) analytical method criteria are appropriate for analyses of samples collected from Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites. The use of EPA's CLP analytical methods would be inappropriate at the WIPP SWMUs and would be in direct conflict with the Permit requirements for the WIPP. Section VII.M.2.d of the Permit requires that the SAP and reported data be consistent with EPA RCRA guidance including SW-846. Consequently, SW-846 Methods will be used for sample analyses as required by the Permit. Further, soil samples collected during previous site investigations were analyzed using SW-846 methods. To ensure comparability with previous investigations and

compliance with Permit conditions, analyses of collected soil samples should be performed using SW-846 Methods.

34. Section 26.1, third paragraph, page 85 - Please clarify the Permittees' reporting intentions. The Permittees are intending to submit to NMED a draft SAP that will summarize the results of investigations at each of the SWMUs; however, there is no mention how the final report will be structured.

NMED would like to receive one RFI report for all of the SWMUs and AOCs. The report should be structure as described in Module VII.O and VIIU.5 of the WIPP Hazardous Waste Facility Permit. The report should contain detailed historical information, describe previous and recent sampling efforts and results, and contain recommendations. All recommendations (i.e., NFA, proposal for additional investigations, etc.) need to be fully supported in the report. For those SWMUs that exceed the NMED residential screening criteria for soils, human health and ecological risk will have to be evaluated and included in the final report.

Response: The WIPP does not propose to submit a draft SAP report to NMED following completion of the activities defined in the SAP. As discussed with NMED during a meeting on April 3, 2000, the WIPP proposes to submit one comprehensive report for all of the SWMUs and AOCs in the permit. The report structure will follow the requirements in the permit and guidance provided in the *Hazardous and Radioactive Materials Bureau Standard Operating Procedures Manual* for NFA and RFI reports. Where appropriate, detailed historical information will be included by reference to documents previously submitted to the NMED.

35. Section 27.0, page 87 - For consistency, name the six AOCs (in the first paragraph, next to last sentence) and the four SWMUs (in the second paragraph, next to last sentence).

Response: The six AOCs closed under another regulatory authority (USGS/BLM) are 001r, 001u, 001v, 001w, 001ac, 001ae, and 001ae. Based on the NMED's comment 31 (above) sampling will be conducted at four SWMUs (001L, 001q, 001x, and 004a). With this response, the WIPP hereby incorporates this change into the SAP.

36. Appendix A, Section 2.2.2, first sentence, page 92 - Text should include mercury in the evaluation of data distributions.

Response: It is not possible to statistically evaluate the data distribution for mercury, because more than 50 percent of the measurements for mercury were nondetects (41 values out of 46 measurements). . By definition, the distribution of mercury is classified as unknown (*Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Final Guidance*, EPA, 1989; *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities - Addendum to the Interim Final Guidance*, EPA, 1992; *Data Quality Evaluation Statistical Toolbox (Data QUEST) Users Guide*, EPA, 1997).

37. *General comments on those SWMUs that will be further investigated (SWMUs 001L, 001q, 001x, 004a and if applicable, 007b):*

- *Permittees need prior NMED approval before any significant changes are made to the scope of work (i.e., reduction of sampling locations, modifying sample analyses, etc.).*
- *Relevant surface features (i.e., borehole locations, mud pits, site boundaries, access roads, etc.) and sample locations (previous and proposed sample locations) need to be surveyed for each site by professional surveyors. This will assure that accurate scaled site maps are provided in the final report(s).*

Response: The WIPP will comply with the Permit requirements regarding notifications to the NMED, before making any significant changes to the scope of work defined in the SAP.

Care will be taken to identify sampling locations in relation to known locations of the boreholes. The sampling locations will be identified using a tape measure and compass. With this response, the WIPP hereby incorporates this clarification into the SAP for the four SWMUs where soil samples will be collected.

There is no regulatory requirement for use of a professional surveyor for these investigations. The WIPP has developed and provided site maps in the WIPP RCRA Part B Permit Application. Other available information includes: aerial photographs, the NMED RFA report, and field documentation from previous investigations. The WIPP will develop scaled site maps of sufficient accuracy for the final report, consistent with the data quality objectives defined in the SAP.