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State of New Mexico  
**ENVIRONMENT DEPARTMENT**  
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RED  
92

JUDITH M. ESPINOSA  
SECRETARY

RON CURRY  
DEPUTY SECRETARY

**CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

September 2, 1992

Mr. Jim Richards  
27 CES/CEV  
111 Engineer's Way  
Cannon Air Force Base, NM 88103-5136

**RE: NOTICE OF DEFICIENCY, CELL 3 LANDFILL 5 POST-CLOSURE CARE  
PLAN; ASSESSMENT OF PERMIT FEE FOR POST-CLOSURE CARE PERMIT.**

Dear Mr. Richards:

The Hazardous and Radioactive Materials Bureau (HRMB) of the New Mexico Environment Department (NMED) has completed its technical review of the post-closure care plan of Cannon AFB's post-closure care permit application dated October 1988 and revised July 1992. (Final technical review of the closure plan portion of the permit application is currently being completed separately.)

Attached are HRMB's requirements for the post-closure care plan. HRMB program requirements mandate that we receive Cannon AFB's written response to this Notice of Deficiency within 20 days of your receipt of this letter. Your response should provide adequate and detailed information for HRMB to proceed with the writing of the draft post-closure care permit. If Cannon AFB fails to respond within 20 days, a Notice of Violation or a Compliance Order will be issued pursuant to HWMR-6, Pt. IX, 40 CFR 270.10(c).

New Mexico Hazardous Waste Fee Regulations require the assessment of permit fees when an application is declared administratively complete. Technical review of this post-closure permit application has been conducted without payment of the permit processing fee pursuant to those regulations. The fee for Cannon Air Force Base Post-Closure Care Permit is \$10,000.00; a statement and worksheet are attached. A Public Participation Fee of \$4,000.00, which is now charged to all hazardous waste permit applicants, is included in the total. The permit fee is due within 30 calendar days of the date of Cannon AFB's receipt of this letter. Failure to pay the fee within this period will result in a Notice of Violation or a

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Compliance Order pursuant to HWMR-6, Pt. IX, 40 CFR 270.10(c).

Thank you for your cooperation in this matter. If you have any questions, please contact Ms. Stephanie Stoddard at 827-4308 or 827-4313.

Sincerely,



Ms. Barbara Hoditschek  
RCRA Permit Program Manager  
Hazardous and Radioactive Materials Bureau

xc: Mr. Steve Alexander, HRMB  
Ms. Lee Winn, HRMB  
Mr. Thomas Manning, AFCEE  
Mr. John Pheil, NMED

### Post-Closure Inspection Schedule

The inspection schedule is incomplete in that the "potential problems" and "corrective maintenance" sections do not contain sufficient information necessary for implementing an effective maintenance and monitoring program for post-closure care. In order to comply with the maintenance and monitoring requirements of 40 CFR 265.310 and 40 CFR 265.118(c), CAFB must prepare a maintenance and monitoring plan in conjunction with the inspection schedule. The maintenance and monitoring plan must cover, inspection, monitoring, maintenance, and reporting for each structure on the inspection schedule and address the following:

- a statement of performance objectives for inspection, monitoring, maintenance and reporting;
- a statement of the performance objective(s) for each structure;
- a comprehensive analysis of potential failures of each structure, including short-term and long-term failures when appropriate;
- quantifiable criteria specifying the circumstances or conditions under which corrective action will be taken for each failure noted during routine inspections;
- a determination of methods for correcting any failures that are appropriate for the problem and consistent with the stated performance objective(s);
- forms generated to support the maintenance and monitoring program. Inspection forms should include at a minimum an inspection checklist, a place to record data, observations and recommended action based on the performance objective(s) for the structure;
- procedures for ensuring that all necessary corrective measures have been taken and that they are documented in the record of post-closure care.

In addition, the inspection schedule must be revised to reflect the current cap design: delete the drain trough and test cap. The following items must be added to the table where appropriate: animal activity, signage, vegetative cover, gas venting system, and other cover deterioration not covered elsewhere. Activities undertaken to develop the maintenance and monitoring plan may reveal other items that should be added to the inspection schedule. Please add them accordingly.

Post Closure Groundwater Monitoring

Quotes in parenthesis are taken directly from the text. Following the quotes are HRMB comments.

ITEM

1. Does this Post Closure Groundwater Monitoring section including Appendix I - Design and Construction Details for Groundwater Monitoring Wells replace the one found on pages 35 through 43 of the October 1988 Closure and Post Closure Plan for Landfill Cell No. 3 at Cannon Air Force Base Revised Final? If so the following comments are offered.
2. Page 5, paragraph 1. Well A is not screened at the air-water interface. It is screened from 343 to 328 feet. Depth to groundwater measured in January 1992 was 271.56 feet. This is 56.44 feet above the screened interval. It was agreed to in the 1990 Compliance Agreement that Cannon Air Force Base (CAFB) may use this well as a background well. However, the decision to use this well, with a different screened interval from the downgradient wells may result in background water quality parameters differing significantly from future downgradient water sample analyses. The result could be a series of "false positive" determinations requiring unnecessary sampling and analysis under Compliance Monitoring.
3. Page 5, paragraph 2. CAFB must sample annually for Appendix IX Hazardous Constituents in all RCRA monitoring wells because of the possibility of pesticides and herbicides in the area and the uncertainty of what was disposed of at the landfill.
4. Page 5, paragraph 3. (The analytical data obtained during the first year's quarterly monitoring will be used to establish initial background concentrations against which subsequent results will be assessed.) Background groundwater quality for the entire RCRA monitoring system will be re-established in existing wells and established for new monitoring wells installed as a result of the July 13, 1990 Compliance Agreement part V. Corrective Measures Resolution of Alleged Violations subpart A.5.
5. Page 5, paragraph 3. (Arithmetic means and variances based on four replicate measurements of each sample will be calculated for each of the indicator parameters, pH, conductivity, TOC, and TOX over four quarters if the first year's sampling.) As per 40 CFR Section 264.98 (c), CAFB must conduct a ground-water monitoring program for each chemical parameter and hazardous constituent specified in the permit pursuant to paragraph (a) of this section in accordance with Section 264.97 (g). CAFB must maintain a record of

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ground-water analytical data as measured and in a form necessary for the determination of statistical significance under Section 264.97 (h).

CAFB must add chromium and lead to its list of indicator parameters because these hazardous constituents were known to have been disposed of in the landfill.

CAFB must specifically describe a statistical method to be utilized in determination of background as stated in Section 264.97 (h).

6. Page 5, paragraph 3. (The GC/MS scans for priority pollutants will be evaluated on a present/nonpresent...). CAFB must determine whether the Method Detection Limit is exceeded for any Appendix IX Hazardous Constituent each time groundwater quality is determined. In addition, it is recommended that the laboratory ensure that any values which are reported above the method detection limit are quantifiable.
7. Page 5, paragraph 4. (The elevations will be reviewed annually to ensure that the monitoring well placement is correct with respect to groundwater flow.) 40 CFR Section 264.98 (e) specifies that in a detection monitoring program, "The owner or operator must determine the ground-water flow rate and direction in the uppermost aquifer at least annually."

Because of the number and proximity of irrigation wells in the area, CAFB must clearly document ground-water flow direction. Determination of ground-water flow direction may be accomplished by using three point problem equations or an equivalent method proposed by CAFB. This must be provided in all future Annual Ground-water Monitoring Reports. Please provide this documentation for all annual sampling events conducted at Landfill 5 between 1985 and 1992 or provide references to documents which show these solutions.

8. Page 5, paragraph 5. (Otherwise, the deviation will be attributed to laboratory error, documented and reported as such). 40 CFR Section 264.98 (g) 6. "...he or she may demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis, or statistical evaluation or natural variation in the groundwater. The owner operator may make a demonstration under this paragraph..." Additionally, Quality Assurance/Quality Control procedures must be as per U.S. EPA document "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846" (SW-846), and must meet the requirements of the Hazardous and Radioactive

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Materials Bureau's "Components of an Adequate Laboratory Quality Assurance/Quality Control Plan, August 1992", (see Attachment).

9. Page 7, paragraph 1. (Groundwater Assessment Plan). Please replace the Groundwater Assessment Plan with Detection Monitoring and Compliance Monitoring Programs in order to adequately fulfill the requirements of 40 CFR Sections 264.98, 264.99. HRMB will require a permit modification for any Corrective Action pursuant to 40 CFR Section 264.100. All portions of the afore-mentioned Sections must be adhered to. The following is a description of requirements from some of the pertinent portions of Detection Monitoring and Compliance Monitoring.

When submitting the Ground-water Detection Monitoring Program (40 CFR Section 264.98) portion of the Post Closure Permit Application, it must include:

A. A list of the ground-water monitoring constituents in addition to indicator parameters used to indicate a release from the regulated unit. The Ground-water indicator parameters are pH, conductivity, lead, chromium, TOC and TOX. Background concentrations must be established for this list as described Item 5 above. After the first year of quarterly sampling to determine background for these indicator parameters sampling will be done semi-annually. Additionally, CAFB will sample for the 40 CFR 264 Appendix IX Ground-Water Monitoring List annually.

B. In the event that a statistically significant change occurs in any parameters in paragraph A above or if there is detection of any TOC, TOX, or Appendix IX constituent, (and subsequently confirmed if necessary) then Compliance Monitoring will be initiated.

The goal of compliance monitoring is to determine whether and when leakage of hazardous constituents into the groundwater exceeds specified concentration limits. When submitting the Ground-Water Compliance Monitoring Program (40 CFR Section 264.99) portion of the Post Closure Permit Application, it must include:

A. Typically a list of all 40 CFR 261, Appendix IX hazardous constituents present in the groundwater which could have reasonably been derived from the facility. However, because it is unknown exactly what was disposed of there, all Appendix IX hazardous constituents should be included on this list.

B. Specification of a concentration limit for each hazardous constituent listed in the Permit. Concentration limits will be non detect for all Appendix IX hazardous constituents.

C. Establishment of a ground-water protection standard at the compliance point. Concentration limits for indicator parameters, lead, and chromium will be any statistically significant increase (or decrease in the case of pH) from background.

D. Establishment of the duration of the compliance period as per 40 CFR Section 264.96 (a) The compliance period is the number of years equal to the active life of the waste management area.... (b) The compliance period begins when CAFB initiates a compliance monitoring program meeting the requirements of Section 264.99. (c) If CAFB is engaged in a corrective action program at the end of the compliance period specified in paragraph (a) of this section, the compliance period is extended until CAFB can demonstrate that the ground-water protection standard of Section 264.92 has not been exceeded for a period of three consecutive years.

A permit modification for a Corrective Action Program (40 CFR Section 264.100) must include plume assessment, corrective measures study and design, and implementation of corrective action.

Appendix I Design and Construction for  
Groundwater Monitoring Wells

10. Pages 3-1 and 3-2 missing. CAFB must provide these pages or an explanation.
11. Pages 3-3 - 3-7, Well A, B, C, D. Of the monitoring wells described on these pages, well A is the only well used as a RCRA monitoring well. CAFB must correct the text to reflect this.
12. Page 3-5, paragraph 2. (as the borehole advanced, grab samples were taken of the cuttings at five-foot intervals or wherever a change in lithology occurred.) CAFB must provide a geologic sample description log and geophysical logs for RCRA monitoring well A.
13. Page 3-6, paragraph 4. (Water level elevations are presented in Appendix F). No Appendix F is provided. CAFB must provide Appendix F or an explanation.

(Wells I & J)

14. Groundwater monitoring well I is screened below the air-water interface. This was agreed to in the July 13, 1990 Compliance Agreement possibly because of the rapid decline of the water table in the area. The depth to water measured in January 1991 was 266.16 feet below the top of the casing. The screened interval begins at 273.3 feet below grade. The top of the screen is approximately 9 feet below the top of the water table.
15. Paragraph 1. (On the 1982 groundwater contour map (Figure 2),...). No Figures 2, 3, or 4 are provided. CAFB must provide these figures or an explanation.
16. 6. Investigations. (A map showing the monitoring wells at Landfill 5 is included as Figure 5). There is no Figure 5. CAFB must provide this map to scale and include the State Plane coordinates for the RCRA monitoring wells.
17. 6. Investigations. (The existing monitoring wells at Landfill 5, designated A-D were installed in \_\_\_\_). The date of installation is required.
18. 6. Investigations. (The geologic logs and geophysical logs for holes "I" and "J" are included (Appendix A)). No Appendix A is provided. CAFB must provide this Appendix or an explanation.
19. 9. Summary., paragraph 2. (See the chemical analysis of the water from the original monitoring wells A-D (Appendix B)). No Appendix B is provided. CAFB must provide this Appendix or an explanation.
20. 9. Summary., paragraph 7. (The groundwater flow direction is as indicated on the water table contour map Figure 4). No Figure 4 is provided. CAFB must provide this figure or an explanation.
21. Figure 3 - Schematic showing construction details for wells L and M.

The data in this figure is incomplete with regard to wells L and M based on discussions with Jerry Larson of the USGS who was responsible for installing wells L and M.

As built diagrams, and narrative description for wells L and M should be included as well as geophysical logs, geologic sample description logs, drilling logs, core descriptions, and development procedures.



22. Elevation survey certification must be provided for each RCRA monitoring well used in collection of groundwater elevation data as per the U.S. EPA Executive Summary "RCRA Ground-Water Monitoring Technical Enforcement Guidance Document" (TEGD).

Appendix II  
Groundwater Monitoring Sampling and Analysis Plan

23. Page 1, section II.A. (A baseline number of wetted well volumes will be determined.) What does this mean? Please clarify.
24. Page 1, section II.B. (Depth to the bottom of well will be measured every event....) Change the text to say "...to measure every [sampling] event.
25. Page 1, section II.C. (Water elevation will be taken at the time of each sampling event. All static water elevations must be taken within a twenty-four hour period or less.) CAFB must include in this section a statement that water elevations will be measured before purging any of the RCRA monitoring wells and the elevations will be taken within a twenty-four hour period or less.
26. Page 4, section VI.A. paragraph 1. (Based on the depth to water and the purge rate determine the time to purge five wetted well volumes of water.) Why purge 5 wetted well volumes when 3 is sufficient? According to the TEGD 3 well volumes is sufficient. Please explain the reasoning for 5.
27. Page 4, section VI.A. paragraph 1. (Stability is achieved when two consecutive measurements are +/- 0.01 pH units....) Change this to read +/-0.05 pH units.
28. Attachment II, Sample Preservation, page 1. Laboratory analysis methods for TOX and TOC must be stated. These should be methods 9020 and 9060 respectively.
29. Attachment II, Sample Preservation, page 1. SW-846 states that the minimum volume required for analysis for TOX and TOC is 250 ml. Please explain the reason for collecting volumes of 4 x 40 ml and 8 x 130 ml for these methods.
30. Attachment II, Sample Preservation, page 3. SW-846 states that the maximum holding time for Nitrate is 14 days. Explain the reasoning for listing the maximum holding time as 28 days.
31. Attachment II, Sample Preservation, page 3. SW-846 states

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that the minimum volume required for laboratory analysis for Radium, Gross Alpha, and Gross Beta is 1 gallon. Explain the reasoning for collecting a volume of 1 Liter.

32. Attachment II, Sample Preservation, page 3. SW-846 states that the minimum volume required for laboratory analysis for Coliform bacteria is 200 ml. Explain the reasoning for collecting a volume of 100 ml.
33. Attachment II, Sample Preservation, page 3. Preservation column ( $\text{HNO}_3$  to pH<sub>2</sub>) Should read:  $\text{HNO}_3$  to pH<2.
34. Page 5, section VI.B., paragraph 1. (Specific conductance will be calibration checked the morning of the sampling event.) Include the following statement before the above sentence: "All field equipment that CAFB will use will be calibrated prior to field use and recalibrated in the field before measuring each sample," as suggested in the TEGD.
35. Page 6, section VII, paragraph 4. (Samples will be shipped in sealed ice chests and packed with reusable ice packs.) State in the text: "CAFB will make every effort to maintain samples at 4 degrees Centigrade from the time the samples have been collected until delivered to the laboratory".
36. Page 6, section VII.A. (Trip blanks will be requested in advance and will be stored in the water laboratory refrigerator until the sampling event.) The trip blank should reflect any possible contamination of the sampling containers. Therefore, the trip blank should remain with the sample containers at all times or it will be an invalid blank.

Additionally, the bottles filled with the blank should be transported to the sampling location and returned to the laboratory in a manner identical to the handling procedure used for the samples. The trip blanks should be subjected to the same analysis as the ground water.

Please make statements in the Groundwater Sampling and Analysis plan to reflect these requirements.

37. Page 8, section IX.A.16. (The logbook must include the following:) As suggested in the TEGD, please add the following items to the list of data to be recorded in the logbook: temperature, reaction times, instrument settings.
38. Page 8, section IX.A. General comment on the Sampling and Analysis plan as per the TEGD. The sampling and analysis must describe in detail the analytical procedures that will be used to determine the concentrations of constituents of parameters



ATTACHMENT



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Components of an Adequate Laboratory  
Quality Assurance/Quality Control Plan

August 4, 1992

New Mexico Hazardous and Radioactive Materials Bureau  
Technical Support Group  
(505) 827-4313

1. All constituents identified above the Method Detection Limit (MDL) must be reported.

The MDL is defined as the estimated concentration at which the signal generated by a known constituent is three standard deviations above the signal generated by a blank, and represents the 99% confidence level that the constituent does exist in the sample.

2. The "tune" of the GC/MS for volatile organic constituents must be checked and adjusted (if necessary) each twelve (12) hour shift by purging 50 ng of a of a 4-bromofluorobenzene (BFB) standard. The resultant mass spectra must meet the criteria given in Table 1 before sample analysis proceeds.
3. The "tune" of the GC/MS for semi-volatile organic constituents must be checked and adjusted (if necessary) each twelve (12) hour shift by injecting 50 ng of a Decafluorotriphenylphosphine (DFTPP) standard. The resultant mass spectra must meet the criteria given in Table 2 before analysis proceeds.
4. For every 20 samples perform and report:
  - A. Duplicate spike for organics.
  - B. Duplicate sample analysis for inorganics.
  - C. Reagent blank, results provided for organic work.
  - D. Surrogate and spike recoveries. See item 10.
  - E. One check sample at or near the Practical Quantitation Limit for a subset of the parameters.
5. Analytical results must not be "blank corrected."

6. Any deviation from EPA-approved methodology must have a Written Standard Operating Procedure and NMED approval.
7. Quantification limits must be generally in line with those listed in 40 CFR, §264, Appendix IX and/or consistent with SW-846.
8. Detection limits must be less than quantification limits.
9. The laboratory must document:
  - A. That all samples were extracted, distilled, digested, or prepared (if appropriate) and analyzed within specified holding times.
  - B. That if a sample for volatile analysis is received with headspace, this is reported.
  - C. The date of sample receipt, extraction and analysis for each sample.
  - D. Any problems or anomalies with the analysis should be documented.
  - E. That all solids were analyzed dry or that the reported results are corrected to reflect a dry weight basis.
10. The name and signature of the lab manager must appear on each report.
11. The reported surrogate and spike recoveries must fall within:  
1) the historical (statistically based) acceptance limits, generated at the laboratory or 2) the limits tabulated by the appropriate method from the current edition of SW-846, whichever limit is narrower. The actual historical recoveries must be submitted to HRMB with the analysis.
12. QA/QC data sheets must explicitly reference laboratory identification numbers of the laboratory reports to which the QA/QC data pertain.
13. Provide a narrative description of all technical terms used in sampling and analysis, all calculations performed and all calculation variables defined. (ie. RPD stands for what, RPD is calculated by what formula, RPD refers to the spike or duplicate spike, the use of the term duplicate spike etc.)

TABLE 1  
BFB KEY IONS AND ABUNDANCE CRITERIA

Mass	Ion Abundance Criteria
50	15.0 - 40.0 percent of the base peak
75	30.0 - 60.0 percent of the base peak
95	base peak, 100 percent relative abundance
96	5.0 - 9.0 percent of the base peak
173	less than 2.0 percent of mass 174
174	greater than 50.0 percent of the base peak
175	5.0 - 9.0 percent of mass 174
176	greater than 95.0 percent but less than 101.0 percent of mass 174
177	5.0 - 9.0 percent of mass 176

TABLE 2  
DFTPP KEY IONS AND ABUNDANCE CRITERIA

Mass	Ion Abundance Criteria
51	30.0 - 60.0 percent of mass 198
68	less than 2.0 percent of mass 69
70	less than 2.0 percent of mass 69
127	40.0 - 60.0 percent of mass 198
197	less than 1.0 percent of mass 198
198	base peak, 100 percent relative abundance
199	5.0 - 9.0 percent of mass 198
275	10.0 - 30.0 percent of mass 198
365	greater than 1.00 percent of mass 198
441	present but less than mass 443
442	greater than 40.0 percent of mass 198
443	17.0 - 23.0 percent of mass 442



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CERTIFIED MAIL:

RETURN RECEIPT REQUESTED

HAZARDOUS WASTE PERMIT FEE

FACILITY NAME: Cannon Air Force Base (CAFB)  
FACILITY OWNER: CAFB  
FACILITY OPERATOR: CAFB  
FACILITY ID. NUMBER: NM 7572124454  
PERMIT FEE DUE: \$10,000  
PERMITTED UNITS: Cell 3 of Landfill 5 Post-Closure

DATE OF BILL: September 2, 1992

Your Hazardous Waste Permit application has been accepted for technical review and permit preparation. In accordance with the New Mexico Hazardous Waste Fee Regulations, the fee indicated above has been assessed. Please send to the address below payment in a check made to:

New Mexico Environment Department  
Hazardous & Radioactive Materials Bureau

Please indicate on the remittance the following information:  
Activity 50, Rev. Code 169. Deferred Rev. Code 280075  
(A50-RC169-DRC280057).

Thankyou.

525 Camino De Los Marquez  
P.O. Box 26110  
Santa Fe, New Mexico 87502

**TABLE 11.6  
PERMIT FEE WORKSHEET**

FACILITY NAME CANNON AIR FORCE BASE  
 EPA ID NUMBER NM 7572124454  
 PERMITTED ACTIVITY Cell 3 of Landfill 5 for Post-Closure Care  
 By Unit: \_\_\_\_\_  
 \_\_\_\_\_

GROUNDWATER MONITORING? YES  NO   
 ESCAPED CONSTITUENTS? YES  NO   
 PUBLIC PARTICIPATION? YES  NO

	FEE CALCULATION	REMARKS
BASIC PERMIT	\$ <u>6000.00</u>	_____
OPERATING UNIT 1	_____	_____
OPERATING UNIT 2	_____	_____
OPERATING UNIT 3	_____	_____
OPERATING UNIT 4	_____	_____
OPERATING UNIT 5	_____	_____
OPERATING UNIT 6	_____	_____
POST-CLOSURE CARE UNIT 1	_____	_____
POST-CLOSURE CARE UNIT 2	_____	_____
POST-CLOSURE CARE UNIT 3	_____	_____
POST-CLOSURE CARE UNIT 4	_____	_____
SUB TOTAL	\$ <u>6000.00</u>	
PUBLIC PARTICIPATION FEE	<u>4000.00</u>	
TOTAL FEE DUE	\$ <u>10,000.00</u>	