DISCHARGE PLAN APPLICATION FOR BRINE EXTRACTION FACILITIES

I. Name of Facility:

See Application Form

II. Name of Operator or Legally Responsible Party and Local Representative:

See Application Form

Local Representative:

Name: Jim Rosser (575) 202-8604

III. Location of Facility:

See Application Form

See enclosed Proposed Action Map

IV. Landowners:

Rosette Inc.
26 Rose Land
Animas, New Mexico 88020

Phone: (575) 548-2353

V. General Proposed Action Description

The Lightning Dock Geothermal (LDG) facility will include a 10 megawatt geothermal power plant and associated facilities using binary technology. The facility consists of 50 UTC Power PureCycle 280 Power systems, each producing 280 gross kW. The PureCycle equipment converts heat provided by geothermal fluids into electricity utilizing the organic Rankin Cycle through the utilization of a closed circulation water system, a heat rejection cooling tower, and minor support systems. Each PureCycle unit consists of an evaporator, condenser, turbine, induction generator, cycle-pump, system controls, control valves and piping which is shop assembled/test, and shipped to the site as a complete unit. The facility is designed for limited personnel operation and is capable of producing clean energy on a continuous basis.

The Facility will be supplied with geothermal fluids from a well field which was developed by LDG. The geothermal fluids are produced and transported from the geothermal production wells to the power plant. The fluids flow under pressure directly into the PureCycle evaporators. The geothermal fluid heats and vaporizes the R-245fa working fluid, which is a hydro fluoro carbon refrigerant (HFC). The working fluid expands through the turbine which is coupled to the generator. The expanding working fluids are condensed in a water-cooled condenser and pumped back to the heat exchanger in a closed loop. The facility will utilize a cooling tower system to provide cooling water for the condensers. The spent geothermal fluids are returned via pipelines from the power plant facilities to the injection wells. Electric power required to operate power plant auxiliary equipment and produce, transport and re-inject the geothermal fluids is provided by the gross output of the Facility.

Type and Quantities of Fluids Stored or Used at the Facility:

Lubricants, hydraulic fluids and drilling chemicals (drilling mud, caustic soda, barite, etc.), would be transported to, stored on and used by the Project at the proposed drill and power plant sites (see Table 1). The project must conform to both federal and state requirements for handling these hazardous materials. Typical of most construction projects, the storage and use of these materials may result in minor, incidental spills of diesel fuel or oil on to the ground during fueling of equipment, filling of fuel storage tanks and handling of lubricants. Other incidental spills could be associated with equipment failures such as ruptured hoses. The Proposed Project includes a Storm Water Pollution Prevention Plan (Contingency Plan) which describes the methods for cleanup and abatement of any petroleum hydrocarbon or other hazardous material spill.

Table 1: Materials and Chemicals Commonly Used During Well Drilling

Product	Quantity Used	Quantity Stored
Drilling Mud Gel (Bentonite Clay)	200,000 lbs	100 lb sacks on pallets
Salt (NaCl)	80,000 lbs	2250 lb sacks on pallets
Barite (BaSO4)	12,000 lbs	50 lb sacks on pallets
Tannathin (Lignite)	2,500 lbs	50 lb sacks on pallets
Lime (Calcium Hydroxide)	2,000 lbs	50 lb sacks on pallets
Caustic Soda (Sodium Hydroxide)	1,000 lbs	50 lb sacks on pallets
Diesel Fuel	30,000 gals	6,000 gal tank

Lubricants (Motor Oil, Compressor Oil)	1,000 gals	55 gal drums
Hydraulic fluid	200 gals	55 gal drums
Anti-Freeze (Ethylene Glycol)	100 gals	55 gal drums
Liquid Polymer Emulsion (partially hydrolyzed polyacrylamide / polyacrylate (PHPA) copolymer)	100 gals	5 gal buckets

Table 2:Materials and Chemicals Commonly Used During Power Plant Operations

Substance	Size	Function
R-245fa	4-50 Gallon containers	Working Fluid
SAE 5W-30 Synthetic Motor Oil	49 Gallons	General lubricant and oil for emergency generator
Propane Tank	2-500 Gallon Tanks	Emergency Generator
SAE 5W-10 Synthetic Turbine Oil	5 Gallons	High Grade Oil For Refrigeration Pumps
Multi-Purpose Grease	5 Gallons	Lubricating Machinery
Teflon synthetic Grease	5 Gallons	Lubricating Machinery
pH - Chemicals - Depending on production water	Totes	Control pH in Cooling Towers

Well workover operations may involve placing a dilute mixture of hydrochloric (muriatic) and hydrofluoric acids down the well. The amount of dilute acid placed in the well bore (which can vary from 10,000 gallons to 50,000 gallons or more) is determined by calculating the amount of each type of mineral to be dissolved. Concentrated (35%) hydrochloric acid and 40% ammonium fluoride solution (to make the hydrofluoric acid) are trucked to the site and mixed on site with water by experienced contractors. The dilute acid mixture is placed in the cased well bore, followed by water to push the mixture into the geothermal reservoir. After dissolving the minerals in the geothermal reservoir, the water and spent acids are flowed back through the well to the surface where they are tested, neutralized if necessary (using sodium hydroxide or crushed limestone or marble) and discharged to the reserve pit.

VI. Transfer, Storage and Disposal of Fluids and Solids

A. The Lightning Dock Geothermal drilling procedures and plant operation will not be using toxic or hazardous substances. The geothermal fluids will be extracted and the heat removed and re-injected back into the ground in a closed loop system. The working fluid is a non-hazardous substance (R-245fa, see enclosed Material Safety Data Sheet) and is also a closed loop system. Water used in the cooling towers is groundwater supplemented with non-hazardous compounds to control corrosion, scale, and microbiological growth (see Plant Schematics).

1. Tankage and Chemical Storage Areas

Storage tanks for fluids other than fresh water will be bermed to contain a volume one-third more than the largest tank. If the tanks are interconnected, the berm will be designed to contain a volume one-third more than the total volume of the interconnected tanks. Chemical and drum storage areas will be paved, curbed and drained such that spills or leaks from drums are contained on the pads.

2. Surface Impoundments

The proposed date of the construction of the ponds is September 1, 2008 (see Construction Schedule).

The ponds will be earth-constructed with a 4:1 slope with a 45 mil liner. Each pond will be monitored with a level control alarm system.

Drilling Activities:

Reserve Pits would be constructed in accordance with the applicable Best Engineer Management Practices. The reserve pit(s) would be fenced with an enclosure fence on three sides, and then fenced on the fourth side once drilling has been completed to prevent access by persons, wildlife or livestock. The fence would remain in place until pit(s) reclamation begins.

Reserve pits would be constructed on each pad for the containment and temporary storage of geothermal fluid, drill cuttings and waste drilling mud during drilling operations. Each reserve pit would be approximately 200 feet long by 100 feet wide by 15 feet deep. The pit will be constructed with a 4:1 slope. They would each hold roughly 277,000 gallons, with a three foot freeboard. Reserve pits will be lined with a 45 (mil) material. The following liners have been selected to be used on the site because of their thermal properties: Chlorosulfonated Polyethylene-reinforced (CSPE-R), Ethylene Propylene Diene Monomer (EPDM) and Flexible Polypropylene (FPP). No

other liners will be selected unless approved by the Division.

Where possible the liners will be seamless. Where seaming is performed, the seams will be hot-wedge w/double track weld with a 4-6 in overlap. The seaming will be preformed by a qualified individual.

Power Plant Operations:

During operation of the power plant, up to approximately 2,200 acre-feet of water would be consumed per year for the facility cooling tower operation. Water would be pumped from one or more groundwater wells proposed on private land. Water from the wells would be delivered to the power plant via a buried pipeline adjacent to the access road.

For the operation of the power plant the following two ponds will be constructed:

STRUCTURE	SIZE	FUNCTION
Blowdown Pond (Lined)	250' x 100' x 4' (750,000 gallons)	Retention of Excess Geothermal Water
Evaporation Pond (Lined)	100' x 50' x 4' (200,000 gallons)	Retention of Excess Water

Design and construction of the ponds will be overseen by a Professional Engineer.

3. Leach Fields

There will be no leach fields on the property.

4. Solids Disposal

Drilling mud stored in the reserve pit during the drilling operations will be dried and analytically tested before being buried or hauled to an approved off-site disposal facility. It is not anticipated that drilling mud will have toxic or contaminated constituents. All other solids including sands, sludges, filter, containers, cans and drums will be stored in an on site dumpster and disposed as needed to the local approved solid waste facility. If the geothermal fluid produces a buildup of solids they will be analytically tested and disposed of according to local, state and federal regulations.

B.

1. No toxic pollutants are expected to be on the property. All ponds will be lined with a 45 mil liner. All chemicals, lubricants and greases, will be stored in the AContainment Curbed@ area of the 20' 30' storage building.

2. During drilling activities there will be a Pason monitoring system installed at the well to monitor the drilling at real time. Sampling ports and gauges will be installed on the well head to monitor the temperature, pressure and water volume. A sampling port will be available to collect water samples. Water samples may be collected during various times throughout the drilling period to provide data to assist the geologist in evaluating the well. Water samples will be collected upon completion of the well and during short and long term pumping tests.

   During plant operations samples of geothermal fluids will be collected to determine the chemistry of the reservoir. Temperature, pressure and volume in the wells will be monitored by automated instruments. Well properties will be measured and transmitted with a 4-20ma interface to the Programmable Logic Controller (PCL). Instrumentation will be provided to produce historical temperature, pressures and flow data from the individual geothermal production wells.

3. No monitoring wells are proposed to monitor leakage or failure of any discharge system. See Section F-4 for automated operation and monitoring systems. Employee inspections of retention and storage ponds will be monitored on a weekly basis. (See Storm Water Pollution Prevention Plan for Construction Activities - Erosion and Sediment Control Inspection Form).

C. Off-site Disposal

No hazardous wastewater sludges, solids etc. are expected to be pumped or shipped off-site.

All lubricants, maintenance oil and grease will be brought on-site in relatively small amounts as described in Section V of this document. All lubricants, maintenance oils, etc will be stored in a 20 x 30 curbed cemented Containment Cube.

The operator will take extensive measures to prevent leaks or spills as outlined in the Operation Plan, Storm Water Pollution Prevention Plan and Section F-4 of this document.

The operator will follow all state and federal regulations in the delivery, storage, usage, spills/leaks and will abate or remediate and dispose of any and all hazardous,

regulated or substances of concern.

See Enclosure - Storm Water Pollution Prevention Plan

The operator will notify the division of fire, breaks, leaks, spills and blowouts as outlined in 19.14.36.8 NMAC.

If it becomes necessary to transport waste waters, sludges, solids, etc from off site, the operator will use an approved OCD disposal contractor. The operator may use Butterfield Trail Regional Land Disposal as their disposal contractor.

Disposal contractor: Butterfield Trail Regional Land Disposal

Contact : Tom Bates

Address: Deming, New Mexico

Phone Number: (575-546-8848

D. Proposed Modifications

1. Proposed Modifications

   The applicant feels that in Section B.1 they have demonstrated the ability to protect possible ground water by meeting the requirements of the Regulations.

2. The applicant feels they have demonstrated that by the use of liners in the pond and by following state and federal regulations ground water will be protected.

E. During the drilling activities the well casing and piping will follow the specifications as presented in the drilling plan. During the power plant operations the piping systems primarily include the geothermal water and condenser water systems . The basic design specifications common to both systems includes the following:

1. Geothermal piping designed, fabricated, installed and tested to ASME/ANSI B31.3.

2. Condenser Water piping, instrument air piping designed, fabricated, installed and tested to ASME/ANSI B31.9

3. Pipe material shall conform to ANSI A 106 or A53 Grade B.

4. All piping material shall be domestic in origin or certified as fabricated to US standards.

5. Flanges shall be slip-on ANSI 150# rated.

6. All pipes shall be of welded construction.

7. Insulation for piping shall be calcium silicate material.

8. Insulation jacketing shall be .016 PAINTED embossed aluminum or other Engineer Approved Lagging such as Colored Polycarbonate.

9. The pipe shall be sized to maintain a minimum velocity of 4.75 fps and a maximum velocity of 11.18 fps (with 50 units).

10. To the extent possible piping shall be fabricated off site and shipped to the site for installation.

11. After installation all piping and equipment shall be flushed and cleaned.

12. In accordance with ASME/ANSI B31.3 requirements, well field piping shall receive a 5% random x-ray weld inspection.

Mechanical Integrity Testing

1. MIT Tests:

   a. Internal test - No leaks from casing or other casing components.

   b. External Test - No movement of fluids/water behind the casing.

   MIT Test to demonstrate the internal and external test will be "Casing Integrity Tool" and "Cement Bond" respectively.

   Pressure testing will be conducted before the casing shoe is drilled out.

   The Division will be notified a minimum of 48 hours before conducting MIT testing, so a representative may be on site to witness the test.

   Drilling manager will be responsible for maintaining a pressure monitoring system.

System will record the test in real time and the Division will be sent annotated graphics of the test.

2. MIT Procedure:

Casing Test Pressure - Test to 500 psi or maximum authorized injection pressure; 4 hours test.

A successful test is one in which the pressures stabilize within 10% of the required test pressure and remain stabilized for a minimum of 30 minutes.

3. MIT Report

Within 30 days after completion of testing, a Summary Report will be compiled and submitted to the Division with the following information:

a. Condition of geothermal well(s) prior to test (e.g. static, injection at designated gpm, etc.)

b. Condition of well(s) during test(s) , such as, but not limited to operating conditions of the well, water level, changes in status/conditions of the well during test, anomalies witnessed prior to or during test, gauges calibration and conditions for any gauges used, etc.

c. A static temperature, pressure and spinner log will be submitted.

d. Interpretation and conclusions of all test results stating whether each well meets the internal and external regulatory requirements in the regulations will be provided. This will be done in conjunction with the Service Company.

F. Inspection, Maintenance and Reporting

The drilling reserve pits will be monitored by the drilling crew and drill master on a 24/7 basis during drilling operations.

1. During the plant operations two surface impoundment will be constructed to retain the excess geothermal water and water used for the cooling towers.

The cooling tower water will be pumped from a local well by permission of the owner.

The applicant has enclosed the water chemistry from the well and the geothermal source, and no toxic or hazardous chemical have been detected in the water analysis (see Analytical Summary Report). The ponds at no time will treat, store, etc. hazardous chemicals.

The surface impoundments will be designed and inspected upon completion for structural integrity by a professional engineer. The impoundments will have a freeboard equal to or greater than three feet to avoid overtopping from wave action or precipitation. Each impoundment will be installed with a level detection alarm system.

While the surface impoundments are in operation, they will be inspected by the owner/operator weekly and after storms to detect evidence of any of the following;

a. Deterioration, malfunction, or improper operation of control systems

b. Sudden drops in the level of the impoundment=s contents

c. Severe erosion, seepage, or other sign of deterioration in dikes or other containment device

Prior to placing a surface impoundment into operation, or prior to renewed operation after six months or more during which the impoundment was not in service, a professional engineer must certify that the impoundment's dike and liner have structural integrity.

Emergency Repairs and Contingency Plans

If a malfunction occurs in the containment system which can cause a release to land or water, a surface impoundment will be removed from service and the operator will take the following actions:

a. Immediately shut down the flow of additional water into the impoundment.

b. Immediately stop leak and contain water which has been released.

c. Take steps to prevent catastrophic failure.

d. If leak cannot be stopped, empty the impoundment.

e. Clean up all release wastes and any contaminated materials if present.

f. Notify the division of the problem within twenty-four hours after detecting the problem.

No Surface impoundment that has been removed from service will be restored to service unless the portion of the impoundment which was failing is repaired and the following steps are taken:

a. If the impoundment was removed from service as the result of actual or imminent failure, the operator will certify the dike=s structural integrity.

If the impoundment was removed from service as the result of a sudden drop in the liquid level, the following actions must be taken:

a. For any existing portion of the impoundment without a liner, a liner will be installed.

b. For any portion of the impoundment that is lined, the liner will be repaired and operator will certify that repaired liner meets design specification approved in the permit.

As presented in 19.14.36.8 the notification of a break or leak in the two surface impoundments would be reported as outlined.

Major breaks, spills or leaks: Notification of breaks, spills or leaks of wellheads, pipelines, tanks, drilling pits, storage pits or ponds, the result of which 50 barrels or more of liquids containing hydrocarbons or hydrocarbon wastes, salt water, strong caustics, strong acids or other deleterious substances reach a water course or enter a stream or lake, or in which noxious substances escape or any quantity of fluids are lost which may with reasonable probability endanger human health or result in substantial damage to property, will be classified as 'immediate notification'. Under this notification the operator or owner would in person or by telephone notify the incident to the nearest district office of the Division. A complete report would be required within 10 days after discovery of the incident to the Santa Fe office.

Minor breaks, spills or leaks: Notification of breaks, spills or leaks of well heads, pipelines, tanks, drilling pits, slush pits, storage pits or ponds, the result of which 25 barrels or more but less than 50 barrels of liquids containing hydrocarbons or hydrocarbon wastes, salt water, strong caustics or strong acids or other deleterious substances are lost or in which noxious gases escape, but in which there is no danger to human health nor of substantial damage to property will be subsequent notice. This notice requires a

completed written report to the Santa Fe office with in 10 days.

The report will identify the location of the incident by quarter-quarter, section, township and range, and by distance and direction from the nearest town or prominent landmark so the exact site of the incident can be readily located on the ground. The report will specify the nature and quantity of the loss and also the general condition prevailing in the area, including precipitation, temperature and site conditions. The report will also detail the measures that have been and are being taken to remedy the situation reported.

2. Ground water monitoring will not be used to detect leakage or failure of surface impoundments (see F-1).

3. Surface impoundments are not considered a process area and will be used only for retaining excess geothermal fluid and for water used in the cooling towers. The power plant site will be graded so that precipitation and runoff water will be diverted to the retention pond. A level detection alarm system will be installed in the pond to insure the operator is aware of the additional water. If it becomes necessary to remove water from the pond, the water will be tested for hazardous constituents as directed by the Division.

4. During the operation of the power plant there will be no above or below ground tanks. There will be drums and containers as detailed in Section V. These containers will be stored in a "Containment Curbed" cement area of 20'x30'. This area will be inspected on a weekly basis. There will be underground geothermal piping transporting geothermal fluids from the production wells to the power plant, and the spent fluid being returned to the injection wells. This is a closed loop system and will be closely monitored by the plant instrumentation. In the plant there will be additional piping above ground and below ground to transport working fluid to the plant and the cooling towers. The plant will have a central system to monitor and control water flow, temperatures, pressures, etc.

The control system is based on a Programmable Logic Controller (PLC).

PLC System

a. PLC Processor, Input and Output (IO) modules
b. Operator Interface (HMI)
c. Remote IO Panels with network interface
d. Switch Gear Interface, to the 2500 amp breaker (SWGR-1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B and 5A)

The PLC Processor and IO modules will interface to the automated instruments and control devices typically located near the PLC control panel. In addition, the PLC will have a hardwired interface to the UTC generators. This will allow the generators to be shut down in case of a utility >trip@ or if some other process condition dictates. One PLC output will interface to a set of five generators, allowing for a partial shutdown (in groups of five), or more commonly a complete shutdown.

The HMI will be located near the PLC and provide operating parameters of the generation Plant. This information includes status of the circuit breaker at the Utility Interface CB-M, status from the 2500 amp breakers, and process pressure and temperatures.

Remote IO is used to reduce the length of the instrument and control runs from the PLC to the IO points. Remote IO is located in the Motor control Center (MCCs) which have automated start and stop functions from the PLC. Typically, the instruments located near the Remote Panels will be routed to them. The Remote IO Panels will be networked to the PLC.

The Generator Switch Gear 2500 amp main breaker has a network interface. This interface will allow the PLC to monitor the operating parameters such as voltage level, currents and breaker status. This interface will allow the PLC to open the breaker as needed. Typically the breaker will be opened if CB-M is opened. If the breaker is opened, or trips, the PLC will indicate an open and tripped status on the HMI. The PLC will not close the breaker, forcing the breaker to be manually closed when conditions allow. When the breaker has been manually closed, the HMI will indicate the breaker is closed and tripped status will be removed.

The condenser water system is divided into four operating zones. The operation of zones is controlled by the operator using HMI display. The condenser water pumps are controlled by the PLC and are based on the number of operating zones.

Geothermal pressure control valves automatically adjust to increased supply and demand for the geothermal water. As geothermal well pumps and generators start and stop, the geothermal supply and demand increases or decreases. The pressure control valve adjusts to compensate for fluctuations in the supply and demand.

Cooling fans are automatically controlled. When one or more cooling pumps are running the cooling fan control begins. Cooling fans are turned on and off to adjust the condenser water temperature supplied to the generators. As the

temperature increases, more fans are started. To conserve energy, as the temperature decreases, running fans are stopped accordingly.

Instrumentation will be provided to produce historical temperature and flow data from individual geothermal production wells.

Manuals valves (on/off) will have field verifiable valve position indicators, either by handle position or open and closed position indicators.

Pressure measurements will typically have a field mounted transmitter with a 4-20ma interface to the PLC. The pressure measuring element typically uses a manual isolation valve to allow maintenance without process disruption.

Temperature measurements will typically be in the process flow, and will be incased in temperature wells allowing for maintenance without process disruption. Temperature measurements will typically be done with RTD temperature elements. The RTD will connect to a field mounted transmitter. This transmitter will typically have local or field temperature readout and a 4-20ma PCL interface.

Automated valves will typically have an air actuated controller. For valves requiring on/off control, the valve actuator will be operated by a solenoid valve. Automated control valves are typically I/P type actuator using a 4-20ma signal from the PLC. Automated valves will have a >fail safe= valve position either normally open or normally closed. The fail safe state is determined by the process conditions to maintain safe operating conditions for personnel and equipment.

The power plant will install a hydrogen sulfide monitoring system with an alarm system. The operator will also install a wind sock to the appropriate height to detect wind direction.

5.

The estimated life of the Project is 30 years or its useful life, whichever is longer. The power plant and field facilities will be decommissioned after having served their use. At this point all useful equipment and material will be salvaged and unsalvageable equipment and materials will be removed from the project site. Since the plant will be designed to be compatible with the existing vegetation and topography, the project site will be easily reclaimed so that it can be used for agriculture purposes or for other uses.

Production and injection wells will be abandoned in compliance with the New Mexico Administrative Code as administered by the New Mexico Department of

Minerals and Natural Resources, New Mexico Department of Environmental Protection and the New Mexico State Engineers. The well abandonment will be in compliance with all federal requirements as administered by the BLM.

The geothermal brine gathering and injection pipeline system will be completely disassembled and the disturbed areas will be returned to their original condition.

Within the power plant area all equipment and vessels, such as storage tanks, heat exchangers, turbine/generator sets, condensers, piping, pumps and electrical components, will be removed from the site. Since only minor changes to the plant site will take place during operation and construction, reclamation efforts will be minimal.

All unusable or unsafe structures will be dismantled and removed from the site. Drilling pads and ponds will be restored to the original land surface conditions. Ponds will be reclaimed by removing any contaminated clay and grading the area similar to the original topography. All land will be graded to conform to the existing topography and any paving materials not used for future purposes will be removed. Areas not to be used immediately for cultivation will be planted with an appropriate native grass or shrub mix. The transmission line will most likely be in an operable condition after power plant decommissioning and, therefore, can be used for electrical transmission. The segment of the transmission line located on the owner's property may become the property of the owner. Columbus Cooperative Power Company will most likely use the remaining portion of the line not located on the owner's property for local electricity distribution after making minor modifications to the line. Any segments of the transmission line which are not sold or given to another party will be removed. Poles sites will be returned to their original conditions.

All above-ground equipment, including the power plant, ancillary facilities, the pipelines and their supports would be removed. LDG would prepare a site reclamation plan for review by all relevant state and federal agencies. The plan would address restoring the surface grades, surface drainage and revegetation of cleared areas.

VII. Brine Extraction Well(s)

Each well would be drilled and completed to a nominal measured depth of 3,400 feet. The geothermal well drilling program involves a sequence of drilling holes to a selected depth, cementing a steel casing of smaller diameter into the drilled holes, and then repeating the process with progressively smaller holes and cemented casings to progressively greater depths until the design depth is reached. The steel casing is designed to prevent mechanical failure of the drilled hole, prevent contamination of ground water by geothermal fluid, and prevent loss of the geothermal resource into other aquifers. After cementing of the initial (surface) casing in the well, blowout prevention equipment (BOPE), which is typically inspected and approved by the division would be installed, tested and ready for use while drilling to ensure that any geothermal fluid encountered does not flow uncontrolled to the surface.

Each well will be drilled to a depth of approximately 3,000 feet using non-toxic, temperature-stable drilling mud composed of a bentonite clay-water or polymer-water mix to lubricate and cool the drill bit, bring rock cuttings to the surface for discharge into the reserve pit, and prevent loss of drilling fluids into the rock. Additional non-hazardous and not-toxic additives would be added to the drilling mud as needed to prevent corrosion, increase mud weight and prevent mud loss. Additional drilling mud would be mixed and added to the drilling rig's mud system as needed to maintain the required quantities.

Below approximately 3,000 feet, each well may be drilled using water with a soap/foam additive and compressed air to reduce the weight of the drilling fluids in the hole, maintain the reservoir permeability and carry the cuttings to the surface. The air, water, rock cuttings, and any reservoir fluids brought to the surface would be diverted through a separator/muffler to separate and discharge the air and water vapor to the atmosphere, and the drilling mud and cuttings to the reserve pit. Upon reaching a desired measured depth, with the drill rig still over the well bore, the residual drilling and cuttings would be flowed from the well bore and discharged to the reserve pit. The well would be evaluated using wireline pressure, temperature and spinner logs. Short term and long-term flow tests could then be conducted on the well.

Individual injection wells are expected to receive between 3,750 and 4,750 GPM (6,000 to 7,600 acre-feet per year) of <220 degree geothermal fluid with well head injection pressures of about <100 psig.

A. Drilling, Deepening, or Plug Back Operations

1. Operator has enclosed the C-101 form to drill wells 13-07, 33-07,53-07, 45-07, 47-07, 42-07, 62-0 and 82-07.
2. Operator has enclosed the ANotice of Intent to Discharge@ in accordance with WQCC regulation 1-201.
3. See Enclosed map. (Exhibit B)
4. For complete site details see - Well Log For 55-7 and Geologic Study and History
5. See Enclosure - Sundry Notice To Abandon Existing Wells.
6. See Enclosure - Typical Geological Cross Section (Plan of Operations).
7. See Enclosure - Geologic Study and Well 55-7 Drilling Log and Evaluation.
8. See Enclosure - Typical Well Pad Layout and Geothermal Well Completion Profile.
9. See Enclosure - Logging, Procedures, Coring Program and Deviation Checks (Plan of Operations).
10. See Enclosure - Operation Procedures (Plan of Operations).
11. See Enclosure - Abandonment and Plugging (Plan of Operations).

B. Workover Operations

Well work over operations consist of a wide range of potential measures such as air or gas lift operations, formation stimulation (using a dilute mixture of hydrochloric (muriatic) and hydrofluoric acids or rock fracturing techniques), multiple well completions, and well deepening or re-drilling. Subsequent to any well work over, the well would likely be flow tested again.

Before performing remedial work, altering or pulling casing, plugging or abandonment or any other workover, approval of OCD will be obtained. Approval will be requested on an approved OCD Form.

C. Additional Information Required with Discharge Plan

1-2. Upon the request to drill, deepen, workover or plug back operations the operator will use the OCD's ASundry Notices and Report on Well@ form to provide the following information: evaluation, completion and well workover details; including all logs, test results, completion reports, workover descriptions, proposed maximum and average injection pressures and injection volumes, description of injection and extraction procedures, reverse flow if used, mechanical integrity testing procedures and any other information the Division may require.

3. Mechanical Integrity Testing

The mechanical integrity testing of the casing will be conducted prior to use of production or injection wells (see Section E).

MIT Tests:

a. Internal test - No leaks from casing or other casing components.

b. External Test - No movement of fluids/water behind the casing.

MIT Test to demonstrate the internal and external test will be ACasing Integrity Tool@ and ACement Bond@ respectively.

Pressure testing will be conducted before the casing shoe is drilled out.

The Division will be notified a minimum of 48 hours before conducting MIT testing, so a representative may be on site to witness the test.

Drilling manager will be responsible for maintaining a pressure monitoring

system. The system will record the test in real time and the Division will be sent annotated graphics of the test.

MIT Procedure:

Casing Test Pressure - Test to 500 psi or maximum authorized injection pressure; 4 hours minimum test.

A successful test is one in which the pressures stabilize within 10% of the required test pressure and remain stabilized for a minimum of 30 minutes.

MIT Report:

Within 30 days after completion of testing, a Summary Report will be compiled and submitted to the Division with the following information:

a. Condition of geothermal well(s) prior to test (e.g. static, injection at ###gpm, etc.)

b. Condition of well(s) during test(s) such as, but not limited to operating conditions of the well, water level, changes in status/ conditions of the well during test, anomalies witnessed prior to/during test, gauges calibrations and conditions for any gauges used, etc.

c. A static temperature, pressure, spinner log will be submitted.

d. Interpretation and conclusions of the test results stating whether each well meets the internal and external regulatory requirements will be provided. This will be done in conjunction with the Service Company.

The operator will conduct a casing pressure test isolating the casing from the formation using either a bridge plug or packer prior to start-up, and repeat at least once every five years or during well workover. The operator will conduct an open hole pressure test to 500 psi for 4 hours on an annual basis.

4. Please note that the geothermal fluid and injection fluid are one and the same. This is a closed loop system. The operator has proposed to install the following 5 production wells and 3 injection wells at the Lightning Dock site:

Production Wells:

13-07
33-07
53-07

45-07
47-07

Injection Wells:

42-18
62-18
82-18

Upon completion and before injection, each well will be sampled from the sampling port on the well head. A sufficient volume of water will be drawn off before the production well is sampled to ensure a representative sample is collected from the geothermal reservoir. Sample will be collected and submitted to the laboratory for analysis for concentrations of Total Dissolved Solids, Sodium, Calcium, Potassium, Magnesium, Bromide, Carbonate/Bicarbonate, Chloride and Sulfate. Sampling containers will be obtained from the laboratory to ensure cleanliness of the containers. All standard industrial environmental sampling standards will be observed in collection, storing, and delivery to the laboratory. The operator will use only a New Mexico approved laboratory.

Samples will be documented and tracked using a standard Chain-of-Custody form. Sample custody begins at the time of sample collection and will be maintained by the sampling individual until samples are relinquished for shipment to the laboratory, or until samples are hand-delivered to the designated laboratory sample custodian.

5. Upon well completion the operator will provide an analysis of the injection fluid and brine. The report will also compare volumes of fresh water injected to volume of brine to detect underground losses and specify methods by which volumes are determined. After approval, submittal of a quarterly report listing by month the volume of fluids injected and produced will be delivered to the Division.

6. The operator will submit a renewal application for the facility Operation every 15 years to provide information on the size and extent of the solution cavern and geologic/engineering data demonstrating that continued brine extraction will not cause surface disturbance or catastrophic collapse.

VIII. Spill/Leak Prevention and Reporting Procedures (Contingency Plans)

A. The Lightning Dock geothermal drilling procedures and plant operation will not be using toxic or hazardous substances. The geothermal fluids will be extracted and heat

removed and reinjected back into the ground. If geothermal fluids are spilled or released they will be abated in a timely manner and reported as explained in Section VI-F of this document.

The working fluid is a non-hazardous substance which is also a closed loop system. If the working fluid spills or leaks it will be abated in a timely manner and reported as explained in Section VI-F of this document.

Water used in the cooling towers will be groundwater. Some non-hazardous compounds will be used to control corrosion. If water leaks or spills it will be abated in a timely manner and reported as explained in Section VI-F of this document.

All lubricants, maintenance oil and grease will brought on site in relatively small amounts as described in Section V of this document. All lubricants, maintenance oils, etc. will be stored in a 20 x 30 cubed cemented "Containment Cube".

B. The operator will take extensive measures in preventing leaks or spills as outlined in the Operation Plan, Storm Water Pollution Prevention Plan and Section VI-F of this document. The operator will follow all state and federal regulations in delivery, storage, usage, spill abatement or remediation and disposal of any and all hazardous, regulated or substances of concern.

See Enclosure - Storm Water Pollution Prevention Plan

C. The operator will notify the division of fire, breaks, leaks, spills and blowouts as outlined in 19.14.36.8 NMAC.

IX. Site Characteristics

A. The subject property resides to the south of the Gila River in the Animas Valley. The Animas Valley Watershed is a closed basin system with no outlet. The valley drains the surrounding highland through ephemeral streams and creeks and occupies an area that is from 7 to 13 miles in width and about 90 mil long. The northern portion of the valley contains alkali lakes that are the remnants of collected surface water. The valley ends just to the north and northwest of the city of Lordsburg and is separated by the Gila river from the Lordsburg Mesa.

The subject property is situated within the Rio Grande aquifer system. This aquifer system is the principal aquifer in the New Mexico, Texas, and Colorado Area. These aquifers consist of interconnected intermountain sediment-filled valleys. This basin fill material is the principal water-bearing unit. These sediments generally consist of the Santa Fe Group of the Gila conglomerate in southwestern New Mexico. These Tertiary and Quaternary deposits are discontinuous units and generally range in

thickness of several hundred feet. The aquifer is recharged through mountain-valley boundaries, river and stream loss and irrigation discharge. In Hidalgo County in the Animas Valley, a geothermal region lies on the eastern side of the valley at the foot of the Pyramid Mountain about ten miles south of Interstate 10, and about 20 miles distant from Lordsburg. In the site vicinity, depth to ground water is reported about 40 to 60 feet below ground surface (bgs) but is variable with pumping rates and water usage in the area. The groundwater gradient in the overall valley is to the west and north-northwest following topography.

"The Effects of Shallow Geothermal Fluid Utilization on Fresh Water..." by Richard Austin has been enclosed for the Division's review.

1. See Enclosed Proposed Project Action Map

2. See Enclosed Analytical Reports.

3. See Enclosed Well Study and Well Log for 55-07.

4. Provide Information On:

   a. In a review of the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency (FEMA) for Hidalgo County in the general area of the subject property, and communications with personnel from FEMA it appears the subject property and surrounding area has not been mapped with regard to flood zones. Numerous ephemeral streams are present and adjacent to the subject property; it appears that the site would have minimal flood potential associated with these ephemeral streams and mountain drainage on and about the site.

   b. No additional flood protection measures will be provided.

B. Additional Information

The operator has provided in this document information necessary to demonstrate that approval of the discharge plan will not result in concentrations in excess of the standards of WQ Section 3-103, or the presence of any toxic pollutant (Section 10101.UU.) at any place of withdrawal of water for present or reasonable foreseeable future use.

The operator will provide additional information upon request from OCD.

X. Other Compliance Information