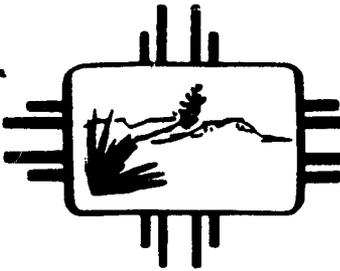


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New Mexico Health and Environment Department

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

GARREY CARRUTHERS
Governor
DENNIS BOYD
Secretary
MICHAEL J. BURKHART
Deputy Secretary
RICHARD MITZELFELT
Director

April 9, 1990

Colonel David E. Benson
Base Commander
Headquarters 27th Combat Support Group/CC
Cannon Air Force Base

Dear Colonel Benson:

Enclosed for your review is a revised draft compliance agreement. The revisions, bolded print, are based on discussions between Cannon Air Force Base (CAFB) and the New Mexico Environmental Improvement Division (EID) at the April 5, 1990 meeting. The revisions address the resolution for alleged violations section and concerns about termination of the NOV upon entering the agreement. EID understands that CAFB will have a response on this draft to EID by April 23, 1990. EID is looking at sixty days from today as the deadline to have a final compliance agreement signed by both parties. Please contact me at (505) 827-2210 or Suzanne Moore-Mayne at (505) 827-0170 if CAFB cannot meet the two week response time on reviewing this revised draft compliance agreement.

EID agreed to provide contact names for facilities that have experience using inert material sampling pumps at depth. These facilities and contacts are attached.

If you have any additional questions or need more information, please contact me or Suzanne Moore-Mayne.

Sincerely,

Jack Ellvinger
Jack Ellvinger
Chief

Hazardous Waste Bureau

Enclosures

JE/smm

cc: Felicia Orth, General Counsel, EID

Facilities using Inert Material Sampling Pumps at Depth

1. Sandia National Laboratories - Jim Phelan, DOE, (505) 844-7671.

Sandia drilled several wells dry to the water table (500 feet). They are currently using piston pumps to purge and sample those wells.

2. Veterans Administration Medical Center - Jim Brooks (505) 265-1711 ext. 2182.

VA is using Well Wizard pumps to purge and sample the water table at 500 feet.

3. NASA-Johnson Space Center, White Sands Missile Range - Ray Spencer (505) 524-5450.

NASA is using several scenarios of sample pumps to monitor the water table ranging in depths from less than 100 feet to about 437 feet.

ENVIRONMENTAL IMPROVEMENT DIVISION

IN THE MATTER OF:
CANNON AIR FORCE BASE
NEW MEXICO

COMPLIANCE AGREEMENT

The Director of the Environmental Improvement Division of the Health and Environment Department ("EID") on behalf of the State of New Mexico issued on 11 August 1989, a Notice of Violation to Cannon Air Force Base, Department of the Air Force, in which EID alleges violations of the New Mexico Hazardous Waste Act, Sections 74-4-1 through 74-4-12, NMSA 1978 and the regulations promulgated thereunder. The Notice of Violation of 11 August 1989 is appended to and made part of this agreement (Appendix A). EID and Cannon hereby consent to entry of this Compliance Agreement without trial or hearing in settlement of all issues raised by the Notice of Violation, except the administrative penalty. For the purposes of Section 74-4-10 NMSA 1978 of the New Mexico Hazardous Waste Act, this Agreement shall have the force of law of a Compliance Order. All provisions, conditions, and terms of the corrective measures to be taken, the schedule for achieving compliance and the requirements for reporting are integrated in this Agreement and its attachments, and documented herein. Any parole agreements not incorporated are null and void. EID and Cannon agree to place the current pursuit of the administrative penalty on hold pending final disposition of Mitzelfelt vs. Department of the Air Force, Civil Action 88-1535M including all appeals.

NOW, THEREFORE, it is AGREED as follows:

I. ENFORCEABILITY

For purposes of this Agreement, Cannon neither admits nor denies the jurisdictional allegations or the specific factual allegations contained in the Notice of Violation.

Cannon recognizes its obligation to comply with the Resource Conservation and Recovery Act of 1976 (RCRA) as set forth in Section 6001 of RCRA, the Clean Water Act of 1977 (CWA), the New Mexico Hazardous Waste Act and the New Mexico Hazardous Waste Management Regulations.

II. COMPUTATION OF TIME

In computing any period of time prescribed or allowed by this Agreement, the day of the act, event, or default from which the designated period of time begins to run shall not be included. The last day of the period so computed shall be included, unless it is a Saturday, a Sunday or a legal holiday, in which event the period runs until the end of the next day which is not a Saturday, a Sunday or a legal holiday.

III. BINDING EFFECT

This Agreement shall apply to and be binding upon the EID, the United States Department of the Air Force, and all officers, directors, agents, trustees, servants, employees, successors or assigns of the named parties as well as upon all persons, firms and

other legally cognizable entities in active concert or participation with the named parties.

IV. DEFINITIONS

As used in this Agreement:

"Binding" means to be legally enforceable upon. Those entities bound by this Agreement are constrained and compelled to act in accordance with the terms contained herein.

"Reviewers" means the following person or their designees:

1) For EID: Director of New Mexico Environmental Improvement Division, Health and Environment Department, and Counsel.

2) For Cannon: Commander, Headquarters 27th Combat Support Group/CC, Cannon Air Force Base, New Mexico, and Counsel.

3) "Submit" means to mail, certified, return-receipt requested, the specified number of copies of the applicable documentation to the following individuals or their successors in interest:

Mr. Richard Mitzelfelt, Director
Environmental Improvement Division
New Mexico Health and Environment Department
1190 St. Francis Drive
Santa Fe, New Mexico 87503
(one [1] copy)

Colonel David E. Benson
Base Commander
Headquarters 27th Combat Support Group/CC
Cannon Air Force Base, NM 88103
(one [1] copy)

V. CORRECTIVE MEASURES
RESOLUTION OF ALLEGED VIOLATIONS

A. Identification of Alleged Violations

The Notice of Violation of 11 August 1989 (Appendix A) alleges that Cannon has violated the New Mexico hazardous Waste Regulations (HWMR-5) and the New Mexico Hazardous Waste Act NMSA 1978, Section 74-4-1 thru 74-4-12. The Notice of Violation cites five separate violations, which are as follows:

1. Cannon has not installed an upgradient well(s) screened at depths to yield groundwater samples representatives of the uppermost aquifer near the facility and has not installed downgradient wells that are screened at depths to ensure that they will immediately detect contamination migrating from the Landfill 5 Cell 3 RCRA unit as required by Pt. VI, sec. 265.91(a)(1),(2). Specifically, the screen in the upgradient well does not intersect the water table, therefore, groundwater samples collected from that well are not representative of the groundwater near the facility. The screens in the downgradient monitor wells do not intersect the water table, therefore, the wells cannot immediately detect non-aqueous light phase layers that potentially could be present at the water table interface. Under unconfined water table conditions, the screens should intersect the water table thereby ensuring

the detection of potential light phase immiscible constituent layers. Constituents received in Landfill 5 Cell 3 include light non-aqueous phase liquids.

2. Cannon has not developed an adequate groundwater sampling and analysis plan as required by Pt. VI, sec. 265.92(a). The sampling and analysis plan is inadequate in detail and should be expanded. The following specific inadequacies need to be addressed: 1) samples for organic analyses were collected in polypropylene containers instead of fluorocarbon resin or glass containers; 2) Total Organic Carbon (TOC) analyses were not preserved with acid; 3) sample labels and chain-of-custody seals were not prepared at the time of sample collection and affixed to the containers to assure identification and proper chain-of-custody; 4) the chain-of-custody record was not prepared and inserted with the sample containers; 5) there is no procedure to contain and dispose of purged groundwater from the wells if the purge water is analytically determined to contain hazardous constituents; 6) the procedure to calculate five well volumes as outlined in the Sampling and Analysis Plan was not followed (purge water was allowed to flow on to the ground); the size of

containers and type of container lids were not specified; and 7) the order of sample collection was not specified.

3. Cannon's groundwater sampling equipment is inadequate to obtain a sample representative of the groundwater in the uppermost aquifer as required by Pt. VI, sec. 265.90(a). Sampling equipment is inadequate for collection of representative samples for pH, volatiles, semi-volatiles, metals, TOX and other labile constituents. Specifically, a groundwater sample from the monitor wells would not be representative because of the agitation and aeration caused by the usage of the submersible pump to collect the samples.
4. Cannon's field log did not record details of the care and maintenance of sampling equipment as required by Pt. VI, sec. 265.15 (d). Field notes were not maintained on the maintenance of the water depth probe, its malfunctions and the resolution of those problems.
5. Monitor well J's construction is inadequate to maintain the integrity of the monitoring well bore hole as required by Pt. VI, sec. 265.91 (c) or Monitor Well J was developed inadequately to obtain

a sample representative of the groundwater in the uppermost aquifer as required by Pt. VI, sec. 265.90(a). Water samples collected from Monitor well J contained sand indicating that the well was not properly completed or developed.

B. Resolution for Alleged Violations.

1. Within ⁹⁰45 days of the signing of this Agreement, Cannon shall submit a drilling and installation plan to drill **dry** one borehole immediately downgradient of Landfill 5, Cell 3 and complete as a groundwater monitor well. ²The plan shall include the location of the proposed well and all pertinent information as outlined in Appendix B, RCRA Groundwater Monitoring System Design, Construction, and Certification Requirements (Appendix B). ³The borehole shall be drilled dry to determine if any perched water zones are present, the accurate depth to groundwater, and the stratigraphy of the unsaturated zone. ⁴The borehole shall be completed as a monitor well in accordance with Appendix B. Samples shall be described at five foot intervals. ⁵Any unusual odors or discolorations of the soil shall be noted and described.

EID shall review the plan and provide written comments to Cannon within 30 days of receipt of the plan and EID's comments shall be incorporated into the plan prior to installation of the borehole and monitor well. ²¹ Within 15 days of receipt of EID's comments Cannon shall have incorporated EID's comments into the plan and resubmitted the plan to EID. ⁹ EID shall review the revised plan to determine if comments were incorporated adequately and EID shall provide a response to Cannon within 15 days of receipt of the revised plan. ¹⁰ Within ⁶⁰ 30 days after EID notifies Cannon that the plan is to EID's satisfaction, Cannon shall begin the drilling of the well. Cannon shall follow the revised plan; if any changes from the plan are necessary, Cannon shall contact EID for verbal and written concurrence prior to initiating the changes. If EID does not concur, Cannon shall not deviate from the plan. Cannon shall have completed the well within ¹²⁰ 60 days after EID has notified Cannon that the plan is to EID's satisfaction.

2. Within 45 days after the signing of this Agreement, Cannon shall submit a drilling and installation plan for an additional monitor well immediately downgradient of Cell 3. The plan shall include the location of the proposed well and all pertinent

information as outlined in Appendix B.

EID shall review the plan and provide written comments to Cannon within 30 days of receipt of the plan. EID's comments shall be incorporated into the plan prior to installation of the monitor well. Within 15 days of receipt of EID's comments, Cannon shall have incorporated EID's comments into the plan. EID shall review the revised plan and provide their response to Cannon within 15 days of receipt of the revised plan. Within 30 days after EID has notified Cannon that the plan is to EID's satisfaction, Cannon shall begin installation of the wells. Cannon shall have completed the monitor wells within 90 days after EID has notified Cannon that the plan is to EID's satisfaction. Cannon shall follow the revised plan including the EID's comments. If any changes from the plan are necessary, Cannon shall contact EID for verbal and written concurrence prior to initiating the changes. If EID does not concur, Cannon shall not deviate from the plan.

- 3. Cannon shall submit a report including the as-built details of the new downgradient wells and a map with surveyed locations of the wells and landfill. The report shall be as specified in Appendix B, Section**

C and Appendix C, Monitoring Well Identification Report.

4. **Monitor wells B, C and D shall be used only as water level monitor wells. ² Monitor well A shall remain the upgradient well. ³ Monitor well I shall remain a downgradient well. ⁴ If monitor well J is redeveloped to have reproducible turbidity of less than 5 NTUs, then monitor well J may be used as an additional downgradient monitor well. Cannon shall provide in writing to EID test results attesting that Monitor Well J has been redeveloped to have a turbidity less than 5 NTUs. These results shall be provided to EID prior to the sampling event described in B.6.**

5. **All monitor wells, except Monitor well A, shall be sampled with a sampling pump constructed of inert materials. Another type of pump or method may be used to purge the wells to evacuate the appropriate well volumes prior to sampling. The sampling pump must be capable of low flow rates (100 ml/min or less) and must be acceptable to EID. Cannon shall submit the sampling pump specifications to EID for review prior to any final actions by Cannon to implement the use of the pump. If a pump is to be used to purge the wells, then the specifications for**

that pump shall be submitted to EID for review also. EID shall provide comments to Cannon on the pump specifications within 30 days of receipt of the specifications. The pumps used by Cannon to purge and sample the monitor wells shall be acceptable to EID.

6. Within 15 days of the completion of the wells, using the new pumps Cannon shall analyze all the wells that are part of the adequate groundwater monitoring system, for Appendix IX constituents. After installation of an adequate groundwater monitoring system, Cannon shall begin determination of RCRA background groundwater quality pursuant to HWMR-5, 40 CFR, Section 265, Subpart F.

7. ^{After signing the agreement} ~~^~~ Progress reports shall be submitted by the fifth ^{working} day of each month describing activities relating to the above compliance items.

8. Within 45 days of well installation, a letter certifying that the wells were installed in accordance with the revised plan must be submitted to EID.

9. Within 45 days of the signing of this Agreement, Cannon shall incorporate the EID Sampling and

Analysis Plan and submit the revised plan to EID. EID shall provide comments within 30 days of receipt of the revised plan. The Sampling & Analysis Plan must be acceptable to EID. The approved sampling and analysis plan shall be used by Cannon for all future RCRA sampling events.

10. Cannon shall develop a field logbook format which includes provisions for recording details of the activities concerning the groundwater monitor well system. This format will be used and completed for each subsequent sampling event at Cannon.

VI. FUNDING

Cannon shall request, through the Department of the Air Force and the Department of Defense, all funds and/or authorizations necessary to meet the conditions of this Agreement. With regard to funding, the timetables, schedules and courses of action reached in implementation of this Agreement are fixed and definite except to the extent that the Congress of the United States may fail to approve authorization and/or appropriations necessary to execute them. Although failure to obtain approval of adequate authorization and/or appropriations may allow the Air Force to alter the established timetables and schedules in accordance with Section VIII, Force Majeure, it does not release Cannon from its obligations of compliance with this Compliance Agreement and with

RCRA, as amended. If sufficient funds are not appropriated by the Congress as requested and existing funds are not available to achieve compliance with the schedules in this Agreement, Cannon shall report the lack of funds in accordance with Section VIII, Reporting Requirements and Extensions.

VII. NOTICE

Whenever under the terms of this Agreement, notice or information is required to be forwarded by one party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice in writing to the other parties of another individual designated to receive such communications. Notice or the supplying of information required under this Agreement shall be perfected upon the mailing of such documentation or notice.

Mr. Richard Mitzelfelt, Director
Environmental Improvement Division
New Mexico Health and Environment Department
1190 St. Francis Drive
Santa Fe, New Mexico 87503
(one [1] copy)

Colonel David E. Benson
Base Commander
Headquarters 27th Combat Support Group/CC
Cannon Air Force Base, NM 88103
(one [1] copy)

VIII. EXCHANGE OF INFORMATION

Routine communications may be exchanged between the parties

and their consultants to facilitate the orderly conduct of work contemplated by this Agreement, but no such communication shall alter or waive any rights and/or obligations of the parties under this Agreement. The parties agree to routinely exchange technical data developed pursuant to this Agreement, or which is in possession of the parties upon execution of this Agreement, upon request by one party to the other, unless such data is privileged from disclosure. Cannon may confer with EID at any time prior to the submittal of any proposals, reports or other documents required by this Agreement.

IX. FORCE MAJEURE

A Force Majeure shall mean any event arising from reasonable causes beyond the control of Cannon which causes a delay in or prevents the performance of any obligation under this Agreement.

Failure to obtain approval of adequate authorizations and/or appropriations from Congress, if Cannon shall have made a timely request for such funds as part of the budgetary process as set forth in Part VI (Funding) of this Agreement shall be handled under Section IX, Reporting Requirements and Extensions. Force Majeure shall not include increased costs of activities covered by this Agreement, whether or not anticipated at the time such activities were initiated.

Within seven (7) workdays from the time Cannon obtains information indicating Force Majeure event or delay has been or

will be encountered, Cannon will supply a written notice as set forth in Section VIII of this Agreement which includes a detailed explanation of the reason(s) for and anticipated duration of any such delay; the measures taken and to be taken by Cannon to prevent or minimize the delay; and the timetable for implementation of such measures.

X. REPORTING AND EXTENSIONS

Commencing at the end of the first full quarter after EID signs this Agreement, Cannon shall submit a quarterly progress report by the fifth (5th) working day of each fourth (4th) month. Progress reports shall summarize the efforts undertaken pursuant to this Agreement during the previous quarter.

In addition to regularly scheduled progress reports, Cannon shall immediately submit notification to EID whenever any delay is anticipated in meeting any scheduled compliance date (e.g., an event of Force Majeure). The notification shall describe in detail the anticipated length of delay, the precise cause or causes of the delay, when and how Cannon became aware of the causes of the delay, the measures taken and to be taken to prevent or minimize the delay (or similar, future delays) and the alternative timetable by which the measures shall be implemented. Within thirty (30) days of receiving such notification, EID shall make a determination whether the compliance schedule shall be revised. If Cannon disagrees with EID's determination, Dispute Resolution procedures described herein (Section XII of this Agreement) shall control. **EID shall have the**

option to extend deadlines as outlined for Cannon above.

XI. EMPOWERMENT TO AMEND

In the event that there is an amendment of RCRA or The New Mexico Hazardous Waste Act, or the regulations promulgated under these statutes, or in the event that amendments to this Agreement are appropriate due to Dispute Resolution pursuant to Section XII of this Agreement, or otherwise, this Agreement shall be renegotiated as necessary. Disagreements in renegotiation shall be resolved pursuant to the Dispute Resolution provision of this Agreement. During the pendency of any request for renegotiation, this Compliance Agreement, to the extent it is not specifically stayed by EID, shall remain in effect. Modifications to this Agreement shall be in writing and signed by both parties.

XII. DISPUTE RESOLUTION

Except as specifically set forth elsewhere in this Agreement, if a dispute arises under this Agreement, the procedures of this Part shall apply. In addition, during the pendency of any dispute, Cannon agrees that it shall continue to implement those portions of this Agreement which are not in dispute and which EID determines can be reasonably implemented pending final resolution of the issue(s) in dispute. The time period for completion of work affected by a dispute shall be extended for a period of time usually not to exceed the actual time taken to resolve any dispute

in accordance with this Part. Work not affected by the dispute shall be completed in accordance with the applicable schedule. If EID determines that all or portions of work affected by the dispute should stop during the pendency of the dispute, Cannon shall discontinue the affected work.

a. Cannon shall provide EID with a written notice of dispute within fifteen (15) days of any action by EID which it disputes. Within thirty (30) days of any action by EID which Cannon is disputing, it shall provide EID with a written statement of the dispute setting forth the nature of the dispute, Cannon's position with respect to the dispute and the information Cannon is relying upon to support its position. If Cannon does not provide written notice within fifteen (15) days, or after such notice fails to provide a written statement to EID within thirty (30) days, Cannon shall be deemed to have agreed to the position taken by EID.

b. Upon request of the written statement of dispute, Cannon and EID shall engage in dispute resolution between the Director of the Environmental Management Division at Cannon or his designated representative, and the EID Hazardous Waste Program Manager or his/her designated representative. The parties shall have fifteen (15) days from the receipt by EID of the written statement of dispute to resolve the dispute. During this period the parties shall meet or confer by telephone as many times as necessary to discuss and attempt resolution of the dispute. If a resolution cannot be reached on any issue within this fifteen (15) day period,

either Cannon or EID may, by written notice, elevate the dispute to the Dispute Resolution Committee (DRC) for resolution.

c. The DRC shall consist of the Deputy Director of the Waste Management Branch at EID, and the Commander of Cannon. The DRC shall serve as an independent forum for resolution of disputes which the informal process has not resolved. The DRC is free to choose either party's position or to select any other position to resolve a dispute referred to the DRC.

d. If the designated members of the DRC do not agree on a resolution of the dispute within thirty (30) days, the Director of EID will issue a final decision including a statement of the reasons for approval or disapproval. This final decision is considered "final action" for the purposes of this Agreement.

e. Final action by the Director of EID shall be binding upon the parties unless Cannon files an action for modification or setting aside of the final action of EID in District Court within thirty (30) days of the EID final action.

f. Within twenty-one (21) days of resolution of a dispute pursuant to this Part, the parties shall incorporate the resolution into the appropriate plan, schedule, or procedure and comply with this Agreement as amended by the dispute resolution process.

XIII. TERMINATION

Cannon's obligations under this Compliance Agreement shall terminate upon EID's certification to Cannon in writing that all conditions of this Agreement have been completed by Cannon. Such notification shall not be unreasonably withheld.

XIV. MERGER

This Settlement Agreement contains all the terms of the settlement agreement between the parties, there being no oral agreements not contained herein.

XV. EFFECTIVE DATE

This Agreement is effective when signed by all parties to this Agreement.

Dated this _____ day of _____, 1989 at Santa Fe, New Mexico.

AGREED: _____

Dated: _____
Richard Mitzelfelt, Director
Environmental Improvement
Division, New Mexico Health and
Environment Department

Dated: _____
Colonel David E. Benson
Commander
Headquarters 27th Combat Support
Group CC
Cannon Air Force Base

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
HEALTH AND ENVIRONMENT DEPARTMENT
SANTA FE, NEW MEXICO

IN THE MATTER OF:
CANNON AIR FORCE BASE
CANNON AIR FORCE BASE, NEW MEXICO

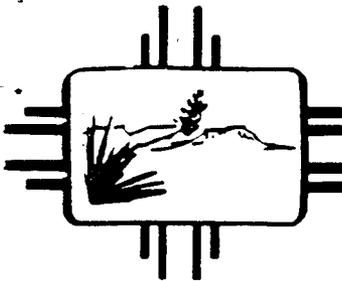
ORDER

THIS MATTER HAVING COME before the Director by agreement of the parties to approve the Compliance Agreement and the Director being fully apprised with premises therein:

IT IS THEREFORE ORDERED that the Compliance Agreement be, and hereby is, approved and made a final order of the Director, pursuant to Section 74-4-10 NMSA 1978.

RICHARD MITZELFELT, DIRECTOR
Environmental Improvement Division
Health and Environment Department
State of New Mexico

Date: _____



New Mexico Health and Environment Department

APPENDIX A

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

MARALYN BUDKE
Acting Secretary

CARLA L. MUTH
Deputy Secretary

MICHAEL J. BURKHART
Deputy Secretary

RICHARD MITZELFELT
Director

August 11, 1989

Colonel David E. Benson
Base Commander
Headquarters 27th Combat Support Group/CC
Cannon Air Force Base, NM 88103

RE: NM7572124454
Notice of Violation

Dear Colonel Benson:

Between October 25 and October 26, 1988, EPA Region 6 staff conducted an EPA-lead Comprehensive Groundwater Monitoring Evaluation (CME) at Cannon AFB. This letter is the New Mexico Environmental Improvement Division's (EID) notice that based on the review of the CME and a record review, EID has determined that Cannon AFB has violated the New Mexico Hazardous Waste Management Regulations (HWMR-5, as amended 1989), 40 CFR, Part VI section 265. The purpose of this letter is to delineate in writing the violations and to require Cannon AFB to comply with HWMR-5.

The following violations of HWMR-5, as amended 1989, pertain to Cannon AFB's Ogallala aquifer groundwater monitoring system (MW-A, MW-B, MW-C, MW-D, MW-I and MW-J) for Landfill 5 Cell 3.

1. Cannon has not installed an upgradient well(s) screened at depths to yield groundwater samples representative of the uppermost aquifer near the facility and has not installed downgradient wells that are screened at depths to ensure that they will immediately detect contamination migrating from the Landfill 5 Cell 3 RCRA unit as required by Pt. VI, sec. 265.91(a)(1),(2). Specifically, the screen in the upgradient well does not intersect the water table, therefore, groundwater samples collected from that well are not representative of the groundwater near the facility. The screens in the downgradient monitor wells do not intersect the water table, therefore, the wells cannot immediately detect non-aqueous light phase layers that potentially could be present at the water table interface.

Under unconfined water table conditions, the screens should intersect the water table thereby ensuring the detection of potential light phase immiscible constituent layers. Constituents received in Landfill 5 Cell 3 include light non-aqueous phase liquids.

2. Cannon has not developed an adequate groundwater sampling and analysis plan as required by Pt. VI, sec. 265.92(a). The sampling and analysis plan is inadequate in detail and should be expanded. The following specific inadequacies need to be addressed: 1) samples for organic analyses were collected in polypropylene containers instead of fluorocarbon resin or glass containers; 2) Total Organic Carbon (TOC) analyses were not preserved with acid; 3) sample labels and chain-of-custody seals were not prepared at the time of sample collection and affixed to the containers to assure identification and proper chain-of-custody; 4) the chain-of-custody record was not prepared and inserted with the sample containers; 5) there is no procedure to contain and dispose of purged groundwater from the wells if the purge water is analytically determined to contain hazardous constituents; 6) the procedure to calculate five well volumes as outlined in the Sampling and Analysis Plan was not followed (purge water was allowed to flow on to the ground); the size of containers and type of container lids were not specified; and 7) the order of sample collection was not specified.
3. Cannon's groundwater sampling equipment is inadequate to obtain a sample representative of the groundwater in the uppermost aquifer as required by Pt. VI, sec. 265.90 (a). Sampling equipment is inadequate for collection of representative samples for pH, volatiles, semi-volatiles, metals, TOX and other labile constituents. Specifically, a groundwater sample from the monitor wells would not be representative because of the agitation and aeration caused by the usage of the submersible pump to collect the samples.
4. Cannon's field log did not record details of the care and maintenance of sampling equipment as required by Pt. VI, sec. 265.15 (d). Field notes were not maintained on the maintenance of the water depth probe, its malfunctions and the resolution of those problems.
5. Monitor well J's construction is inadequate to maintain the integrity of the monitoring well bore hole as required by Pt. VI, sec. 265.91 (c) or Monitor Well J was developed inadequately to obtain a sample representative of the

Colonel Benson
August 11, 1989
Page 3

groundwater in the uppermost aquifer as required by Pt. VI, sec. 265.90 (a). Water samples collected from Monitor well J contained sand indicating that the well was not properly completed or developed.

In accordance with the New Mexico Hazardous Waste Act NMSA 1978, Section 74-4-10, you have thirty (30) calendar days from the receipt of this notice to provide documentation that the aforementioned violations have been corrected. Within this thirty day period you may request a meeting to discuss the violations, the required corrective actions and/or a settlement agreement. Such a meeting must be held within this thirty day period and will not suspend the thirty day deadline for compliance or settlement.

If you fail to correct the violations cited in this Notice of Violation (NOV) within the specified time frame, you shall be subject to one or more of the following:

1. An order requiring compliance within a specified period, pursuant to Section 74-4-10 NMSA 1978, and/or an order assessing civil penalties of up to \$10,000 per violation for each day of continued noncompliance, pursuant to Sections 74-4-10 and 74-4-12 NMSA 1978.
2. a civil action in district court for appropriate relief, including a temporary or permanent injunction, pursuant to Section 74-4-10 NMSA 1978, and/or the assessment of civil penalties of up to \$10,000 per violation for each day of continued noncompliance, pursuant to Sections 74-4-10 and 74-4-12 NMSA 1978.

Any settlement reached shall be finalized upon the issuance of a written settlement agreement by the Director of EID. This issuance of a settlement agreement shall constitute a waiver on your part to request a hearing pursuant to this NOV.

Compliance with the requirements of this notice does not relieve Cannon AFB of its obligation to comply with HWMR-5 in other activities which it carries on, nor does it relieve Cannon AFB of its obligation to comply with any other applicable laws and regulations.

Attachment 1 includes a list of technical deficiencies noted during the CME. EID strongly suggests that Cannon AFB correct these deficiencies as soon as possible. The concerns set out in

Colonel Benson
August 11, 1989
Page 4

Attachment 1 paragraphs four and five has prompted EID to copy this letter to Mr. Males of the federal Occupational Safety and Health Act Office.

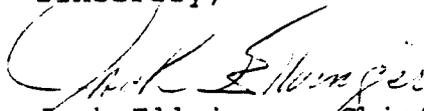
In addition, Cannon AFB's post closure permit application has been called by EID and EPA and submitted by Cannon AFB. Cannon AFB is now subject to sampling the monitor wells and analyzing for Appendix IX constituents under Pt. IX, sec. 270.14 (c)(4).

The Hazardous Waste Program is not citing any deficiencies in the application at this time and has deferred a detailed review of the post closure permit application until a later date.

EID has received Cannon AFB's revised Sampling and Analysis Plan and will review and send comments to Cannon AFB within 15 days from the date of this NOV.

If you have any questions regarding this notice, please contact Suzanne Moore-Mayne at (505) 827-0170 or at the above address.

Sincerely,


Jack Ellvinger, Chief
Hazardous Waste Bureau

JE/SMM/smm

cc: Lynn Prince, U.S. EPA Region VI (6H-HS)
Garrison McCaslin, District IV
Jim Males, Area Director, OSHA

Attachment 1

Technical Deficiencies Noted during the CME

1. During the CME inspection, it was observed that the water depth probe was placed in contact with the ground on several occasions. Care should be taken to prevent any possible cross-contamination or contamination of equipment placed in the wells.
2. Portable generators were used to power the well pumps. The generators were located adjacent to the wellhead. NMEID suggests that generators be placed such that the fumes do not contaminate the samples.
3. Tap, deionized or distilled water should be used to clean the water depth probe after measuring the depth to water in a well.
4. During the inspection, it was noted that unsealed samples were placed in a refrigerator with food and soft drinks. NMEID recommends that samples be placed in a container specifically for samples. They should be separated from normal use areas for chain of custody, safety and hygiene reasons.
5. Sampling personnel failed to wear protective clothing such as gloves, coveralls, safety boots or booties, and splash protective glasses or goggles. If the groundwater is determined to be contaminated, then a photoionization or flame ionization device should be used to test the working space at the well.
6. Groundwater monitoring wells I and J did not have identification on them until the sampling team marked them with an indelible pen during the CME inspection. These wells should have identifications painted on the casing.
7. Trip blanks and field blanks were not collected for analyses during the CME inspection. Trip blanks are used to determine what conditions are present during the time the sample bottles and samples are in the field (away from the laboratory). Field blanks are taken to determine possible effects of the field conditions on the sample collection.

APPENDIX B

New Mexico Environmental Improvement Division
Hazardous Waste Program Policy
for
RCRA Groundwater Monitoring System Design, Construction,
and Certification Requirements

- A. The facility shall design, construct, and maintain the ability to monitor area ground water on a permanent basis in accordance with Part VI (40 CFR Part 265), Subpart F. The facility shall construct and maintain a groundwater monitoring system which yields upgradient groundwater samples which represent the background quality of groundwater that has not been affected by facility operations and also samples which represent the quality of ground water passing the point of compliance.

Groundwater monitoring at the facility shall, at a minimum, consist of a monitoring system for the uppermost aquifer and any interconnected aquifers. Individual flow zones within the aquifer will have separate monitoring systems.

- B. The facility shall construct each new groundwater monitoring well at the facility consistent with the Technical Enforcement Guidance Document, OSWER 9950.1, September 1986, and in accordance with the design specifications below:

1. The facility shall use a well drilling method which minimizes potential adverse effects on the quality of water samples withdrawn from the well and prevents communication between flow zones or aquifers during drilling and construction operations.

Drilling fluids and cuttings shall be containerized and analyzed using EPA approved SW-846 methods. If hazardous constituents are present, the drilling fluids and cuttings shall be disposed of as hazardous waste.

2. The well casing shall be constructed of stainless steel, polytetrafluoro-ethylene (PTFE) or schedule 40 or 80 polyvinyl chloride (PVC) (rigid) pipe with flush threaded connections. Solvent cementing compounds or stainless steel screws shall not be used to bond joints. The PVC casing must bear the National Sanitation Foundation logo for potable water applications (NSF-pw) or be American Society of Testing Materials (ASTM) approved PVC. Only stainless steel or PTFE well casing or screen shall be used below and including the static water level within the well.
3. A tailpipe or sump shall be installed unless it would breach a confining unit or jeopardize the function of the well. The sump shall extend below the screen no more than five feet and shall be constructed of inert materials. The sump must be capped with an inert bottom cap and shall be incased in bentonite.
4. The facility shall design and construct the intake portion of a well so as to allow sufficient water flow into the well for sampling purposes and to minimize the passage of formation materials into the well during pumping.

The intake portion of a well shall consist of commercially fabricated slotted screen with openings as determined by a sieve analysis conducted on the interval to be screened, over no more than a ten (10) foot span.

The annular space between the slotted screen and the borehole shall be filled with inert, siliceous granular material (i.e., filter pack) or natural filter pack, which has a proper size gradation to provide mechanical retention of the formation sand and silt and prevent turbidity measurements greater than five (5) nephelometric turbidity units (NTUs), formazin turbidity units (FTUs) or Jackson turbidity units (JTUs) (Note B.5. below). Natural filter pack shall retain forty (40) percent of the formation material; introduced filter pack shall retain ninety (90) percent of the filter pack material.

Centralizers shall be used to ensure the adequate emplacement of the filter pack and annular sealant. The centralizers shall be constructed of inert material.

The filter pack shall not be placed deeper than two feet below the base of the screen. Specific guidelines for location of screened intervals are as follows:

- a. For a confined zone, the screen shall be positioned adjacent to the uppermost ten (10) feet or less of the saturated zone.
- b. For an unconfined zone, the screen shall be positioned adjacent to the upper ten (10) feet or less of the saturated zone and the screen shall extend two (2) feet above the seasonal high water table.
- c. To monitor dense phase immiscibles, the screen shall be placed adjacent to the lowermost ten (10) feet or less of the saturated zone to be monitored and shall extend to the lower confining unit.

Alternative well installation methods may be proposed, in writing, with documentation of effectiveness. The Director's approval shall be obtained prior to the use of such alternatives.

5. Upon completion of installation, the monitoring well shall be developed to remove any fluids used during well drilling and to remove fines from the natural formation to provide particulate-free discharge of less than five (5) NTUs, FTUs or JTUs or equivalent. For any well which cannot be developed to this standard, the facility may request in writing a variance to this requirement. Such request must describe the efforts to achieve this standard and all test data collected on this well.
6. The facility shall seal the annular space between the well casing and the borehole above and below the slotted screen portion of the well so as to prevent flow in this zone.

All annular sealants will be emplaced as slurries by means of a tremie pipe. The facility must ensure that the sealant is placed using a method to prevent bridging of the sealant.

If a sump is placed below the screen, the annular space surrounding the sump shall be sealed with additive-free bentonite to within two feet of the base of the screen.

After the filter pack is in place around the screen, a buffer zone of twelve to eighteen inches of fine sand or dry bentonite (granulated or chips) shall be emplaced above the filter pack.

A five foot bentonite seal shall be emplaced with a tremie pipe above this buffer zone. The bentonite seal shall be allowed to set before the bentonite-cement seal is emplaced.

A bentonite-cement seal shall be emplaced as a slurry in a continuous process to the surface using a tremie pipe. An adequate cement-bentonite grout sealant is two (2) to eight (8) percent bentonite by weight of cement having a density of twelve to fourteen pounds per gallon. Bentonite containing additives is unacceptable in sealants.

Alternative sealing methods may be proposed, in writing, with documentation of effectiveness. The Director's approval shall be obtained prior to use of such alternatives.

7. Each well shall be equipped with a locking cap and provided with a cement collar at the surface to divert drainage away from the casing. The cement collar shall measure a minimum of three (3) feet by three (3) feet by four (4) inches thick.

The wellhead shall extend below the frost line and shall be designed to minimize potential frost effects on the integrity of the monitor well. The well head is the surface structure expression of the monitor well including the surface casing and protective well covering.

If motor vehicles can approach the well the above ground portion shall be protected with posts or other barriers.

In circumstances requiring a below grade wellhead configuration, the facility shall submit the wellhead plans and reasons for a below grade configuration to the Director. The Director's approval shall be obtained prior to implementing construction.

Alternative completion methods may be proposed, in writing, with documentation of effectiveness. The Director's approval shall be obtained prior to use of such alternatives.

- C. The facility shall complete construction of each monitoring well in accordance with the requirements of this and shall certify such proper construction.

Each monitoring well certification shall be accompanied by a certification report, including the location of the well by longitude and latitude, and an accurate log of the soil boring which thoroughly describes and depicts the drilling information, location of sample collection, moisture conditions and soil and lithology descriptions encountered in the boring of the well.

In addition, a construction log shall be submitted for each well. This log shall depict the dimensions, elevations, materials of construction and depths of the filter pack, bentonite seal, bentonite-cement seal, sumps, casing, screen, total depth, screen slot size, filter pack grain size, surveyed elevation of top of casing, etc.

The facility must complete a "Monitor Well Identification Report" for each well. These Report forms will be provided by the Director.

- D. The well number and a surveyed elevation measurement reference mark shall be permanently marked on the top of each well casing installed pursuant to RCRA.
- E. The surveyed elevation of the top of each well casing

shall be on file at the facility.

- F. The facility shall measure the water elevations, sample, operate, and maintain the wells in a manner which ensures that samples obtained are representative of in-situ ground water quality, and which follows the procedures described in the Sampling and Analysis Plan.
- G. The facility shall use sampling, sample accounting, handling, and quality control procedures which are in accordance with EPA-approved procedures and as outlined in the Sampling and Analysis Plan. The latest edition of Test Methods for Evaluating Solid Waste: Physical/Chemical methods, SW-846, shall be used whenever applicable.
- H. The facility shall enter all monitoring, testing, and analytical data obtained or prepared pursuant to the requirements of the permit, including graphs, reports, logbooks, field notes and drawings, in the operating record at the facility.
- I. The facility shall replace any monitoring well which is removed from service with an adjacent monitoring well or with one at a different location if it is determined by the Director that replacement at a different location is appropriate. The replacement well shall be installed in accordance with Attachment 1. The facility shall notify the Director verbally and in writing at least ten (10) calendar days prior to removing the well from service. The Director may determine a replacement well is not necessary.
- J. The facility shall plug soil test borings deeper than five (5) feet and monitor wells removed from service to prevent the preferential migration of fluids in the area of the borehole. Soil test borings and monitor wells shall be plugged using a method(s) to prevent cross contamination between flow zones or aquifers. A bentonite slurry shall be emplaced using a tremie pipe.

Plugging methods shall be proposed, in writing, with documentation of effectiveness. The Director's approval shall be obtained prior to use of such alternatives.

MONITORING WELL IDENTIFICATION REPORT

ENVIRONMENTAL IMPROVEMENT DIVISION
HAZARDOUS WASTE SECTION
1190 ST. FRANCIS DR./HAROLD RUNNELS BLDG.
SANTA FE, NEW MEXICO 87503

FACILITY NAME _____

EPA I.D. NUMBER _____

COUNTY _____

WELL NUMBER _____

WELL LOCATION (LONGITUDE) _____

WELL LOCATION (LATITUDE) _____

AQUIFER NAME _____

AQUIFER CONFINED _____ UNCONFINED _____

WELL INSTALLATION DATE _____

DRILLING METHOD _____

INNER CASING DIAMETER _____

BOREHOLE DIAMETER _____

CASING MATERIAL _____

METHOD OF DEVELOPMENT _____

ELEV BOTTOM OF BOREHOLE _____

ELEV BOTTOM OF WELL CASING _____

ELEV BOTTOM OF SCREENED INT _____

ELEVATION OF SCREENED INT _____

SURVEYED ELEV OF CASING TOP _____

DATE OF REPORT _____

SIGNATURE _____

NAME (TYPED) _____

b:wellid/bas

MONITORING WELL IDENTIFICATION REPORT
INSTRUCTION MANUAL

Facility Name:

Enter the facility's official or legal name.

EPA I.D. Number:

Enter the facility's EPA identification number.

County:

Enter the New Mexico county where the facility is located.

Well Number:

Enter the well number or well name that corresponds with the data being entered.

Well Location:

Enter the longitude and latitude coordinates of the well number being identified to the nearest 0.1 second.

Aquifer Name:

Give the name of the aquifer from which groundwater is being extracted by the monitor well.

Aquifer Confined/Unconfined:

Please indicate if the aquifer is confined or unconfined by entering an X in the space provided.

Well Installation Date:

Enter the month/day/year the monitor well was installed.

Drilling Method:

Please look at Table 1 and enter the applicable abbreviation in the space provided.

TABLE 1

<u>Drilling Method</u>	<u>Abbreviation</u>
Air rotary.....	AIRRT
Bored or augered.....	BORE
cable-tool.....	CABLE
Dug.....	DUG
Hydraulic rotary.....	HYDRT
Jetted.....	JET
Air percussion.....	AIRPR
Reverse rotary.....	RVRT
Driven.....	DRIVN
Drive - wash.....	DWASH
Trenching.....	TRNCH
Solid auger.....	SLDAG
Bucket auger.....	BKTAG
Hollow auger.....	HLWAG
wire line.....	WLINE
*Other	

*Please type in the drilling method used.

Inner Casing Diameter:

Enter the inner diameter of the casing to the nearest 0.1 inch. Do not give the diameter of the outer protective casing.

Borehole Diameter

Enter the inner diameter of the borehole as it was initially drilled.

Casing Material:

Please look at Table 2 and enter the applicable abbreviation in the space provided.

Table 2

<u>Well Casing Material</u>	<u>Abbreviation</u>
Brass or bronze.....	BRSBZ
Stainless steel 305.....	SS305
Stainless steel 316.....	SS316
Steel.....	STEEL
Galvanized iron.....	GALFE
Wrought iron.....	WRIFE
Concrete.....	CNCRT
PVC.....	PVC
Fiberglass.....	FBRGL
Teflon.....	TEFLN
*Other	

* Please type in the well casing material used so that the New Mexico Environmental Improvement Division may assign an abbreviated value.

Method of Development:

Please look at Table 3 and enter the applicable abbreviation in the space provided.

TABLE 3

<u>Method of Development</u>	<u>Abbreviation</u>
Air lift.....	AIRFT
Bailed.....	BAILD
Blown or surged with compressed air.....	COMPR
Washed or jetted.....	WJTTD
Pumped.....	PUMPD
Surged with surge block.....	SRGBL
None.....	NONE
*Other	

* Please type in the method of well development used so that NMEID may assign an abbreviated value.

Elevation of Bottom of Borehole:

Give the elevation of the bottom of borehole in feet, tenths and hundredths of feet above mean sea level.

Elevation Bottom of Well Casing:

Give the elevation of the bottom of well casing in feet, tenths and hundredths of feet above mean sea level.

Elevation Bottom of Screened Int:

Give the elevation of the bottom of screened interval in feet, tenths and hundredths of feet above mean sea level.

Elevation Top of Screened Int:

Give the elevation of the top of screened interval in feet, tenths and hundredths of feet above mean sea level.

Elevation of Casing Top:

Give the surveyed elevation of the top of the monitor well casing above mean sea level to the nearest 0.01 foot. Do not give the elevation of the top of the outer protective casing.

Date of Report:

Enter the date in which the report was completed.

Signature:

Please put your signature in the space provided.

Name (Typed):

Please type your name in the space provided.