GW - 31

PERMITS, RENEWALS, & MODS

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

August 29, 2003

Mr. Bob Beers
Los Alamos National Laboratory
RRES-WQH 03-196
P.O. Box 1663, MS K497
Los Alamos, New Mexico 87545

Subject: Termination Of Discharge Plan Gw-031
Fenton Hill Geothermal Facility

Dear Mr. Beers:

The New Mexico Oil Conservation Division (OCD) is in receipt of your Final Closure Report dated August 13, 2003, "1-MG Service Pond and EE-2A Wellhead, Fenton Hill Geothermal Facility" and request to terminate discharge plan GW-031.

OCD hereby approves of your request and hereby terminates discharge plan GW-031. If you have any questions, please contact Wayne Price of my staff at (505-476-3487) or E-mail WPRICE@state.nm.us. On behalf of the staff of the OCD, I wish to thank you and your staff for your cooperation during this discharge plan tenure.

Sincerely,

for Roger C. Anderson
Environmental Bureau Chief

RCA/lwp

xc: OCD Aztec Office

Los Alamos
NATIONAL LABORATORY

Risk Reduction & Environmental Stewardship Division
Water Quality & Hydrology Group (RRES-WQH)
PO Box 1663, MS K497
Los Alamos, New Mexico 87545
(505) 667-7969 / Fax: (505) 665-9344

Date: August 13, 2003
Refer to: RRES-WQH: 03-196

Mr. Wayne Price
Petroleum Engineering Specialist
Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

SUBJECT: FINAL CLOSURE REPORT, 1-MG SERVICE POND AND EE-2A WELLHEAD, FENTON HILL GEOTHERMAL FACILITY

Dear Mr. Price:

As you are aware, since October 2002, Los Alamos National Laboratory has been in the process of closing the Fenton Hill Hot Dry Rock Geothermal Facility's 1-million gallon (MG) service pond and the EE-2A wellhead. On February 7, 2003, the Laboratory submitted a progress report and proposed backfill plan (RRES-WQH: 03-031) that documented completion of the following closure activities:

1. Disposal of geothermal fluids and sludge from the 1-MG service pond;
2. Disposal of the 1-MG service pond's liner, geofiber matting, and leak collection piping;
3. Characterization of the soil beneath the pond's liners;
4. Development of a proposed backfill plan; and
5. Approval by the US Forest Service of the proposed backfill plan.

On February 14, 2003, your agency approved the Laboratory's proposed backfill plan for the 1-MG service pond. Closure activities were completed on July 29, 2003. This letter is Los Alamos National Laboratory's final report for the closure of the 1-MG service pond and the EE-2A wellhead. In addition, this letter presents the Laboratory's request for termination of Discharge Plan GW-031. Information on final closure is contained within Section I while the Laboratory's request for termination of Discharge Plan GW-031 is presented in Section II.

Section I-Final Closure Report

Following your agency's approval of the Laboratory's backfill plan for the 1-MG service pond, four outstanding activities remained before closure of the Fenton Hill Hot Dry Rock Geothermal Site could be completed. These four activities were:

1. Backfill and compaction of the 1-MG service pond;
2. Removal of the EE-2A wellhead;
3. Final grading and contouring of the site; and
4. Re-seeding and mulching the disturbed areas of the site.

A brief discussion of each of these activities is presented below.

1. Backfill and compaction of the 1-MG service pond. In accordance with the Laboratory's backfill plan, the crusher fines were consolidated into the bottom of the 1-MG service pond. Following this, the earthen berm that formed the southern boundary of the pond was backfilled over them. However, since the southern berm did not provide enough fill material to complete backfill, additional clean-fill was obtained from the following sources: (1) the NM Highway Department, and (2) the Fenton Hill site. All fill material used to backfill the 1-MG service pond was approved by the US Forest Service.

2. Removal of the EE-2A wellhead. Removal of the EE-2A wellhead was completed on April 4, 2003. The wellhead was cut-off at a depth of approximately 8 feet below finished grade. The Laboratory's subcontractor, L&R Oilfield Services, Farmington, NM, recycled the wellhead. A steel plate was welded to the top of the 7" casing that lists the following information: operator name, well number, section, township, and range. In addition, survey coordinates were collected for the EE-2A well at the same time the geodetic survey was conducted at the 1-MG service pond.

3. Final grading and contouring of the site. The final grade and site contour was approved by the US Forest Service following a March 12, 2003, tour of the site.

4. Re-seeding and mulching the disturbed areas of the site. On July 29, 2003, all disturbed areas surrounding the 1-MG service pond and EE-2A wellhead were re-seeded and mulched in accordance with the Closure Plan's seeding specifications (Appendix G). Following soil preparation with a disk harrow, a native seed mix approved by the US Forest Service was applied with a seed drill. A tackifier/fertilizer was hydraulically applied over the seed and then covered with a straw mulch. Attachment 1.0 contains photos of the re-seeded site.

Section II-Request for Termination of Discharge Plan GW-031

Closure of the 1-MG service pond and the removal of the EE-2A wellhead officially mark the end of nearly 30 years of hot dry rock geothermal research at the Fenton Hill site. The entire infrastructure supporting geothermal research at Fenton Hill has been removed or decommissioned. As a result, the Laboratory requests that your agency terminate Discharge Permit GW-031, issued by the NM OCD on June 5, 2000 (expiration date: June 5, 2005). The Fenton Hill site is available for a final inspection upon your request.

The Laboratory will continue to use the Fenton Hill site for astrophysical research (Milagro Project) and as an astronomical observatory for research and education. As you are aware, the Milagro Project uses a 5-MG pond filled with purified drinking water and light-sensitive detectors to record signals from cosmic events. In the past, the Milagro Project discharged, with your agency's approval, wastewater from its water treatment units to the 1-MG service pond. With the closure of the 1-MG service pond the Milagro Project is evaluating its wastewater disposal options. Off-site disposal is one option being considered since the quantities of wastewater generated by the Milagro Project are small and intermittent.

Please contact me at (505) 667-7969 should you have any questions regarding this final closure report and request for termination of Discharge Plan GW-031.

Sincerely,

Bob Beers
Water Quality & Hydrology Group

BB/tml

Attachment: a/s

Cy: J. Peterson, Forest Service, Jemez Ranger District, Jemez Springs, NM, w/att.
A. Ferrell, Forest Service, Jemez Ranger District, Jemez Springs, NM, w/att.
C. Linn, Forest Service, Santa Fe National Forest, Santa Fe, NM, w/att.
J. Vozella, DOE/OLASO, w/att., MS A316
G. Turner, DOE/OLASO, w/att., MS A316
J. Holt, ADO, w/att., MS A104
C. Webster, ADSR, w/att., MS A127
T. Wallace, EES-DO, w/att., MS D446
D. Pearson, EES-DO, w/att., MS D446
J. Hansen, EES-DO, w/att., MS D446
J. Thomson, EES-11, w/att., MS D443
G. Sinnis, P-23, w/att., MS H803

Cy (continued):
B. Ramsey, RRES-DO w/att., MS J591
K. Hargis, RRES-DO, w/att., MS J591
T. George, RRES-DO, w/att., MS J591
D. Stavert, RRES-EP, w/att., MS J591
D. McInroy, RRES-R, w/att., MS M992
T. Grieggs, RRES-SWRC, w/att., MS K490
S. Rae, RRES-WQH, w/att., MS K497
D. Rogers, RRES-WQH, w/att., MS K497
E. Louderbough, LC-ESH, w/att., MS A187
P. Wardwell, LC-ESH, w/att., MS A187
RRES-WQH File, w/att., MS K497
IM-5, w/att., MS A150

Figure 1.0. July 2003 photograph of the Fenton Hill geothermal site following re-seeding and mulching (looking east).

Figure 2.0. July 2003 photograph of the Fenton Hill geothermal site following re-seeding and mulching (looking north).

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

October 13, 2000

Lori Wrotenbery
Director
Oil Conservation Division

CERTIFIED MAIL
RETURN RECEIPT Hand Delivered:

Mr. Steven R. Rae
Los Alamos National Laboratory
MS K497
Los Alamos, New Mexico 87545

Re: Discharge Plan GW-031 Renewal
Fenton Hill Geothermal Facility
Sandoval County, New Mexico

Dear Mr. Rae:

The groundwater discharge plan renewal application for the Los Alamos National Laboratory Fenton Hill Geothermal Facility GW-031 operated by Los Alamos National Laboratory located in NE/4 of Section 13, Township 19 North, Range 2 East, NMPM, Sandoval County, New Mexico **is hereby approved** under the conditions contained in the enclosed attachment. Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the New Mexico Oil Conservation Division (OCD) Santa Fe Office within ten working days of receipt of this letter.**

The original discharge plan was approved on June 5, 1985 and subsequently renewed on July 19, 1990, June 15, 1995 and modification approved on May 10, 1999. The discharge plan renewal application, including attachments, dated February 02, 2000 submitted pursuant to Section 5101.B.3. of the New Mexico Water Quality Control Commission (WQCC) Regulations also includes all earlier applications and all conditions later placed on those approvals. The discharge plan renewal application was submitted pursuant to Section 5101.B.3. of the New Mexico Water Quality Control Commission (WQCC) Regulations. The discharge plan is renewed pursuant to Section 5101.A. and 3109.C. Please note Section 3109.G., which provides for possible future amendment of the plan. Please be advised that approval of this plan does not relieve Los Alamos National Laboratory of liability should operations result in pollution of surface or ground waters, or the environment.

Please note that Section 3104. of the regulations requires that "when a plan has been approved, discharges must be consistent with the terms and conditions of the plan." Pursuant to Section 3107.C., Los Alamos National Laboratory is required to notify the Director of any facility expansion, production increase, or process modification that would result in any change in the discharge of water quality or volume.

Pursuant to Section 3109.H.4., this approval is for a period of five years. **This approval will expire June 05, 2005** and an application for renewal should be submitted in ample time before that date. Pursuant to Section 5101.F. of the regulations, if a discharger submits a discharge plan renewal application at least 120 days before the discharge plan expires and is in compliance with the approved plan, then the existing discharge plan will not expire until the application for renewal has been approved or disapproved. It should be noted that all discharge plan facilities will be required to submit plans for, or the results of, an underground drainage testing program as a requirement for discharge plan renewal.

The discharge plan application for the Los Alamos National Laboratory Fenton Hill Geothermal Facility is subject to the WQCC Regulation 3114. Every billable facility submitting a discharge plan will be assessed a fee equal to the filing fee of $50 plus a renewal fee of $690.00 for geothermal facilities. The OCD has not received the $690.00 flat fee. The flat fee of $690.00 may be paid in a single payment due on the date of the discharge plan approval or in five equal installments over the expected duration of the discharge plan. Installment payments shall be remitted yearly, with the first installment due on the date of the discharge plan approval and subsequent installments due on this date of each calendar year.

Please make all checks payable to: **Water Quality Management Fund**
C/o: Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505.

If you have any questions, please contact Wayne Price of my staff at (505-827-7155). On behalf of the staff of the OCD, I wish to thank you and your staff for your cooperation during this discharge plan review.

Sincerely,

Roger C. Anderson
Environmental Bureau Chief
RCA/lwp

Attachment-1
xc: OCD Aztec Office
OCD District IV -Roy Johnson

ATTACHMENT TO THE DISCHARGE PLAN GW-031 APPROVAL
Los Alamos National Laboratory Fenton Hill Geothermal Facility (GW-031)
DISCHARGE PLAN APPROVAL CONDITIONS
October 13, 2000

1. Payment of Discharge Plan Fees: The $50.00 filing fee has been received by OCD. The $690.00 flat fee shall be submitted upon receipt of this approval. The required flat fee may be paid in a single payment due at the time of approval, or in equal annual installments over the duration of the plan, with the first payment due upon receipt of this approval.

2. Commitments: Los Alamos National Laboratory will abide by all commitments submitted in the discharge plan renewal application dated February 02, 2000 and these conditions for approval.

3. 1-Millon and 5-Millon Gallon Ponds: A minimum freeboard will be maintained in the pond so that no over topping occurs. Any repairs or modifications to the pond liners must receive prior OCD approval. If the pond liners are replaced or a new pond is constructed, a double synthetic liner with leak detection will be incorporated into the design. Leaks and releases shall be reported pursuant to item 19. (Spill Reporting) of these conditions.

   Leak Detection Monitor Well: The leak detection monitor well for the 1-Millon Gallon storage pond must be inspected for fluids monthly. Records will be maintained to include fluid level in the detection well, quantity of fluid pumped from the well when the level has risen due to precipitation, date of inspection, and name of inspector. Any fluids found which cannot be attributed to the infiltration of precipitation must be reported to the NMOCD Santa Fe office and the appropriate District office within 48 hours of discovery.

   The 5-Millon Gallon Pond leak detection system does not require monitoring due to the quality of the water in the pond. Los Alamos National Laboratory shall notify the OCD within 48 hours if the water quality changes significantly that would pose a threat to any fresh water if a release should occur.

4. Injection Notification: Any injection of fluids into the well bore shall be pre-approved by OCD on a case-by-case basis.

5. Maximum Injection Pressure: The maximum operating injection and/or test pressure at the well head will be such that the fracture pressure of the injection formation will not be exceeded.

6. Mechanical Integrity Testing: Los Alamos National Laboratory will conduct a monthly survey on the well head pressure. Any deviation of more than 50 psig shall be reported to OCD within 48 hours. Records shall be maintained on file. The results of the survey shall be reported to the OCD in the annual report due **on January 31, of each year**.

7. Drum Storage: All drums containing materials other than fresh water must be stored on an impermeable pad with curbing. All empty drums should be stored on their sides with the bungs in place and lined up on a horizontal plane. Chemicals in other containers such as sacks or buckets must also be stored on an impermeable pad with curbing.

8. Process Areas: All process and maintenance areas which show evidence that leaks and spills are reaching the ground surface must be either paved and curbed or have some type of spill collection device incorporated into the design.

11. Above Ground Tanks: All above ground tanks which contain fluids other than fresh water must be bermed to contain a volume of one-third more than the total volume of the largest tank or of all interconnected tanks. All new facilities or modifications to existing facilities must place the tank on an impermeable type pad within the berm.

12. Above Ground Saddle Tanks: Above ground saddle tanks must have impermeable pad and curb type containment unless they contain fresh water or fluids that are gases at atmospheric temperature and pressure.

13. Labeling: All tanks, drums, and other containers should be clearly labeled to identify their contents and other emergency information necessary if the tank were to rupture, spill, or ignite.

14. Below Grade Tanks/Sumps: All below grade tanks, sumps, and pits must be approved by the OCD prior to installation or upon modification and must incorporate secondary containment and leak-detection into the design. All pre-existing sumps and below-grade tanks must be tested to demonstrate their mechanical integrity no later than **June 01, 2000** and every year from tested date, thereafter. Permittees may propose various methods for testing such as pressure testing to 3 pounds per square inch above normal operating pressure and/or visual inspection of cleaned out tanks and/or sumps, or other OCD approved methods. The OCD will be notified at least 72 hours prior to all testing. The test results will be submitted to OCD in the annual report.

15. Underground Process/Wastewater Lines: All underground process/wastewater pipelines must be tested to demonstrate their mechanical integrity no later than **June 01, 2000** and

every 5 years, from tested date, thereafter. Permittees may propose various methods for testing such as pressure testing to 3 pounds per square inch above normal operating pressure or other means acceptable to the OCD. The OCD will be notified at least 72 hours prior to all testing. The test results will be submitted to OCD in the annual report.

16. Class V Wells: No Class V wells that inject non-hazardous industrial wastes or a mixture of industrial wastes and domestic wastes will be approved for construction and/or operation unless it can be demonstrated that groundwater will not be impacted in the reasonably foreseeable future. Leach fields and other wastewater disposal systems at OCD regulated facilities which inject non-hazardous fluid into or above an underground source of drinking water are considered Class V injection wells under the EPA UIC program. Class V wells that inject domestic waste only must be permitted by the New Mexico Environment Department.

17. Well Work Over Operations: OCD approval will be obtained from the Director prior to performing remedial work, pressure test or any other Work over. Approval will be requested on OCD Form C-103 "Sundry Notices and Reports on Wells" (OCD Rule 1103.A.) with appropriate copies sent to the OCD Santa Fe District Office.

18. Housekeeping: All systems designed for spill collection/prevention, and leak detection will be inspected to ensure proper operation and to prevent overtopping or system failure.

19. Spill Reporting: All spills/releases shall be reported pursuant to OCD Rule 116. and WQCC 1203. to the OCD Santa Fe District Office.

20. Waste Disposal: All wastes will be disposed of at an OCD approved facility. Only oilfield exempt wastes shall be disposed of down Class II injection wells. Non-exempt oilfield wastes that are non-hazardous may be disposed of at an OCD approved facility upon proper waste determination per 40 CFR Part 261. Any waste stream that is not listed in the discharge plan will be approved by OCD on a case-by-case basis.

21. Annual Report: An Annual report shall be submitted on January 31 of each year. The annual report shall include information required by these conditions of approval and any other relevant information.

22. Land Application Units: Los Alamos National Laboratory shall submit closure plans or operating plans for the two land application units, one located southwest of the site, the other located north of the site. Please submit these plans November 15, 2000 for OCD approval.

23. Transfer of Discharge Plan: The OCD will be notified prior to any transfer of ownership, control, or possession of a facility with an approved discharge plan. A written commitment to comply with the terms and conditions of the previously approved discharge plan must be submitted by the purchaser and approved by the OCD prior to transfer.

24. Closure: The OCD will be notified when operations of the facility are discontinued for a period in excess of six months. Prior to closure of the facility a closure plan will be submitted for approval by the Director. Closure and waste disposal will be in accordance with the statutes, rules and regulations in effect at the time of closure.

25. OCD Inspections: Additional requirements may be placed on the facility based upon results from OCD inspections.

26. Storm Water Plan: The facility will have an approved storm water run-off plan by November 15, 2000.

27. Certification: **Los Alamos National Laboratory** by the officer whose signature appears below, accepts this permit and agrees to comply with all terms and conditions contained herein. **Los Alamos National Laboratory** further acknowledges that these conditions and requirements of this permit may be changed administratively by the Division for good cause shown as necessary to protect fresh water, human health and the environment.

Conditions accepted by: **Los Alamos National Laboratory**

David Gurule'
Company Representative-print name

Mat Johansen For D.G.
Company Representative-Sign

10/26/00
Date

Manager, Los Alamos Area Office
U.S. Dept. of Energy
Title

Dennis J. Erickson
Company Representative- print name

Company Representative- Sign

Date October 25,2000

Title Division Director - Environment, Safety, and Health

Dan K. Thomas
Company Representative-print name

Company Representative-Sign

Date 10/27/00

Facility Manager, FMU 77
Title

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

October 13, 2000

Lori Wrotenbery
Director
Oil Conservation Division

CERTIFIED MAIL
RETURN RECEIPT Hand Delivered:

Mr. Steven R. Rae
Los Alamos National Laboratory
MS K497
Los Alamos, New Mexico 87545

Re: Discharge Plan GW-031 Renewal
Fenton Hill Geothermal Facility
Sandoval County, New Mexico

Dear Mr. Rae:

The groundwater discharge plan renewal application for the Los Alamos National Laboratory Fenton Hill Geothermal Facility GW-031 operated by Los Alamos National Laboratory located in NE/4 of Section 13, Township 19 North, Range 2 East, NMPM, Sandoval County, New Mexico **is hereby approved** under the conditions contained in the enclosed attachment. Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the New Mexico Oil Conservation Division (OCD) Santa Fe Office within ten working days of receipt of this letter.**

The original discharge plan was approved on June 5, 1985 and subsequently renewed on July 19, 1990, June 15, 1995 and modification approved on May 10, 1999. The discharge plan renewal application, including attachments, dated February 02, 2000 submitted pursuant to Section 5101.B.3. of the New Mexico Water Quality Control Commission (WQCC) Regulations also includes all earlier applications and all conditions later placed on those approvals. The discharge plan renewal application was submitted pursuant to Section 5101.B.3. of the New Mexico Water Quality Control Commission (WQCC) Regulations. The discharge plan is renewed pursuant to Section 5101.A. and 3109.C. Please note Section 3109.G., which provides for possible future amendment of the plan. Please be advised that approval of this plan does not relieve Los Alamos National Laboratory of liability should operations result in pollution of surface or ground waters, or the environment.

Please note that Section 3104. of the regulations requires that "when a plan has been approved, discharges must be consistent with the terms and conditions of the plan." Pursuant to Section 3107.C., Los Alamos National Laboratory is required to notify the Director of any facility expansion, production increase, or process modification that would result in any change in the discharge of water quality or volume.

Pursuant to Section 3109.H.4., this approval is for a period of five years. **This approval will expire June 05, 2005** and an application for renewal should be submitted in ample time before that date. Pursuant to Section 5101.F. of the regulations, if a discharger submits a discharge plan renewal application at least 120 days before the discharge plan expires and is in compliance with the approved plan, then the existing discharge plan will not expire until the application for renewal has been approved or disapproved. It should be noted that all discharge plan facilities will be required to submit plans for, or the results of, an underground drainage testing program as a requirement for discharge plan renewal.

The discharge plan application for the Los Alamos National Laboratory Fenton Hill Geothermal Facility is subject to the WQCC Regulation 3114. Every billable facility submitting a discharge plan will be assessed a fee equal to the filing fee of $50 plus a renewal fee of $690.00 for geothermal facilities. The OCD has not received the $690.00 flat fee. The flat fee of $690.00 may be paid in a single payment due on the date of the discharge plan approval or in five equal installments over the expected duration of the discharge plan. Installment payments shall be remitted yearly, with the first installment due on the date of the discharge plan approval and subsequent installments due on this date of each calendar year.

Please make all checks payable to: Water Quality Management Fund
C/o: Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505.

If you have any questions, please contact Wayne Price of my staff at (505-827-7155). On behalf of the staff of the OCD, I wish to thank you and your staff for your cooperation during this discharge plan review.

Sincerely,

Roger C. Anderson
Environmental Bureau Chief
RCA/lwp

Attachment-1
xc: OCD Aztec Office
OCD District IV -Roy Johnson

ATTACHMENT TO THE DISCHARGE PLAN GW-031 APPROVAL
Los Alamos National Laboratory Fenton Hill Geothermal Facility (GW-031)
DISCHARGE PLAN APPROVAL CONDITIONS
October 13, 2000

1. Payment of Discharge Plan Fees: The $50.00 filing fee has been received by OCD. The $690.00 flat fee shall be submitted upon receipt of this approval. The required flat fee may be paid in a single payment due at the time of approval, or in equal annual installments over the duration of the plan, with the first payment due upon receipt of this approval.

2. Commitments: Los Alamos National Laboratory will abide by all commitments submitted in the discharge plan renewal application dated February 02, 2000 and these conditions for approval.

3. 1-Millon and 5-Millon Gallon Ponds: A minimum freeboard will be maintained in the pond so that no over topping occurs. Any repairs or modifications to the pond liners must receive prior OCD approval. If the pond liners are replaced or a new pond is constructed, a double synthetic liner with leak detection will be incorporated into the design. Leaks and releases shall be reported pursuant to item 19. (Spill Reporting) of these conditions.

   Leak Detection Monitor Well: The leak detection monitor well for the 1-Millon Gallon storage pond must be inspected for fluids monthly. Records will be maintained to include fluid level in the detection well, quantity of fluid pumped from the well when the level has risen due to precipitation, date of inspection, and name of inspector. Any fluids found which cannot be attributed to the infiltration of precipitation must be reported to the NMOCD Santa Fe office and the appropriate District office within 48 hours of discovery.

   The 5-Millon Gallon Pond leak detection system does not require monitoring due to the quality of the water in the pond. Los Alamos National Laboratory shall notify the OCD within 48 hours if the water quality changes significantly that would pose a threat to any fresh water if a release should occur.

4. Injection Notification: Any injection of fluids into the well bore shall be pre-approved by OCD on a case-by-case basis.

5. Maximum Injection Pressure: The maximum operating injection and/or test pressure at the well head will be such that the fracture pressure of the injection formation will not be exceeded.

6. Mechanical Integrity Testing: Los Alamos National Laboratory will conduct a monthly survey on the well head pressure. Any deviation of more than 50 psig shall be reported to OCD within 48 hours. Records shall be maintained on file. The results of the survey shall be reported to the OCD in the annual report due **on January 31, of each year**.

7. Drum Storage: All drums containing materials other than fresh water must be stored on an impermeable pad with curbing. All empty drums should be stored on their sides with the bungs in place and lined up on a horizontal plane. Chemicals in other containers such as sacks or buckets must also be stored on an impermeable pad with curbing.

8. Process Areas: All process and maintenance areas which show evidence that leaks and spills are reaching the ground surface must be either paved and curbed or have some type of spill collection device incorporated into the design.

11. Above Ground Tanks: All above ground tanks which contain fluids other than fresh water must be bermed to contain a volume of one-third more than the total volume of the largest tank or of all interconnected tanks. All new facilities or modifications to existing facilities must place the tank on an impermeable type pad within the berm.

12. Above Ground Saddle Tanks: Above ground saddle tanks must have impermeable pad and curb type containment unless they contain fresh water or fluids that are gases at atmospheric temperature and pressure.

13. Labeling: All tanks, drums, and other containers should be clearly labeled to identify their contents and other emergency information necessary if the tank were to rupture, spill, or ignite.

14. Below Grade Tanks/Sumps: All below grade tanks, sumps, and pits must be approved by the OCD prior to installation or upon modification and must incorporate secondary containment and leak-detection into the design. All pre-existing sumps and below-grade tanks must be tested to demonstrate their mechanical integrity no later than **June 01, 2000** and every year from tested date, thereafter. Permittees may propose various methods for testing such as pressure testing to 3 pounds per square inch above normal operating pressure and/or visual inspection of cleaned out tanks and/or sumps, or other OCD approved methods. The OCD will be notified at least 72 hours prior to all testing. The test results will be submitted to OCD in the annual report.

15. Underground Process/Wastewater Lines: All underground process/wastewater pipelines must be tested to demonstrate their mechanical integrity no later than **June 01, 2000** and

every 5 years, from tested date, thereafter. Permittees may propose various methods for testing such as pressure testing to 3 pounds per square inch above normal operating pressure or other means acceptable to the OCD. The OCD will be notified at least 72 hours prior to all testing. The test results will be submitted to OCD in the annual report.

16. Class V Wells: No Class V wells that inject non-hazardous industrial wastes or a mixture of industrial wastes and domestic wastes will be approved for construction and/or operation unless it can be demonstrated that groundwater will not be impacted in the reasonably foreseeable future. Leach fields and other wastewater disposal systems at OCD regulated facilities which inject non-hazardous fluid into or above an underground source of drinking water are considered Class V injection wells under the EPA UIC program. Class V wells that inject domestic waste only must be permitted by the New Mexico Environment Department.

17. Well Work Over Operations: OCD approval will be obtained from the Director prior to performing remedial work, pressure test or any other Work over. Approval will be requested on OCD Form C-103 "Sundry Notices and Reports on Wells" (OCD Rule 1103.A.) with appropriate copies sent to the OCD Santa Fe District Office.

18. Housekeeping: All systems designed for spill collection/prevention, and leak detection will be inspected to ensure proper operation and to prevent overtopping or system failure.

19. Spill Reporting: All spills/releases shall be reported pursuant to OCD Rule 116. and WQCC 1203. to the OCD Santa Fe District Office.

20. Waste Disposal: All wastes will be disposed of at an OCD approved facility. Only oilfield exempt wastes shall be disposed of down Class II injection wells. Non-exempt oilfield wastes that are non-hazardous may be disposed of at an OCD approved facility upon proper waste determination per 40 CFR Part 261. Any waste stream that is not listed in the discharge plan will be approved by OCD on a case-by-case basis.

21. Annual Report: An Annual report shall be submitted on January 31 of each year. The annual report shall include information required by these conditions of approval and any other relevant information.

22. Land Application Units: Los Alamos National Laboratory shall submit closure plans or operating plans for the two land application units, one located southwest of the site, the other located north of the site. Please submit these plans November 15, 2000 for OCD approval.

23. Transfer of Discharge Plan: The OCD will be notified prior to any transfer of ownership, control, or possession of a facility with an approved discharge plan. A written commitment to comply with the terms and conditions of the previously approved discharge plan must be submitted by the purchaser and approved by the OCD prior to transfer.

24. Closure: The OCD will be notified when operations of the facility are discontinued for a period in excess of six months. Prior to closure of the facility a closure plan will be submitted for approval by the Director. Closure and waste disposal will be in accordance with the statutes, rules and regulations in effect at the time of closure.

25. OCD Inspections: Additional requirements may be placed on the facility based upon results from OCD inspections.

26. Storm Water Plan: The facility will have an approved storm water run-off plan by November 15, 2000.

27. Certification: **Los Alamos National Laboratory** by the officer whose signature appears below, accepts this permit and agrees to comply with all terms and conditions contained herein. **Los Alamos National Laboratory** further acknowledges that these conditions and requirements of this permit may be changed administratively by the Division for good cause shown as necessary to protect fresh water, human health and the environment.

Conditions accepted by: **Los Alamos National Laboratory**

_____
Company Representative- print name

_____ Date_____
Company Representative- Sign

Title_____

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

June 15, 1995

CERTIFIED MAIL
RETURN RECEIPT NO. Z-765-962-731

Mr. Larry Kirkman
U.S. Department of Energy
Los Alamos Area Office
528 35th Street
Los Alamos, NM 87544

Re: Discharge Plan BW-031 Renewal
Fenton Hill Geothermal Facility
Sandoval County, New Mexico

Dear Mr. Kirkman:

The groundwater discharge plan renewal, GW-031, for the Fenton Hill Geothermal Facility, located in Section 31, Township 19 North, Range 2 East, NMPM, Sandoval County, New Mexico, **is hereby approved** under the conditions contained in the enclosed attachment. The renewal application consists of the original discharge plan as approved June 5, 1985, the renewal dated July 19, 1990, and the renewal application dated April 21, 1995.

The discharge plan renewal was submitted pursuant to section 3-106 of the Water Quality Control Commission Regulations. It is approved pursuant to section 3-109.A. Please note Section 3-109.F., which provides for possible future amendment of the plan. Please be advised that approval of this plan does not relieve you of your liability should your operation result in pollution of surface or ground waters or the environment. In addition, OCD approval does not relieve Fenton Hill Geothermal Facility of responsibility for compliance with any other federal, state or local laws and/or regulations.

Please be advised that all exposed pits, including lined pits and open top tanks (exceeding 16 feet in diameter) shall be screened, netted, or otherwise rendered nonhazardous to wildlife including migratory birds.

Please note that Section 3-104 of the regulations requires that "when a plan has been approved, discharges must be consistent with the terms and conditions of the plan." Pursuant to Section 3-107.C. you are required to notify the Director of any facility expansion, production increase, or process modification that would result in any change in the discharge of water quality or volume.

Pursuant to Section 3-109.G.4., this approval is for a period of five years. This approval will expire June 5, 2000, and an application for renewal should be submitted six months before that date.

The discharge plan renewal application for the Fenton Hill Geothermal Facility is subject to the WQCC Regulation 3-114 discharge plan fee. Every billable facility submitting a discharge plan will be assessed a fee equal to the filing fee of fifty (50) dollars plus one half of the flat rate or six hundred and ninety dollars ($690.00) for geothermal facility discharge plans. The fifty (50) dollar filing fee and the six hundred and ninety dollar ($690.00) flat fee have not been received by the New Mexico Oil Conservation Division (OCD), and shall be submitted on receipt of this approval. The required flat fee may be paid in a single payment or in five equal installments over the expected duration of the discharge plan. Installment payments shall be remitted yearly, with the first installment due on the date of the discharge plan approval.

Please make all checks payable to: **NMED-Water Quality Management** and addressed to the OCD Santa Fe Office.

On behalf of the staff of the Oil Conservation Division, I wish to thank you and your staff for your cooperation during this discharge plan review. If you have any questions, please contact Mark Ashley of my staff at (505) 827-7155.

Sincerely,

by Deputy Director

William J. LeMay
Director

WJL/mwa
Attachments

ATTACHMENT TO THE DISCHARGE PLAN BW-031 APPROVAL
LOS ALAMOS NATIONAL LABORATORIES
FENTON HILL GEOTHERMAL FACILITY
DISCHARGE PLAN REQUIREMENTS
(June 15, 1995)

1. Payment of Discharge Plan Fees: The fifty (50) dollar filing fee and the six hundred and ninety dollar ($690.00) flat fee shall be submitted on receipt of this approval. The required flat fee may be paid in a single payment or in equal installments over the expected duration of the discharge plan. Installment payments shall be remitted yearly, with the first installment due on the date of the discharge plan approval and subsequent installments due on this date of each calendar year.

2. Sump Construction: All new or rebuilt sumps and below-grade tanks will be approved by the OCD prior to installation and will incorporate secondary synthetic containment and leak detection in their designs. All leak detection systems will be inspected weekly and the OCD Santa Fe office will be notified immediately upon discovery of fluids in any leak detection system.

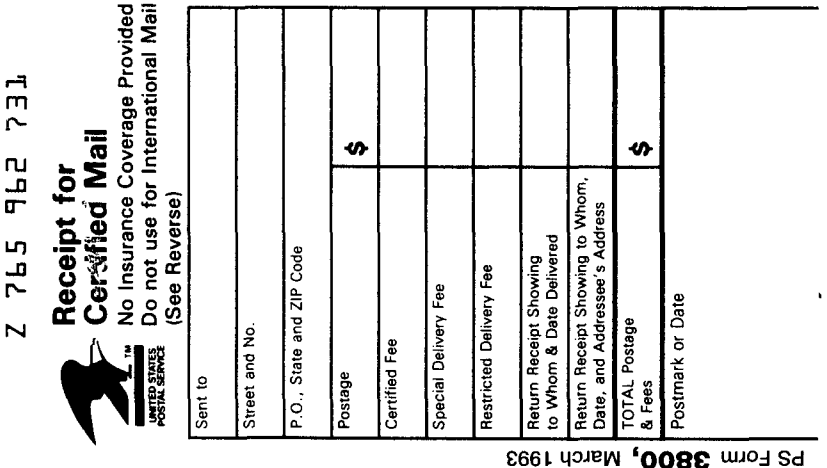
3. Drum Storage: All chemical and lubrication drums shall be stored on pad and curb type containment.

4. Tank Berming: All tanks that contain materials other than fresh water will be bermed to contain one and one-third times the capacity of the tank.

5. Spill Reporting: All spills and/or leaks shall be reported to the OCD Santa Fe office pursuant to WQCC Rule 1-203 and OCD Rule 116.

6. Well Workover Operations: OCD approval will be obtained from the director prior to performing remedial work or any other workover. Approval will be requested on OCD Form C-103 "Sundry Notices and Reports on Wells" (OCD Rule 1103-A) with appropriate copies sent to the OCD Santa Fe District office.

7. Closure: The OCD will be notified when operations of the facility are discontinued for a period in excess of six months. Prior to closure of the facility a closure plan will be submitted for approval by the director. Closure and waste disposal will be in accordance with the statutes, rules and regulations in effect at the time of closure.



and signed application form must be submitted with your discharge plan renewal request.

The discharge plan renewal application for the Fenton Hill Geothermal Facility is subject to the WQCC Regulations 3-114 discharge plan fee. Every billable facility submitting a discharge plan renewal will be assessed a fee equal to the filing fee of fifty (50) dollars plus one-half of the flat fee or six hundred and ninety (690) dollars for geothermal facilities.

The (50) dollar filing fee is to be submitted with discharge plan renewal application and is nonrefundable. The flat fee for an approved discharge plan renewal may be paid in a single payment due at the time of approval, or in equal annual installments over the duration of the discharge plan.

Please make all checks payable to: **NMED-Water Quality Management** and addressed to the OCD Santa Fe Office.

If you no longer have any actual or potential discharges a discharge plan is not need, please notify this office. If you have any questions regarding this matter, please do not hesitate to contact Mark Ashley at (505) 827-7155.

Sincerely,

Roger C. Anderson
Environmental Bureau Chief

RCA/mwa

xc: OCD Santa Fe Office

Z 765 962 830

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, March 1993

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

March 15, 1995

CERTIFIED MAIL
RETURN RECEIPT NO. Z-765-962-830

Area Manager
Department of Energy
Los Alamos Area Office
Los Alamos, New Mexico 87544

RE: Discharge Plan GW-031 Renewal
Fenton Hill Geothermal Facility
Sandoval County, New Mexico

Dear Sir:

On June 5, 1985, the groundwater discharge plan, GW-031 for the Fenton Hill Geothermal Facility located in Sections 31, Township 19 North, Range 2 East, NMPM, Sandoval County, New Mexico, was approved by the Director of the New Mexico Oil Conservation Division (OCD). This discharge plan was required and submitted pursuant to Water Quality Control Commission (WQCC) regulations and was approved for a period of five years, and was subsequently renewed on July 19,1990 by the Director of the (OCD). The current approval will expire on June 5, 1995.

If your facility continues to have potential or actual effluent or leachate discharges and you wish to continue operation, you must renew your discharge plan. The OCD is reviewing discharge plan submittals and renewals carefully and the review time can extend for several months. Please indicate whether you have made, or intend to make, any changes in you system, and if so, please include these modifications in your application for renewal.

To assist you in preparation of your application, I have enclosed an application form and a copy of the OCD's Guidelines for the Preparation of Ground Water Discharge Plans at Geothermal Installations, revised June 1987, and a copy of the WQCC regulations. Note that the completed

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

April 23, 1998

Certified Mail
Return Receipt No. P-288-259-052

Mr. Steven Rae
Los Alamos National Laboratory
MS K497
Los Alamos, NM 87545

RE: Notice of Intent to Discharge
Milagro Project at Fenton Hill
Los Alamos, NM

Dear Mr. Rae:

The New Mexico Oil Conservation Division (OCD) has completed a review of the Los Alamos National Laboratory (LANL) Notice of Intent to Discharge (NOI) dated April 16, 1998. The NOI request is for approximately 2.5 million gallons from the 5 million gallon lined pond at the Milagro Project at Fenton Hill. The proposed land application site is approximately seven acres located in the NE/4 of Section 13, Township 19 North, Range 2 East, NMPM, Sandoval County, New Mexico. Based on the information provided, the request is approved with the following conditions:

1. Permission will be obtained from the landowner(s) prior to discharge.

2. The sprinkler irrigation system will be designed in such a way as to prevent pooling, ponding, and/or runoff into a water of the State and/or U.S.

3. A soil background sample will be taken from the land application site prior to discharging. It will be analyzed for major cations and anions, and metals using EPA approved methods. Sample results will be submitted to the OCD within 30 days of receipt by LANL.

4. The OCD will be notified at least 72 hours in advance of all activities.

Please be advised that OCD approval does not relieve LANL of liability should it later be found that contamination exists which could pose a threat to surface water, ground water, human health or the environment. In addition, OCD approval does not relieve LANL of liability for compliance with other federal, state or local laws and/or regulations.

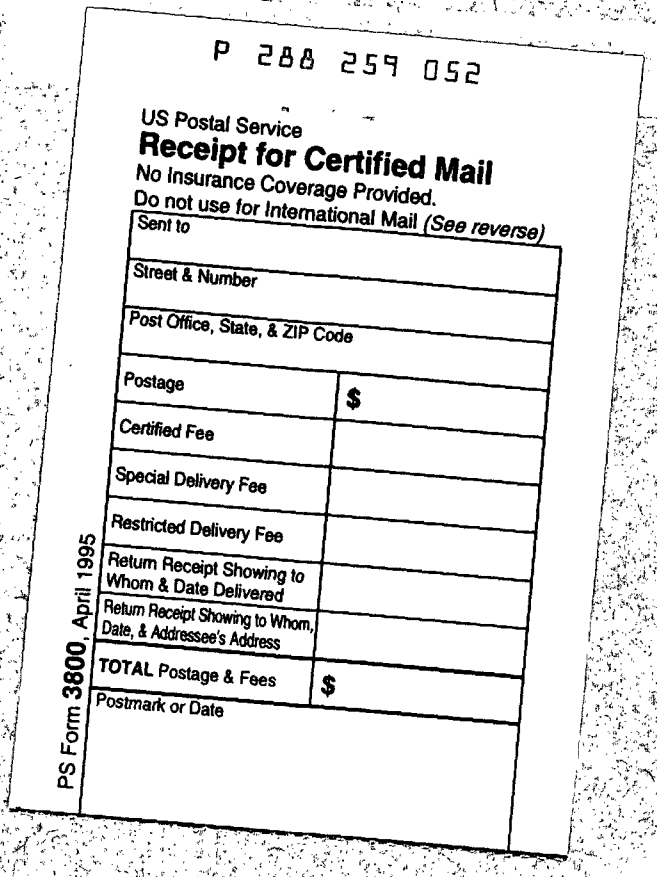
If you have any questions, please contact Mark Ashley at (505) 827-7155.

Sincerely,

Roger C. Anderson
Environmental Bureau Chief

RCA/mwa

xc: Barbara Hoditschek, Surface Water Quality Bureau, NMED



P 288 259 052

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. 869857 dated 6/28/95,
or cash received on 7/7/95 in the amount of $ 740.00
from LAS Alamos Nat Lab
for Fenton Hill (Facility Name) BW 031 (DP No.)
Submitted by: _____ Date: _____
Submitted to ASD by: Roger Schneider Date: 7/10/95
Received in ASD by: @ Date: 7-11-95
Filing Fee ✓ New Facility ____ Renewal ____
Modification ____ Other _____ (specify)

Organization Code 521.07 Applicable FY 96

To be deposited in the Water Quality Management Fund.
Full Payment X or Annual Increment ____

LOS ALAMOS NATIONAL BANK
LOS ALAMOS, NEW MEXICO 87544

LOS ALAMOS NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA
P.O. BOX 1663, MS-P240
LOS ALAMOS, NEW MEXICO 87545

95-101/1070 869857
CHECK NO.

MO.	DAY	YR.
6	28	95

PAY TO THE ORDER OF **********740 DOLLARS 00 CENTS

PAY EXACTLY $740.00**

NMED WATER QUALITY MANAGEMENT
ENERGY MINERALS & NATURAL RESOURCES DEPT
OIL CONSERVATION DIVISION
2040 S PACHECHO
SANTA FE, NM 87505

PLEASE CASH PROMPTLY
SUBJECT TO CANCELLATION
NINETY (90) DAYS AFTER DATE

Allan Johnson

⑈869857⑈ ⑆107001012⑆ 00 685259⑈01

LOS ALAMOS NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA
LOS ALAMOS, NEW MEXICO 87545

SEE OTHER SIDE FOR EXPLANATION OF CODE

CHECK NUMBER 869857

OUR ORDER NO.	INVOICE DATE	INVOICE NUMBER	CODE	INVOICE AMOUNT	CASH DISCOUNT	NET AMOUNT
021BDTEL5	6-28-95	021BD-CD		740.00		740.00

RECEIVED
JUL 07 1995
Environmental Bureau
Oil Conservation Division

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to the New Mexico Water Quality Control Commission Regulations, the following discharge plan renewal applications have been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

(GW-018) - Warren Petroleum Company, Ken Stinson, P.O. Box 67, Monument, New Mexico 88265, has submitted a discharge plan renewal application for their Bluitt Gas Processing Plant located in the NE/4, Section 15, Township 8 South, Range 36 East, NMPM, Lea County, New Mexico. Approximately 19,500 gallons per day of process waste water is disposed of in an OCD approved Class II injection well. The waste water has a total dissolved solids concentration of approximately 5200 mg/l. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 100 feet with a total dissolved solids concentration of approximately 1400 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharge

(GW-026) - Warren Petroleum Company, Ken Stinson, P.O. Box 67, Monument, New Mexico 88265, has submitted a discharge plan renewal application for their Saunders Gas Processing Plant located Section 34, Township 14 South, Range 33 East, NMPM, Lea County, New Mexico. Approximately 18,9000 gallons per day of process waste water is disposed of in an OCD approved Class II injection well. The waste water has a total dissolved solids concentration of approximately 3881 mg/l. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 100 feet with a total dissolved solids concentration of approximately 600 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-027) - Warren Petroleum Company, Ken Stinson, P.O. Box 67, Monument, New Mexico 88265, has submitted a discharge plan renewal application for their Vada Gas Processing Plant located Section 23, Township 10 South, Range 33 East, NMPM, Lea County, New Mexico. Approximately 1,380 gallons per day of process waste water is disposed of in an OCD approved Class II injection well. The waste water has a total dissolved solids concentration of approximately 14,890 mg/l. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 35 feet with a total dissolved solids concentration of approximately 1000 mg/l. The discharge plan addresses how spills, leaks, and other accidental