HAFB 02

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Telephone (505) 428-2500
Fax (505) 428-2567
www.nmenv.state.nm.us

GARY E. JOHNSON
GOVERNOR

JOHN D'ANTONIO, Jr.
SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

October 16, 2002

Mr. Howard Moffitt
Deputy Base Engineer
49 CES/CD
550 Tabosa Avenue
Holloman Air Force Base, NM 88330-8458

SUBJECT: CONTAINER STORAGE UNIT: NOTICE OF DEFICIENCY
WASTE ANALYSIS PLAN
HOLLOMAN AIR FORCE BASE, EPA ID No. NM6572124422
TASK #: HWB-HAFB-99-002

Dear Mr. Moffitt:

The New Mexico Environment Department (**NMED**) has reviewed for technical completeness the Holloman Air Force Base (**HAFB**) response to NMED's Notice of Deficiency (**NOD**) that HAFB received on February 1, 2000. The NOD was issued on the Permit Application for the Container Storage Unit.

Pursuant to its authority under the New Mexico Hazardous Waste Act, N.M.S.A. 74-4-1 *et seq.*, and the New Mexico Hazardous Waste Management Regulations, 20.4.1 NMAC, NMED has found HAFB's response to the NOD to be technically incomplete. NMED determined that the Waste Analysis Plan (**WAP**) contained in the Permit Application must include specific waste analysis information to ensure that each waste stream is managed in accordance with the Land Disposal Restrictions (**LDR**) treatment standards specified in 20.4.1.800 NMAC, incorporating 40 CFR Part 268. NMED is requiring this information in accordance with 20.4.1.500 NMAC, incorporating 40 CFR §264.13 and 20.4.1.900 NMAC, incorporating §270.32(b)(2). According to 40 CFR §264.13(b), the WAP must contain, at a minimum, the information specified in 40 CFR §264.13 (b)(1) through (b)(4) and (b)(6).

The enclosed list identifies the deficiencies that HAFB must address, incorporate into the previously submitted WAP, and submit to the NMED for evaluation and final determination before the draft Permit can be subjected to public notice. Please highlight the additional information to expedite NMED review of the document.

HAFB shall submit the required information within forty-five (45) calendar days from the date you receive this letter and the attached NOD. Please present the required information in two hard copies and an electronic copy on a 3.5" diskette compatible with MS Word. Failure to provide the required information within the designated time period may result in NMED issuing HAFB a notice of intent to deny (**NOID**) the Container Storage Unit Permit renewal/issuance.

Please contact Steve Pullen of my staff, at (505) 428-2544, should you need to discuss the contents of this letter.

Sincerely,

James P. Bearzi
Chief
Hazardous Waste Bureau

Enclosure

cc: John Kieling, HWB NMED
Cornelius Amindyas, HWB NMED
Steve Pullen, HWB NMED
Laurie King, Chief, EPA Region VI (6PD-N)
Allen Chang, EPA Region VI (6PD-N)
John Poland, HAFB
Deborah Hartell, HAFB

File: HAFB 02 and Reading

ATTACHMENT

NOTICE OF DEFICIENCY

WASTE ANALYSIS PLAN

HAFB CONTAINER STORAGE UNIT

October 16, 2002

After reviewing Holloman Air Force Base's (**HAFB**'s) May 2000 response to the Notice of Deficiency (**NOD**) on the Permit renewal application dated July 1997, the New Mexico Environment Department (**NMED**) determined the Section titled "*Waste Analysis Plan*" to be technically incomplete. The following list contains the deficiencies that HAFB must address and submit to NMED for a determination on the technical completeness of the Permit Application, before the Container storage Unit draft permit can be subjected to a forty-five day public review/comment period.

General Comments

1. The WAP is generally deficient in the following regards; defining its objectives, in many instances the WAP simply reiterates a portion of HAFB's waste characterization requirements without clearly specifying how HAFB will adhered to those requirements (particularly Land Disposal Restrictions (**LDR**) requirements), lacking commitments regarding identification of underlying hazardous constituents (**UHCs**) in characteristic wastes, and is confusing as to when acceptable or process knowledge will be used versus sampling and analysis to characterize wastes. These issues are discussed further below.

2. The WAP does not discuss waste characterization commitments for wastes stored at the CSU that originated off-site as required by 20.4.1.500 NMAC, incorporating 40 CFR 264.13 (b)(5). The reviewer presumes that HAFB commits elsewhere in the permit application to not receiving off-site wastes at the CSU.

3. The WAP does not discuss waste characterization commitments regarding the RCRA air emission requirements. The reviewer presumes that HAFB commits elsewhere in the permit application to the following;
    a. Storing all wastes in containers that comply with the standards specified at 40 CFR § 264.1086, or
    b. That no wastes are managed in tanks or equipment that would require conformance with 40 CFR §§ 264.1084 and 264.1050 respectively.

4. The WAP does not discuss the training commitments for individuals responsible for waste characterization. Of particular concern are the training commitments for generators or initial accumulation point (IAP) managers. The reviewer presumes that

HAFB both recognizes this requirement and commits to the appropriate training elsewhere in the permit application as required by 40 CFR § 270.14 (b)(12). Furthermore, WAP Table C-1 refers to the following non-U.S. military personnel that generate wastes at HAFB that presumably are subject to the permit and its associated training requirements; the German Air Force, DynCorp, and Newtec.

5. The WAP poorly describes HAFB's regulatory requirements to characterize some aspects of solid/hazardous waste at the "point of generation". New Mexico Hazardous waste Management Regulations 20.4.1.500 NMAC, incorporating 40 CFR § 268.9 (c) require that characteristic wastes have their LDR treatment standards "determined at the point of generation". U.S. Environmental Protection Agency (**EPA**) guidance, "*Land Disposal Restrictions: Summary of Requirements*" dated August 2001 (**EPA 2001**) states in Section 8.2 that, according to the regulations, "you must make two critical determinations" at the point of generation:

   a. identify whether the waste is hazardous; and
   b. if so, identify whether the waste is prohibited under the Land Disposal Restriction (LDR) program ...".
   c.

   The purposes for identifying whether the waste is prohibited under the LDR program include avoiding unlawful dilution of the waste, unlawful commingling of the waste, and loss of volatile constituents. 40 CFR § 264.1084 (a)(1) requires that for waste placed in containers, "the owner or operator shall determine the average volatile organic (**VO**) concentration at the point of waste origination". The WAP does recognize at Section C-2.1, Paragraph 1, Sentence 4 that generators perform the "hazardous" determination, however at Section C-3.2.2, Paragraph 1, Sentence1 the WAP states that "Before shipping waste off site, HAFB shall make a determination if the waste has to be treated before it can be land disposed." (LDR status determination) The WAP must be altered to reflect the requirement that wastes must be characterized as to whether they are prohibited under the LDRs at the point of generation. Furthermore, the WAP must be altered to reflect the requirement that, for wastes placed in containers, the wastes will be characterized for their average volatile organic (**VO**) concentration at the point of waste origination unless another regulatory acceptable approach is used. (See general comment #3)

6. The WAP fails to recognize that before wastes are stored at the CSU they must be characterized as to whether they are authorized wastes (i.e., included in the Part A portion of the permit application or otherwise prohibited by the permit).

Section Specific Comments

Section C-1: This Section states in Paragraph 1, Sentence 4 that the WAP provides information on wastes "routinely" stored at the CSU. Although it is understandable that HAFB can only identify routinely stored wastes in its WAP, the characterization procedures for all hazardous wastes stored at the permitted waste management unit must be addressed. NMED recommends augmenting the sentence to clarify the appropriate scope of the WAP.

1. **Section C-1:** Section Paragraph 1, Sentences 5 and 6 are contradictory, because while the fifth 5 implies that some wastes will be characterized through acceptable knowledge (see next comment), the sixth sentence 6 states that all wastes will be characterized through sampling and analysis. The paragraph must be altered for clarity.

2. **Section C-1:** Paragraph 1, Sentence 5 uses the term "process-knowledge". NMED requires, for consistency sake, that HAFB use the term "acceptable knowledge" (**AK**), which incorporates process knowledge in its definition, as defined in the EPA guidance, "*Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Waste*" dated April 1994 (**EPA 1994**). Please change all other applicable WAP terminology accordingly. Furthermore, the WAP is confusing as to when acceptable or process knowledge will be used versus sampling and analysis to characterize wastes. The WAP must specify how HAFB will characterize in accordance with Appendix VI.

3. **Section C-1:** Paragraph 2, Sentence 1 inappropriately omits a portion of the regulatory citation for 40 CFR § 268. Please add 800 to the New Mexico Hazardous Waste Management portion of the regulatory citation (i.e., 20.1.4.800 NMAC).

4. **Section C-1:** Section Paragraph 2, Sentence 1 appropriately identifies the general New Mexico Hazardous Waste Management regulations as the regulatory mandate for the Waste Analysis Plan (**WAP**), but fails to identify the specific waste characterization regulations that must be address. NMED requires that all waste characterization address the data quality objectives (**DQOs**) identified at Appendix I and that these objectives be identified in the "Introduction" portion of the WAP. The WAP must also be augmented to include a Section addressing how HAFB personnel will perform a QA/QC analysis to ensure that all waste characterization has met the DQOs.

5. **Section C-2.1:** Section Paragraph 1 is contradictory with regard to the use of acceptable knowledge (see comment #2). Alter accordingly. Furthermore, Paragraphs 1 and 2 are contradictory. Paragraph 2 states that if one of the characterization processes identified in Paragraph 1 cannot be used that the wastes will be sampled and analyzed, however Paragraph 1 refers to chemical analysis. NMED recognizes that there may be forms of chemical analysis that do not conform to either permit or SW-846 requirements and that these might be considered acceptable knowledge according to EPA's 1994 Publication. The WAP must state and clarify this if that is HAFB's intent. (See Section Specific Comment 3)

6. **Section C-2.1**, Paragraph 2, describing waste characterization via sampling and analysis, does not belong in a section describing process/acceptable knowledge. NMED recommends that this paragraph be included in a separate section on "characterization re-evaluation". Regarding waste characterization re-evaluation, 40 CFR § 264.13 requires that a WAP specify the frequency with which the initial analysis of the waste will be reviewed or repeated to ensure that the analysis is accurate and up to date. The only other section of the WAP to address waste characterization re-evaluation is at Section C-4.1, and that section addresses wastes characterized using sampling and analysis while it does not address characterization using acceptable knowledge. The WAP must address waste characterization as provided at Appendix III.

7. **Section C-2.1:** This Section must be augmented with commitment to provide a minimum amount of process information for each waste stream. This information is provided in Appendix II.

8. **Section C-2.1:** Section Paragraph 2, Sentence 3 refers to "routinely generated" wastes as wastes required to undergo sampling and analysis. Routinely generated wastes may be characterized either by sampling and analysis or by acceptable knowledge so long as all DQOs are attained. Routinely generated wastes will be required to undergo periodic re-evaluation and because of the term's distinction with regard to non-routinely generated wastes, NMED recommends that HAFB add the following definition to the WAP: *"Routinely generated waste* means waste generated from regular activities, a waste stream of a predictable quantity and characterization, and a waste that is not part of environmental restoration activities. Routine waste may be from any production or maintenance operation, analytical and/or R&D laboratory operations; or any other periodic and recurring work that is considered on going in nature."

9. **Section C-2.1**: Section Paragraph 3 discusses the limited degree of waste characteristic variation of routinely generated wastes. It must be recognized that although the waste codes associated with the wastes may not vary, the LDR status of the wastes may vary due to the stringent nature of the LDR treatment standards.

10. **Section C-2.1:** Section Paragraph 3 references Military Specifications (**MILSPEC**s) and Technical Orders (**TO**s) as military requirements limiting the variation of waste streams. As an example, T.O. 1-1-8, USAF Standard Coating Systems for Aircraft and Equipment, references many (greater than twenty) different products used in painting military aircraft. This TO is used by another NM Air Force facility, and presumably HAFB, to identify all possible hazardous waste constituents in a waste stream possibly titled "liquid paint wastes". If HAFB uses this TO for a similar waste stream (see Section C-2.2, Paragraph 1, Item 1, "Waste paint and paint related waste") without further limitations on the content of that waste stream, HAFB must commit to identifying all those products and all related hazardous constituents in those products to fulfill LDR status determination requirements.

11. **Section C-2.2:** Section Paragraph 1, Bullet 5 refers to lab packs. HAFB must recognize in the WAP that hazardous wastes placed inside overpacked drums shall be characterized to ensure that they do not react dangerously with, act to decompose, or ignite the sorbent material added to the drum, as required by 20.4.1.500 NMAC, incorporating 40 CFR § 264.316 (c)). These wastes shall be characterized to ensure that they are not incompatible as required by 20.4.1.500 NMAC, incorporating 40 CFR § 264.316 (d)) and that they are not reactive, as required by 20.4.1.500 NMAC, incorporating 40 CFR § 264.317 (e)). Laboratory packs themselves shall be characterized, if they may undergo the alternative treatment standards specified at 40 CFR § 268.42 (c), as to whether they contain hazardous wastes with the EPA Hazardous Waste Codes specified at 40 CFR Part 268 Appendix IV.

12. **Section C-2.2:** Section Paragraph 1, Bullet 7 refers to spent fluorescent and mercury light bulbs. 40 CFR 270.1 (c)(2)(viii) specifically excludes universal waste handlers from having to operate under a permit. The exclusion goes on to say that the handlers are subject to 40 CFR 273. Table C-1, Wastes Generated category 14 refers to "fluorescent bulbs – crushed" and category 16 refers to "spent batteries". Note that HAFB may manage these wastes as universal wastes instead of hazardous wastes through a permit. If it is HAFB's intent to manage spent bulbs as hazardous waste and to crush them, HAFB must be cautioned because the process of crushing meets the definition of hazardous waste treatment that may therefore require a treatment permit, under Subpart X (Miscellaneous Units). A treatment permit may be avoided if the crushing process occurs in a 90-day tank or container but 40 CFR § 265.173 (a) must be addressed (i.e., the container must be closed except when necessary to add or remove waste). (See McCoy and Associates, Inc., RCRA Unraveled, 2001 Edition (**McCoy 2001**) section on universal wastes).

13. **Section C-2.2:** Section Paragraph 1, Item 7 refers to scrap metal. HAFB must specify in the WAP, the methods of determining the contaminants subject to treatment, as required by 20.4.1.500 NMAC, incorporating 40 CFR § 268.45 (b).

14. **Section C-2.2:** Section Paragraph 3, Sentence 1 refers to Table C-1 as outlining the parameters of concern for the major waste categories. For the WAP to be complete, Table C-1, or an equivalent table, must also address all possible hazardous constituents in each waste stream as required by 40 CFR §§ 268.7, 268.40, and 268.48.

15. **Section C-2.2:** Section Paragraph 3, Sentence 1 refers to Table C-1 as outlining the parameters of concern for the major waste categories. Table C-1 references the LDR subcategories "wastewater" and "non-wastewater". The WAP must reference the characterization methods for these two subcategories as specified at 40 CFR §§ 268.2 (d) and (f).

16. **Section C-2.2:** Section Paragraph 3, Sentence 1 refers to Table C-1 as outlining the parameters of concern for the major waste categories. Table C-1, Footnote 2 states that "other analytical methods may be substituted or included as deemed appropriate". This

footnote must include the qualifier contained in WAP Section C-4.5, Paragraph 2, Sentence 4, "with the prior approval of NMED".

17. **Section C-2.3:** Section Sentence 4 inappropriately cites 40 CFR § 270.32 (b)(2).

18. **Section C-2.3:** Section Sentence 3 refers to Figure C-1 as a description of waste tracking procedures. Figure C-1 is completely illegible.

19. **Section C-3:** Section Paragraph 1, Sentence 2 refers to "fingerprinting" analysis without clarifying what is meant by the term. EPA's Publication of 1994 defines the term at Section 2.5, as analyses "... used to provide an indication of whether the waste has been accurately identified by the generator ...". The term is generally applicable to treatment, storage or disposal facilities (**TSDFs**) receiving wastes from an off-site facility. Fingerprint analyses typically include testing for ignitability, free liquids, specific gravity and other parameters. The WAP must specify what is meant by the term "fingerprint analysis" and what the waste is being tested for.

20. **Section C-3:** Section Paragraph 1, Sentence 3 states that the objective of sampling includes, among other things, to determine compliance with applicable regulatory requirements. This section must specifically cite or reference the regulations identified in the DQOs referred to in the Section-Specific Comment #5.

21. **Section C-3:** Section Paragraph 1, Sentence 3, Bullet 4 states that the objectives of sampling are to "provide relevant data for use in making disposal decisions". The WAP should identify that relevant data and that data should include a determination of the presence of free liquids and the biodegradability of sorbents used to treat free liquids as address at 20.4.1.500 NMAC, incorporating 40 CFR §§ 264.314 (c) and (e) respectively. [Note that characterization of the biodegradability of sorbents need not be performed via sampling and analysis and may be performed via Acceptable Knowledge (**AK**).

22. **Section C-3.1:** This section elaborates in subsections on the criteria and rationale for parameter selection for a majority of HAFB's wastes. These subsections fail to sufficiently elaborate on the requirement to determine the LDR status of the wastes. For example, identification of all hazardous constituents in the waste by examining associated MILSPECs, TOs, and MSDSs, and characterizing characteristic waste for all inorganic constituents including the 14 metals listed at the back of the Table at 40 CFR § 268.48, Universal Treatment Standards.

23. **Section C-3.2:** Section Sentence 2 references the requirements of 20.4.1.500 NMAC, incorporating 40 CFR § 264.13(b)(6). Subsequent sections fail to address the RCRA air emission requirements referenced in that regulation. (See General Comment #3)

24. **Section C-3.2.1:** The section addresses characterization of wastes for their ignitability, reactivity and compatibility. The section fails to specify the following applicable compatibility groups the wastes must be categorized for; i.e., oxidizers, corrosive acids,

wastes reactive with water, and corrosive bases. The WAP must be augmented accordingly. EPA document "*A Method of Determining the Compatibility of Hazardous Wastes*" (EPA-600/2-80-076) is referenced in EPA 1994 as containing procedures to evaluate qualitatively the compatibility of various categories of waste.

25. **Section C-3.2.1:** Section Paragraph 3 references a Section C-5 that doesn't appear to exist or the reference is somehow inappropriate.

26. **Section C-3.2.2:** This Section simply reiterates the HAFB's waste characterization requirements regarding LDR compliance without clearly specifying how HAFB will adhere to those requirements. The LDRs are the most complex elements of the RCRA regulatory program due to several factors. First, major categories of waste (e.g., characteristic wastes) are separated into different subcategories and treatability groups that must be identified. Second, different types of treatment standards and different effective dates apply to these waste groups. These too must be identified. Finally, complicated procedures are required to deal with waste mixtures that have constituents with overlapping regulatory requirements. HAFB must significantly elaborate on how it will characterize wastes to determine their LDR status. See Section-Specific Comments 10, 11, 23, and 28 and EPA's Publication of 2001 for guidance.

27. **Section C-3.2.2:** Paragraph 1, Sentence 7 states that underlying hazardous constituents (**UHCs**) "shall be characterized using the methods specified" at 40 CFR § 268.9. That regulation does not specify methods for characterizing a waste for its UHCs. (See Section-Specific Comments 10, 11, 23, and 27).

28. **Section C-4.1:** This section must commit to using the number of samples and sampling design specific to the waste being sampled that complies SW-846 Chapter 9. The sampling design must ensure collection of a representative sample of wastes by means that preserve its original physical form and composition and ensure prevention of contamination or changes in concentration of the constituents to be analyzed.

29. **Section C-4.4:** This section must commit to characterizing the appropriate number of samples of each waste needed to demonstrate that the upper limit of the confidence interval for the population mean is less than the applicable regulatory threshold, in compliance with SW-846. Furthermore, the WAP specifically must commit to the sampling quality assurance objective specified at Appendix IV.

30. **Section C-4.5:** This section must commit to using analytical method detection limits (**MDL's**) that are not higher than the applicable LDR treatment standard. Furthermore, the WAP specifically must commit to the laboratory analysis quality assurance objective specified at Appendix IV.

Appendix I

Data Quality Objectives (DQOs)

Waste characterization data obtained through WAP implementation shall be used to ensure that the Permittee meets regulatory obligations at permitted hazardous waste storage units. A portion of the DQOs that shall be met for all waste characterization will be to comply with the following applicable Resource Conservation and Recovery Act (**RCRA**) regulatory requirements:

1. To determine all information which must be known to treat, store and dispose of the wastes in accordance with New Mexico's Hazardous Waste Regulations (40 CFR §264.13 (a)(1));
2. To determine if the waste is hazardous (40 CFR §262. 10 (c), 40 CFR §262.11);
3. To ascertain the hazardous constituents in a waste stream to identify all applicable hazardous waste codes and all underlying hazardous constituents (40 CFR §262.11, 40 CFR §268.7 (a)(2)), and 40 CFR §268.9 (a));
4. To ascertain whether the waste must be treated before it can be land disposed (40 CFR §268.7 and 40 CFR §268.9);
5. To ascertain whether a routine waste generating process has changed sufficiently to create a new waste stream and alternative regulatory requirements (40 CFR §264.13 (a)(3)(i), 40 CFR §268.7 (a)(3)(iii), and 40 CFR §268.7 (b)(3)(ii));
6. To facilitate appropriate waste packaging for transportation (40 CFR §262.10 (h));
7. To ascertain the presence and concentration of wastes constituents that might cause unlawful air emissions (40 CFR 40 CFR 40 CFR 40 CFR §§270.25 (a), 264.179, 264.200, 264.13 (b)(6), 264.601 (c)(1), 2641050, and 40 CFR §264.1082);
8. To ensure that wastes are not inappropriately diluted to avoid LDR treatment requirements (40 CFR §268.3);
9. To determine the presence of prohibited materials (40 CFR §268.50 (f);
10. To determine the presence of free liquids in wastes (270.15 (b)(1), 264.13 (b)(6));
11. To ascertain waste/waste and waste/container compatibility characteristics (270.15, 270.16, 264.172, 264.177, and 264.199); and
12. To ascertain waste ignitability and reactivity characteristics (270.16 (j), 264.17 (a), and 264.198 (a)).

Appendix II

Waste Process Information

The Permittee shall obtain process knowledge documentation from the generator that is explicitly relevant and traceable to each waste stream. The following information presents process knowledge the Permittee is required to obtain:

1. Area(s) and/or building(s) from which the waste stream was or is generated;
2. Waste stream volume and time period of generation;
3. Description of waste generating process; and
4. Material inputs or other information that identifies the chemical content of the waste stream and the physical waste form.

Appendix III

Re-evaluation Frequency

The Permittee shall re-evaluate the initial analysis of routinely generated wastes to ensure that the analysis remains accurate and up to date for subsequent batches of waste as required by 20.4.1.500 NMAC (incorporating 40 CFR § 264.13 (b)(4)). Waste re-evaluation shall be performed at a minimum under the following conditions:

1. Annually to verify the accuracy of initial characterization results. For wastes characterized through sampling and analysis, re-evaluation shall be achieved using the same sampling and analysis methodologies used in the initial analysis. For wastes characterized through AK, re-evaluation shall be achieved through a review of AK information.
2. When there is a change in waste-generating processes. Any information that indicates a change in the process that generates the waste and may affect the waste shall cause the waste to be re-characterized; and
3. When the Permittee is notified by an off-site TSDF that the characterization of the waste received at the TSDF does not match a pre-approved waste analysis certification and/or accompanying waste manifest or shipping paper. Should the Permittee receive such a notice, the Permittee shall notify the NMED of this notification within 24 hours.

Unused commercial chemical products, reagents, or chemicals of known physical and chemical constituents (i.e., P or U-listed wastes) with Material Safety Data Sheet (**MSDS**) or similar information from manufacturer identifying chemical content of will not be included in this re-evaluation.

Appendix IV

Sampling Quality Assurance

The Permittee shall ensure that all waste characterization information is accurate by making the following determinations:

1. Whether the waste was characterized at the point of generation, in compliance with 40 CFR §§ 268.7(a)(3) and 268.9(c);

2. Whether routinely generated wastes are re-characterized to ensure the waste's characterization is accurate and up to date as required by 40 CFR § 264.13(a)(3);

3. Whether generators have appropriately identified when the process or operation generating routinely generated wastes has changed; in compliance with 40 CFR § 264.13(a)(3)(i); and

4. Whether generators are trained in the applicable waste characterization requirements as required by 40 CFR § 264.16.

The Permittee shall perform and report all waste characterization quality control (QC) procedures in accordance with SW-846 Chapter 1, Section 3.4, Field QA and QC Requirements, including, but not limited to field equipment calibration. When performing waste characterization, the Permittee shall document the number of control samples, for example trip and field blanks, field duplicates, and field spikes associated with each sample collected. The Permittee shall maintain a record of these determinations in an auditable waste characterization document.

Appendix V

Laboratory Analysis Quality Assurance

The Permittee shall evaluate laboratory analysis by addressing the precision, accuracy, completeness, comparability, and representativeness of the data used to support waste characterizations.

1. Precision measures the reproducibility of measurement under a given set of conditions. It is a quantitative measure of the variability of a group of measurements comparable to their average value.
2. Accuracy is the degree of agreement between an observed sample result and the true value.
3. Completeness is the percentage of measurements made which are judged to be valid.
4. Comparability - Data are considered comparable when one set of data can be compared to another set of data. Comparability is ensured through meeting the training requirements and developing waste characterization documentation following a standardized procedure and documentation content.
5. Representativeness expresses the degree to which sample data accurately and precisely represent characteristics of a population. Representativeness is a qualitative parameter that will be satisfied by ensuring that the process of obtaining, evaluating, and documenting waste characterization information is performed in accordance with the minimum standards established in the permit.

The Permittee shall analyze method blanks, laboratory duplicates, and laboratory control samples to assess the quality of the data resulting from laboratory analytical programs. If the Permittee uses a contract laboratory to perform analyses, then the Permittee shall inform the laboratory in writing that it must operate under the waste analysis conditions set forth in the permit.

Appendix VI

Acceptable Knowledge

The Permittee shall obtain the waste characterization information by sampling and analysis of the waste or by use of Acceptable knowledge (AK). AK is defined in EPA guidance, "*Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Waste*" dated April 1994 as process knowledge and prior sampling data performed before the effective date of RCRA regulations. Currently sampling and analysis is the preferred method, and the Permittee

shall obtain characterization by sampling and analysis whenever feasible. AK may be used as the sole method to characterize waste only when the waste is from processes that are well documented with supporting information that address all characterization requirements of the permit, including the requirement to determine the LDR status of the waste. If the existing data do not fulfill the above criteria, and sampling and analysis is used to characterize a waste, the Permittee shall develop a sampling and analysis plan for that waste identifying the sampling and laboratory analytical methods appropriate to identify and quantify potential contaminants in the waste stream for characterization of that waste.

The Permittee may use AK to comply with the waste characterization requirements if the following or equivalent criteria are met:

1. The waste is an unused, commercial, chemical product, reagent, or chemical of known physical and chemical constituents, for example is a P or U-listed EPA Hazardous Waste Number under 20.4.1.200 NMAC, incorporating 40 CFR § 261.33, and the characterization is based on a Material Safety Data Sheet or equivalent information supplied by the manufacturer and identifying the chemical content of the waste;
2. Health and safety risks to personnel would result from sampling and analysis, for example of mixed or explosive waste, and this risk is documented by reports or other written documentation signed by appropriate site personnel responsible for assessing health and safety risk; or
3. The physical nature of the waste precludes collection of a representative sample, for example of heterogeneous debris waste, and the physical nature of the waste is documented by a detailed written description of the waste identifying the specific characteristics of the waste that make sampling or analysis unachievable.

The Permittee shall maintain written documentation supporting the use of AK for each waste stream. The Permittee shall include in the record all specific AK documentation assembled and used in the AK process, whether or not it supports the decision to use AK.