GW 38

INSPECTIONS & DATA

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NM 87505

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

May 17, 2000

Mr. David Bollschweiler
Physical Plant Department
New Mexico State University
Box 3001, Department 3545
Las Cruces, New Mexico 88003

Re: Discharge Plan GW-038
NMSU Geothermal Facility
Dona Ana County, New Mexico

Dear Mr. Bollschweiler:

Enclosed is our Site Inspection Sheet for the above facility along with copies of the photographs Wayne Price took during our visit. Thank you very much for the hospitality. We enjoyed our visit.

Per WQCC 3106.F, "If the holder of an approved discharge plan submits an application for discharge plan renewal at least 120 days before the discharge plan expires, and the discharger is not in violation of the approved discharge plan on the date of its expiration, then the existing approved discharge plan for the same activity shall not expire until the application for renewal has bee approved or disapproved. A discharge plan continued under this provision remains fully effective and enforceable. An application for discharge plan renewal must include, and adequately address all of the information necessary for evaluation of a new discharge plan. Previously submitted materials may be included by reference provided they are current, readily available to the secretary and sufficiently identified to be retrieved. [12-1-95]"

Your discharge plan expires on December 22, 2000. You may benefit from the above if your renewal application is submitted at least 120 days prior to this date along with the required $50.00 filing fee.

Discharge plan applications are available on our web site:
http://www.emnrd.state.nm.us/ocd/ocdforms.

If you have any questions, please do not hesitate to contact us.

Sincerely,

Ed Martin
New Mexico Oil Conservation Division
Environmental Bureau

OCD ENVIRONMENTAL BUREAU

SITE INSPECTION SHEET

DATE: 3/17/00 Time: 9 AM

Type of Facility: Refinery ☐ Gas Plant ☐ Compressor St. ☐ Brine St. ☐ OilField Service Co. ☐
Surface Waste Mgt. Facility ☐ E&P Site ☐ Crude Oil Pump Station ☐
Other ☒ GEO-THERMAL HOT WATER HEATING PROJECT

Discharge Plan: No ☐ Yes ☒ DP# GW-038

FACILITY NAME: NMSU GEOTHERMAL FACILITY
PHYSICAL LOCATION: EAST SIDE of I-25/10 NMSU GOLF COURSE AREA
Legal: QRT___QRT___ Sec 23 TS 23S R 2E County DONA ANA

OWNER/OPERATOR (NAME) NEW MEXICO STATE UNIVERSITY
Contact Person: DAVID BOLLSCHWEILER Tele:# 505-646-7844
MAILING PHYSICAL PLANT DEPARTMENT MSC 3545
ADDRESS: P.O. Box 30001 LAS CRUCES State NM ZIP 88003-8001
Owner/Operator Rep's: JIM ABSHER

OCD INSPECTORS: WAYNE PRICE + ED MARTIN

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

OK

2. **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.

OK

3. **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 tanks or existing tanks that undergo a major modification, as determined by the Division, must be placed within an impermeable bermed enclosure.

OK

4. **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.

OK

5. **Labeling:** All tanks, drums and containers will be clearly labeled to identify their contents and other emergency notification information.

OK

6. **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 demonstrate integrity on an annual basis. Integrity tests include 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.

OK

7. **Underground Process/Wastewater Lines:** All underground process/wastewater pipelines must be tested to demonstrate their mechanical integrity at present and then every 5 years thereafter, or prior to discharge plan renewal. The permittee 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.

OK

8. **Onsite/Offsite Waste Disposal and Storage Practices:** Are all wastes properly characterized and disposed of correctly? Does the facility have an EPA hazardous waste number? _____ **Yes** _____ **No**

ARE ALL WASTE CHARACTERIZED AND DISPOSED OF PROPERLY? YES ☐ NO ☒ IF NO DETAIL BELOW.

INJECTION WELL BLOW-DOWN AREA, WELL COMPLETION AND ACIDIZING FLUIDS ARE BEING DISPOSED of ONTO GROUND IN GOLF COURSE AREA.

9. **Class V Wells:** 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. All Class V wells that inject non-hazardous industrial wastes or a mixture of industrial wastes and domestic wastes will be closed unless it can be demonstrated that groundwater will not be impacted in the reasonably foreseeable future. Closure of Class V wells must be in accordance with a plan approved by the Division's Santa Fe Office. The OCD allows industry to submit closure plans which are protective of human health, the environment and groundwater as defined by the WQCC, and are cost effective. Class V wells that inject domestic waste only must be permitted by the New Mexico Environment Department.

ANY CLASS V WELLS NO ☑ YES ☐ IF YES DESCRIBE BELOW ! Undetermined ☐

10. **Housekeeping:** All systems designed for spill collection/prevention will be inspected weekly and after each storm event to ensure proper operation and to prevent overtopping or system failure. A record of inspections will be retained on site for a period of five years.

EXCELLANT

11. **Spill Reporting:** All spills/releases will be reported pursuant to OCD Rule 116 and WQCC 1203 to the proper OCD District Office.

OK

12. **Does the facility have any other potential environmental concerns/issues?**

NONE NOTED

13. **Does the facility have any other environmental permits - i.e. SPCC, Stormwater Plan, etc.?**

14. **ANY WATER WELLS ON SITE ?** NO ☐ YES ☑ **IF YES, HOW IS IT BEING USED ?**

GEO THERMAL WELLS IN AREA - OLD INJECTION WELL IS NOT PLUGGED!

Miscellaneous Comments:

DOCUMENTS RECEIVED DURING INSPECTION: ① PLOT PLAN of WELLS & PIPING DISTRIBUTION. ② LOCATION of NEARBY FRESH WATER WELLS ③ GEOLOGIC PROFILE ④ WATER LEVEL GRADIENT MAP ⑤ ANALYTICAL REPORTS ⑥ OCD FORM G-110

Number of Photos taken at this site: 14
attachments-

New Mexico State University-Geothermal
Project GW- 038
March 17, 2000 pictures by Wayne Price

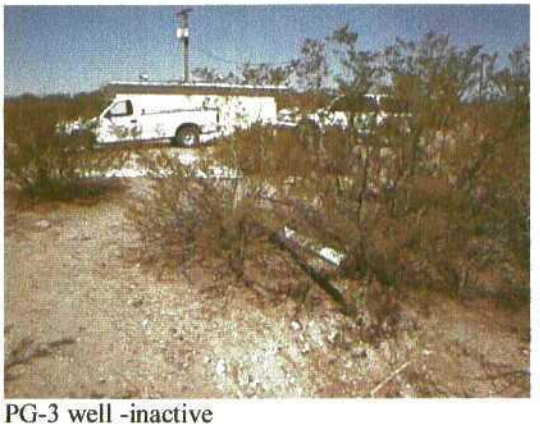

PG-4 well house and greenhouse-looking west


PG-4 well, greenhouse & fish farm discharge pit


Metering devices for PG-4

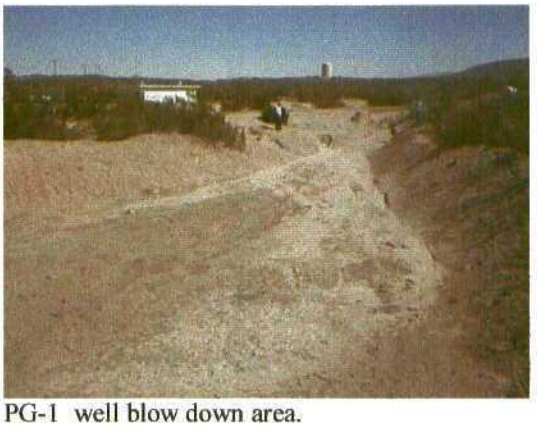

SAB – looking NW


PG-4 geothermal well


PG-3 well -inactive

PG-1 well house and old de-gasifier.

Injection well located in middle of golf course.



PG-1 well blow down area.

Injection well blow-down area. Blow down includes well completion fluids i.e. acid, etc.

Geothermal main heat exchanger area located south side of golf course.

Old Injection Well- now covered with soil. Located NW of golf club house.

NMSU Presidents house heat exchanger building.

Main heat exchanger room

MARCH 17, 2000

NMSU

GEO-THERMAL

INSPECTION

N

GOLF COURSE

NOT PLUGGED COVERED!

CALIENTE CASINGS PULL OUT

CLOSED

NEW INJ WELL

PUMP HOUSE

INJECTION LINE

GEO BRINE

F

FW

HOT FW

LARGE X-HEAT

FRESH WATER FROM NMSU CAMPUS WELLS - WEST SIDE OF I-25

"PRES HOUSE"

X-HEAT

PGR LRG-520-S-1

FISH HOUSE

ACTIVE UNLINED PIT

GREEN HOUSE

PG-4 (LRG-520-S3) 196°F

FW TANK

PG-3 LRG-52-S2 (NO PUMP)

PUMP PIT

OPG-1 LRG520-196°F FG tubing CS CASING

PUMP PIT

LOS ALTURIS SUB-DIV!

TO OTHER DORMS

PAN AMERICAN CENTER

ALUMNI AVE

STEWART ST

DE VARGAS

LOCUST ST

GEOTHERMAL DR

FOOTBALL STADIUM

I-25

N

RECEIVED

MAR 17 2000

Environmental Bureau

Oil Conservation Division

TECHNICAL REPORT 43

RINCON AND MESILLA VALLEYS, NEW MEXICO

PLATE 8 1 of 2

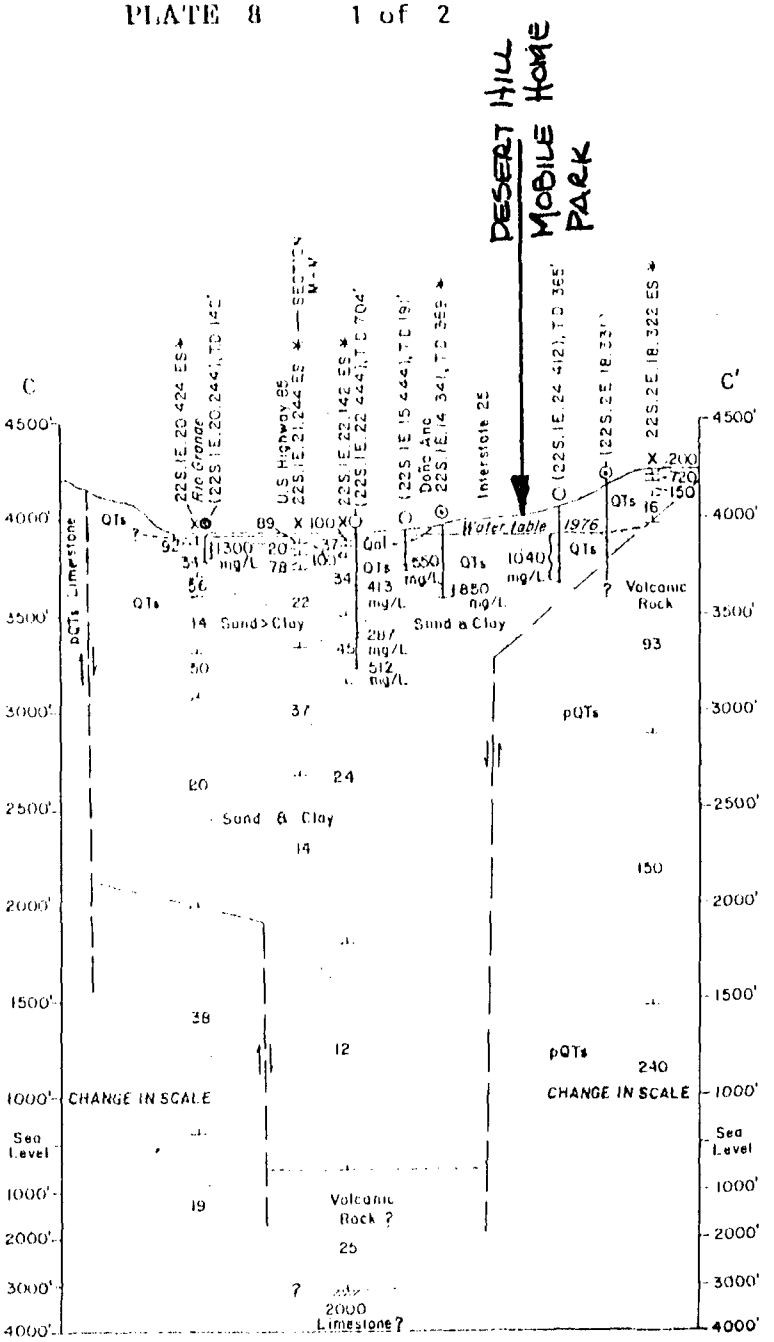
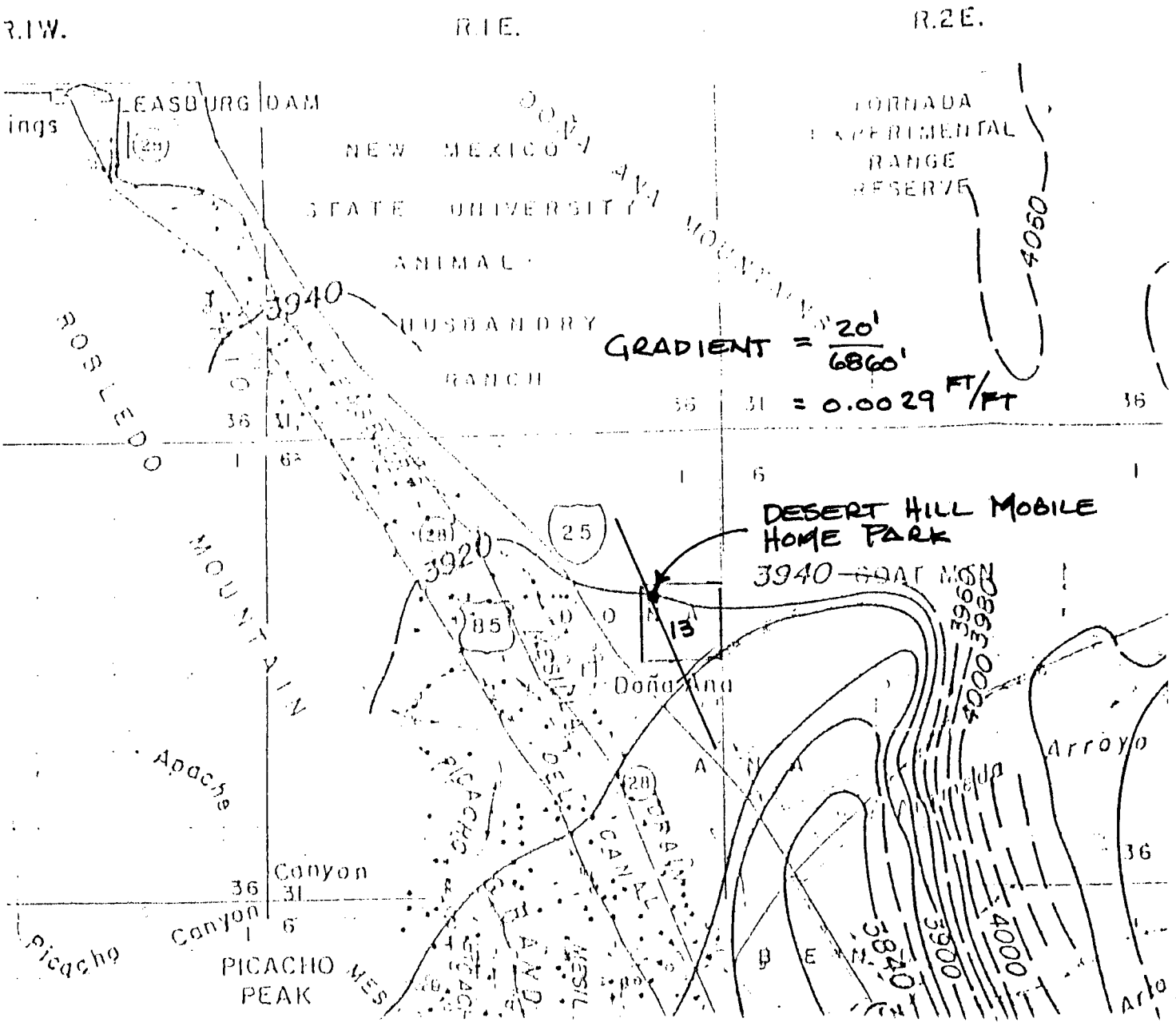


FIGURE 9. GEOLOGIC PROFILE

TECHNICAL REPORT 43

RINCON AND MESILLA VALLEYS, NEW MEXICO

PLATE 9



RECEIVED

Environmental Bureau
Oil Conservation Division

FIGURE 6. WATER LEVEL GRADIENT MAP

Soil Water and Air Testing Lab
New Mexico State University
BOX 30003
Las Cruces, NM 88003
(505)646-4422

Report #9908301156

Date: 08/20/99

ANALYTICAL REPORT

To: Owen Lockwood 646-4549
NMSU, Box 3545
Physical Plant Dept.
Las Cruces, NM 88003

Purchase Order # 01214034

Below are the results for submitted sample(s). (MDL=Method detection limit)

Sample I.D. AB06107

Sample Description: Well #17 400 Ft
Sample collection date: 08/13/99 Sample collection time:
Submittal date: 08/13/99 Submittal time: 09:26
WSS# Request ID No. Collector: LAYNE
Sample Purpose: Sampling Information:

Element	Method	Result	Units	MDL	Date of Analysis	Analyst
Calcium by ICP-	200.7	47.7	mg/L	0.1	08/13/99	MBL
Magnesium by ICP-	200.7	8.4	mg/L	0.1	08/13/99	MBL
Potassium by ICP-	200.7	3.7	mg/L	0.1	08/13/99	MBL
Sodium by ICP-	200.7	40.1	mg/L	0.1	08/13/99	MBL
Calcium (for SAR)-	200.7	2.38	meq/L	0.01	08/13/99	MBL
Magnesium (for SAR)-	200.7	.69	meq/L	0.01	08/13/99	MBL
Hardness as CaCO3-	130.2	154	mg/L	1	08/13/99	MBL
Alkalinity (as CaCO3)	310.1	136.0	mg/L	0.1	08/17/99	BJH
Carbonate	310.1	0.00	meq/L	0.01	08/17/99	LJG
Carbonate alkalinity	310.1	0.0	mg/L	1.0	08/17/99	BJH
Bicarbonate	310.1	2.72	meq/L	0.01	08/17/99	LJG
Bicarbonate alkalinity	310.1	166.0	mg/L	1.0	08/17/99	BJH
Chloride by Autoanalyzer	325.2	40.6	mg/L	0.5	08/16/99	BJH
Fluoride by electrode	340.2	0.51	mg/L	0.05	08/13/99	AS
Sulfate	375.4	49	mg/L	2	08/16/99	RLM
Electrical Conductivity	120.1	493	micromhos/cm	1	08/13/99	RM
pH of water	150.1	7.76			08/13/99	RM
Total Dissolved Solids	160.2	279	mg/L	1	08/17/99	BJH
Nitrate/nitrite as N	353.2	Not detected	mg/L	0.05	08/13/99	BJH

Sample I.D. AB06108

Sample Description: Well #17 650 Ft
Sample collection date: 08/12/99 Sample collection time: 22:40
Submittal date: 08/13/99 Submittal time: 09:26
WSS# Request ID No. Collector: LAYNE
Sample Purpose: Sampling Information:

Element	Method	Result	Units	MDL	Date of Analysis	Analyst
Calcium by ICP-	200.7	23.9	mg/L	0.1	08/13/99	MBL
Magnesium by ICP-	200.7	5.8	mg/L	0.1	08/13/99	MBL
Potassium by ICP-	200.7	6.2	mg/L	0.1	08/13/99	MBL
Sodium by ICP-	200.7	99.0	mg/L	0.1	08/13/99	MBL
Calcium (for SAR)-	200.7	1.19	meq/L	0.01	08/13/99	MBL
Magnesium (for SAR)-	200.7	.48	meq/L	0.01	08/13/99	MBL
Hardness as CaCO3-	130.2	84	mg/L	1	08/13/99	MBL
Alkalinity (as CaCO3)	310.1	150.0	mg/L	0.1	08/17/99	BJH
Carbonate	310.1	0.00	meq/L	0.01	08/17/99	LJG
Carbonate alkalinity	310.1	0.0	mg/L	1.0	08/17/99	BJH
Bicarbonate	310.1	3.00	meq/L	0.01	08/17/99	LJG
Bicarbonate alkalinity	310.1	183.0	mg/L	1.0	08/17/99	BJH
Chloride by Autoanalyzer	325.2	52.4	mg/L	0.5	08/16/99	BJH
Fluoride by electrode	340.2	0.83	mg/L	0.05	08/13/99	AS
Sulfate	375.4	82	mg/L	2	08/16/99	RLM
Electrical Conductivity	120.1	616	micromhos/cm	1	08/13/99	RM
pH of water	150.1	7.65			08/13/99	RM
Total Dissolved Solids	160.2	384	mg/L	1	08/17/99	BJH
Nitrate/nitrite as N	353.2	0.07	mg/L	0.05	08/13/99	BJH

Sample I.D. AB06109

Sample Description: Well #17 900 Ft
Sample collection date: 08/12/99 Sample collection time: 13:30
Submittal date: 08/13/99 Submittal time: 09:26
WSS# Request ID No. Collector: LAYNE
Sample Purpose: Sampling Information:

Element	Method	Result	Units	MDL	Date of Analysis	Analyst
Calcium by ICP-	200.7	12.1	mg/L	0.1	08/13/99	MBL
Magnesium by ICP-	200.7	3.4	mg/L	0.1	08/13/99	MBL
Potassium by ICP-	200.7	7.0	mg/L	0.1	08/13/99	MBL
Sodium by ICP-	200.7	177.3	mg/L	0.1	08/13/99	MBL
Calcium (for SAR)-	200.7	.60	meq/L	0.01	08/13/99	MBL
Magnesium (for SAR)-	200.7	.28	meq/L	0.01	08/13/99	MBL
Hardness as CaCO3-	130.2	44	mg/L	1	08/13/99	MBL
Alkalinity (as CaCO3)	310.1	150.0	mg/L	0.1	08/17/99	BJH
Carbonate	310.1	0.00	meq/L	0.01	08/17/99	LJG
Carbonate alkalinity	310.1	0.0	mg/L	1.0	08/17/99	BJH
Bicarbonate	310.1	3.00	meq/L	0.01	08/17/99	LJG
Bicarbonate alkalinity	310.1	183.0	mg/L	1.0	08/17/99	BJH
Chloride by Autoanalyzer	325.2	87.1	mg/L	2.5	08/16/99	BJH
Fluoride by electrode	340.2	0.92	mg/L	0.05	08/13/99	AGS
Sulfate	375.4	157	mg/L	10	08/16/99	RLM

Sample I.D. **AB06109**

Sample Description: Well #17 900 Ft
Sample collection date: 08/12/99 Sample collection time: 13:30
Submittal date: 08/13/99 Submittal time: 09:26
WSS# Request ID No. Collector: LAYNE
Sample Purpose: Sampling Information:

Element	Method	Result	Units	MDL	Date of Analysis	Analyst
Electrical Conductivity	120.1	869	micromhos/cm	1	08/13/99	RM
pH of water	150.1	8.41			08/13/99	RM
Total Dissolved Solids	160.2	512	mg/L	1	08/17/99	BJH
Nitrate/nitrite as N	353.2	0.09	mg/L	0.05	08/13/99	BJH

Please advise should you have questions concerning these data.
Respectfully submitted,

Andrew Lee Bristol
Laboratory Manager
(505)646-4422

Soil, Water and Air Testing Lab
New Mexico State University
BOX 30003
Las Cruces, NM 88003
(505)646-4422

Date: 05/06/99

ANALYTICAL REPORT

To: New Mexico State University 646-7844
P.O. Box 3545
Las Cruces, NM 88003

Purchase Order #

Below are the results for SDWA Inorganic Analysis. (MDL=Method detection limit)

Sample I.D. AB03508

Sample Description: Well #1 ID #1 NMSU
Sample collection date: 05/05/99 Sample collection time: 09:35
Submittal date: 05/05/99 Submittal time: 10:42
WSS# 28707 Request ID No. U045279 Collector: R. THOMPSON
Sample Purpose: Compliance Sampling Information: Grab

Element	Method	Result	Units	MDL	Date of Analysis	Analyst
Nitrate/nitrite as N	353.2	Not detected	mg/L	0.05	05/05/99	BJH

Sample I.D. AB03509

Sample Description: Well #10 ID #3 NMSU
Sample collection date: 05/05/99 Sample collection time: 09:15
Submittal date: 05/05/99 Submittal time: 10:42
WSS# 28707 Request ID No. U045272 Collector: R. THOMPSON
Sample Purpose: Compliance Sampling Information: Grab

Element	Method	Result	Units	MDL	Date of Analysis	Analyst
Nitrate/nitrite as N	353.2	Not detected	mg/L	0.05	05/05/99	BJH

Sample I.D. AB03510

Sample Description: Well #14 ID #4 NMSU
Sample collection date: 05/05/99 Sample collection time: 09:50
Submittal date: 05/05/99 Submittal time: 10:42
WSS# 28707 Request ID No. U045276 Collector: R. THOMPSON
Sample Purpose: Compliance Sampling Information: Grab

Element	Method	Result	Units	MDL	Date of Analysis	Analyst
Nitrate/nitrite as N	353.2	Not detected	mg/L	0.05	05/05/99	BJH

NMSU MONTHLY GEOTHERMAL WATER USE (LRG-520 SERIES)

MONTH: FEBRUARY 2000 (Meters read on March 1, 2000)

Well Number	Meter Readings (gal)	Amount Used (gal)	Comments
LRG-520	91,037,786		(NMSU PG-1)
	91,037,775	11	In Service
LRG-520-S-1	1,995,000		(NMSU PG-2)
	1,995,000	0	Out of Service
LRG-520-S-2	10,513,800		(NMSU PG-3)
	10,513,800	0	Out of Service
LRG-520-S-3	223,420,950		(NMSU PG-4)
	218,833,882	4,587,068	In Service
LRG-520-S-INJ	183,324,371		
	180,025,769	3,298,602	In Service

NET CONSUMPTIVE USE = 1,288,477 gal or 3.95 acft

NEW MEXICO OIL CONSERVATION COMMISSION

P. O. Box 2088, Santa Fe 87501

FORM G-108

MONTHLY GEOTHERMAL PRODUCTION REPORT

SUBMIT IN DUPLICATE

Month of: FEBRUARY 2000

Operator: NEW MEXICO STATE UNIVERSITY					Address: BOX 30001 DEPT 3545 LAS CRUCES NM 88003								
Lease Name: NOT APPLICABLE					Reservoir: LOWER RIO GRANDE				County: DONA ANA				
NOTE: Report actual production (NOT SALES). Use Form G-109 for water injection wells.													
Well Num	Unit Lett	Sec	Twp	Rge	Total mass prod lbs $x10^6$	Dry stm prod lbs $x10^6$	Flow temp ° F	Flow pres psig	Water prod ac-ft	Min'ls prod (type and tons)	Method of Prod (F or P)	No Days Well Prod	If well not in production state reason
LRG 520 (NMSU PG-1)	P	22	23S	2E	0	0	65	5	0	0	P	30	In Service
LRG 520-S-1	A	27	27S	2E	0	0	-	-	0	0	P	0	Out of Service
LRG 520-S-2		27	27S	2E	0	0	-	-	0	0	P	0	Out of Service
LRG 520-S-3 (NMSU PG-4)	M	23	23S	2E	38.26	0	145	25	14.08	0	P	30	In Service
TOTALS					38.26	0			14.08	0			

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

_____

Benjamin E. Woods
Vice-President for Facilities
Date: _____

NEW MEXICO OIL CONSERVATION COMMISSION P. O. Box 2088, Santa Fe 87501

FORM G-110

MONTHLY GEOTHERMAL INJECTION REPORT

Month of: FEBRUARY 2000

Operator: NEW MEXICO STATE UNIVERSITY					Address: BOX 30001 DEPT 3545 LAS CRUCES NM 88003					
Lease Name: NOT APPLICABLE					Field: LOWER RIO GRANDE			County: DONA ANA		
Well No.	Location UL	S	T	R	P.M. or D.	Acre Feet Water Inj.	Ave.Surf. inj . Press.	Ave. Temp. Inj. Water	Cumulative Water Inj.	Name of Inj. Zone	Source of Water
LRG 520-S-INJ	D	21	23 S	2 E	D	10.12	6.1	130	910.40	Santa Fe	PG-1
TOTALS						10.12			910.40		

P.M. is injection into a producing zone for the purpose of building up or maintaining pressure.
D. is injection into a zone other than a producing zone for disposal purposes.
I hereby certify that the above is true and complete to the best of my knowledge and belief.

Remarks: _____ Name: _____

_____ Company: New Mexico State University

_____ Title: VICE-PRESIDENT FOR FACILITIES Date: _____

N

0 600 1200

1" = 600'
GRAPHIC SCALE

LEGEND

- ⊕ PROPOSED WELL LOCATIONS
- • WELLS IN USE
- ○ WELLS WITH POTENTIAL FOR IRRIGATION USE
- ✎ ABANDONED WELLS
- ◉ MONITORING WELLS

GEOTHERMAL AREA

DO NOT USE

⊕ PROPOSED WELL SITE
WELL NO. 7 ✎
WELL NO. 14
SURFACE ELEV. 3882

WELL NO. 5

WELL NO. 12,13
SURFACE ELEV. 3888

WELL NO. 11 ✎
SURFACE ELEV. 3882

WELL NO. 15 ⊕
SURFACE ELEV. 3886

WELL 16

WELL 17

WELL NO. 3 ○
SURFACE ELEV. 3966

WELL NO. 2
SURFACE ELEV. 3903

WELL NO. 1
SURFACE ELEV. 3900

MW NO. 1
SURFACE ELEV. 3981

WELL NO. 8
SURFACE ELEV. 3954

MW NO. 2
SURFACE ELEV. 3960.5 ◉

MW NO. 3
SURFACE ELEV. 3954.5 ◉

WELL NO. 9
SURFACE ELEV. 3972 ○

PROPOSED WELL SITE

WELL NO. 6

WELL NO. 10
SURFACE ELEV. 3912 ○

MESILLA PARK

NMSU HORTICULTURE FARM

NMSU HORTICULTURE FARM

NMSU HORSE FARM

TORTUGAS

NMSU

UNIVERSITY AVE

EL PASO RD

INTERSTATE 25

FRONTAGE ROAD

TRUXZ DRIVE

STANLEY DRIVE

PAYNE STREET

MOSLEY ROAD

ACCESS ROAD

CHOLLA ROAD

RECEIVED
MAR 17 2000
Environmental Bureau
Oil Conservation Division

NEW MEXICO STATE UNIVERSITY

FRESH WATER

FIGURE NO. 1
WATER WELL LOCATIONS

NMSU HYDROLOGIC STUDY

MOLZEN-CORBIN & Associates

ENGINEERS/ARCHITECTS/PLANNERS Albuquerque Las Cruces New Mexico