GW - 45

GENERAL CORRESPONDENCE

YEAR(S):

1988-1985

Sunterra GAS PROCESSING COMPANY
P.O. BOX 1869 • BLOOMFIELD, NM 87413 • (505) 632-8033

March 9, 1988

Mr. Roger C. Anderson
Environmental Engineer
Oil Conservation Division
Energy, Minerals and Natural
Resources Department
P.O. Box 2088
Santa Fe, NM 87504

Re: Kutz Canyon Gas Plant -
Waste Discharge Plan GW-45

Dear Mr. Anderson:

Enclosed are Sunterra's responses to your letter dated January 22, 1988. Please note that OCD's questions are italicized with Sunterra's response in regular type.

If further information is required, please advise.

Sincerely,

John Renner
Vice President and General Manager

JR/scg
Enclosure

PROCESSING UNITS

1. *The text of the plan states methanol, Ambitrol and ethyl mercapton are used in the process. Please submit the material safety data (MSD) sheets for these and any other chemicals used at the facility.*

   MSD sheets are included as Appendix 2 for all chemicals used at the Kutz Plant.

2. *Exhibit 5 shows the flare lines are routed directly into the lined pond without going through the oil/water separator. No flare lines from Kutz No. 1 go to the flare or the proposed flare pond. Is the exhibit drawn incorrectly?*

   Exhibit 5 in the waste discharge plan was drawn in error. A new Exhibit 5 is included showing the correct flare and wastewater routings.

WASTEWATER CHARACTERIZATION

1. *The text states open drains drain wash down water in the compressor buildings. Are there any soaps or degreasers used for cleaning? If so, please submit the MSD sheet for each chemical. Are the floors of the compressor buildings constructed of an impervious material? Are the curbed to prevent contaminant runoff to the surrounding soil? Are any other process facilities curbed?*

   Compressors are steamed cleaned and hand wiped. Sometimes N/L cleaner is used. Stoddard solvent (mineral spirits) is used for parts cleaning. MSD sheets are in Appendix 2.

   The compressors have contained concrete sumps under floor level. These sumps will drain to the collection box where the oil will be separated out by the hydrocarbon/water separator. The compressor building floors are concrete painted with floor sealant. The compressor buildings are not bermed.

   None of the process facilities are bermed. However, our plan states we will berm all pumps and oil storage areas. These bermed areas will be vacuumed out with our portable pump and tank and the collected contaminants will be deposited in collection box for separation by the hydrocarbon/water separator. The separated hydrocarbons will be put into storage for recycle.

2. *Fire fighting training sessions use approximately 2,000 gallons per session. Where is the training held? Is a burn pit used? If so, what is its location? If a pit is not used, where is the water disposed of?*

   Most fire fighting is done with C3 (propane) as the fuel. Once a year we fill the fire fighting pit with river water and add 50 gallons of naphtha, allowing it to burn for training. When training is complete, we stand by as the naphtha burns off. The water in the pit evaporates. The pit is shown on Exhibit 5.

Sample

PLANNED PROCESS CHANGES

1. *There are several process chemicals identified in this section of the plan. Submit MSD sheets for all chemicals that are or will be used at the facility.*

   Appendix 2 contains all the MSD data sheets for all chemicals used at the plant.

TRANSFER AND STORAGE OF PROCESS FLUIDS AND EFFLUENTS

1. *The text states the collection boxes shown on Exhibit 5 are underground and of block-concrete design. Are there leak detection systems for these drains? If there is not a leak detection system in place or planned, submit an inspection method and schedule that is frequent enough to ensure integrity of the boxes. If leak detection systems are planned, submit the construction designs for review. A method and schedule for initial testing of the boxes must be submitted prior to plan approval.*

   The collection boxes will have a leak detection system installed. The design is shown in Exhibit 11.

   Initially the boxes will be filled with river water and the sump observed for four hours to check for leaks. The sumps will be checked on a regular basis to insure integrity.

2. *This section also states Sunterra plans to do integrity testing of the underground wastewater pipelines. Submit the proposed method and schedule.*

   After installation of drainage piping, each section will be plugged and filled with river water. We will monitor for four hours to check for leaks. We will test wastewater piping integrity every five years.

EFFLUENT DISPOSAL

1. *The text states the leak detection system of the proposed lined pond will be monitored daily. Submit a Contingency Plan that will be followed if fluids are observed in the sump. The procedures should include but are not limited to the following.*

   a. *Notification of the OCD.*

   b. *Analysis of the fluids to determine their origin, and supply the OCD with the analysis results.*

   c. *If fluid is from the pond, notify OCD of proposed work (including liner repair) and provide follow-up information to the OCD of actions taken.*

   If, during daily monitoring, fluids are detected in the sump of the proposed double lined pond, Sunterra will notify the Aztec office of OCD. A sample of the fluid will be analyzed to determine if the pond liner is

leaking. If the fluid is coming from a leak in the liner, Sunterra will notify OCD of the leak and proposed remedy to repair the leak. OCD will be notified of Sunterra's progress in fixing the leak and other follow-up information requested by OCD.

MISCELLANEOUS

1. *Exhibit 5 has an area labeled proposed flare pond. Is this pond going to be lined with leak detection? If this pond is not going to be lined, a demonstration must be made that any fluids entering this pond will not pose a threat of groundwater contamination. If a lined pond is proposed, submit the construction plans for review.*

   Sunterra proposes a bentonite lined pond as a flare pond. The purpose of the pond is for use as a liquid seal to prevent flash back of the flare system. Liquid level will be controlled with the use of automatic liquid level control. River water will be used for makeup due to loss by natural evaporation and additional evaporation caused by the heat release of the flare. The construction plans are shown in Exhibit 12.

2. *Exhibit 5 also shows what appears to be a pit south of the K-station. Identify this pit and its present function. What did this pit receive in the past? Will this pit be used in the future? If so, what for? If it is to be abandoned, submit a closure plan for review.*

   This pit was used in the past to collect inlet gas scrubber purges for the Y-station compressors. This scrubber purge has been rerouted into the existing flare pond. Sunterra proposes that this scrubber purge will pass through the hydrocarbon/water separator in our discharge plan. This pit will be closed and any tainted soils will be used as partial backfill of the existing flare pond as it is closed.

3. *There is no mention of solid waste disposal in the plan. What is the final disposition of all solid wastes generated at the plant?*

   The solid wastes produced at the Kutz plant are disposed of in the following manner:

   Oil, air, glycol, fuel and gas filters, oily rags, wastepaper, and pall rings are picked up by Waste Control of New Mexico. Pall rings include frac sand, formation fines, carbonate scale and ferrous oxide.

   Iron sponge material (treated wood chips) are spread out on the ground away from the process area (after being steamed out in the vessel to remove sulfur and hydrocarbons). These chips are allowed to neutralize naturally, becoming an inert substance.

   Activated charcoal is treated the same way, steamed out in the vessel and spread out on the ground away from the process area.

   Dehydrator molecular sieve material (alumina-silicate) and ceramic balls are spread out around the plant area where excessive moisture collects.

All used (waste) oil is collected in a used oil tank and sold to Mesa Petroleum to be recycled. The waste oil collection tank will be on a concrete and bermed slab.

Lean oil reclaimer, generators, reciprocating compressors, turbine compressors, air compressors, expander/compressors, and automotive oils are the only sources of waste oils.

All used barrels are to be stored on concrete slab, to be returned to vendors. These include muriatic acid, caustic soda, air compressor oil, expander oil, N/L cleaner, and cooling tower chemicals.

4. *There is no mention of an SPCC plan in the application. If the facility has prepared and submitted an SPCC plan to the USEPA, please supply a copy to the OCD for inclusion in the discharge plan.*

   A review of the files indicates that an SPCC has not been prepared and submitted to the EPA.

5. *Are there any laboratory facilities at the plant? If so, identify all chemicals used in the lab and their final disposition.*

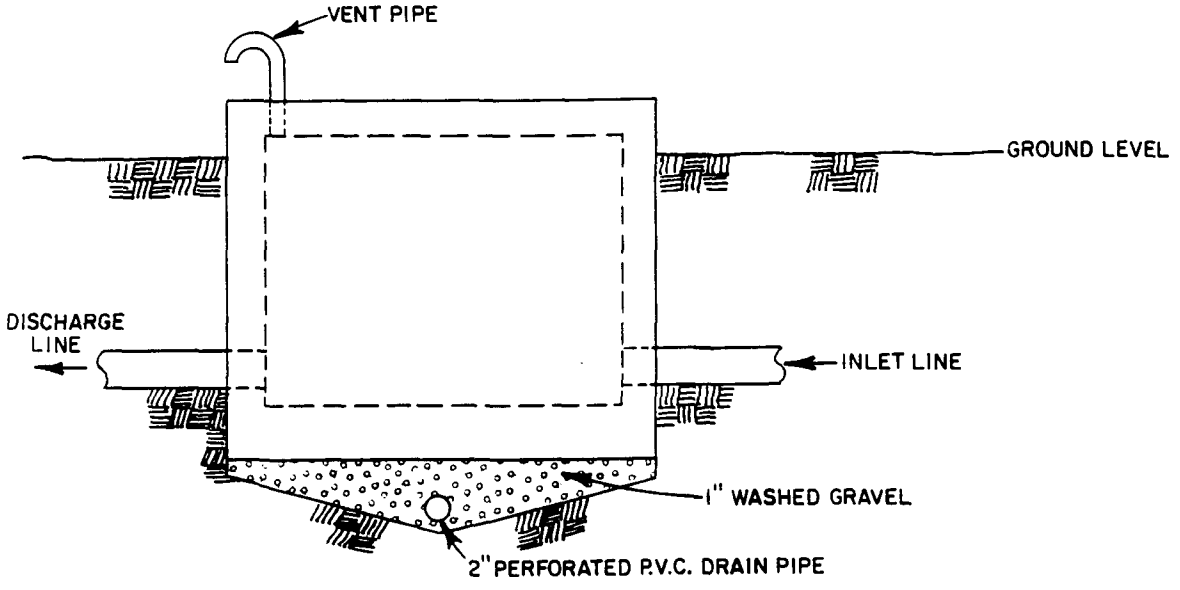
   The lab at the Kutz Plan is primarily a chromatographic lab and not a wet chemistry lab. Approximately 5 gallons/year of a combination of K-F reagent, dilute HCl, DEA and glycol are collected and disposed of in the pond. Sunterra proposes that this small amount of liquid be placed in the hydrocarbon/water separator in our discharge plan.

6. *There is no mention in the plan of waste oil. How is waste lube oil disposed of? The plan states that oil from the separator will be placed in storage for recycle. Where will it be stored? Is the storage area bermed to contain any leaks or spills? How and where will the oil be recycled? Is there any other source of waste oil?*

   Please see response to item 3 above.

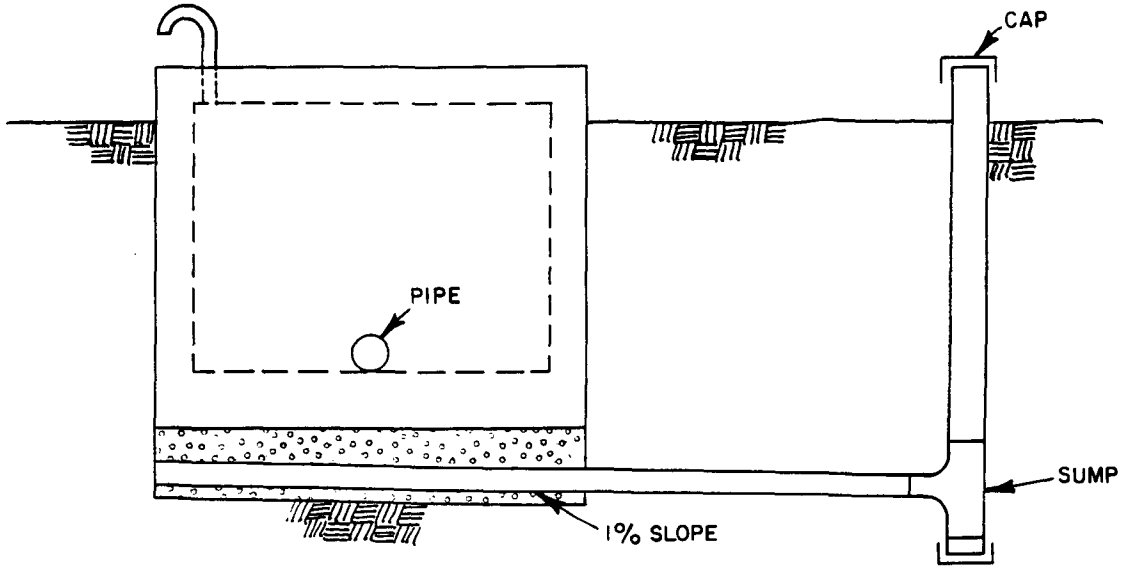
EXHIBIT II

KUTZ PLANT
GENERAL DESIGN FOR ALL WASTE WATER COLLECTION BOXES



FRONT VIEW

NOT TO SCALE



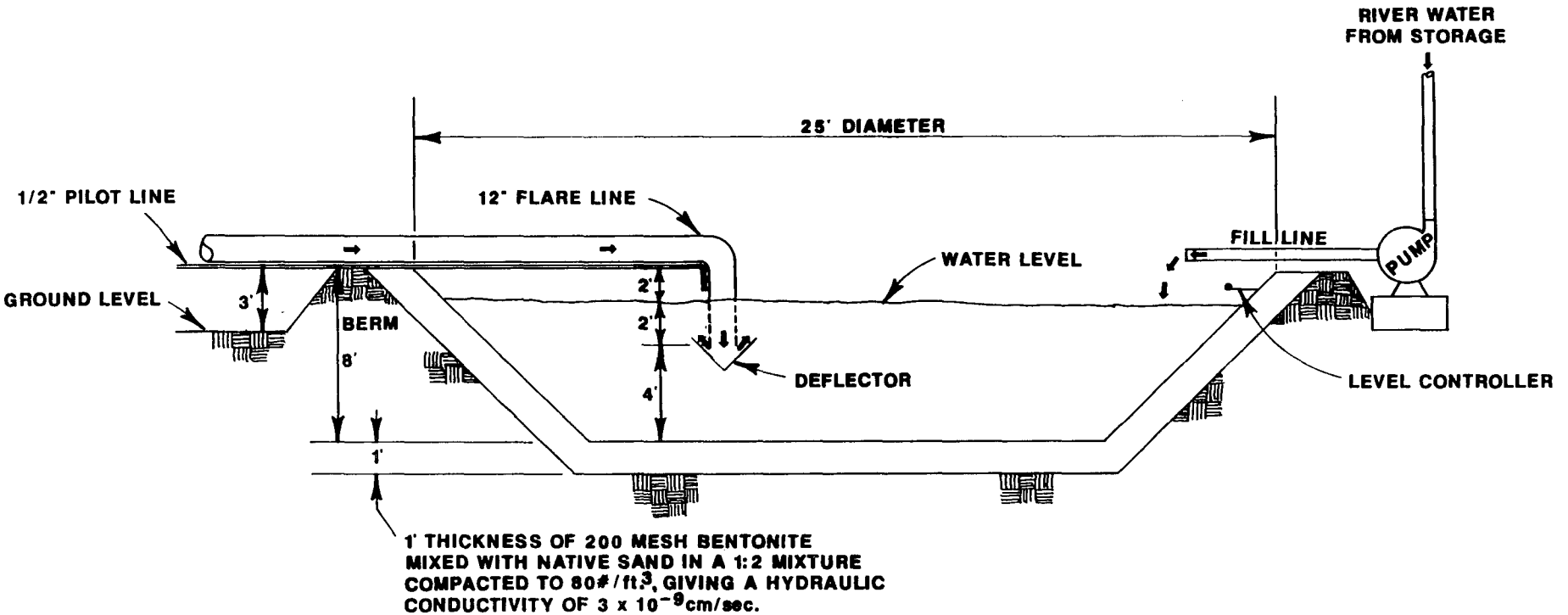
SIDE VIEW

NOT TO SCALE

EXHIBIT 12

KUTZ PLANT
FLARE POND DESIGN

NOT TO SCALE



APPENDIX 2

MATERIAL SAFETY DATA SHEETS

CHEMICALS CURRENTLY USED IN THE KUTZ PLANTS

	Use	Vendor
Engine Oil		
1. DTE 797	Turbines	Mobil
2. Pegasus 490	Clarks	Mobil
3. DTE 25	Refrig. Compressors	Mobil
4. Rarus 427	Inst Air Compsrs	Mobil
5. Rarus 827	Start Air Compsrs	Mobil
Cleaning Solvents		
6. N L Concentrate	Soap, Grease Clnr	Lenn & Fink
7. Solvent - Mineral Spirits	Parts Cleaner	Dial Oil
8. Sepelec	Elec. Contact Clnr	Zep
9. Zep Lemonex	Sanitary Cleaner	Zep
10. Zep-D-Ice	De-icer	Zep
Treating Chemicals		
11. IWE 7044	Clg Twr Treating	Ind. Water Eng Inc
12. Bromicide Tables	Clg Twr Treating	Great Lakes Chem.
13. IWE 6030C	Clg Twr Treating	Ind. Water Eng Inc
14. IWE 4015L	Clg Twr Treating	Ind. Water Eng Inc
15. Methanol	Thaw Hydrates	Weskem
16. Hydrochloric Acid	Deionizer System	Weskem
17. Diethanolamine (DEA)	Process Chem. KII	Van Waters & Rogers
18. Lean Oil (Naphtha)	Process Chem KI	Triangle Refineries
19. Ambitrol FL	Engine coolant	Weskem
20. Ureabor	Weed killer	Weskem
21. Ethylene Glycol	Process chem KI	Weskem
22. Corexit 7669 (anti-foam)	Process chem KII	Weskem
23. Technihib 7020	Corrision Inhibtr	Unichem
24. Scentinel A (Ethyl-mercaptan)	Propane Odorizer	Weskem
25. Diethylene Glycol	Process chem KII	Dow Chemical
26. Karl Fisher Re-agent	Lab Analysis	J.T. Baker Chem Co
27. Caustic Soda	Deionizer	Weskem
28. IWE 100	Clg Twr Treating	Ind. Water Eng Inc
29. IWE 7200	Clg Twr Treating	Ind. Water Eng Inc
30. IWE 6135	Clg Twr Treating	Ind. Water Eng Inc

Y-STATION
FLARE POND DRAIN EQUIPMENT LIST

Y-STATION 2" TO FLARE POND

EQUIPMENT	VALVE POSITION
INLET GAS SCRUBBER	AUTO
INLET GAS FILTER (NORTH)	AUTO
INLET GAS FILTER (SOUTH)	AUTO
FUEL GAS SCRUBBER (NORTH)	AUTO
FUEL GAS SCRUBBER (SOUTH)	AUTO
COMPRESSOR 2ND/3RD STAGE SCRUBBERS Y-1	AUTO
COMPRESSOR 2ND/3RD STAGE SCRUBBERS Y-2	AUTO
COMPRESSOR 2ND/3RD STAGE SCUBBERS Y-3	AUTO
COMPRESSOR 2ND/3RD STAGE SCRUBBERS Y-4	AUTO

Y-STATION 8" TO Y-PIT

EQUIPMENT	VALVE POSITION
Y-1 VENT BLOWDOWN	AUTO
Y-2 VENT BLOWDOWN	AUTO
Y-3 VENT BLOWDOWN	AUTO
Y-4 VENT BLOWDOWN	AUTO

K-BLDG TO 6" Y-PIT

EQUIPMENT	VALVE POSITION
K-4 VENT BLOWDOWN	AUTO
K-5 VENT BLOWDOWN	AUTO
K-6 STARTER EXHAUST	AUTO
K-7 STARTER EXHAUST	AUTO

KUTZ PLANTS
FLARE POND DRAIN EQUIPMENT LIST

KUTZ 2 OPEN 4"

EQUIPMENT	VALVE POSITION
LP SEPARATOR	CLOSED
HP SEPARATOR	CLOSED
DEMETHANIZER	CLOSED
COLD GAS EXCHANGER	CLOSED
COOL GAS EXCHANGER	CLOSED
INLET GAS CHILLER	CLOSED
DEHYD OUTLET FILTER	CLOSED
LP FUEL GAS SCRUBBER	CLOSED
HP FUEL GAS SCRUBBER	CLOSED
DEA CHARCOAL FILTER	CLOSED
TREATED GAS FILTER	CLOSED
STRIPPER OVHD ACCUM	CLOSED
DEA STRIPPER BOTTOMS PUMPS	CLOSED
DEA BOOSTER PUMPS	CLOSED
DEA CONTACTOR	CLOSED
FLASH TANK	CLOSED
DEA STORAGE TANK	CLOSED
DEA MAKE UP TANK	CLOSED
HOT OIL TO DEA MAKE UP TANK	CLOSED
EXPANDER OIL TANK	CLOSED
REGEN GAS SCRUBBER	CLOSED

KUTZ 2 CLOSED DRAIN 3"

EQUIPMENT	VALVE POSITION
HP FUEL SCRUBBER	AUTO
LP FUEL SCRUBBER	AUTO
INLET GAS SEPARATOR	AUTO
DEA REBOILER	CLOSED
DEA CONTACTOR	CLOSED
REGEN GAS SCRUBBER	AUTO
DEA FLASH TANK GAS	AUTO
TREATED GAS FILTER	CLOSED
DEHYD OUTLET FILTER	CLOSED
HOT OIL PUMPS	CLOSED
EXP/COMP SUCTION SCRUBBER	AUTO
EXP/COMP PIPING BLOWDOWN	CLOSED

KUTZ 2 FLARE LINE 8"

EQUIPMENT	VALVE POSITION
REFRIG SURGE TANK	CLOSED
REFRIG SUCTION SCRUBBER	CLOSED
LP ECONOMIZER	CLOSED
HP ECONOMIZER	CLOSED
INLET GAS CHILLER	CLOSED
DEMETHANIZER	CLOSED

KUTZ 1 OPEN DRAIN (SOUTH)

EQUIPMENT	VALVE POSITION
GLYCOL VACUUM STILL	CLOSED
WATER TREATMENT BLDG.	OPEN
GASOLINE SCRUBBER	AUTO
R-1,2,3 G-2,3,4	OPEN
KUTZ 2 CONTROL ROOM	OPEN

KUTZ 1 OPEN DRAIN (NORTH)

EQUIPMENT	VALVE POSITION
KUTZ ABSORBER	CLOSED
DAKOTA ABSORBER	CLOSED
DEMETHANIZER	CLOSED
LEAN OIL RECLAIMER	CLOSED
LEAN OIL SURGE TANK	CLOSED
PRODUCT RECOMPRESSION SUCTION SCRUBBER	CLOSED
R-4,5,6	CLOSED
EAST RECIP. PRODUCT PUMPS	CLOSED
INLET GAS COOLING TOWER WATER	AUTO
INLET GASOLINE SCRUBBER	CLOSED

KUTZ 1 CLOSED DRAIN 2" UNDERGROUND

EQUIPMENT	VALVE POSITION
REFRIG SURGE TANK	CLOSED
INLET CHILLER	CLOSED
KUTZ ABSORBER	CLOSED
DAKOTA ABSORBER	CLOSED
SOUTH REFRIG SUCTION SCRUBBER	CLOSED
LEAN OIL RECLAIMER	CLOSED
LEAN OIL SURGE TANK	CLOSED
FUEL GAS FILTER	CLOSED
ABSORBER RES. PUMPS	CLOSED
STILL REFLUX PUMPS	CLOSED
INLET GASOLINE SCRUBBER	CLOSED
SOUTH REFRIG DISCHARGE SCRUBBER	CLOSED
RESIDUE CHILLER	CLOSED

KUTZ 1 CLOSED DRAIN 2" PIPE RACK

EQUIPMENT	VALVE POSITION
RECIP PRODUCT PUMPS	CLOSED
INTERNAL FUEL GAS	CLOSED
PRODUCT RECOMPRESSOR SUCTION SCRUBBER	CLOSED
STILL OVERHEAD	AUTO
WEATHERING VALVE	AUTO
DEMETH RECYCLE	AUTO
LEAN OIL SLOP TANK	AUTO

KUTZ 1 CLOSED DRAIN 4" PIPE RACK

EQUIPMENT	VALVE POSITION	EQUIPMENT	VALVE POSITION
REFRIG ECONOMIZER	CLOSED	NORTH DISCHARGE SCRUBBER	CLOSED
PROPANE CHILLER	CLOSED	NORTH SUCTION SCRUBBER	CLOSED
R-4,5,6 BLOWDOWN	CLOSED	RECOMPRESSION SUCTION SCRUBBER	CLOSED

SUNTERRA GAS PROCESSING COMPANY

KUTZ PLANT

WASTE FLOW DIAGRAM AFTER PROPOSED PROCESS CHANGES

APPROX. SCALE: 1"=50'	REV. DATE	12/4/87	12/17/87	3/1/88	DWG. NO.
DATE: August 25, 1987	11/12/87	12/9/87	2/24/88		EXHIBIT 5
PREPARED BY:	LOCATION: A portion of the NW1/4 of Sec. 13 & a portion of the NE1/4 of Sec. 14, T. 28 N., R. 11 W.				
MODIFIED BY: Rose Alcazar	DATE OF PHOTOGRAPHY: 6/10/1982				

LEGEND

- FLARES
- CONTACT WATER DRAINS
- NON CONTACT WATER DRAINS
- GENERATOR, Y-STATION BLOWDOWNS
- OIL LINE
- SANITARY WASTE
- < DIRECTION OF FLOW

NOTE: G, K, R & Y refer to compressor stations

KOOGLE & POULS ENGINEERING, INC.

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Ecological Services
Suite D, 3530 Pan American Highway NE
Albuquerque, New Mexico 87107

February 11, 1988

Mr. William J. Lemay, Director
Oil Conservation Division
State of New Mexico
State Land Office Building
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Dear Mr. Lemay:

This responds to your public notice in which two proposed groundwater discharge plans were described. We have reviewed the plans and have not identified any resource issues of concern to our agency in the following:

GW-45, Sunterra Gas Processing Company, San Juan County Bloomfield, NM.
GW-39, El Paso Natural Gas Company, San Juan Gas Processing Plant, San Juan County, Farmington, NM.

These comments represent the views of the Fish and Wildlife Service. If you have any questions concerning our comments, please contact Tom O'Brien at FTS 474-7877 or (505) 883-7877.

Sincerely yours,

John C. Peterson
Field Supervisor

cc:
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Regional Administrator, Environmental Protection Agency, Dallas, Texas
Regional Director, U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, Albuquerque, New Mexico

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 plans have been submitted for approval to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088; Telephone (505) 827-5800:

(GW-45) Sunterra Gas Processing Company, Kutz Canyon Gas Plant, John Renner, General Manager, P.O. Box 1869, Bloomfield, New Mexico 87413, has submitted for approval a ground water discharge plan application for its Kutz Canyon Gas Plant located in the SW/4 of Section 12, NE/4 Section 13, SE/4 Section 14, Township 28 North, Range 11 West, NMPM, San Juan County, New Mexico. Approximately 4,200 gallons per day of process waste water will be disposed of in an OCD approval double lined evaporation pond with leak detection. The total dissolved solids of the wastewater is approximately 1,500 milligrams per liter (mg/1). Ground water most likely to be affected by any discharge at the surface is shallow perched water with total dissolved solids (TDS) concentrations of 8000 to 18,000 mg/1. Deeper ground water is at a depth of about 200 feet, estimated TDS concentrations between 2000 and 4000 mg/1. Two of the three unlined ponds, presently being used for disposal will be closed and reclaimed. The third unlined pond will be retained to collect storm water runoff from the facility.

(GW-39) El Paso Natural Gas Company, San Juan Gas Processing Plant, John Craig, Vice President, P.O. Box 4990, Farmington, New Mexico 87499, has submitted for approval a ground water discharge plan for wastewater that does not come in contact with hydrocarbons (non contact) for its facility located in Section 1, Township 29 North, Range 15 West, NMPM, San Juan County, New Mexico. Approximately 22,000 gallons per day of non-contact process wastewater with a total dissolved solids content of approximately 1400 mg/1 will be land applied on a 26-acre parcel on the east side of the facility. Discharge will be by siderol irrigation except in the months of December and January when the effluent will be stored. Ground water most likely to be affected by the discharge is at a depth of 70 feet with an average total dissolved solids concentration of approximately 4500 mg/1.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and a public hearing may be requested by any interested person. Requests for public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the Director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 3rd day of February.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
s/William J. Lemay, Director

SEAL

Journal, February 11, 1988

STATE OF NEW MEXICO }
County of Bernalillo } ss

CRAIG E. MEYERS being duly sworn declares and says that he is RETAIL ADV. MGR. of the **Albuquerque Journal**, and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Session Laws of 1937, and that payment therefore has been made or assessed as court costs; that the notice, a copy of which is hereto attached, was published in said paper in the regular daily edition,

for 1 times, the first publication being on the 11 day of February, 198 8, and the subsequent consecutive publications on ,198

Craig E. Meyers

Sworn and subscribed to before me, a Notary Public in and for the County of Bernalillo and State of New Mexico, this 11 day of February, 198 8

PRICE $30.98

Statement to come at end of month.

ACCOUNT NUMBER C80932

OFFICIAL SEAL
SYLVIA L. NUANES
NOTARY PUBLIC - NEW MEXICO
FILED WITH SECRETARY OF STATE
My commission expires 11-18-89

EDJ-15 (R-2/86)

AFFIDAVIT OF PUBLICATION

No. 21317

STATE OF NEW MEXICO,
County of San Juan:

Betty Shipp being duly sworn, says: That he is the National Ad Manager of THE FARMINGTON DAILY TIMES, a daily newspaper of general circulation published in English at Farmington, said county and state, and that the hereto attached Legal Notice

was published in a regular and entire issue of the said FARMINGTON DAILY TIMES, a daily newspaper duly qualified for the purpose within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico for one ~~consecutive~~ (days) ~~(weeks)~~ on the same day as follows:

First Publication Wednesday February 10, 1988

Second Publication

Third Publication

Fourth Publication

and that payment therefor in the amount of $ 40.35 has been made.

Betty Shipp

Subscribed and sworn to before me this 12th day of February, 19 88.

J. Shorter

NOTARY PUBLIC, SAN JUAN COUNTY, NEW MEXICO

My Commission expires: June 23, 1990

Copy of Publication

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

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Any interested persons may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and a public hearing may be requested by any interested person. Requests for public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the Director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 3rd day of February. To be published on or before February 13, 1988.

SEAL

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
WILLIAM J. LE MAY
Director

Legal No. 21317 published in the Farmington Daily Times, Farmington, New Mexico on Wednesday, February 10, 1988.

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

February 3, 1988

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

Re: NOTICE OF PUBLICATION _____

_____

_____

Advertising Manager
Albuquerque Journal
717 Silver SW
Albuquerque, NM 87102

Dear Sir:

Please publish the attached notice one time immediately on receipt of this request. Please proofread carefully, as any error in a land description or in a key word or phrase can invalidate the entire notice.

Immediately upon completion of publication, please send the following to this office:

1. Publisher's affidavit in duplicate.
2. Statement of cost (also in duplicate).
3. CERTIFIED invoices for prompt payment.

We should have these immediately after publication in order that the legal notice will be available for the hearing which it advertises, and also so that there will be no delay in your receiving proper payment.

Please publish the notice not later than February 13, 1988.

Sincerely,

WILLIAM J. LEMAY
Director

WJL:dp

Attachment

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 plans have been submitted for approval to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

(GW-45) Sunterra Gas Processing Company, Kutz Canyon Gas Plant, John Renner, General Manager, P.O. Box 1869, Bloomfield, New Mexico 87413, has submitted for approval a ground water discharge plan application for its Kutz Canyon Gas Plant located in the SW/4 of Section 12, NE/4 Section 13, SE/4 Section 14, Township 28 North, Range 11 West, NMPM, San Juan County, New Mexico. Approximately 4,200 gallons per day of process waste water will be disposed of in an OCD approval double lined evaporation pond with leak detection. The total dissolved solids of the wastewater is approximately 1,500 milligrams per liter (mg/l). Ground water most likely to be affected by any discharge at the surface is shallow perched water with total dissolved solids (TDS) concentrations of 8000 to 18,000 mg/l. Deeper ground water is at a depth of about 200 feet with estimated TDS concentrations between 2000 and 4000 mg/l. Two of the three unlined ponds presently being used for disposal will be closed and reclaimed. The third unlined pond will be retained to collect storm water runoff from the facility.

(GW-39) El Paso Natural Gas Company, San Juan Gas Processing Plant, John Craig, Vice President, P.O. Box 4990, Farmington, New Mexico 87499, has submitted for approval a ground water discharge plan for wastewater that does not come in contact with hydrocarbons (non contact) for its facility located in Section 1, Township 29 North, Range 15 West, NMPM, San Juan County, New Mexico. Approximately 22,000 gallons per day of non-contact process wastewater with a total dissolved solids content of approximately 1400 mg/l will be land applied on a 26-acre parcel on the east side of the facility. Discharge will be by sideroll irrigation except in the months of December and January when the effluent will be stored. Ground water most likely to be affected by the discharge is at a depth of 70 feet with an average total dissolved solids concentration of approximately 4500 mg/l.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and a public hearing may be requested by any interested person. Requests for public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the Director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 3rd day of February. To be published on or before February 13, 1988.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

WILLIAM J. LEMAY, Director

S E A L

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

January 22, 1988

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. John Renner, General Manager
Sunterra Gas Processing Company
P.O. Box 1869
Bloomfield, NM 87413

RE: Discharge Plan GW-45
Kutz Canyon Gas Plant
San Juan County, New Mexico

Dear Mr. Renner:

The Oil Conservation Division has received and is in the process of reviewing the above-referenced discharge plan application. The plan submittal, dated December 21, 1987, was received by the OCD December 22, 1987. The following comments and requests for additional information are based on our review of the data provided in the plan and observations from site inspections on April 22, 1987 and June 22, 1987.

PROCESSING UNITS

1) The text of the plan states methanol, Ambitrol and ethyl mercapton are used in the process. Please submit the material safety data (M.S.D.) sheets for these and any other chemicals used at the facility.

2) Exhibit 5 shows the flare lines are routed directly into the lined pond without going through the oil/water separator. No flare lines from Kutz No. 1 go to the flare or the proposed flare pond. Is the exhibit drawn incorrectly?

WASTEWATER CHARACTERIZATION

1) The text states open drains drain wash down water in the compressor buildings. Are there any soaps or degreasers used for cleaning? If so, please submit the MSD sheet for each chemical. Are the floors of the compressor buildings constructed of an impervious material? Are they curbed to prevent contaminant runoff to the surrounding soil? Are any other process facilities curbed?

2) Fire fighting training sessions use approximately 2000 gallons per session. Where is the training held? Is a burn pit used? If so, what is its location? If a pit is not used, where is the water disposed of?

PLANNED PROCESS CHANGES

1) There are several process chemicals identified in this section of the plan. Submit MSD sheets for all chemicals that are or will be used at the facility.

TRANSFER AND STORAGE OF PROCESS FLUIDS AND EFFLUENTS

1) The text states the collection boxes shown on Exhibit 5 are underground and of block-concrete design. Are there leak detection systems for these drains? If there is not a leak detection system in place or planned, submit an inspection method and schedule that is frequent enough to ensure integrity of the boxes. If leak detection systems are planned, submit the construction designs for review. A method and schedule for initial testing of the boxes must be submitted prior to plan approval.

2) This section also states Sunterra plans to do integrity testing of the underground wastewater pipelines. Submit the proposed method and schedule.

EFFLUENT DISPOSAL

1) The text states the leak detection system of the proposed lined pond will be monitored daily. Submit a Contingency Plan that will be followed if fluids are observed in the sump. The procedures should include but are not limited to the following.

    a. Notification of the OCD.

b. Analysis of the fluids to determine their origin, and supply the OCD with the analysis results.

c. If fluid is from the pond, notify OCD of proposed work (including liner repair) and provide follow-up information to the OCD of actions taken.

MISCELLANEOUS

1) Exhibit 5 has an area labeled proposed flare pond. Is this pond going to be lined with leak detection? If this pond is not going to be lined, a demonstration must be made that any fluids entering this pond will not pose a threat of ground water contamination. If a lined pond is proposed, submit the construction plans for review.

2) Exhibit 5 also shows what appears to be a pit south of the K-station. Identify this pit and its present function. What did this pit receive in the past? Will this pit be used in the future? If so, what for? If it is to be abandoned, submit a closure plan for review.

3) There is no mention of solid waste disposal in the plan. What is the final disposition of all solid wastes generated at the plant.

4) There is no mention of an SPCC plan in the application. If the facility has prepared and submitted an SPCC plan to the USEPA please supply a copy to the OCD for inclusion in the discharge plan.

5) Are there any laboratory facilities at the plant? If so, identify all chemicals used in the lab and their final disposition.

6) There is no mention in the plan of waste oil. How is waste lube oil disposed of? The plan states that oil from the separator will be placed in storage for recycle. Where will it be stored? is the storage area bermed to contain any leaks or spills? How and where will the oil be recycled? Is there any other source of waste oil?

Submission of the information requested in this letter will allow our review of your application to continue. If you have any questions, please contact me at 827-5885.

Sincerely,

Roger C. Anderson

Roger C. Anderson
Environmental Engineer

cc: OCD - Aztec

P 612 458 033

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to John Renner	
Street and No. P.O. Box 1869	
P.O., State and ZIP Code Bloomfield, NM 87413	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

PS Form 3800, Feb. 1982

☆ U.S.G.P.O. 1983-403-517

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

December 2, 1987

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Gary Jordan
Sunterra Gas Processing Company
P. O. Box 1869
Bloomfield, New Mexico 87413

RE: Discharge Plan GW-45
Kutz Canyon Gas Plant
San Juan County, New Mexico

Dear Mr. Jordan:

The Oil Conservation Division has received a copy of your correspondence to the Bureau of Land Management dated October 30, 1987. Any surface waste disposal relating to your processing plant will be a major part of the discharge plan you have been requested to submit to this office.

The following comments and requests for additional information are based on our review of the proposal.

1. A core hole is to be drilled near the center of the proposed pond. A hole such as this may provide a direct conduit for the pond waters to any permeable zones underlying the pond. It is advisable to leave the subsurface directly below the pond undisturbed.

2. A second core hole is proposed for "just outside the proposed pond." How far below the pond is the core hole to be? How will this hole be plugged? Can this hole be converted and used as a monitor well?

3. The location of the proposed pond is not given in the proposal. Please supply a diagram showing its relation to the plant.

4. Construction details of the proposed pond were not supplied. Provide with the discharge plan detailed construction plans to include at a minimum, dimensions, compaction calculations, wave calculations, freeboard calculations, berm strength calculations and piping schematics.

The proposed geologic and hydrologic investigation can provide an excellent demonstration that the use of an unlined pond will not impact ground water. The clarifications requested in this letter are required if an unlined pond is to be used as your disposal method.

During our phone conversation you informed me that you were evaluating alternate methods of disposal. Other methods, such as lined ponds with leak detection, have different criteria for site investigations, design and construction. A detailed proposal for the method you choose must be submitted as part of the discharge plan application.

If you have any questions, please do not hesitate to call me at (505) 827-5885.

Sincerely,

Roger Anderson
Environmental Engineer

RA:sl

cc: OCD - Aztec
Mr. Hindell Greer - B.L.M.

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

November 3, 1987

Bureau of Land Management
Caller Service 4104
Farmington, New Mexico 87401

ATTENTION: Lindell Greer

Dear Mr. Greer:

Per your request today, I have enclosed copies of laboratory analyses of samples taken from Sunterra's Kutz Plant cooling tower and three ponds. Also enclosed are the New Mexico Water Quality Commission Standards for ground water.

If you have any questions, please contact me at 827-5884.

Sincerely,

Jami Bailey
Geologist

Enc.

JB:sl

Sunterra GAS PROCESSING COMPANY
P.O. BOX 1869 • BLOOMFIELD, NM 87413 • (505) 632-8033

October 30, 1987

Mr. Lindell Greer
Bureau of Land Management
Caller Service 4104
Farmington, NM 87499-4104

RE: SF 075309

Dear Mr. Greer:

During our phone conversation on October 28, 1987, we discussed the possibility of installing a single lined evaporative pond at our Kutz Plant. Exhibit 1 is an orthophoto of the Kutz Plant showing the present pond system. Exhibit 2 is results of sampling of the three ponds at the Kutz Plant that were duplicate samples taken by us and the New Mexico Oil Conservation Division (OCD). The sample results are a worst case scenario as we plan to install a hydrocarbon/water separator. This separator will remove essentially all of the hydrocarbons in the wastewater.

Exhibit 3 is a proposal for geologic and hydrologic investigations to provide information as to probable rates and paths for seepage from a single lined pond. The investigation will also provide depth to groundwater and its chemical nature.

As we discussed in our phone conversation, Sunterra must provide a Wastewater Discharge Plan to OCD by December 23, 1987. We would appreciate your prompt review of the enclosed information.

If further information is required, please call me at (505) 768-6700.

Sincerely,

Gary Jordan

cc: Mr. David Boyer - OCD
Mr. John Renner - Sunterra

KUTZ PLANT SAMPLING LOCATIONS
Duplicate Sampling with OCD 4/22/87

Sample I.D.

1. Water Sample of Kutz #1 Cooling Tower Sump
2. Water Sample of Flare Pond #1 Southwest Corner
3. Water Sample of Pond #2 Middle of North Side
4. Water Sample of Pond #3 Southwest Corner

Exhibit 2

ASSAIGAI
ANALYTICAL
LABORATORIES

TO: Sunterra Gas Processing
ATTN: Gary Jordan
PO Box 2106
Albuquerque, NM 87103

DATE: 29 May 1987
0661

SAMPLE ID : #1

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
CN	<0.01 mg/l	0.01 mg/l
F	0.59 mg/l	0.01 mg/l
Pb	0.05 mg/l	0.01 mg/l
Total Hg	0.0023 mg/l	0.002 mg/l
NO 3 as N	<0.01 mg/l	0.01 mg/l
Se	0.019 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	0.001 mg/l
CCL 4	<0.01 mg/l	0.01 mg/l
1,2 Dichloroethane	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethylene	<0.001 mg/l	0.001 mg/l
Ethyl Benzene	<0.001 mg/l	0.001 mg/l
Xylenes	<0.001 mg/l	0.001 mg/l
Methylene Chloride	<0.001 mg/l	0.001 mg/l
CCL 3	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethane	<0.001 mg/l	0.001 mg/l
EDB	<0.001 mg/l	0.001 mg/l
1,1,1 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethane	<0.001 mg/l	0.001 mg/l
Vinyl Chloride	<0.001 mg/l	0.001 mg/l
Cu	0.03 mg/l	0.01 mg/l
Cl	44 mg/l	1.0 mg/l
Fe	<0.3 mg/l	0.3 mg/l
Mn	0.03 mg/l	0.01 mg/l
SO 4	913 mg/l	1.0 mg/l
Zn	0.072 mg/l	0.008 mg/l
Al	<0.1 mg/l	0.1 mg/l
B	0.357 mg/l	0.04 mg/l
Co	<0.03 mg/l	0.03 mg/l
Mo	<0.05 mg/l	0.05 mg/l
Ni	0.150 mg/l	0.01 mg/l

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

87-0692-C

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

STATE OF NEW MEXICO
ENVIRONMENT

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 692
DATE REC. 4-27-87
PRIORITY

PHONE(S): 327-5812
USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 4 2 2 1 2 4 0 KAB

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: ____ CODE: ____

COUNTY: San Juan ; CITY: Bloomfield CODE: ____

LOCATION CODE: (Township-Range-Section-Tracts) 2 8 N + 1 1 W + 3 3 + 1 1 1 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] ____
- [ ] ____
- [ ] ____
- [ ] ____
- [ ] ____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks: Sun Terra - Kutz Cooling Tower

FIELD DATA:

pH= 7.5 ; Conductivity= 1300 umho/cm at 9 °C; Chlorine Residual= ____ mg/l

Dissolved Oxygen= ____ mg/l; Alkalinity= ____ mg/l; Flow Rate ____ ____/____

Depth to water ____ ft.; Depth of well ____ ft.; Perforation Interval ____ - ____ ft.; Casing: ____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

direct from sump. Cooling tower shut down ... treated

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): [signature] Method of Shipment to the Lab: hand carried

This form accompanies 2 Septum Vials, ____ /Glass Jugs, and/or ____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [X] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from ____ to ____

at (location) ____ on ____/____/____ - ____:____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures ____ ____

For OCD Use: Date Owner Notified ____ Phone or Letter? ____ Initials ____

ANALYSES PERFORMED

LAB. NO. OR- 692

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	N.D.		
halogenated purgeables	N.D.		
"	"		
* DETECTION LIMIT *	100 ppb	± DETECTION LIMIT ±	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/4/87 Analyst's signature: Harry C. Ellen

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K Meyerhen

New Mexico Health and [redacted] ent Department
SCIENTIFIC LABORATO[redacted] ION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

[redacted] RAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED	LAB NO.	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER:	82235
Collection DATE: 04/22/87	SITE INFORM-ATION ►	Sample location:	SUNTERRA – KUTZ PLANT
Collection TIME: 1240		Collection site description:	COOLING TOWER
Collected by — Personal/Agency: BOYER / ANDERSON / OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code:

Owner:

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge: —	Sample type: GRAB
pH (00400): 7.5 (STRIP)	Conductivity (Uncorrected): 1360 µmho	Water Temp. (00010): 9 °C	Conductivity at 25°C (00094): µmho

Field comments: (See VOC Form for Comments)

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	1943	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	8.30		5/5
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N + Nitrite-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From F, NA Sample:

			Date Analyzed
☒ Calcium	225	mg/l	5/14
☒ Potassium	4.65	mg/l	/
☒ Magnesium	47	mg/l	5/14
☒ Sodium	223	mg/l	
☒ Bicarbonate	336	mg/l	5/5
☒ Chloride	44	mg/l	5/5
☒ Sulfate	826	mg/l	5/12
☒ Total Solids	1562	mg/l	5/14
☒ CO_3	0		5/5
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	5 / 26 / 87	CO

Laboratory remarks:

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

98-2

CATIONS				ANIONS		
ANALYTE	MEQ.	PPM	DET.LIMIT	ANALYTE	MEQ.	PPM
Ca	11.23	225.00	< 3.0	HCO3	5.51	336.00
Mg	3.86	47.00	< 10.0	SO4	18.46	886.00
Na	9.70	223.00	< 10.0	Cl	1.24	44.00
K	0.12	4.68	< 0.5			
Mn	0.00	0.00		NO3	0.00	0.00
Fe	0.00	0.00		CO3	0.00	0.00
				NH3	0.00	0.00
				PO4	0.00	0.00
SUMS	24.91	499.68			25.21	1266.00

TDS(measured) = 1562.00 ppm

Ion Balance = 98.82%

Sample No. =8701468

Date out/By LG 5/24/87

New Mexico Health and [redacted]ent Department
SCIENTIFIC LABORAT[redacted]ION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

HEAVY METALS
GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	[illegible]	LAB NO.	[illegible]	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE 04/22/87		SITE INFORM-ATION	Sample location: SUN TERRA - KUTZ PLANT	
Collection TIME 1240			Collection site description: COOLING TOWER	
Collected by — Person/Agency: BOYER ANDERSON /OCD				

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400) 7.5 (Strip)	Conductivity (Uncorrected) 1322 µmho	Water Temp. (00010) 9 °C	Conductivity at 25°C (00094) µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☐ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☒ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other:			
☒ Other: Cr. by A.A.	0.004		5/22
☐ Other:			

~~A-H_2SO_4~~

☐ Nitrate-N + Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From ____, NA Sample:

			Date Analyzed
☐ Calcium		mg/l	
☐ Potassium		mg/l	
☐ Magnesium		mg/l	
☐ Sodium		mg/l	
☐ Bicarbonate		mg/l	
☐ Chloride		mg/l	
☐ Sulfate		mg/l	
☐ Total Solids		mg/l	
☐			
☐			
☐ Cation/Anion Balance			

Analyst

Date Reported: 6 | 1 | 87

Reviewed by: J. Ashley

Laboratory remarks

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

ASSAIGAI ANALYTICAL LABORATORIES

TO: Sunterra Gas Processing
ATTN: Gary Jordan
PO Box 2106
Albuquerque, NM 87103

DATE: 29 May 1987
0661

SAMPLE ID : #2

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	0.28 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
CN	0.03 mg/l	0.01 mg/l
F	0.70 mg/l	0.01 mg/l
Pb	0.09 mg/l	0.01 mg/l
Total Hg	<0.002 mg/l	0.002 mg/l
NO 3 as N	<0.01 mg/l	0.01 mg/l
Se	0.020 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Benzene	0.14 mg/l	0.001 mg/l
Toluene	0.24 mg/l	0.001 mg/l
CCL 4	<0.01 mg/l	0.01 mg/l
1,2 Dichloroethane	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethylene	<0.001 mg/l	0.001 mg/l
Ethyl Benzene	0.011 mg/l	0.001 mg/l
Xylenes	0.12 mg/l	0.001 mg/l
Methylene Chloride	0.31 mg/l	0.001 mg/l
CCL 3	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethane	<0.001 mg/l	0.001 mg/l
EDB	<0.001 mg/l	0.001 mg/l
1,1,1 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethane	<0.001 mg/l	0.001 mg/l
Vinyl Chloride	<0.001 mg/l	0.001 mg/l
Cu	0.03 mg/l	0.01 mg/l
Cl	89 mg/l	1.0 mg/l
Fe	2.68 mg/l	0.3 mg/l
Mn	0.39 mg/l	0.01 mg/l
SO 4	771 mg/l	1.0 mg/l
Zn	0.034 mg/l	0.008 mg/l
Al	<0.1 mg/l	0.1 mg/l
B	0.376 mg/l	0.04 mg/l
Co	<0.03 mg/l	0.03 mg/l
Mo	<0.05 mg/l	0.05 mg/l
Ni	0.182 mg/l	0.01 mg/l

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

87-0689-C

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

STATE OF NEW MEX... ENVIRONMENT

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- [illegible] 689

DATE REC. 4-27-87

PRIORITY ______

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 4 2 2 1 2 5 5 DB

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: ______ CODE: ______

COUNTY: San Juan ; CITY: Bloomfield CODE: ______

LOCATION CODE: (Township-Range-Section-Tracts) 2 8 N + 1 1 W + 1 3 + 1 1 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] ______
- [ ] ______
- [ ] ______
- [ ] ______
- [ ] ______

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks: Sun Terra Kutz Pond 1 (water)

FIELD DATA: strip

pH= 6.5 ; Conductivity= 2610 umho/cm at 21.5 °C; Chlorine Residual= ______ mg/l

Dissolved Oxygen= ______ mg/l; Alkalinity= ______ mg/l; Flow Rate ______ ______/______

Depth to water ______ ft.; Depth of well ______ ft.; Perforation Interval ______-______ ft.; Casing ______

Sampling Location, Methods and Remarks (i.e. odors, etc.) Oily water, H.C. odor, also anaerobic [illegible] Sun Terra Pond #1 (water) - Receives all plant wastewater (except sewage). Sample west side [illegible]

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): [signature] Method of Shipment to the Lab: hand carried

This form accompanies 2 Septum Vials, / Glass Jugs, and/or ______

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [X] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from ______ to ______

at (location) ______ on ___/___/___ - ___:___ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures ______ ______

For OCD Use: Date Owner Notified ______ Phone or Letter?______ Initials ______

ANALYSES PERFORMED LAB. NO OR- 689

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
halogenated purgeables	N.D		
aromatic purgeables			
benzene	10		
toluene	8		
ethylbenzene	T.R.		
p-xylene	T.R.		
m-xylene	25		
o-xylene	T.R.		
* DETECTION LIMIT *	25 ug/L	+ DETECTION LIMIT +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: Three early elutions fight unidentified compounds detected with the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 4/2/26 Analyst's signature: Mary E. Edlen

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K Meyerhein

New Mexico Health and E[illegible]nt Department
SCIENTIFIC LABORATORY D[illegible]ION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED [illegible]	LAB NO. [illegible]	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 04/22/87	SITE INFORM-ATION ►	Sample location SUNTERRA - KUTE PLANT	
Collection TIME 1255		Collection site description POND 1	
Collected by — Person/Agency COVER / HODGESON / OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box. 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type GRAB
pH (00400) 6.5 (STD)	Conductivity (Uncorrected) 2410 µmho	Water Temp. (00010) 24.5 °C	Conductivity at 25°C (00094) µmho
Field comments (See VOC sheet for comments)			

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	2566	µmho	5/1
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

~~NA-SC~~

☐ ~~Nitrate-N +~~, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From ____, ~~Raw Sample~~: NA SAMPLE

			Date Analyzed
☒ Calcium	292	mg/l	5/12
☒ Potassium	7.41	mg/l	5/13
☒ Magnesium	36	mg/l	5/12
☒ Sodium	305	mg/l	5/13
☒ Bicarbonate	702	mg/l	5/5
☒ Chloride	88	mg/l	5/5
☒ Sulfate	629	mg/l	5/12
☒ Total Solids	2288	mg/l	5/19
☒ CO_3	0		5/5
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	5 / 26 / 87	

Laboratory remarks: pH = 6.72

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

CATIONS				ANIONS		
ANALYTE	MEQ.	PPM	DET.LIMIT	ANALYTE	MEQ.	PPM
Ca	14.57	292.00	< 3.0	HCO3	11.50	702.00
Mg	2.96	36.00	< 10.0	SO4	13.10	629.00
Na	13.40	308.00	< 10.0	Cl	2.48	88.00
K	0.19	7.41	< 0.5			
Mn	0.00	0.00		NO3	0.00	0.00
Fe	0.00	0.00		CO3	0.00	0.00
				NH3	0.00	0.00
				PO4	0.00	0.00
SUMS	31.11	643.41			27.09	1419.00

TDS(measured) = 2288.00 ppm

Ion Balance = 114.85%

Sample No. =8701469
Date out/By CJ 5/14/87

New Mexico Health and [illegible] nt Department
SCIENTIFIC LABORAT[illegible] ION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

HEAVY METALS
~~GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS~~

DATE RECEIVED: [illegible]	LAB NO.: [illegible]
USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	04/22/87
Collection TIME	1255
SITE INFORMATION ► Sample location	SUNTERRA – KUTZ PLANT
Collection site description	POND 1
Collected by — Person/Agency	BOYER / ANDERSON /OCD
Station/well code	
Owner	

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): 6.5 (strip)	Conductivity (Uncorrected): 2610 µmho	Water Temp. (00010): 24.5 °C	Conductivity at 25°C (00094): µmho

Field comments: (See VOC Sheet for comments)

SAMPLE FIELD TREATMENT — *Check proper boxes.*

No. of samples submitted ☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☐ NA: No acid added ☐ Other-specify: ☐ A: 5ml conc. HNO_3 added ☒ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

HNO_3 — Units — Date analyzed

		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other:	ICAP Scan		
☒ Other:			
☐ Other:			

H_2SO_4

		Units	Date analyzed
☐ Nitrate-N + Nitrite-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From ____, NA Sample:

		Units	Date Analyzed
☐ Calcium		mg/l	
☐ Potassium		mg/l	
☐ Magnesium		mg/l	
☐ Sodium		mg/l	
☐ Bicarbonate		mg/l	
☐ Chloride		mg/l	
☐ Sulfate		mg/l	
☐ Total Solids		mg/l	
☐			
☐			
☐ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	5/18/87	[signature]

Laboratory remarks: 1.0ml HNO_3 added at SLD. Digested

FOR OCD USE -- Date Owner Notified ______ Phone or Letter? ______ Initals ______

ICAP SCAN

SLD Lab No. ICP 226 Reviewed by: Jim Ashby

Analyst JB 5/6/87 Date Reported: 5/18/87

ELEMENT	ICAP VALUE(mg/l)	AA VALUE(mg/l)
Aluminum	<0.1	
Barium	0.4	
Beryllium	<0.1	
Boron	0.3	
Cadmium	<0.1	
Calcium	360.	
Chromium	<0.1	
Cobalt	<0.05	
Copper	<0.1	
Iron	1.4	
Lead	<0.1	
Magnesium	43.	
Manganese	0.52	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	18.	
Silver	<0.1	
Strontium	45	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		
Selenium		
Mercury		

New Mexico Health and [redacted] nt Department
SCIENTIFIC LABORATO[redacted]SION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 5/29/87 | LAB NO. [redacted] | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE: 04/22/87
Collection TIME: 1255
Collected by — Person/Agency: BOYER/ANDERSON /OCD

SITE INFORMATION

Sample location: SAUTERRA - KUTZ PLANT
Collection site description: POND 1

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

MAY 29 1987

Station/well code:
Owner:

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level:	Discharge:	Sample type: GRAB
pH (00400): 7 (Strip)	Conductivity (Uncorrected): 560 µmho	Water Temp. (00010): 21 °C	Conductivity at 25°C (00094): µmho

Field comments:

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µm membrane filter ☐ A: 2 ml H_2SO_4/L added

☐ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☒ A: ~~4ml fuming HNO_3 added~~ 2ml H_2SO_4

ANALYTICAL RESULTS from SAMPLES

NF. NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F. NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF. ~~H_2SO_4~~

☐ ~~Nitrate-N~~ +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F. ~~H_2SO_4~~

☒ ~~Nitrate-N~~ +, Nitrate-N dissolved (00631)	0.04	mg/l	5/12
☒ Ammonia-N dissolved (00608)	11.1	mg/l	5/7
☒ Total Kjeldahl-N ( )	36.9	mg/l	5/15
☐ Other:			

Analyst | Date Reported: 5/20/87 | Reviewed by: CG

Laboratory remarks:

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

ASSAIGAI ANALYTICAL LABORATORIES

TO: Sunterra Gas Processing
ATTN: Gary Jordan
PO Box 2106
Albuquerque, NM 87103

DATE: 29 May 1987
0661

SAMPLE ID : #3

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
CN	<0.01 mg/l	0.01 mg/l
F	0.65 mg/l	0.01 mg/l
Pb	0.08 mg/l	0.01 mg/l
Total Hg	<0.002 mg/l	0.002 mg/l
NO 3 as N	<0.01 mg/l	0.01 mg/l
Se	0.016 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Benzene	0.004 mg/l	0.001 mg/l
Toluene	0.012 mg/l	0.001 mg/l
CCL 4	<0.01 mg/l	0.01 mg/l
1,2 Dichloroethane	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethylene	<0.001 mg/l	0.001 mg/l
Ethyl Benzene	<0.001 mg/l	0.001 mg/l
Xylenes	<0.001 mg/l	0.001 mg/l
Methylene Chloride	<0.001 mg/l	0.001 mg/l
CCL 3	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethane	<0.001 mg/l	0.001 mg/l
EDB	<0.001 mg/l	0.001 mg/l
1,1,1 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethane	<0.001 mg/l	0.001 mg/l
Vinyl Chloride	<0.001 mg/l	0.001 mg/l
Cu	<0.01 mg/l	0.01 mg/l
Cl	107 mg/l	1.0 mg/l
Fe	0.84 mg/l	0.3 mg/l
Mn	0.44 mg/l	0.01 mg/l
SO 4	197 mg/l	1.0 mg/l
Zn	0.066 mg/l	0.008 mg/l
Al	<0.1 mg/l	0.1 mg/l
B	0.139 mg/l	0.04 mg/l
Co	<0.03 mg/l	0.03 mg/l
Mo	<0.05 mg/l	0.05 mg/l
Ni	0.186 mg/l	0.01 mg/l

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

87-0690-C 754

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

STATE OF NEW MEXICO
ENVIRONMENT

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 690
DATE REC. 4-27-87
PRIORITY ______

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 4 2 2 / 1 3 / 1 5 / DB

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: ______ CODE: ______

COUNTY: San Juan ; CITY: Bloomfield CODE: ______

LOCATION CODE: (Township-Range-Section-Tracts) 2 8 N + 1 1 W + 1 3 + 1 1 1 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] ______
- [ ] ______
- [ ] ______
- [ ] ______
- [ ] ______

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks: Sun Terra Pond 2 (Middle)
Kids

FIELD DATA:
pH= 7 strip ; Conductivity= 2500 umho/cm at 21 °C; Chlorine Residual= ______ mg/l
Dissolved Oxygen= ______ mg/l; Alkalinity= ______ mg/l; Flow Rate ______ ______/______
Depth to water ______ ft.; Depth of well ______ ft.; Perforation Interval ______-______ ft.; Casing: ______

Sampling Location, Methods and Remarks (i.e. odors, etc.)
[illegible] from pond 1, Sample from North side
Black water, [illegible] iron, no oil, particulates

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): [signature] Method of Shipment to the Lab: Hand carried
This form accompanies 2 Septum Vials, ______ Glass Jugs, and/or ______ ______
Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [X] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from ______ to ______
at (location) ______ on ___/___/___ - ___:___ and that the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]
Signatures ______ ______

For OCD Use: Date Owner Notified ______ Phone or Letter?______ Initials ______

ANALYSES PERFORMED

LAB. NO OR- 697

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic hydrocarbons	N.D.		
halogenated hydrocarbons	N.D		
* DETECTION LIMIT *	5.0 ppb	+ DETECTION LIMIT +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☑ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/4/87 Analyst's signature: Gary C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K Meyerhen

New Mexico Health and [illegible] Department
SCIENTIFIC LABORAT[illegible]ON
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

[illegible]RAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED	LAB NO.	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 04/22/87	SITE INFORMATION ►	Sample location: SUNTERRA - KUTZ PLANT	
Collection TIME 1315		Collection site description: POND 2	
Collected by — Person/Agency: BOYER/ANDERSON /OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/ well code:

Owner:

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400) 7 (STRIP)	Conductivity (Uncorrected) 2500 µmho	Water Temp. (00010) 21 °C	Conductivity at 25°C (00094) µmho
Field comments: (See VOC Form for comments)			

SAMPLE FIELD TREATMENT — Check proper boxes ► Pre Filtered only

No. of samples submitted	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field ~~with 0.45 µ membrane filter~~	☐ A: 2 ml H_2SO_4/L added
☒ NA: No acid added ☐ Other-specify:	☐ A: 5ml conc. HNO_3 added	☐ A: 4ml fuming HNO_3 added	

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	2500	µmho	5/14
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.48		5/5
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From Pre F, NA Sample:

			Date Analyzed
☒ Calcium	216	mg/l	5/14
☒ Potassium	21.5	mg/l	5/14
☒ Magnesium	44	mg/l	5/14
☒ Sodium	368	mg/l	5/14
☒ Bicarbonate	1228	mg/l	5/5
☒ Chloride	119	mg/l	5/5
☒ Sulfate	147	mg/l	5/12
☒ Total Solids	2302	mg/l	5/14
☒ CO_3	0		5/5
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	5 28 87	CG

Laboratory remarks:

FOR OCD USE — Date Owner Notified _____ Phone or Letter? _____ Initals _____

CATIONS				ANIONS		
ANALYTE	MEQ.	PPM	DET.LIMIT	ANALYTE	MEQ.	PPM
Ca	10.78	216.00	< 3.0	HCO3	20.12	1228.00
Mg	3.61	44.00	< 10.0	S04	3.06	147.00
Na	16.01	368.00	< 10.0	Cl	3.36	119.00
K	0.55	21.50	< 0.5			
Mn	0.00	0.00		NO3	0.00	0.00
Fe	0.00	0.00		CO3	0.00	0.00
				NH3	0.00	0.00
				PO4	0.00	0.00
SUMS	30.95	649.50			26.54	1494.00

TDS(measured) = 2302.00 ppm

Ion Balance = 116.60%

Sample No. =8701472
Date out/By 5/28/87

ASSAIGAI ANALYTICAL LABORATORIES

TO: Sunterra Gas Processing
ATTN: Gary Jordan
PO Box 2106
Albuquerque, NM 87103

DATE: 29 May 1987
0661

SAMPLE ID : #4

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
CN	0.03 mg/l	0.01 mg/l
F	0.60 mg/l	0.01 mg/l
Pb	0.11 mg/l	0.01 mg/l
Total Hg	<0.002 mg/l	0.002 mg/l
NO 3 as N	20.7 mg/l	0.01 mg/l
Se	0.096 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	0.001 mg/l
CCL 4	<0.01 mg/l	0.01 mg/l
1,2 Dichloroethane	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethylene	<0.001 mg/l	0.001 mg/l
Ethyl Benzene	<0.001 mg/l	0.001 mg/l
Xylenes	<0.001 mg/l	0.001 mg/l
Methylene Chloride	<0.001 mg/l	0.001 mg/l
CCL 3	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethane	<0.001 mg/l	0.001 mg/l
EDB	<0.001 mg/l	0.001 mg/l
1,1,1 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethane	<0.001 mg/l	0.001 mg/l
Vinyl Chloride	<0.001 mg/l	0.001 mg/l
Cu	<0.01 mg/l	0.01 mg/l
Cl	437 mg/l	1.0 mg/l
Fe	<0.3 mg/l	0.3 mg/l
Mn	<0.01 mg/l	0.01 mg/l
SO 4	1750 mg/l	1.0 mg/l
Zn	<0.008 mg/l	0.008 mg/l
Al	<0.1 mg/l	0.1 mg/l
B	0.515 mg/l	0.04 mg/l
Co	<0.03 mg/l	0.03 mg/l
Mo	<0.05 mg/l	0.05 mg/l
Ni	0.268 mg/l	0.01 mg/l

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

87-0688-C

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

STATE OF NEW MEXICO
HEALTH AND ENVIRONMENT

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 688
DATE REC. 4-29-87
PRIORITY

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 870424 1310 DB

SAMPLE TYPE: WATER [x], SOIL [ ], FOOD [ ], OTHER: ______ CODE: ______

COUNTY: San Juan; CITY: Bloomfield CODE: ______

LOCATION CODE: (Township-Range-Section-Tracts) 28N + 11W + 13 + 1 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [x] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] ______
- [ ] ______
- [ ] ______
- [ ] ______
- [ ] ______

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks: San Terra Kutz Pond 3 (lower)

FIELD DATA: 3900 21°C
pH= 8.5; Conductivity= ______ µmho/cm at 25 °C; Chlorine Residual= ______ mg/l

Dissolved Oxygen= ______ mg/l; Alkalinity= ______ mg/l; Flow Rate ______ ______/______

Depth to water ______ ft.; Depth of well ______ ft.; Perforation Interval ______ - ______ ft.; Casing ______

Sampling Location, Methods and Remarks (i.e. odors, etc.)

From west end. Lots of salt deposits on banks. Water clear, no oil

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): [signature] Method of Shipment to the Lab: Hand carried

This form accompanies 2 Septum Vials, ______ Glass Jugs, and/or ______ ______

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [x] P-Ice Sample stored in an ice bath (Not Frozen).
- [x] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from ______ to ______

at (location) ______ on ___/___/___ - ___:___ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures ______ ______

For OCD Use: Date Owner Notified ______ Phone or Letter? ______ Initials ______

ANALYSES PERFORMED

LAB. NO.: OR- 688

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	N.D		
halogenated purgeables	N.D.		
" / "			
* DETECTION LIMIT *	25 ppb	+ DETECTION LIMIT +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/4/87 Analyst's signature: Gary C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K Meyerhoff

New Mexico Health and [redacted] nt Department
SCIENTIFIC LABORAT[redacted]ION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 4 29 87	LAB NO. [redacted]	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 04 22 87	SITE INFORM-ATION ►	Sample location SUNTERRA - KUTZ PLANT	
Collection TIME 1330		Collection site description POND 3	
Collected by — Person/Agency /OCD			

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level —	Discharge —	Sample type GRAB
pH (00400) 8.5	Conductivity (Uncorrected) 3920 µmho	Water Temp. (00010) 21 °C	Conductivity at 25°C (00094) µmho
Field comments (See VOC form for comments)			

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 µ membrane filter	☐ A: 2 ml H_2SO_4/L added
☒ NA: No acid added	☐ Other-*specify:*	☐ A: 5ml conc. HNO_3 added	☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	4367	µmho	5/14
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N + Nitrite-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From F, NA Sample:			Date Analyzed
☒ Calcium	84	mg/l	5/14
☒ Potassium	0.39	mg/l	5/13
☒ Magnesium	53	mg/l	5/14
☒ Sodium	835	mg/l	5/13
☒ Bicarbonate	39	mg/l	5/5
☒ Chloride	456	mg/l	5/5
☒ Sulfate	1707	mg/l	5/12
☒ Total Solids	3172	mg/l	5/19
☒ CO_3	23	mg/l	5/5
☐			

☐ Cation/Anion Balance

Analyst	Date Reported	Reviewed by
	5 26 87	

Laboratory remarks pH = 9.61

FOR OCD USE — Date Owner Notified _____ Phone or Letter? _____ Initals _____

92

CATIONS				ANIONS		
ANALYTE	MEQ.	PPM	DET.LIMIT	ANALYTE	MEQ.	PPM
Ca	4.19	84.00	< 3.0	HCO3	0.64	39.00
Mg	4.35	53.00	< 10.0	S04	35.56	1707.00
Na	36.32	835.00	< 10.0	Cl	12.86	456.00
K	0.01	0.39	< 0.5			
Mn	0.00	0.00		NO3	0.00	0.00
Fe	0.00	0.00		CO3	0.00	0.00
				NH3	0.00	0.00
				PO4	0.00	0.00
SUMS	44.87	972.39			49.06	2202.00

TDS(measured) = 3172.00 ppm

Ion Balance = 91.46%

Sample No. =8701471

Date out/By 2/26/87

PROPOSAL

The following proposal is for geologic and hydrologic investigations to furnish information as to the probable rates and paths of seepage from a pond with a single compacted-bentonite lining, and to describe the chemical nature of the ground water, both perched and beneath the regional water table, at the site.

The proposal also includes the installation of equipment for continued monitoring, if the pond is built, and sets forth a plan for continued monitoring after the pond is in service.

1. Exploratory drilling

a. Near the center of the proposed pond, drill a 50-ft core-hole, with air as the circulating fluid. Unconsolidated material above the bedrock would be described in detail, and a detailed core description of the bedrock would be made. Before each new core run, the hole would be sounded to determine whether perched ground water were present; if present, it would be sampled with a bailer.

Sections of core that represent dominant lithologies would be taken, preserved, and submitted for permeability analysis. For each, a plug would be cut and cleaned, and air- and water-saturated permeability determined.

The hole would be plugged and abandoned by filling with heavy bentonite mud.

b. At a location just outside the edge of the proposed pond and down-slope from the pond, drill a 50-ft core-hole. The procedure would be as described above for the first core-hole. After coring and sampling of perched water has been completed, drill a 4 3/4-in hole to a point below the water table, using air. The estimated total depth of this hole is 300 ft. Set 2-in PVC casing, and allow the hole to stand for at least 24 hours; measure the depth to water and sample with a bailer. After a water sample is taken, pull the 2-in casing, mud up and run gamma-ray and resistivity logs for geologic correlation.

The purpose of this hole is to provide core information as to the first 50 feet below the surface, and to locate the depth to the saturated zone so that a monitor well, with casing cemented to near the water table, can be drilled at another location. This hole will be plugged and abandoned.

c. At each of two locations just outside the edge of the proposed pond and on roughly opposite sides of it, drill and sample a 50-ft core hole as described in item a, above. Plug each of these holes back to a point within the shallow-

Exhibit 3

est permeable zone, using bentonite slurry; place a suction-cup lysimeter in silica flour within the shallowest permeable zone for permanent monitoring. Install concrete pad and security cover.

d. At a point near the edge of the proposed pond, install a permanent ground-water monitor well. Drill a 7 7/8-in hole to a point a few feet above the water table, as determined from the exploratory hole described in item b, above. Set and cement 5 1/2-in Schedule 80 PVC casing. Drill out and air-drill 4 1/2-in hole to total depth, estimated at about 300 ft; set 3-in threaded PVC liner from surface to total depth, with PVC screen section at water table. Measure water level and sample with bailer. Install concrete pad and security cover.

e. Install additional lysimeters in shallow drill-holes if the investigation suggests that there is uncertainty as to the path that leakage might follow.

f. Determine the datum elevation for each drill hole.

2. Surface mapping, sampling

a. Prepare a detailed geologic map at a scale of 1"=100' or larger, to show the outcrops of lithologic units found in the drilling described above, fractures and fracture density, the locations of seeps, and other hydrogeologic information.

b. Prepare structure contour map(s) and isopach map(s) as appropriate to show the distribution of permeable units in the upper 50 feet of the subsurface, based on the surface mapping and the drilling described above.

c. Sample water reaching seeps, water in the seep below the lowest existing pond, and water in the lowest existing pond. Analyses would include volatile hydrocarbons, polynuclear aromatic hydrocarbons, major inorganic species, and metals.

3. Rate-of-flow calculations

After information as to the distribution of permeability in the subsurface beneath the pond site has been obtained by means of the drill-hole logging, core-analysis, and mapping described above, estimates would be made of the rate of flow which might be expected if leakage from the pond were to occur and the fluid were to enter the natural materials. The estimates of rates of flow, and the projected change in chemical quality with time of water emerging at the surface, would be determined through the use of

an appropriate digital ground-water flow and/or mass-transport model.

4. Continued monitoring

a. As a part of the proposal, the instrumentation required for measuring the components of the mass balance (with respect to water delivered to the pond), and which would be installed as part of construction of the pond, is described. The instrumentation would include:

i. precipitation gage, to determine the addition to the volume of water in the pond from rain and snow.

ii. staff gage in pond, and survey to establish a stage-capacity curve, to permit calculation of the change-in-storage term of the mass balance. It is assumed that the pond will be surrounded by a berm which will divert runoff around it, so that no runoff will enter the pond.

iii. evaporation pan, to allow determination of the rate of evaporation from the pond. It is proposed to construct the pan of large-diameter corrugated pipe, with closed end, set in the pond and filled to the level of the pond bottom with pond-bottom material. A staff gage would be provided for measuring the level in the pan, and a valve would be provided so that the ~~pond~~ PAN could be filled with pond water as required.

b. Monitoring procedure after installation of the pond would consist of the following:

i. Quarterly measurement of water level in the ground-water monitor well, and sampling of the monitor well, the lysimeters, the pond water, the nearest perched-water seeps, and the effluent to the pond. Field conductivity and pH would be taken, and analyses made for volatile hydrocarbons. Other constituents may be added to the list if the initial sampling suggests that there are specific indicators which distinguish the effluent from natural waters.

ii. Daily reading of a totalizing meter on the effluent line, the precipitation gage, the staff gage in the pond, and the staff gage in the evaporation pan. The daily readings would be used to calculate mass balance on a monthly basis, to determine by difference the rate of leakage from the pond. Because the pond is close to the plant, it is assumed that the readings would be taken daily by plant personnel and no recording instruments would be needed.

Sunterra GAS PROCESSING COMPANY
P.O. BOX 1869 • BLOOMFIELD, NM 87413 • (505) 632-8033

October 30, 1987

Mr. Lindell Greer
Bureau of Land Management
Caller Service 4104
Farmington, NM 87499-4104

RE: SF 075309

Dear Mr. Greer:

During our phone conversation on October 28, 1987, we discussed the possibility of installing a single lined evaporative pond at our Kutz Plant. Exhibit 1 is an orthophoto of the Kutz Plant showing the present pond system. Exhibit 2 is results of sampling of the three ponds at the Kutz Plant that were duplicate samples taken by us and the New Mexico Oil Conservation Division (OCD). The sample results are a worst case scenario as we plan to install a hydrocarbon/water separator. This separator will remove essentially all of the hydrocarbons in the wastewater.

Exhibit 3 is a proposal for geologic and hydrologic investigations to provide information as to probable rates and paths for seepage from a single lined pond. The investigation will also provide depth to groundwater and its chemical nature.

As we discussed in our phone conversation, Sunterra must provide a Wastewater Discharge Plan to OCD by December 23, 1987. We would appreciate your prompt review of the enclosed information.

If further information is required, please call me at (505) 768-6700.

Sincerely,

Gary Jordan

cc: Mr. David Boyer - OCD
Mr. John Renner - Sunterra

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☐ Telephone ☒ Personal | Time 1:40PM | Date 7/27/87

Originating Party: John Shomaker - Geologist Representing SunTerra-Kutz

Other Parties: David Boyer - OCD

Subject: SunTerra Discharge Plan

Discussion: John requested the meeting to discuss what would be need for discharge plan for unlined pond at Kutz. Specific items as follows:

① Geologic investigation - Field mapping, shallow coring to first sandstone w/suction lysimeters for water sampling, bench tests for perm, deep well (to 300') for water quality testing, seep investigation, modeling of solute transport in sandstone

② Operational - Water Quality monitoring quarterly of waste stream, mon. well, lysimeters. For early & other specifics Need to demonstrate no impact on wells of present & future use

Conclusions or Agreements: Told John that if effluent met part A standards, could demonstrate 0.5 AF/Acre/year by bentonite lining, mass balance, storage changes, effluent quantity would need to be daily. SunTerra should contact BLM when have plan scoped out since BLM owns land looking hard at unlined disposal.

Distribution: SunTerra File

Signed: W. J. Boyer

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

July 20, 1987

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. John Renner
General Manager
Sunterra Gas Processing Co.
P.O. Box 1869
Bloomfield, New Mexico 87413

RE: Discharge Plan GW-45
Kutz Canyon Gas Plant
San Juan County, New Mexico

Dear Mr. Renner:

The Oil Conservation Division has received your request, dated July 16, 1987, for an extension for the submission of a discharge plan for the above referenced facility. The notification requiring the filing of a discharge plan was dated April 24, 1987.

Pursuant to Water Quality Control Commission Regulation 3-106.A. and for good cause shown, Sunterra Gas Processing Co. is hereby granted an extension to December 23, 1987 for the submission of a discharge plan for your Kutz Canyon Gas Plant. This extension is granted to allow for engineering and safety evaluation of process changes that will conserve water and reduce waste water volumes.

Pursuant to Water Quality Control Commission Regulation 3-106.A. and for good cause shown, you are further granted an extension to April 24, 1987 to discharge without an approved discharge plan. This extension is granted to allow for receipt and review of the required discharge plan.

If you have any questions or comments please feel free to contact Dave Boyer at (505) 827-5885.

Sincerely,

WILLIAM J. LEMAY
Director

WJL/RA/cr

cc: OCD-Aztec

SUNTERRA
GAS PROCESSING COMPANY

P. O. BOX 1869 • BLOOMFIELD, NEW MEXICO 87413
(505) 632-8033

July 16, 1987

Mr. William J. Lemay, Director
Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources Dept.
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87501

Re: Kutz Canyon Gas Plant Discharge Plan

Dear Mr. Lemay:

Your letter dated April 24, 1987, required Sunterra to prepare and submit to your office a Waste Discharge Plan for the Kutz Plant. Since receipt of your letter, Sunterra has worked diligently on defining the plant waste water discharges. We have also looked at several process changes to conserve water and reduce the volume(s) discharged. We are presently evaluating these process changes from an engineering and safety standpoint.

We request, pursuant to Section 3-106(A) of the New Mexico Water Quality Control Commission, an extension of 120 days from the due date of August 25, 1987, in order to properly evaluate the above mentioned process changes, to submit the Waste Discharge Plan. If you approve our request, this plan will be in your office prior to December 23, 1987. We also request that we be permitted to operate without an approved discharge plan in accordance with Section 3-106(B) for 120 days after December 23, 1987 for the reasons outlined above.

If further information is required, please advise.

Sincerely,

John Renner
General Manager

JR:ls

SUNTERRA
GAS PROCESSING COMPANY

P. O. BOX 1869 • BLOOMFIELD, NEW MEXICO 87413
(505) 632-8033

June 3, 1987

Mr. William J. LeMay, Director
New Mexico Energy & Minerals Department
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Re: Discharge Plan - Kutz Plant

Dear Mr. LeMay:

Our letter to you dated May 7, 1987 promised to provide the lab results of the duplicate samples which were taken on April 22, 1987, and we are enclosing these lab results at this time for your information. We were also informed that all prior lab analyses will be required to be submitted in connection with the discharge plan application. Accordingly we are submitting at this time the lab reports from samples which were obtained at Kutz and Lybrook in December of 1986.

Within the near future we will be in a better position to proceed with a plan preparation schedule, and we will continue to keep you advised of our progress. In the meantime, we would appreciate receiving copies of your lab reports when they become available, and we look forward to working with you in the future.

Very truly yours,

Gary L. Jordan

GLJ/kam

Enclosures

cc: Southern Union Company
Attn: Mr. Thomas E. Morton, Jr.

Powell, Goldstein, Frazier & Murphy
Attn: Mr. G. William Speer

Mr. Ted Morse, Sunterra
Mr. John Renner, Sunterra

Keleher & McLeod, P.A.
Attn: Mr. Henry F. Narvaez

Application

lines sit pump
4 months then
driller hit water

2:55 7AM 6/18 ~~86652~~ 86342
Sun Terra - mon App'T
John Renner
632-8033
3PM 6/19 86652 End WORK

Basin Disposal 6/19/87

H_2S reading
sprayers - 125 ppm time = 1000
pond - 300 ppm

frac tank - [illegible] ppm (used 5-60 tubes)
feeding pond < 50 PPM

6/22/87 3:30PM wind W, 10-15 MPH
sprayer - 12 ppm (5-60 Gastec) #3, 1 stroke
pond - 8 ppm, 11 ppm (5-60 Gastec) #3, 1 stroke
" - 580, 590 ppm (100-1600 Gastec) #3, 1 stroke
" - 50 ppm, 50 ppm (MSA 1-800) #3, 1 stroke
" - >200, >200 (Dragon 0-200) #3, 1 st.

Start WK 10 AM 6/22
Farmington 86968

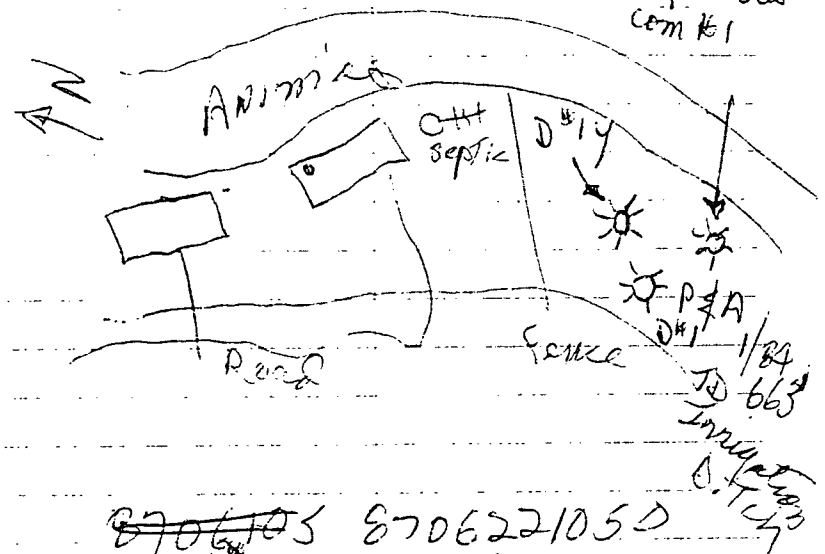
Return Santa Fe - midnight 6/22
87308

Maxine Welch
334-6065, #B, 2335 Rd
Box 6, Aztec
Well since '76, Domestic,
Drilled 35', 25 ft to
Animas River, moved
in April, '86 (Previously lived in
~~Summer '86~~ lived in
mobile home on site, Welch lived in home To NW).
Summer '85 - fractured well *
at Leeper Gas Comm #1,
Tested by Amoco, Jan '87
after complaint in late 86
(Amoco Greg Kempton)

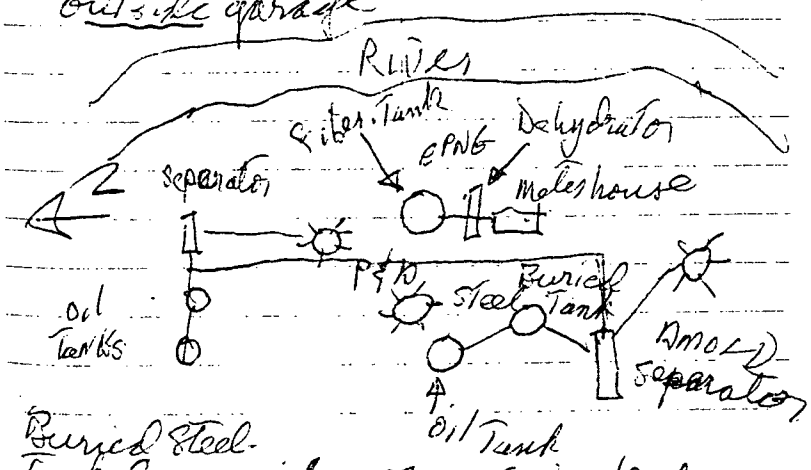
Mrs Welch says has
oss color taste, smells bad,
discoloration.
septic tank ~50' down
river from well.
(well in garage)

* Well said to have blown out
at that time.

NW 1/4 SW 1/4
L 34, T 32N, 10W
Leeper Gas
Com #1



~~870625~~ 870622105D
VOC sample from
Kitchen sink - Unstapered
Filter by water pic
870622106D - sample from Tap
outside garage



Buried Steel Tank shows evidence of overflowing/leakage?

Connie Riley
334-9647
#18, 2343 Aztec 87410

Spring NW of House -
Source runoff from
Hwy 550, possible seepage
from land area above
arroyo (including Amoco
ponds). Evidence of dump-
ing along road - Salt
saturated sand. Salt
in arroyo at seep area.
Dead pinon/junipers
below seep. Salt on
plastic pipe

870622 1245
Dug into spring pool
to grab sample.
Sample from spring
upstream of fence
crossing (Hwy ROW)
arroyo.

~~Spr~~ Well at house - approx
70' deep. Age?
Well used ~~[illegible]~~ for drinking
Tasted different
in spring, OK now

8706221230 - Sample
from Tap at ~~pump~~ well
in pump house

Amoco Pits - Workman
says Lower pit to be
taken out of service since
it leaks (like upper pond
used to)

PW Tanks at Schneider Gas
Com "B" #1 S (M 28-13N-10W)
have PW and salt at base
workman says have leaky
line or sloppy hauler

4:30 PM - John Renner
Sun Terra - Met to
look at holes dug by
backhoe around pits 1 & 2
Pit 1 - Holes have dark
~~man~~ H.C.-like stains. Soil
fine grained, clayey, water
at lower level than pit.
Smell is like sewage sludge.
pit 2 - Pink color water, FeS(?)
ppt., sewage odor,
Hole has scum covered
water brown.

Told Renner that location
of new pond would
determine type of liner. Options:
(1) ~~~~ - On site of old pit 1 - Mem brane
w/leak detection since have
fluids that may cause sludge
leaching. (Also check sludges
for "HLO" characteristics
(2) New pond - If have non-
contact wastewater with
bentonite liner what are

requirements -
(a) no seepage > 1/acre ft/acre/yr
~~ ~~ and no part. ? parameters
greater than standard, or
(b) demonstration using
geology, seepage etc

(3) Can use pit 3 for emergency
use of non-process
area runoff, Total
retention, no release, let
evaporate. Need to strengthen
dike at side of arroyo.

Told Renner that Gary Gordon,
Jim Shoemaker, etc should
meet to discuss options
after ~~~~ John toured site.

KUTZ PLANT SAMPLING LOCATIONS
Duplicate Sampling with OCD 4/22/87

Sample I.D.

1. Water Sample of Kutz #1 Cooling Tower Sump

2. Water Sample of Flare Pond #1 Southwest Corner

3. Water Sample of Pond #2 Middle of North Side

4. Water Sample of Pond #3 Southwest Corner

DECEMBER 1986

Gasoline Plant Sampling Locations

K-1 Water sample taken near Kutz #1 drain inlet to flare pond

K-2 Water sample taken near Kutz #2 drain inlet to flare pond

K-3 Sludge sample taken near Kutz #1 drain inlet to flare pond

K-4 Sludge sample taken near Kutz #2 drain inlet to flare pond

K-5 Wasted iron sponge sample from Kutz #2 plant

K-6 Water sample from upper spring below Kutz flare pond

K-7 Water sample from lower spring below Kutz flare pond

L-1 Water sample taken at Lybrook flare pond

L-2 Sludge sample taken at Lybrook flare pond

L-3 Water sample taken in arroyo downstream from Lybrook flare pond

ASSAIGAI
ANALYTICAL
LABORATORIES

TO: Sunterra Gas Processing
ATTN: Gary Jordan
PO Box 2106
Albuquerque, NM 87103

DATE: 29 May 1987
0661

SAMPLE ID : #1

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
CN	<0.01 mg/l	0.01 mg/l
F	0.59 mg/l	0.01 mg/l
Pb	0.05 mg/l	0.01 mg/l
Total Hg	0.0023 mg/l	0.002 mg/l
NO 3 as N	<0.01 mg/l	0.01 mg/l
Se	0.019 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	0.001 mg/l
CCL 4	<0.01 mg/l	0.01 mg/l
1,2 Dichloroethane	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethylene	<0.001 mg/l	0.001 mg/l
Ethyl Benzene	<0.001 mg/l	0.001 mg/l
Xylenes	<0.001 mg/l	0.001 mg/l
Methylene Chloride	<0.001 mg/l	0.001 mg/l
CCL 3	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethane	<0.001 mg/l	0.001 mg/l
EDB	<0.001 mg/l	0.001 mg/l
1,1,1 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethane	<0.001 mg/l	0.001 mg/l
Vinyl Chloride	<0.001 mg/l	0.001 mg/l
Cu	0.03 mg/l	0.01 mg/l
Cl	44 mg/l	1.0 mg/l
Fe	<0.3 mg/l	0.3 mg/l
Mn	0.03 mg/l	0.01 mg/l
SO 4	913 mg/l	1.0 mg/l
Zn	0.072 mg/l	0.008 mg/l
Al	<0.1 mg/l	0.1 mg/l
B	0.357 mg/l	0.04 mg/l
Co	<0.03 mg/l	0.03 mg/l
Mo	<0.05 mg/l	0.05 mg/l
Ni	0.150 mg/l	0.01 mg/l

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

SOLD TO: PNM
ATTN: Kent Kantz
Alvarado Square
Albuquerque, NM 87158

DATE: 9 January 1987
2152

SAMPLE ID: K-1

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	0.15 mg/l	0.002 mg/l
Ba	0.20 mg/l	0.005 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	<0.05 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.02 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Corrosivity	<6.35 mmpy	6.35 mmpy
pH	7.17	0.01
Reactivity	non-reactive	
CN	<0.01 mg/l	0.01 mg/l
TDS	1564 mg/l	1 mg/l
VOLATILE ORGANICS		
Benzene	1.34 mg/l	0.01 mg/l
Toluene	0.732 mg/l	0.01 mg/l
Ethyl benzene	0.048 mg/l	0.01 mg/l
Carbon tetrachloride	<0.01 mg/l	0.01 mg/l
Chloroform	<0.01 mg/l	0.01 mg/l
1,1-dichloroethane	<0.01 mg/l	0.01 mg/l
1,2-dichloroethane	<0.01 mg/l	0.01 mg/l
1,1-dichloroethylene	<0.01 mg/l	0.01 mg/l
1,2-dichloropropane	<0.01 mg/l	0.01 mg/l
1,2-dichloropropylene	<0.01 mg/l	0.01 mg/l
Methylene chloride	<0.01 mg/l	0.01 mg/l
Tetrachloroethylene	<0.01 mg/l	0.01 mg/l
1,2-trans-dichloroethylene	<0.01 mg/l	0.01 mg/l
1,1,1-trichloroethane	0.579 mg/l	0.01 mg/l
1,1,2-trichloroethane	<0.01 mg/l	0.01 mg/l
Trichloroethylene	<0.01 mg/l	0.01 mg/l

REFERENCES: "Test Methods for Evaluating Solid Waste,-Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

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Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

SOLD TO: PNM
ATTN: Kent Kantz
Alvarado Square
Albuquerque, NM 87158

DATE: 9 January 1987
2152

SAMPLE ID: K-2

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.002 mg/l	0.002 mg/l
Ba	<0.005 mg/l	0.005 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	<0.05 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.03 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Corrosivity	<6.35 mmpy	6.35 mmpy
pH	6.92	0.01
Reactivity	non-reactive	
CN	<0.01 mg/l	0.01 mg/l
TDS	1800 mg/l	1 mg/l
VOLATILE ORGANICS		
Benzene	0.962 mg/l	0.01 mg/l
Toluene	0.708 mg/l	0.01 mg/l
Ethyl benzene	0.034 mg/l	0.01 mg/l
Carbon tetrachloride	<0.01 mg/l	0.01 mg/l
Chloroform	<0.01 mg/l	0.01 mg/l
1,1-dichloroethane	<0.01 mg/l	0.01 mg/l
1,2-dichloroethane	<0.01 mg/l	0.01 mg/l
1,1-dichloroethylene	<0.01 mg/l	0.01 mg/l
1,2-dichloropropane	<0.01 mg/l	0.01 mg/l
1,2-dichloropropylene	<0.01 mg/l	0.01 mg/l
Methylene chloride	<0.01 mg/l	0.01 mg/l
Tetrachloroethylene	<0.01 mg/l	0.01 mg/l
1,2-trans-dichloroethylene	0.470 mg/l	0.01 mg/l
1,1,1-trichloroethane	0.550 mg/l	0.01 mg/l
1,1,2-trichloroethane	<0.01 mg/l	0.01 mg/l
Trichloroethylene	<0.01 mg/l	0.01 mg/l

REFERENCES: "Test Methods for Evaluating Solid Waste,-Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

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Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

SOLD TO: PNM
ATTN: Kent Kantz
Alvarado Square
Albuquerque, NM 87158

DATE: 9 January 1987
2152

SAMPLE ID: K-3

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	0.05 mg/l	0.002 mg/l
Ba	<0.005 mg/l	0.005 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	<0.05 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	<0.002 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Corrosivity	<6.35 mmpy	6.35 mmpy
pH	7.01	0.01
Reactivity	non-reactive	
CN	<0.01 mg/l	0.01 mg/l
Ignitibility	>60°C	
PCB	<1 ug/g	1 ug/g
VOLATILE ORGANICS		
Benzene	2.7 ug/g	0.1 ug/g
Toluene	10.1 ug/g	0.1 ug/g
Ethyl benzene	5.3 ug/g	0.1 ug/g
Carbon tetrachloride	<0.1 ug/g	0.1 ug/g
Chloroform	<0.1 ug/g	0.1 ug/g
1,1-dichloroethane	<0.1 ug/g	0.1 ug/g
1,2-dichloroethane	<0.1 ug/g	0.1 ug/g
1,2-dichloropropane	<0.1 ug/g	0.1 ug/g
1,2-dichloropropylene	<0.1 ug/g	0.1 ug/g
Methylene chloride	<0.1 ug/g	0.1 ug/g
1,1,2,2-tetrachloroethane	<0.1 ug/g	0.1 ug/g
Tetrachloroethylene	<0.1 ug/g	0.1 ug/g
1,2-trans-dichloroethylene	<0.1 ug/g	0.1 ug/g
1,1,1-trichloroethane	<0.1 ug/g	0.1 ug/g
1,1,2-trichloroethane	<0.1 ug/g	0.1 ug/g
Trichloroethylene	<0.1 ug/g	0.1 ug/g

ACIDS

2-chlorophenol	<0.01 ug/g	0.01 ug/g
2-nitrophenol	<0.01 ug/g	0.01 ug/g
Phenol	<0.01 ug/g	0.01 ug/g
2,4-dimethylphenol	<0.01 ug/g	0.01 ug/g
2,4-dichlorophenol	<0.01 ug/g	0.01 ug/g
2,4,6-trichlorophenol	<0.01 ug/g	0.01 ug/g
p-chloro-m-cresol	<0.01 ug/g	0.01 ug/g
2,4-dinitrophenol	<0.01 ug/g	0.01 ug/g
Pentachlorophenol	<0.01 ug/g	0.01 ug/g
4-nitrophenol	<0.01 ug/g	0.01 ug/g

BASES

Acenaphthene	3 ug/g	1 ug/g
Fluoranthene	5 ug/g	1 ug/g
Napthalene	<1 ug/g	1 ug/g
Benzo(a)anthracene	<1 ug/g	1 ug/g
Benzo(a)pyrene	<1 ug/g	1 ug/g
Benzo(b)fluoranthene	<1 ug/g	1 ug/g
Benzo(k)fluoranthene	<1 ug/g	1 ug/g
Chrysene	<1 ug/g	1 ug/g
Acenaphthylene	<1 ug/g	1 ug/g
Anthracene	2 ug/g	1 ug/g
Benzo(ghi)perylene	<1 ug/g	1 ug/g
Fluorene	5 ug/g	1 ug/g
Phenanthrene	2 ug/g	1 ug/g
Dibenzo(ah)anthracene	<1 ug/g	1 ug/g
Indeno(1,2,3-cd)pyrene	<1 ug/g	1 ug/g
Pyrene	<1 ug/g	1 ug/g

REFERENCES: "Test Methods for Evaluating Solid Waste,-Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

SOLD TO: PNM
ATTN: Kent Kantz
Alvarado Square
Albuquerque, NM 87158

DATE: 9 January 1987
2152

SAMPLE ID: K-4

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.05 mg/l	0.002 mg/l
Ba	0.34 mg/l	0.005 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	<0.05 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	<0.002 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Corrosivity	<6.35 mmpy	6.35 mmpy
pH	8.05	0.01
Reactivity	non-reactive	
CN	<0.01 mg/l	0.01 mg/l
Ignitibility	>60°C	
PCB	<1 ug/g	1 ug/g
VOLATILE ORGANICS		
Benzene	<0.1 ug/g	0.1 ug/g
Toluene	<0.1 ug/g	0.1 ug/g
Ethyl benzene	<0.1 ug/g	0.1 ug/g
Carbon tetrachloride	<0.1 ug/g	0.1 ug/g
Chloroform	<0.1 ug/g	0.1 ug/g
1,1-dichloroethane	<0.1 ug/g	0.1 ug/g
1,2-dichloroethane	<0.1 ug/g	0.1 ug/g
1,2-dichloropropane	<0.1 ug/g	0.1 ug/g
1,2-dichloropropylene	<0.1 ug/g	0.1 ug/g
Methylene chloride	<0.1 ug/g	0.1 ug/g
1,1,2,2-tetrachloroethane	<0.1 ug/g	0.1 ug/g
Tetrachloroethylene	<0.1 ug/g	0.1 ug/g
1,2-trans-dichloroethylene	<0.1 ug/g	0.1 ug/g
1,1,1-trichloroethane	<0.1 ug/g	0.1 ug/g
1,1,2-trichloroethane	<0.1 ug/g	0.1 ug/g
Trichloroethylene	<0.1 ug/g	0.1 ug/g

ACIDS

2-chlorophenol	<0.01 ug/g	0.01 ug/g
2-nitrophenol	<0.01 ug/g	0.01 ug/g
Phenol	<0.01 ug/g	0.01 ug/g
2,4-dimethylphenol	<0.01 ug/g	0.01 ug/g
2,4-dichlorophenol	<0.01 ug/g	0.01 ug/g
2,4,6-trichlorophenol	<0.01 ug/g	0.01 ug/g
p-chloro-m-cresol	<0.01 ug/g	0.01 ug/g
2,4-dinitrophenol	<0.01 ug/g	0.01 ug/g
Pentachlorophenol	<0.01 ug/g	0.01 ug/g
4-nitrophenol	<0.01 ug/g	0.01 ug/g

BASES

Acenaphthene	<1 ug/g	1 ug/g
Fluoranthene	<1 ug/g	1 ug/g
Napthalene	<1 ug/g	1 ug/g
Benzo(a)anthracene	<1 ug/g	1 ug/g
Benzo(a)pyrene	<1 ug/g	1 ug/g
Benzo(b)fluoranthene	<1 ug/g	1 ug/g
Benzo(k)fluoranthene	<1 ug/g	1 ug/g
Chrysene	<1 ug/g	1 ug/g
Acenaphthylene	<1 ug/g	1 ug/g
Anthracene	<1 ug/g	1 ug/g
Benzo(ghi)perylene	<1 ug/g	1 ug/g
Fluorene	<1 ug/g	1 ug/g
Phenanthrene	<1 ug/g	1 ug/g
Dibenzo(ah)anthracene	<1 ug/g	1 ug/g
Indeno(1,2,3-cd)pyrene	<1 ug/g	1 ug/g
Pyrene	<1 ug/g	1 ug/g

REFERENCES: "Test Methods for Evaluating Solid Waste,-Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

SOLD TO: PNM
ATTN: Kent Kantz
Alvarado Square
Albuquerque, NM 87158

DATE: 9 January 1987
2152

SAMPLE ID: K-5

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.05 mg/l	0.002 mg/l
Ba	<0.05 mg/l	0.005 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	<0.05 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	<0.002 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Corrosivity	<6.35 mmpy	6.35 mmpy
pH	6.80	0.01
Reactivity	non-reactive	
CN	<0.01 mg/l	0.01 mg/l
Ignitibility	>60°C	
PCB	<1 ug/g	1 ug/g
VOLATILE ORGANICS		
Benzene	<0.1 ug/g	0.1 ug/g
Toluene	<0.1 ug/g	0.1 ug/g
Ethyl benzene	<0.1 ug/g	0.1 ug/g
Carbon tetrachloride	<0.1 ug/g	0.1 ug/g
Chloroform	<0.1 ug/g	0.1 ug/g
1,1-dichloroethane	<0.1 ug/g	0.1 ug/g
1,2-dichloroethane	<0.1 ug/g	0.1 ug/g
1,2-dichloropropane	<0.1 ug/g	0.1 ug/g
1,2-dichloropropylene	<0.1 ug/g	0.1 ug/g
Methylene chloride	<0.1 ug/g	0.1 ug/g
1,1,2,2-tetrachloroethane	<0.1 ug/g	0.1 ug/g
Tetrachloroethylene	<0.1 ug/g	0.1 ug/g
1,2-trans-dichloroethylene	<0.1 ug/g	0.1 ug/g
1,1,1-trichloroethane	<0.1 ug/g	0.1 ug/g
1,1,2-trichloroethane	<0.1 ug/g	0.1 ug/g
Trichloroethylene	<0.1 ug/g	0.1 ug/g

ACIDS

2-chlorophenol	<0.01 ug/g		0.01 ug/g
2-nitrophenol	<0.01 ug/g		0.01 ug/g
Phenol	<0.01 ug/g		0.01 ug/g
2,4-dimethylphenol	<0.01 ug/g		0.01 ug/g
2,4-dichlorophenol	<0.01 ug/g		0.01 ug/g
2,4,6-trichlorophenol	<0.01 ug/g		0.01 ug/g
p-chloro-m-cresol	12.8 ug/g	U039 H.W.	0.01 ug/g
2,4-dinitrophenol	<0.01 ug/g		0.01 ug/g
Pentachlorophenol	<0.01 ug/g		0.01 ug/g
4-nitrophenol	<0.01 ug/g		0.01 ug/g

BASES

Acenaphthene	<1 ug/g	1 ug/g
Fluoranthene	<1 ug/g	1 ug/g
Napthalene	<1 ug/g	1 ug/g
Benzo(a)anthracene	<1 ug/g	1 ug/g
Benzo(a)pyrene	<1 ug/g	1 ug/g
Benzo(b)fluoranthene	<1 ug/g	1 ug/g
Benzo(k)fluoranthene	<1 ug/g	1 ug/g
Chrysene	<1 ug/g	1 ug/g
Acenaphthylene	<1 ug/g	1 ug/g
Anthracene	<1 ug/g	1 ug/g
Benzo(ghi)perylene	<1 ug/g	1 ug/g
Fluorene	<1 ug/g	1 ug/g
Phenanthrene	<1 ug/g	1 ug/g
Dibenzo(ah)anthracene	<1 ug/g	1 ug/g
Indeno(1,2,3-cd)pyrene	<1 ug/g	1 ug/g
Pyrene	<1 ug/g	1 ug/g

REFERENCES: "Test Methods for Evaluating Solid Waste,-Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

SOLD TO: PNM
ATTN: Kent Kantz
Alvarado Square
Albuquerque, NM 87158

DATE: 9 January 1987
2152

SAMPLE ID: K-6

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.002 mg/l	0.002 mg/l
Ba	<0.005 mg/l	0.005 mg/l
Cd	0.045 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	0.13 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.31 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Corrosivity	<6.35 mmpy	6.35 mmpy
pH	7.77	0.01
Reactivity	non-reactive	
CN	<0.01 mg/l	0.01 mg/l
TDS	6864 mg/l	1 mg/l
VOLATILE ORGANICS		
Benzene	<0.01 mg/l	0.01 mg/l
Toluene	<0.01 mg/l	0.01 mg/l
Ethyl benzene	<0.01 mg/l	0.01 mg/l
Carbon tetrachloride	<0.01 mg/l	0.01 mg/l
Chloroform	<0.01 mg/l	0.01 mg/l
1,1-dichloroethane	<0.01 mg/l	0.01 mg/l
1,2-dichloroethane	<0.01 mg/l	0.01 mg/l
1,1-dichloroethylene	<0.01 mg/l	0.01 mg/l
1,2-dichloropropane	<0.01 mg/l	0.01 mg/l
1,2-dichloropropylene	<0.01 mg/l	0.01 mg/l
Methylene chloride	<0.01 mg/l	0.01 mg/l
Tetrachloroethylene	<0.01 mg/l	0.01 mg/l
1,2-trans-dichloroethylene	<0.01 mg/l	0.01 mg/l
1,1,1-trichloroethane	<0.01 mg/l	0.01 mg/l
1,1,2-trichloroethane	<0.01 mg/l	0.01 mg/l
Trichloroethylene	<0.01 mg/l	0.01 mg/l

REFERENCES: "Test Methods for Evaluating Solid Waste,-Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

SOLD TO: PNM
ATTN: Kent Kantz
Alvarado Square
Albuquerque, NM 87158

DATE: 9 January 1987
2152

SAMPLE ID: K-7

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.002 mg/l	0.002 mg/l
Ba	<0.005 mg/l	0.005 mg/l
Cd	0.060 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	0.18 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.54 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Corrosivity	<6.35 mmpy	6.35 mmpy
pH	7.82	0.01
Reactivity	non-reactive	
CN	<0.01 mg/l	0.01 mg/l
TDS	9882 mg/l	1 mg/l
VOLATILE ORGANICS		
Benzene	<0.01 mg/l	0.01 mg/l
Toluene	<0.01 mg/l	0.01 mg/l
Ethyl benzene	<0.01 mg/l	0.01 mg/l
Carbon tetrachloride	<0.01 mg/l	0.01 mg/l
Chloroform	<0.01 mg/l	0.01 mg/l
1,1-dichloroethane	<0.01 mg/l	0.01 mg/l
1,2-dichloroethane	<0.01 mg/l	0.01 mg/l
1,1-dichloroethylene	<0.01 mg/l	0.01 mg/l
1,2-dichloropropane	<0.01 mg/l	0.01 mg/l
1,2-dichloropropylene	<0.01 mg/l	0.01 mg/l
Methylene chloride	<0.01 mg/l	0.01 mg/l
Tetrachloroethylene	<0.01 mg/l	0.01 mg/l
1,2-trans-dichloroethylene	<0.01 mg/l	0.01 mg/l
1,1,1-trichloroethane	<0.01 mg/l	0.01 mg/l
1,1,2-trichloroethane	<0.01 mg/l	0.01 mg/l
Trichloroethylene	<0.01 mg/l	0.01 mg/l

REFERENCES: "Test Methods for Evaluating Solid Waste,-Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

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Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

SOLD TO: PNM
ATTN: Kent Kantz
Alvarado Square
Albuquerque, NM 87158

DATE: 9 January 1987
2152

SAMPLE ID: L-1

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	0.80 mg/l	0.002 mg/l
Ba	0.43 mg/l	0.005 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	<0.05 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.06 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Corrosivity	<6.35 mmpy	6.35 mmpy
pH	9.15	0.01
Reactivity	non-reactive	
CN	<0.01 mg/l	0.01 mg/l
TDS	2900 mg/l	1 mg/l
VOLATILE ORGANICS		
Benzene	0.307 mg/l	0.01 mg/l
Toluene	0.535 mg/l	0.01 mg/l
Ethyl benzene	<0.01 mg/l	0.01 mg/l
Carbon tetrachloride	<0.01 mg/l	0.01 mg/l
Chloroform	<0.01 mg/l	0.01 mg/l
1,1-dichloroethane	<0.01 mg/l	0.01 mg/l
1,2-dichloroethane	<0.01 mg/l	0.01 mg/l
1,1-dichloroethylene	<0.01 mg/l	0.01 mg/l
1,2-dichloropropane	<0.01 mg/l	0.01 mg/l
1,2-dichloropropylene	<0.01 mg/l	0.01 mg/l
Methylene chloride	<0.01 mg/l	0.01 mg/l
Tetrachloroethylene	<0.01 mg/l	0.01 mg/l
1,2-trans-dichloroethylene	<0.01 mg/l	0.01 mg/l
1,1,1-trichloroethane	0.473 mg/l	0.01 mg/l
1,1,2-trichloroethane	<0.01 mg/l	0.01 mg/l
Trichloroethylene	<0.01 mg/l	0.01 mg/l

REFERENCES: "Test Methods for Evaluating Solid Waste,-Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer W. Smith

Jennifer W. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

SOLD TO: PNM
ATTN: Kent Kantz
Alvarado Square
Albuquerque, NM 87158

DATE: 9 January 1987
2152

SAMPLE ID: L-2

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	0.09 mg/l	0.002 mg/l
Ba	0.18 mg/l	0.005 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	0.05 mg/l	0.05 mg/l
Pb	<0.05 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	<0.002 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Corrosivity	<6.35 mmpy	6.35 mmpy
pH	7.32	0.01
Reactivity	non-reactive	
CN	<0.01 mg/l	0.01 mg/l
Ignitibility	>60°C	
PCB	<1 ug/g	1 ug/g
VOLATILE ORGANICS		
Benzene	0.5 ug/g	0.1 ug/g
Toluene	2.7 ug/g	0.1 ug/g
Ethyl benzene	8.0 ug/g	0.1 ug/g
Carbon tetrachloride	<0.1 ug/g	0.1 ug/g
Chloroform	<0.1 ug/g	0.1 ug/g
1,1-dichloroethane	<0.1 ug/g	0.1 ug/g
1,2-dichloroethane	<0.1 ug/g	0.1 ug/g
1,2-dichloropropane	<0.1 ug/g	0.1 ug/g
1,2-dichloropropylene	<0.1 ug/g	0.1 ug/g
Methylene chloride	<0.1 ug/g	0.1 ug/g
1,1,2,2-tetrachloroethane	<0.1 ug/g	0.1 ug/g
Tetrachloroethylene	<0.1 ug/g	0.1 ug/g
1,2-trans-dichloroethylene	<0.1 ug/g	0.1 ug/g
1,1,1-trichloroethane	<0.1 ug/g	0.1 ug/g
1,1,2-trichloroethane	<0.1 ug/g	0.1 ug/g
Trichloroethylene	<0.1 ug/g	0.1 ug/g

ACIDS

2-chlorophenol	<0.01 ug/g	0.01 ug/g
2-nitrophenol	<0.01 ug/g	0.01 ug/g
Phenol	<0.01 ug/g	0.01 ug/g
2,4-dimethylphenol	0.05 ug/g	0.01 ug/g
2,4-dichlorophenol	0.25 ug/g	0.01 ug/g
2,4,6-trichlorophenol	0.28 ug/g	0.01 ug/g
p-chloro-m-cresol	<0.01 ug/g	0.01 ug/g
2,4-dinitrophenol	<0.01 ug/g	0.01 ug/g
Pentachlorophenol	<0.01 ug/g	0.01 ug/g
4-nitrophenol	<0.01 ug/g	0.01 ug/g

BASES

Acenaphthene	<1 ug/g	1 ug/g
Fluoranthene	1 ug/g	1 ug/g
Napthalene	<1 ug/g	1 ug/g
Benzo(a)anthracene	<1 ug/g	1 ug/g
Benzo(a)pyrene	<1 ug/g	1 ug/g
Benzo(b)fluoranthene	<1 ug/g	1 ug/g
Benzo(k)fluoranthene	<1 ug/g	1 ug/g
Chrysene	<1 ug/g	1 ug/g
Acenaphthylene	<1 ug/g	1 ug/g
Anthracene	<1 ug/g	1 ug/g
Benzo(ghi)perylene	<1 ug/g	1 ug/g
Fluorene	<1 ug/g	1 ug/g
Phenanthrene	<1 ug/g	1 ug/g
Dibenzo(ah)anthracene	<1 ug/g	1 ug/g
Indeno(1,2,3-cd)pyrene	<1 ug/g	1 ug/g
Pyrene	<1 ug/g	1 ug/g

REFERENCES: "Test Methods for Evaluating Solid Waste,-Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

TO: PNM
ATTN: Kent Kantz
Alvarado Square
Albuquerque, NM 87158

DATE: 21 January 1987
2159

SAMPLE ID: L-3

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	0.25 mg/l	0.05 mg/l
Ba	<0.05 mg/l	0.05 mg/l
Cd	0.013 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	<0.05 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.03 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Corrosivity	<6.35 mmpy	6.35 mmpy
pH	9.04	0.01
Reactivity	non-reactive	
CN	<0.01 mg/l	0.01 mg/l
TDS	3056 mg/l	1 mg/l

REFERENCES: "Test Methods for Evaluatin Solid Waste,-Physical/Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

TO: Sunterra Gas Processing
ATTN: Gary Jordan
PO Box 2106
Albuquerque, NM 87103

DATE: 29 May 1987
0661

SAMPLE ID : #2

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	0.28 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
CN	0.03 mg/l	0.01 mg/l
F	0.70 mg/l	0.01 mg/l
Pb	0.09 mg/l	0.01 mg/l
Total Hg	<0.002 mg/l	0.002 mg/l
NO 3 as N	<0.01 mg/l	0.01 mg/l
Se	0.020 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Benzene	0.14 mg/l	0.001 mg/l
Toluene	0.24 mg/l	0.001 mg/l
CCL 4	<0.01 mg/l	0.01 mg/l
1,2 Dichloroethane	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethylene	<0.001 mg/l	0.001 mg/l
Ethyl Benzene	0.011 mg/l	0.001 mg/l
Xylenes	0.12 mg/l	0.001 mg/l
Methylene Chloride	0.31 mg/l	0.001 mg/l
CCL 3	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethane	<0.001 mg/l	0.001 mg/l
EDB	<0.001 mg/l	0.001 mg/l
1,1,1 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethane	<0.001 mg/l	0.001 mg/l
Vinyl Chloride	<0.001 mg/l	0.001 mg/l
Cu	0.03 mg/l	0.01 mg/l
Cl	89 mg/l	1.0 mg/l
Fe	2.68 mg/l	0.3 mg/l
Mn	0.39 mg/l	0.01 mg/l
SO 4	771 mg/l	1.0 mg/l
Zn	0.034 mg/l	0.008 mg/l
Al	<0.1 mg/l	0.1 mg/l
B	0.376 mg/l	0.04 mg/l
Co	<0.03 mg/l	0.03 mg/l
Mo	<0.05 mg/l	0.05 mg/l
Ni	0.182 mg/l	0.01 mg/l

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

TO: Sunterra Gas Processing
ATTN: Gary Jordan
PO Box 2106
Albuquerque, NM 87103

DATE: 29 May 1987
0661

SAMPLE ID : #3

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
CN	<0.01 mg/l	0.01 mg/l
F	0.65 mg/l	0.01 mg/l
Pb	0.08 mg/l	0.01 mg/l
Total Hg	<0.002 mg/l	0.002 mg/l
NO 3 as N	<0.01 mg/l	0.01 mg/l
Se	0.016 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Benzene	0.004 mg/l	0.001 mg/l
Toluene	0.012 mg/l	0.001 mg/l
CCL 4	<0.01 mg/l	0.01 mg/l
1,2 Dichloroethane	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethylene	<0.001 mg/l	0.001 mg/l
Ethyl Benzene	<0.001 mg/l	0.001 mg/l
Xylenes	<0.001 mg/l	0.001 mg/l
Methylene Chloride	<0.001 mg/l	0.001 mg/l
CCL 3	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethane	<0.001 mg/l	0.001 mg/l
EDB	<0.001 mg/l	0.001 mg/l
1,1,1 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethane	<0.001 mg/l	0.001 mg/l
Vinyl Chloride	<0.001 mg/l	0.001 mg/l
Cu	<0.01 mg/l	0.01 mg/l
Cl	107 mg/l	1.0 mg/l
Fe	0.84 mg/l	0.3 mg/l
Mn	0.44 mg/l	0.01 mg/l
SO 4	197 mg/l	1.0 mg/l
Zn	0.066 mg/l	0.008 mg/l
Al	<0.1 mg/l	0.1 mg/l
B	0.139 mg/l	0.04 mg/l
Co	<0.03 mg/l	0.03 mg/l
Mo	<0.05 mg/l	0.05 mg/l
Ni	0.186 mg/l	0.01 mg/l

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

TO: Sunterra Gas Processing
ATTN: Gary Jordan
PO Box 2106
Albuquerque, NM 87103

DATE: 29 May 1987
0661

SAMPLE ID : #4

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
CN	0.03 mg/l	0.01 mg/l
F	0.60 mg/l	0.01 mg/l
Pb	0.11 mg/l	0.01 mg/l
Total Hg	<0.002 mg/l	0.002 mg/l
NO 3 as N	20.7 mg/l	0.01 mg/l
Se	0.096 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	0.001 mg/l
CCL 4	<0.01 mg/l	0.01 mg/l
1,2 Dichloroethane	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethylene	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethylene	<0.001 mg/l	0.001 mg/l
Ethyl Benzene	<0.001 mg/l	0.001 mg/l
Xylenes	<0.001 mg/l	0.001 mg/l
Methylene Chloride	<0.001 mg/l	0.001 mg/l
CCL 3	<0.001 mg/l	0.001 mg/l
1,1 Dichloroethane	<0.001 mg/l	0.001 mg/l
EDB	<0.001 mg/l	0.001 mg/l
1,1,1 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2 Trichloroethane	<0.001 mg/l	0.001 mg/l
1,1,2,2 Tetrachloroethane	<0.001 mg/l	0.001 mg/l
Vinyl Chloride	<0.001 mg/l	0.001 mg/l
Cu	<0.01 mg/l	0.01 mg/l
Cl	437 mg/l	1.0 mg/l
Fe	<0.3 mg/l	0.3 mg/l
Mn	<0.01 mg/l	0.01 mg/l
SO 4	1750 mg/l	1.0 mg/l
Zn	<0.008 mg/l	0.008 mg/l
Al	<0.1 mg/l	0.1 mg/l
B	0.515 mg/l	0.04 mg/l
Co	<0.03 mg/l	0.03 mg/l
Mo	<0.05 mg/l	0.05 mg/l
Ni	0.268 mg/l	0.01 mg/l

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

87-0692-C 154 WP4

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

HEALTH ENVIRONMENT — STATE OF NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR-692
DATE REC. 4-27-87
PRIORITY

PHONE(S): 827-5812
USER CODE: 82235
SUBMITTER: David Boyer
CODE: 260

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 870427/1040 KDB

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: _____ CODE: _____

COUNTY: San Juan; CITY: Bloomfield CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 28N/11W+03+/// (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks: SunTerra - Kutz Cooling Tower

FIELD DATA:

pH= 7.5 strip; Conductivity= 1300 umho/cm at 9 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ ____/____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____-_____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Dipped from sump, cooling tower shut down previous week

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): A T Boyd Method of Shipment to the Lab: Hand carried

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____ _____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [X] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on ____/____/____ - ____:____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures _____ _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 692

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	N.D.		
halogenated purgeables	N.D.		
* DETECTION LIMIT * ✱	100 ug/L	+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/4/87 . Analyst's signature: Mary C. Ellen

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: R Meyerhen

wnf XLO

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 4 27 87	LAB NO. WC-1468	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 04 22 87	SITE INFORMATION ►	Sample location: SUNTERRA – KUTZ PLANT	
Collection TIME: 1240		Collection site description: COOLING TOWER	
Collected by — Person/Agency: BOYER / ANDERSON /OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/ well code:

Owner:

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge —	Sample type: GRAB
pH (00400): 7.5 (STRIP)	Conductivity (Uncorrected): 1300 µmho	Water Temp. (00010): 9 °C	Conductivity at 25°C (00094): µmho

Field comments: (See VOC Form for Comments)

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	1943	µmho	5/26
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	8.30		5/5
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From F, NA Sample:

			Date Analyzed
☒ Calcium	225	mg/l	5/14
☒ Potassium	4.64	mg/l	/
☒ Magnesium	47	mg/l	5/14
☒ Sodium	223	mg/l	
☒ Bicarbonate	336	mg/l	5/5
☒ Chloride	44	mg/l	5/5
☒ Sulfate	886	mg/l	5/12
☒ Total Solids	1562	mg/l	5/19
☒ CO_3	0		5/5
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported: 5 26 87 | Reviewed by: CO

Laboratory remarks:

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

98%

CATIONS				ANIONS		
ANALYTE	MEQ.	PPM	DET.LIMIT	ANALYTE	MEQ.	PPM
Ca	11.23	225.00	< 3.0	HCO3	5.51	336.00
Mg	3.86	47.00	< 10.0	S04	18.46	886.00
Na	9.70	223.00	< 10.0	Cl	1.24	44.00
K	0.12	4.68	< 0.5			
Mn	0.00	0.00		NO3	0.00	0.00
Fe	0.00	0.00		CO3	0.00	0.00
				NH3	0.00	0.00
				PO4	0.00	0.00
SUMS	24.91	499.68			25.21	1266.00

TDS(measured) = 1562.00 ppm

Ion Balance = 98.82%

Sample No. =8701468

Date out/By 5/24/87

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

HEAVY METALS

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 4 | 27 | 87	LAB NO. 4y 527	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 04/22/87	SITE INFORMATION ►	Sample location: SUN TERRA - KUTZ PLANT	
Collection TIME: 1240		Collection site description: COOLING TOWER	
Collected by — Person/Agency: BOYER ANDERSON /OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400) 7.5 (Strip)	Conductivity (Uncorrected) 1302 µmho	Water Temp. (00010) 9 °C	Conductivity at 25°C (00094) µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 µmembrane filter	☐ A: 2 ml H_2SO_4/L added
☐ NA: No acid added	☐ Other-*specify:*	☐ A: 5ml conc. HNO_3 added	☒ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☒ Other:		
☒ Other: Cr. by A.A.	0.006	5/22
☐ Other:		

A-H_2SO_4		
☐ Nitrate-N + , Nitrate-N total (00630)	mg/l	
☐ Ammonia-N total (00610)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	
☐ Total organic carbon ( )	mg/l	
☐ Other:		
☐ Other:		

From ____, NA Sample:		Date Analyzed
☐ Calcium	mg/l	
☐ Potassium	mg/l	
☐ Magnesium	mg/l	
☐ Sodium	mg/l	
☐ Bicarbonate	mg/l	
☐ Chloride	mg/l	
☐ Sulfate	mg/l	
☐ Total Solids	mg/l	
☐		
☐		
☐ Cation/Anion Balance		

Analyst	Date Reported	Reviewed by
	6 | 1 | 87	Jim Ashley

Laboratory remarks

FOR OCD USE -- Date Owner Notified_____ Phone or Letter?_____ Initals_____

87-0689-C WPU 754

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

HEALTH ENVIRONMENT — STATE OF NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- Org. 689
DATE REC. 4-27-87
PRIORITY

PHONE(S): 827-5812
USER CODE: 82235
SUBMITTER: David Boyer
CODE: 260

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 870421215 DB

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: San Juan ; CITY: Bloomfield CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 28N+11W+13+11 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: SunTerra Kutz, Pond 1 (upper)

FIELD DATA:

pH= 6.5 strip; Conductivity= 2610 umho/cm at 21.5 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ ____/____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval ____-____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.) Oily wastes, H.C. odor & anaerobic odor also
SunTerra Pond #1 (upper), Receives all plant wastewater (except septic), Sample West side by overflow pipe

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): D.J. Boyer Method of Shipment to the Lab: Hand carried

This form accompanies 2 Septum Vials, ___ Glass Jugs, and/or ____ _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☒ P-Ice Sample stored in an ice bath (Not Frozen).
- ☒ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on ____/____/____ - ____:____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____ _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 689

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
halogenated purgeables	N.D		
aromatic purgeables			
benzene	100		
toluene	86		
ethylbenzene	T.R.		
p-xylene	T.R.		
m-xylene	25		
o-xylene	T.R.		
* DETECTION LIMIT * ✱	25 ug/L	+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT
T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)
[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: three early eluting light unsaturated compounds detected with the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 8/2/86. Analyst's signature: Mary C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K Meyerhein

960 wnf

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 4 27 87	LAB NO. WC-1469	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 04 22 87	SITE INFORMATION ►	Sample location SUNTERRA - KUTZ PLANT	
Collection TIME 1255		Collection site description POND 1	
Collected by — Person/Agency BOYER / ANDERSON /OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type GRAB
pH (00400) 6.5 (Strip)	Conductivity (Uncorrected) 2610 µmho	Water Temp. (00010) 29.5 °C	Conductivity at 25°C (00094) µmho

Field comments (See VOC sheet for comments)

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☒ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	2566	µmho	5/26
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From ____, ~~NA Sample:~~ NA SAMPLE

			Date Analyzed
☒ Calcium	292	mg/l	5/14
☒ Potassium	7.41	mg/l	5/13
☒ Magnesium	36	mg/l	5/14
☒ Sodium	308	mg/l	5/13
☒ Bicarbonate	702	mg/l	5/5
☒ Chloride	88	mg/l	5/5
☒ Sulfate	629	mg/l	5/12
☒ Total Solids	2288	mg/l	5/19
☒ CO_3	0		5/5
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	5 26 87	

Laboratory remarks: pH = 6.72

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

CATIONS				ANIONS		
ANALYTE	MEQ.	PPM	DET.LIMIT	ANALYTE	MEQ.	PPM
Ca	14.57	292.00	< 3.0	HCO3	11.50	702.00
Mg	2.96	36.00	< 10.0	S04	13.10	629.00
Na	13.40	308.00	< 10.0	Cl	2.48	88.00
K	0.19	7.41	< 0.5			
Mn	0.00	0.00		NO3	0.00	0.00
Fe	0.00	0.00		CO3	0.00	0.00
				NH3	0.00	0.00
				PO4	0.00	0.00
SUMS	31.11	643.41			27.09	1419.00

TDS(measured) = 2288.00 ppm

Ion Balance = 114.85%

Sample No. =8701469

Date out/By CD 5/26/87

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Heavy Metals

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 4 27 87	LAB NO. ~~HA-526~~	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 04 22 87	ICAP- 226	SITE INFORMATION ►	Sample location SUNTERRA - KUTZ PLANT
Collection TIME 1255			Collection site description POND 1
Collected by — Person/Agency BOYER/ANDERSON /OCD			

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type GRAB
pH (00400) 6.5 (Strip)	Conductivity (Uncorrected) 2610 µmho	Water Temp. (00010) 24.5 °C	Conductivity at 25°C (00094) µmho
Field comments (See VOC Sheet For comments)			

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 µmembrane filter	☐ A: 2 ml H_2SO_4/L added
☐ NA: No acid added ☐ Other-*specify:*		☐ A: 5ml conc. HNO_3 added	☒ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

~~Raw~~ HNO_3	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☒ Other: ICAP Scan		
☒ Other:		
☐ Other:		

A-H_2SO_4		
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	
☐ Ammonia-N total (00610)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	
☐ Total organic carbon ( )	mg/l	
☐ Other:		
☐ Other:		

From ~~raw~~, NA Sample:

		Date Analyzed
☐ Calcium	mg/l	
☐ Potassium	mg/l	
☐ Magnesium	mg/l	
☐ Sodium	mg/l	
☐ Bicarbonate	mg/l	
☐ Chloride	mg/l	
☐ Sulfate	mg/l	
☐ Total Solids	mg/l	
☐		
☐		
☐ Cation/Anion Balance		

Analyst	Date Reported	Reviewed by
	5 18 87	Jim Ashley

Laboratory remarks: 1.0ml HNO_3 added at SLD.

Digested

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

ICAP SCAN

SLD Lab No. ICP 226 Reviewed by: Jim Ashby

Analyst JB 5/6/87 Date Reported: 5/18/87

ELEMENT	ICAP VALUE(mg/l)	AA VALUE(mg/l)
Aluminum	<0.1	
Barium	0.4	
Beryllium	<0.1	
Boron	0.3	
Cadmium	<0.1	
Calcium	360.	
Chromium	<0.1	
Cobalt	<0.05	
Copper	<0.1	
Iron	1.4	
Lead	<0.1	
Magnesium	43.	
Manganese	0.52	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	18.	
Silver	<0.1	
Strontium	45	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		
Selenium		
Mercury		

105

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

852 wpn

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 4/24/87	LAB NO. WC-1469	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 04/22/87	SITE INFORM-ATION ►	Sample location SAUTERRA - KUTZ PLANT	
Collection TIME 1255		Collection site description POND 1	
Collected by — Person/Agency BOYER/ANDERSON /OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

MAY 29 1987

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type GRAB
pH (00400) 7 (Strip)	Conductivity (Uncorrected) 2500 µmho	Water Temp. (00010) 21 °C	Conductivity at 25°C (00094) µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1

☐ **NF:** Whole sample (Non-filtered) ☒ **F:** Filtered in field with 0.45 µmembrane filter ☐ **A:** 2 ml H_2SO_4/L added

☐ **NA:** No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☒ A: ~~4ml fuming HNO_3 added~~ 2ml H_2SO_4

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☐ Other:		
☐ Other:		
☐ Other:		

F, NA	Units	Date analyzed
☐ Calcium (00915)	mg/l	
☐ Magnesium (00925)	mg/l	
☐ Sodium (00930)	mg/l	
☐ Potassium (00935)	mg/l	
☐ Bicarbonate (00440)	mg/l	
☐ Chloride (00940)	mg/l	
☐ Sulfate (00945)	mg/l	
☐ Total filterable residue (dissolved) (70300)	mg/l	
☐ Other:		

NF, A-H_2SO_4		
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	
☐ Ammonia-N total (00610)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	
☐ Total organic carbon ( )	mg/l	
☐ Other:		
☐ Other:		

F, A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N dissolved (00631)	0.04	mg/l	5/12
☒ Ammonia-N dissolved (00608)	11.1	mg/l	5/7
☒ Total Kjeldahl-N ( )	36.9	mg/l	5/15
☐ Other:			

Analyst	Date Reported	Reviewed by
	5/20/87	CJ

Laboratory remarks

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

87-0690-C

WP4 754

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

HEALTH ENVIRONMENT — STATE OF NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 690
DATE REC. 4-27-87
PRIORITY

PHONE(S): 827-5812
USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 4 2 7 / 1 / 5 DB

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: _____ CODE: _____

COUNTY: San Juan ; CITY: Bloomfield CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 2 8 N + / / W + / 3 + / / / (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks: Sun Terra Pond 2 (Middle) Kids

FIELD DATA:

pH= 7 Slight; Conductivity= 2500 umho/cm at 21 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ ____/____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____-_____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Overflow from pond 1, Sample from North side
Black water, suspect iron, no oil, particulates

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): David Boyd Method of Shipment to the Lab: Hand carried

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____ _____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [X] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on ____/____/____ - ____:____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures _____ _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 690

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic hydrocarbons	N.D.		
halogenated hydrocarbons	N.D		
* DETECTION LIMIT * ✳	50 ug/L	+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☑ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/4/87 . Analyst's signature: Mary C. Eder

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: L Meyer

860 unf

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 4 | 27 | 87	LAB NO. WC-1478	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 04 | 22 | 87	SITE INFORMATION ►	Sample location: SUNTERRA - KUTZ PLANT	
Collection TIME: 1315		Collection site description: POND 2	
Collected by — Person/Agency: BOYER / ANDERSON / OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/ well code:

Owner:

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): 7 (STRIP)	Conductivity (Uncorrected): 2500 µmho	Water Temp. (00010): 21 °C	Conductivity at 25°C (00094): µmho

Field comments: (See VOC Form for comments)

SAMPLE FIELD TREATMENT — *Check proper boxes* Pre Filtered only

No. of samples submitted	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field ~~with 0.45 µm membrane filter~~	☐ A: 2 ml H_2SO_4/L added
☒ NA: No acid added ☐ Other-*specify:*		☐ A: 5ml conc. HNO_3 added	☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	2500	µmho	5/29
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.48		5/5
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From Pre F, NA Sample:

			Date Analyzed
☒ Calcium	216	mg/l	5/14
☒ Potassium	21.5	mg/l	5/18
☒ Magnesium	44	mg/l	5/14
☒ Sodium	364	mg/l	5/14
☒ Bicarbonate	1228	mg/l	5/5
☒ Chloride	119	mg/l	5/5
☒ Sulfate	147	mg/l	5/12
☒ Total Solids	2302	mg/l	5/19
☒ CO_3	0		5/5
☐			

☒ Cation/Anion Balance

Analyst	Date Reported	Reviewed by
	5 | 28 | 87	CJ

Laboratory remarks:

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

CATIONS				ANIONS		
ANALYTE	MEQ.	PPM	DET.LIMIT	ANALYTE	MEQ.	PPM
Ca	10.78	216.00	< 3.0	HCO3	20.12	1228.00
Mg	3.61	44.00	< 10.0	S04	3.06	147.00
Na	16.01	368.00	< 10.0	Cl	3.36	119.00
K	0.55	21.50	< 0.5			
Mn	0.00	0.00		NO3	0.00	0.00
Fe	0.00	0.00		CO3	0.00	0.00
				NH3	0.00	0.00
				PO4	0.00	0.00
SUMS	30.95	649.50			26.54	1494.00

TDS(measured) = 2302.00 ppm

Ion Balance = 116.60%

Sample No. =8701472
Date out/By 5/28/87 CG

87-0688-C

754
wpu

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

HEALTH ENVIRONMENT — STATE OF NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- Dry 688
DATE REC. 4-29-87
PRIORITY

PHONE(S): 827-5812
USER CODE: 82235
SUBMITTER: David Boyer
CODE: 260

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 870429 2121 1330 DB

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: San Juan ; CITY: Bloomfield CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 28N + 11W + 13 + 111 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: San Terra Kutz Pond 3 (lower)

FIELD DATA: DTW 3900 21°C

pH= 8.5 Strip; Conductivity= ~~38,500~~ umho/cm at ~~25~~ °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ ____/____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval ____-____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

From West end, Lots of salt deposits on banks, water clear, NO oil

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): David Boyer Method of Shipment to the Lab: Hand carried

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____ _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☒ P-Ice Sample stored in an ice bath (Not Frozen).
- ☒ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on ____/____/____ - ____:____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____ _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 688

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	N.D		
halogenated purgeables	N.D.		
* DETECTION LIMIT * ✳	25 PPB	+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☑ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/4/87. Analyst's signature: Gary C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: L Meyerhen

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time 0815	Date 2/11/88

Originating Party	Other Parties
Roger Anderson	Kelly Crossman GW/HW EID

Subject Determination of HW from characteristics

Discussion I called to determine if spent opidized iron sponge was HW based on analysis received from Sa Union. (attached). Based on the analysis I gave over the phone Kelly said it does not appear to be H.W. I said we were going to control where and how it was disposed.

Conclusions or Agreements

Distribution

Signed R. Anderson

Hauser Laboratories

January 14, 1987
Test Report No. C86-1211

CLIENT: Southern Union Processing Company
P. O. Box 1869
Bloomfield, New Mexico 87413
Attention: Ralph Morris

P. O. #13784-8268

MATERIAL: One (1) bag of wood chips received 12/12/86 and identified as "wood chips from iron sponge."

TESTING:
1. Chemical analysis for ignitability, sulfide, and corrosivity according to Test Methods for Evaluating Solid Waste, SW-846.
2. Prior to analysis for pH (corrosivity) and sulfate the sample was extracted in hot water. Sulfate analyzed according to EPA method 375.4
3. Prior to anlaysis of iron, for ferrous sulfate, the sample was ashed, dissolved in acid and analyzed by atomic absorption spectroscopy.
4. The reaction product of mercaptans is sulfide and is determined as indicated in #1 above.

RESULTS:

Analysis	Method	Obtained Value
Ignitability	1010	>170°F
Reactivity		
Sulfide	9030	< 1 mg/L
Cyanide		not required
Corrosivity, pH	9040	6.3
Reaction product of mercaptans		see sulfide
Ferrous sulfate, $FeSO_4$		1.41 %
Total iron		26.2 %

TESTS SUPERVISED BY:

Pamela Shepard
Pamela Shepard
Analytical Chemist/Inorganic Supervisor

TESTS CONDUCTED BY:

Michael Cheney
Chemical Technician

Olga Piel
Chemical Technician

file: SOU010
ms

Hauser Laboratories

January 14, 1987
Test Report No. C86-1211

CLIENT: Southern Union Processing Company
P. O. Box 1869
Bloomfield, New Mexico 87413
Attention: Ralph Morris

P. O. #13784-8268

MATERIAL: One (1) bag of wood chips received 12/12/86 and identified as "wood chips from iron sponge."

TESTING:
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2. Prior to analysis for pH (corrosivity) and sulfate the sample was extracted in hot water. Sulfate analyzed according to EPA method 375.4
3. Prior to anlaysis of iron, for ferrous sulfate, the sample was ashed, dissolved in acid and analyzed by atomic absorption spectroscopy.
4. The reaction product of mercaptans is sulfide and is determined as indicated in #1 above.

RESULTS:

Analysis	Method	Obtained Value
Ignitability	1010	>170°F
Reactivity		
Sulfide	9030	< 1 mg/L
Cyanide		not required
Corrosivity, pH	9040	6.3
Reaction product of mercaptans		see sulfide
Ferrous sulfate, $FeSO_4$		1.41 %
Total iron		26.2 %

TESTS SUPERVISED BY:

Pamela Shepard
Analytical Chemist/Inorganic Supervisor

TESTS CONDUCTED BY:

Michael Cheney
Chemical Technician

Olga Piel
Chemical Technician

file: SOU010
ms

Russel Buss
904 Mountain View
Aztec, NM 87410

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

8200 WQC

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 4/27/87	LAB NO. WQ-1471	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 04/22/87	SITE INFORMATION ►	Sample location: SUNTERRA - KUTZ PLANT	
Collection TIME: 1330		Collection site description: POND 3	
Collected by — Person/Agency: /OCD			

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/ well code:

Owner:

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level: —	Discharge: —	Sample type: GRAB
pH (00400): 8.5	Conductivity (Uncorrected): 3900 µmho	Water Temp. (00010): 21 °C	Conductivity at 25°C (00094): µmho

Field comments: (see VOC Form for Comments)

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted:

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	4367	µmho	5/28
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From F, NA Sample:

			Date Analyzed
☒ Calcium	84	mg/l	5/14
☒ Potassium	0.39	mg/l	5/13
☒ Magnesium	53	mg/l	5/14
☒ Sodium	835	mg/l	5/13
☒ Bicarbonate	39	mg/l	5/5
☒ Chloride	456	mg/l	5/5
☒ Sulfate	1707	mg/l	5/12
☒ Total Solids	3172	mg/l	5/19
☒ CO_3	23	mg/l	5/5
☐			

☐ Cation/Anion Balance

Analyst	Date Reported	Reviewed by
	5/26/87	

Laboratory remarks: pH = 9.61

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

42

CATIONS				ANIONS		
ANALYTE	MEQ.	PPM	DET.LIMIT	ANALYTE	MEQ.	PPM
Ca	4.19	84.00	< 3.0	HCO3	0.64	39.00
Mg	4.35	53.00	< 10.0	S04	35.56	1707.00
Na	36.32	835.00	< 10.0	Cl	12.86	456.00
K	0.01	0.39	< 0.5			
Mn	0.00	0.00		NO3	0.00	0.00
Fe	0.00	0.00		CO3	0.00	0.00
				NH3	0.00	0.00
				PO4	0.00	0.00
SUMS	44.87	972.39			49.06	2202.00

TDS(measured) = 3172.00 ppm

Ion Balance = 91.46%

Sample No. =8701471

Date out/By CO 5/12/87

SUNTERRA
GAS PROCESSING COMPANY
P. O. BOX 1869 • BLOOMFIELD, NEW MEXICO 87413
(505) 632-8033

May 7, 1987

Mr. William J. LeMay
Director
New Mexico Energy & Mineral Department
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87501

RE: Discharge Plan Kutz Plant

Dear Mr. LeMay:

We acknowledge receipt of your letter of April 24 requiring the filing of a discharge plan for our Kutz Plant. Gathering of preliminary information is already in progress. As soon as we receive the analyses of your samples taken on April 22, and have a better definition of our needs the plan preparation schedule will be completed. Analysis of the duplicate samples, which we took, are expected next week and will be shared with your department.

Thank you for the copy of the regulations and preparation guide. We will be in contact as soon as the analytical data is available.

Sincerely,

John Renner
General Manager

JR:clb

cc: R. Buss
G. Jordan
H. Navarues
D. Boyer - NMOCD-Aztec

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

April 24, 1987

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. John Renner
General Manager
Sunterra Gas Processing Co.
P.O. Box 1869
Bloomfield, New Mexico 87413

RE: Discharge Plan requirement
Kutz Canyon Gas Plant
San Juan County, New Mexico

Dear Mr. Renner:

Under the provisions of the Water Quality Control Commission (WQCC) regulations, you are hereby notified that the filing of a discharge plan is required for your existing Kutz Canyon Gas Plant located in Section 13, Township 28 North, Range 11 West (NMPM), San Juan County New Mexico.

This notification of discharge plan requirement is pursuant to Sections 3-104 and 3-106 of the WQCC regulations. The discharge plan, defined in Section 1-101.P of the WQCC Regulations, should cover all discharges of effluent or leachate at the plant site or adjacent to the plant site. A copy of the regulations is enclosed for your convenience. Also enclosed is a copy of an OCD guide to the preparation of discharge plans for gas processing plants. Three copies of your discharge plan should be submitted for review purposes.

Section 3-106.A. of the regulations requires a submittal of the discharge plan within 120 days of receipt of this notice unless an extension of this time period is sought and approved for good cause. Section 3-106.A also allows the discharge to continue without an approved discharge plan until 240 days after written notification by the director that a discharge plan is required. An extension of this time may be sought and approved for good cause.

If there are any questions on this matter, please feel free to call David Boyer or Roger Anderson at (505) 827-5812 as they have the assigned responsibility for review of all discharge plans.

Sincerely,

William J. LeMay
Director

WJL/RCA/cr

Enclosure

xc: OCD-Aztec
Gary Jordan, Sunbelt Mining

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time	Date 4/1/87

Originating Party	Other Parties
Russell Bass Southern Union	R. Anderson OCD

Subject: Spent iron Sponge at Katz Gas Plant.

Discussion: He received my letter and has been working on a way to dispose of their iron sponge. BLM would not let them dispose of it in a landfill. I said I would not either due to the restrictions on areas we placed on the disposal site. BLM would not allow them to leave it at the plant site. A landscaper wanted to use it for compost and mix it with soil. I would not allow this as we do not know the exact chemical composition nor the potential reactions with any fertilizer, weed killer, insecticides, etc. We also would loose track of the exact location of all the material.

Conclusions or Agreements: I told him we were going to visit the plant site the week of 4/20/87 in anticipation of a D.P.

Distribution: Sundhelt file

Signed: R. Anderson

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

February 18, 1987

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

Mr. Russel Buss
904 Mountain View
Aztec, N.M. 87401

RE: IRON SPONGE REFUSE DISPOSAL

Dear Mr. Buss:

The OCD has evaluated the laboratory analysis of the spent iron sponge you supplied. Based on 40 CFR 261 Subpart C, Characteristics of Hazardous Wastes, and consultation with Environmental Improvement Division Hazardous Waste personnel, it appears the spent iron sponge has oxidized to the point it will not be classified as a hazardous waste. Therefore, this waste can be disposed of by landfill procedures.

Prior to final disposal, the site must be approved by this office. If a commercial or community landfill is utilized, the local EID Field Office should be notified. The following are the criteria that will be used by OCD in determining the appropriateness of the site and must be supplied by the disposer:

1. Location in 1/4, 1/4. Section , Township , and Range .
2. Name and address of land owner.
3. Depth to ground water.
4. Description of soil and underlying geological formation.

The following construction criteria will be required:

1. Refuse will be deposited below ground.
2. Refuse will be covered with a minimum of twelve (12) inches of dirt.
3. The dirt will be mounded to insure water runoff and no pooling of water above the refuse.

4. The area will be protected and properly signed to ensure there is no unauthorized dumping or entry.

5. Only oxidized, non-hazardous spent iron sponge will be disposed of at that particular location.

Please be advised that approval of a disposal site and method does not relieve you of liability should your disposal result in actual pollution of surface or ground waters which may be actionable under other laws and/or regulations.

If there are any questions, do not hesitate to contact me at (505) 827-5885.

Sincerely,

Roger C Anderson

ROGER C. ANDERSON
Environmental Engineer

RCA:dp

cc: OCD-Aztec
Garry Jordan - Sunbelt Mining

Hauser Laboratories

January 14, 1987
Test Report No. C86-1211

CLIENT: Southern Union Processing Company
P. O. Box 1869
Bloomfield, New Mexico 87413
Attention: Ralph Morris

P. O. #13784-8268

MATERIAL: One (1) bag of wood chips received 12/12/86 and identified as "wood chips from iron sponge."

TESTING:
1. Chemical analysis for ignitability, sulfide, and corrosivity according to Test Methods for Evaluating Solid Waste, SW-846.
2. Prior to analysis for pH (corrosivity) and sulfate the sample was extracted in hot water. Sulfate analyzed according to EPA method 375.4
3. Prior to anlaysis of iron, for ferrous sulfate, the sample was ashed, dissolved in acid and analyzed by atomic absorption spectroscopy.
4. The reaction product of mercaptans is sulfide and is determined as indicated in #1 above.

RESULTS:

Analysis	Method	Obtained Value
Ignitability	1010	>170°F
Reactivity		
Sulfide	9030 SW 846	< 1 mg/L
Cyanide		not required
Corrosivity, pH	9040	6.3
Reaction product of mercaptans		see sulfide
Ferrous sulfate, $FeSO_4$		1.41 %
Total iron		26.2 %

TESTS SUPERVISED BY:

Pamela Shepard
Pamela Shepard
Analytical Chemist/Inorganic Supervisor

TESTS CONDUCTED BY:

Michael Cheney
Chemical Technician

Olga Piel
Chemical Technician

file: SOU010
ms

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501-2088
(505) 827-5800

December 15, 1986

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Russell A. Buss, President
Southern Union Processing Co.
P. O. Box 1869
Bloomfield, New Mexico 87413

RE: IRON SPONGE DISPOSAL

Dear Mr. Buss:

As per our phone conversations of December 8 and 9, 1986, I am enclosing copies of correspondence between the N.M. Environmental Improvement Division and the Bureau of Land Management, and a USEPA determination on the exemption of iron sponge refuse pursuant to the oil and gas waste exemption of RCRA. EPA has determined that waste "iron sponge" is not exempt and, therefore, subject to the RCRA hazardous waste regulatory program if it is determined to be hazardous.

As we discussed, the spreading of the iron sponge should allow it to oxidize. Please be aware of the hazards of iron sulfide and take the proper precautions to prevent the formation of H_2S gas or the ignition of the iron sponge. Please submit your plans to accomplish oxidation, the topography and ground water level where the iron sponge is spread and the security measures to be taken to prevent unauthorized entry and/or disposal and to assure the protection of ground water.

There may also be unanticipated compounds present that may be classified as hazardous, therefore, after it is determined that oxidation is complete, you are required to test and analyze the refuse for the following:

1. RCRA EP-Toxicity
2. RCRA Ignitability
3. RCRA Reactivity
4. Presence of iron sulfide
5. Presence of mercaptans
6. Presence of halogenated hydrocarbons

Once these tests are completed, please supply a copy of the analysis for our review. After review of the data, a determination on disposal method will be made.

If I can be of further assistance or if there are any questions, please do not hesitate to call me at (505) 827-5885.

Sincerely,

Roger C. Anderson

ROGER C. ANDERSON
Environmental Engineer

RCA:dp

Enc.

cc: OCD-Aztec

PHYSICHEM TECHNOLOGIES, INC.
P.O. Box 15484 Austin, Texas 78761

(512) 454-1348
U.S. WATS 1-800-531-5169
Texas WATS 1-800-252-8157

A REPRINT FROM
THE AMERICAN OIL & GAS
REPORTER®

Procedures Aid Iron Sponge Disposal

Brett Jay Davis
Project Engineer
Physichem Technologies, Inc.
Austin

Reprinted from the August 1986 edition of The American Oil and Gas Reporter.

Procedures Aid Iron Sponge Disposal

Editor's Note: Spent iron sponge can exhibit the hazardous characteristics of ignitability and reactivity as defined in U.S. Environmental Protection Agency regulations, CFR 40. However, if properly handled prior to disposal, it is not considered a hazardous waste under federal regulations, and may be disposed of without the extensive testing, paperwork and permitting required of hazardous waste disposal. As a manufacturer of iron sponge, Physichem Technologies Inc. provides the following guide to proper handling of spent iron sponge. These pre-disposal handling procedures developed by Physichem have been approved by the Texas Railroad and Water Commissions, and are generally accepted throughout the domestic oil patch.

By Brett Jay Davis

AUSTIN, TX.—Iron sponge consists of hydrated iron oxide uniformly impregnated on a substrate material, most commonly wood. It is used to remove hydrogen sulfide and mercaptans from gas and light liquid hydrocarbon streams.

H_2S removal produces iron sulfides and water, while mercaptan removal produces iron mercaptides and water. Both iron sulfides and iron mercaptides can be dangerous materials, and if not properly handled can be pyrophoric (self-igniting). In addition, these compounds can release deadly hydrogen sulfide gas and/or sulfuric acid gas when contacted by acidic compounds.

BRETT JAY DAVIS *is a project engineer with Physichem Technologies Inc., with primary responsibility for production operations at Physichem's iron sponge plant in Waelder, Tx. His other duties include engineering and design of gas and liquid treating systems for sulphur removal. He has authored computer programs for gas measurement as well as treating, and has presented numerous seminars on natural gas sweetening. Davis received a bachelors in chemical engineering from the University of Texas at Austin. He is a member of the Gulf Coast Gas Measurement Society, the Gas Processors Suppliers Association, and the American Gas Association.*

Fortunately, waste iron sponge will revert to non-hazardous iron oxide fairly rapidly in the presence of air. If precautions are taken to ensure this exothermic reaction proceeds without producing enough heat to ignite the waste, iron sponge can be disposed of as a simple, non-hazardous waste.

Spent iron sponge will often become slightly "cemented" in the sweetening vessel, and thus can be quite difficult to remove. Whether or not this is the case, the recommended removal procedure is to "wash" spent iron sponge from the vessel with water. This washing ensures the spent material is completely wetted.

After removal from the vessel, the spent iron sponge should be spread into a thin layer on the ground, or preferably a cement slab. Once spread to a thickness of a few inches, the material should be periodically raked and rewetted for a few days.

When the material has sufficiently reoxidized so that it is no longer potentially ignitable, spent iron sponge may be disposed of as a non-hazardous waste. This determination is commonly made when the spent iron sponge is no longer black, but has become uniformly another color ranging from gray-red to red-brown to deep red. The spent iron sponge should not come into contact with acidic solutions, either before or after it is judged safe for disposal, to avoid possible reaction.

If these pre-disposal techniques are followed, most states allow the disposal of spent iron sponge by burial onsite, or when accepted by the licensed operator, in a public landfill. Some states may require an inexpensive disposal permit or test for evolvable H_2S gas.

In all cases, the proper state regulatory agencies should be contacted prior to spent iron sponge disposal. These agencies are always cooperative in helping a waste generator develop safe and legal disposal plans. Physichem Technologies Inc. is also available to assist operators in developing proper handling and disposal techniques. For information contact the company at P.O. Box 15484, Austin, Tx. 78761; phone 1-800-531-5169 (1-800-252-8157 in Texas). □

Proper Handling and Disposal of Spent Iron Sponge

INTRODUCTION

As a manufacturer of iron sponge, Physichem Technologies, Inc. has encountered a great deal of confusion as to the accepted legal handling and disposal methods for the spent material. Spent iron sponge is primarily composed of a mixture of iron sulfides/mercaptides and iron oxides on a supporting wood chip/shaving substrate. If not properly handled prior to disposal, this spent material can take on the characteristics of a hazardous waste as defined in the *Code of Federal Regulations, Title 40 (40 CFR), Part 261*. Disposal of a hazardous waste involves extensive chemical testing, large volumes of paperwork for the necessary permits, and expensive handling, transportation, and disposal costs. In order to help producers of spent iron sponge avoid the unnecessary time and expense associated with disposal as a hazardous waste, this paper will discuss predisposal handling procedures that are currently accepted by the hazardous and solid waste regulatory agenices in Texas and several of the surrounding states.

DISCUSSION

Chemical Composition

Iron sponge consists of hydrated iron oxide ($Fe_2O_3 \cdot xH_2O$) uniformly impregnated upon a substrate material. Most commonly, this substrate material is wood. The product is used to remove hydrogen sulfide (H_2S) and mercaptans (RSH) from gas and liquid streams. As indicated by Equation 1, the H_2S removal reaction produces iron sulfides (e.g., Fe_2S_3) and water. In a similar fashion, mercaptan removal produces iron mercaptides and water.

$$2Fe_2O_3 \cdot xH_2O + 6H_2S \rightarrow 2Fe_2S_3 + 6H_2O \quad \text{(desulfurization)} \quad (1)$$

$$2Fe_2S_3 + 3O_2 \rightarrow 2Fe_2O_3 + 6S(s) \quad \text{(reversion)} \quad (2)$$

Iron sulfides and iron mercaptides can be dangerous materials. If not properly handled, they can be pyrophoric (self-igniting) and can release deadly hydrogen sulfide gas and/or sulfuric acid gas when contacted with acidic compounds.

Fortunately, waste iron sponge will revert back to iron oxide in the presence of air (oxygen) fairly rapidly, as indicated in Equation 2. If precautions are taken to insure that this exothermic reaction proceeds without producing enough heat to ignite the waste, the spent iron sponge can be disposed of as simply a non-hazardous solid waste.

Hazardous Wastes

It is the responsibility of the waste producer to make the determination of whether a waste is hazardous. This determination is based upon the guidelines presented in *40 CFR*, Part 261. Iron sponge and iron sulfides/mercaptides are not specifically listed as hazardous materials in this statute.

However, in *40 CFR*, Part 261, Subpart C, several characteristics of hazardous wastes are listed. A waste that exhibits <u>any</u> of these characteristics is considered hazardous. The definition of the characteristic of *ignitability* includes any waste that "is not a liquid and is capable, under standard temperature and pressure, of causing fire through . . . spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard." The definition of the characteristic of *reactivity* includes any waste that "is a . . . sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment."

In a July 12, 1985 memorandum, the Office of Solid Waste and Emergency Response of the Environmental Protection Agency (EPA) defined as hazardous those wastes that release more than 500 mg H_2S per Kg of waste. Tests run by a consultant for the EPA Region 5 office in Chicago found that spent iron sponge generated by a large mid-western utility <u>did not</u> produce more than 500 mg H_2S per Kg by the test specified in the EPA memorandum. These results support the premise that spent iron sponge does not exhibit the characteristic of *reactivity*, as presently defined.

As described above, spent iron sponge can possess the characteristic of *ignitability* if allowed to re-oxidize too quickly. Although contact with large quantities of an acidic compound may not yield the characteristic of *reactivity*, such contact should not be permitted to occur.

Regulatory Agencies

40 CFR gives the EPA the authority to regulate hazardous wastes on the Federal level. In many states, enforcement of the regulations in *40 CFR* and any additional state statutes is performed by local agencies.

Proper Handling and Disposal Procedures

The following is a summary of the recommended spent iron sponge handling and disposal procedures in Texas, Oklahoma, Kansas, Louisiana, and New Mexico.

TEXAS

In Texas, the responsibility for hazardous waste management belongs to the Texas Water Commission. All non-hazardous wastes associated with production of natural gas and oil are the responsibility of the Texas Railroad Commission. Thus, disposal of spent iron sponge is regulated by the Railroad Commission unless it is determined to be hazardous waste.

As discussed above, the classification of spent iron sponge as non-hazardous is very advantageous to the waste generator. Several pre-disposal handling techniques recommended by the Railroad Commission will insure that the spent iron sponge is not hazardous waste while it undergoes reversion in air. These pre-disposal handling procedures must be followed to insure that spent iron sponge does not fit the characteristics of a hazardous waste during its reversion to predominately iron oxide, which is a non-hazardous material.

Following reversion, the material can be disposed as a non-hazardous solid waste. If these procedures are not followed and the spent material is not immediately disposed, then it may have to be transported to a Water Commission authorized hazardous waste landfill. Obviously, such disposal would require sophisticated and expensive handling techniques along with voluminous paperwork.

Spent iron sponge often will become slightly "cemented" in the sweetening vessel and, thus, can be quite difficult to remove. Whether or not this is the case, the recommended removal procedure is to always "wash" the spent iron sponge from the vessel with water. This washing insures that the spent material is completely wetted. After this material is removed from the vessel, it should be spread into a thin layer upon the ground or preferably onto a cement slab. Once spread to a thickness of only several inches, *the material should be periodically raked and rewetted for a few days.*

When the material has sufficiently re-oxidized such that it no longer presents the potential hazardous characteristic of *ignitability*, even when allowed to dry, it can be buried. This determination is commonly made when the spent iron sponge is no longer black but has become uniformly another color ranging from gray-red to red-brown to deep red. The spent iron sponge should not come into contact with acidic solutions, either before or after the above determination is made. This procedure will insure that the hazardous characteristic of *reactivity* is avoided. Usually, no permits are required

for either the pre-disposal handling or the on-site disposal process for the hazardous material. This permit exemption is described in the Texas Solid Waste Disposal Act, section 4(f).

However, if the waste cannot be buried on-site, arrangements must be made through a licensed landfill operator for final disposal. The landfill operator may require that several chemical tests be performed on the material to meet his legal obligations to confirm that the spent iron sponge is non-hazardous. And because of the unpredictable timing of the waste's reversion reaction, these tests may be required before each disposal.

OKLAHOMA

Disposal of wastes associated with the exploration and production of oil and gas in the state of Oklahoma is regulated by the Corporation Commission. The proper disposal techniques for spent iron sponge are included in the Commission pamphlet entitled *"Guidelines for Petroleum and Emergency Field Situations in the State of Oklahoma."*

Spent iron sponge should be "landfilled on-site or other suitable site with the approval of the land owner and the District Manager of the Oklahoma Corporation Commission Oil and Gas Conservation Division." The Corporation Commission does not consider spent iron sponge to be a hazardous waste. However, as an added safety precaution to avoid the possible dangers associated with the reversion of the iron sulfides/mercaptides, it is recommended that the spent iron sponge pre-disposal techniques previously detailed be followed prior to landfill disposal.

KANSAS

The Department of Health and Environment must be given a detailed plan for the disposal of spent iron sponge including the expected volumes. The generator of spent iron sponge must contact the Department with disposal plans prior to implementation. Both on-site and public landfill disposal are allowed in Kansas.

The Department requires the purchase of an inexpensive permit, valid for one year, prior to on-site disposal. County landfills are available for spent iron sponge disposal and there are no restrictions on the transportation of the material. However, it is again recommended that the pre-disposal treatment techniques be followed prior to disposal and especially before transportation to a county landfill.

LOUISIANA

Both the Department of Environmental Quality and the Office of Conservation regulate the disposal of spent iron sponge. The generator of this material should contact both agencies with disposal plans prior to implementation. Both on-site and public landfill disposal are allowed.

The Office of Conservation requires that the pre-treatment techniques listed previously be followed before disposal. They also specify a test for evolvable H_2S be performed to determine when the spent iron sponge has completed the reversion process. The Department of Environmental Quality requires that a permit be obtained prior to on-site disposal.

NEW MEXICO

The generator of spent iron sponge must notify the Energy and Minerals Department of disposal plans. Both on-site and public landfill disposal are allowed.

On-site disposal is allowed if the material will not come into contact with acidic compounds or groundwater. The Department recommends that the disposal site be marked with a sign that includes the statement "buried iron sulfide, add no acid." Public landfill disposal is recommended in the southeast portion of the state because of the low depth of the groundwater. Again, it is recommended that the pre-disposal techniques for spent iron sponge be followed in New Mexico.

CONCLUSIONS

Spent iron sponge is potentially hazardous. If left unattended, dry, and piled, this material can self-ignite, possibly producing flames which could be disastrous in a dry area or near the oil/gas well itself. If the spent iron sponge is contacted with large quantities of acidic compounds, potentially lethal gases may be evolved. In order to avoid these dangerous situations, several simple, inexpensive pre-disposal handling procedures are recommended by the Texas Railroad Commission. These procedures apply equally well in Texas and many other states.

Spent iron sponge will rapidly undergo reversion from iron sulfides/mercaptides back to iron oxide in the presence of air. Keeping the waste wetted and raked while in a thin layer insures that the material will not self-ignite. Additionally, the spent material should be kept away from acidic materials.

Once these procedures have been carefully followed and the reversion is sufficiently complete, the spent iron sponge can be disposed by burial on-site or, when accepted by the licensed operator, in a public landfill. In some states, permits are required prior to disposal.

In all cases, the proper state regulatory agencies should be contacted with a proposal for spent iron sponge disposal. These agencies are always cooperative in aiding the waste generator to develop disposal plans that are safe and legal. However, these same agencies take a very dim view of those generators requesting assistance only after an accident has occurred.

WASTE DISPOSAL AGENCIES

AREA	ADDRESS	PHONE NUMBER
EPA Region 6 (Arkansas, Louisiana, New Mexico, Oklahoma, Texas)	EPA Region 6 1201 Elm Street Dallas, Texas 75270	214-767-2600
EPA Region 7 (Iowa, Kansas, Missouri, Nebraska)	EPA Region 7 324 East 11th Street Kansas City, Missouri 64101	816-374-5493
Kansas	Department of Health and Environment Building 321 Topeka, Kansas 66620	913-862-9360
Louisiana	Department of Environmental Quality Solid Waste Division PO Box 94307 Baton Rouge, Louisiana 70804	504-342-9091
New Mexico	Energy and Minerals Department Oil Conservation Division PO Box 2088 Santa Fe, New Mexico 87504-2088	505-827-5812
Oklahoma	Corporation Commission Oil and Gas Conservation Division Jim Thorpe Office Building Oklahoma City, Oklahoma 73105	405-521-2301
Texas	Railroad Commission 1701 N. Congress Ave. Austin, Texas 78711	512-463-7288
	Water Commission 1700 N. Congress Ave. Austin, Texas 78711	512-463-7830

50 Unions
Gov contract
Contractors

(Gary Jordan - Compliance Manager
Sunbelt Mining
[illegible] - 6700

P.O. Box 2106
[illegible] 87103

(Transwestern Mining)

([illegible])
Monteath

[illegible] 10:30
[illegible] 3:00

From:
RUSSEL A. BUSS

To:
Roger Anderson

☐ Act
☒ Information
☐ Comments

Article cl discussed with you on telephone 12-4-86. Please call me if you have question @ 505-632-8033 or 632-8034

Thanks

Russel Buss

SOUTHERN UNION REFINING COMPANY
P.O. BOX 1869/BLOOMFIELD, NEW MEXICO 87413

February 27, 1985

Energy and Minerals Department
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87501

Gentlemen:

Please be advised of the noted changes in the capacities of Southern Union Refining Company Gas Processing Plants. The address is also changed.

Regarding the Lovington facility, the Lovington Refinery of Southern Union Refining Company was closed down as of September 1, 1984. It has been out of service since that date. Any correspondence regarding the oil refinery should be sent to the Hobbs address. Any correspondence regarding the gas processing plants should be sent to the Bloomfield address, to the attention of Mr. Russel Buss, Vice President.

Yours truly,

Russel Buss

Russel Buss
Vice President
Natural Gas Liquids Production

RAB:bb

Company, plant, location	MMcfd: Gas capacity	MMcfd: Gas throughput	Process method	Production—1,000 gal/day (average based on the past 12 months): Ethane	Prop.	Isobut.	Normal or unsplit butane	LP-gas mix	Raw NGL mix	Debut. nat. gaso.	Other
MGPC—Fairview, Richland Co., 24-25n-58e...	6.0	3.9	3	....	8.4	....	....	7.9	....	....	....
Shell Western E&P Inc.—Cabin Creek, Fallon Co., 18-10n-58e	1.9	1.9	3	....	....	....	....	....	7.0	....	....
Little Beaver, Fallon Co., 17-4n-62e	0.4	0.4	3	....	....	....	....	....	1.4	....	....
South Pine, Wibaux Co., 10-11n-57e	1.2	1.2	4	....	....	....	....	....	5.4	....	....
True Oil Co.—Bob Rhodes, Richland Co., ne 4-25n-58e	4.0	1.0	3	....	2.3	....	....	....	8.1	....	....
Utex Oil Co.—Stateline, Richland Co., nw¼ sw¼ 8-23n-59e	12.0	3.0	3	....	8.9	....	....	....	8.0	....	[11]1.5
Total	**70.0**	**35.3**		**....**	**42.9**	**8.2**	**6.4**	**13.4**	**39.2**	**1.5**	**1.5**
NEBRASKA											
Cities Service Co.—Kimball, Kimball Co., 10-12n-55w	1.5	1.0	3	....	....	....	....	....	5.0	....	....
Marathon Oil Co.—*West Sidney, Cheyenne Co., 4-12n-50w	12.0	2.1	2	....	2.8	....	2.1	....	....	1.7	....
Total	**13.5**	**3.1**		**....**	**2.8**	**....**	**2.1**	**....**	**5.0**	**1.7**	**....**
NEW MEXICO											
Adobe Oil & Gas Corp.—Antelope Ridge, Lea Co., 15-23s-34e	30.0	11.0	7	....	....	....	....	....	24.0	....	....
Amoco Production Co.—*Empire Abo, Eddy Co., 3-18s-27e	42.0	40.8	7	84.5	49.8	....	23.6	....	....	23.5	....
Cabot Corp.—Hobbs, Lea Co., 28-18s-36e	61.0	22.3	7	....	....	....	....	....	43.1	....	....
Cities Service Co.—Abo, Eddy Co., 35-17s-27e	4.0	4.0	7	....	....	....	....	....	8.0	....	....
Bluitt, Roosevelt Co., 15-8s-36e	25.0	25.0	2	....	....	....	....	....	99.0	....	....
Burton Flats, Eddy Co., 14-20s-28e NMPM	8.0	3.0	7	....	....	....	....	....	11.0	....	....
Conoco Inc.—Maljamar, Lea Co., sw se 21-17s-32e	50.0	36.7	7	....	....	....	....	....	135.3	....	....
El Paso Natural Gas Co.—Blanco, San Juan Co., n2-n2 14-29n-11w	558.0	379.6	1	....	....	....	....	....	311.3	....	....
Chaco, San Juan Co., sw4 16-26n-12w	594.0	409.8	2	....	....	....	....	....	605.0	....	....
Jal No. 3, Lea Co., nw4-sw4 33-24s-37e	225.0	95.9	2	....	....	....	....	....	121.2	....	....
Jal No. 4A, Lea Co., se4-se4 31-23s-37e and s2-sw4 32-23s-37e	185.0	97.2	1	....	....	....	....	....	68.2	....	....
Jal No. 4B, Lea Co., se4-se4 31-23s-37e and s2-sw4 32-23s-37e	....	....	†	....	(52.7)	....	(64.7)	....	....	(72.0)	....
San Juan Co., 1-29n-15w	71.0	44.8	1	....	8.4	....	11.8	....	....	13.3	....
Wingate, McKinley Co., 16&17-15n-17w	....	....	†	....	(366.9)	(101.6)	(189.9)	....	....	(260.9)	....
Gas Co. of New Mexico, Division of New Mexico Public Service Co.—Avalon, Eddy Co., 9-21s-27e	30.0	14.6	2	....	....	....	....	....	13.0	....	....
Marathon Oil Co.—Indian Basin, Eddy Co., 23-21s-23e	210.0	109.9	7	....	....	....	....	....	184.5	....	[11]14.2
Mesa Petroleum Co.—South Blanco Creek, 6-7w-23n	6.0	2.6	3	....	....	....	....	....	13.5	....	....
Minerals Inc.—Hobbs, Lea Co., sw¼-sw¼-ne¼ 36-18s-36e	45.0	40.8	7	....	....	....	..	55.6	....	....	....
Kermac, Eddy Co., 12 4-21s-31e	6.0	3.6	6	....	....	....	....	1.9	....	....	....
Mitchell Energy & Development Corp.—Pecos Diamond No. 1, Eddy Co.	20.0	5.1	7	....	....	....	....	....	7.7	....	....
Pecos Diamond No. 2, Eddy Co.	20.0	5.1	7	....	....	....	....	....	7.7	....	....
White Ranch, Chaves Co.	7.5	1.5	7	....	....	....	....	....	6.9	....	[11]0.2
Northern Natural Gas Co.—Hobbs, Lea Co., 6-19s-37e	220.0	114.0	2	....	....	....	....	....	137.0	....	....
Phillips Petroleum Co.—Artesia, Eddy Co., s2 se4 7-18s-28e	43.0	NR	7	....	....	....	....	....	....	....	....
Eunice, Lea Co., ne4 3-22s-37e	80.0	NR	7	....	....	....	....	....	....	....	....
Lee, Lea Co., sw4 se4 30 nw4-ne4-31-17s-35e	35.0	NR	7	....	....	....	....	....	....	....	....
Lusk, Lea Co., nw4 ne4 19-19s-32e	60.0	NR	2	....	....	....	....	....	....	....	....
Southern Union Refining Co.—Kutz No. 1, San Juan Co., nw4 13-28n-11w	100.0	67.4	2	....	....	....	....	....	175.6	....	....
Kutz No. 2, San Juan Co., nw4 13-28n-11w	85.0	74.3	7	....	....	....	....	....	230.3	....	....
Lybrook, Rio Arriba Co., nw¼ 14-23n-7w	85.0	51.5	7	....	....	....	....	....	177.1	....	....
Tenneco Oil Co.—Gallegos Canyon, San Juan Co., se¼-sw¼-13-25n-10w NMPM	19.4	5.4	7	....	....	....	....	....	22.1	....	....
Texaco—Buckeye, Lea Co., se¼ of se¼ 36-17s&18s-34e, 1 mile of Buckeye	25.0	7.7	6	....	....	....	....	....	83.1	....	....
Eunice No. 1, Lea Co., 27 22s-37e	105.0	78.4	7	....	73.1	11.8	38.0	....	0.6	57.2	[5]206.5 [11]3.3
Tipperary Corp.—Denton, Lea Co., 2-7-155-37e	15.0	4.0	7	....	....	....	....	....	35.0	....	....
Warren Petroleum Co.—Eunice, Lea Co., ne4 3-22s-37e	NR	50.3	7	....	....	....	....	....	249.6	....	....
Monument, Lea Co., sw4 35-19s-36e	NR	48.7	7	....	....	....	....	....	212.4	....	....
Saunders, Lea Co., 34-14s 33e	NR	28.5	6	....	....	....	....	....	220.2	....	....
Snyder Ranch, Eddy Co., sw4-sw4 15-19s-31e	NR	12.0	7	....	....	....	....	....	19.8	....	....
Vada, Lea Co., sw2-sw4-nw4 23-10s-33e	NR	8.9	6	....	....	....	....	....	55.8	....	....
Total	**3,255.2**	**2,078.4**		**84.5**	**131.3**	**11.8**	**73.4**	**57.5**	**3,278.0**	**94.0**	**224.2**

†Fractionation. (Figures in parenthesis do not represent primary production, and are not added in state totals).

NORTH DAKOTA											
Amoco Production Co.—Killdeer, Dunn Co., 6-145n-94w	2.5	1.4	2	....	....	....	....	....	3.8	....	[11]0.4
Cities Service Co.—Lignite, Burke Co., nw4 7-162n-91w	11.0	8.0	2	....	14.0	....	....	17.0	....	....	....

SOUTHERN UNION REFINING COMPANY
P.O. BOX 1869/BLOOMFIELD, NEW MEXICO 87413

January 24, 1979

Mr. Eddie Seay
Oil Conservation Division
P.O. Box 1980
Hobbs, New Mexico 88240

Dear Mr. Seay:

Per your request, attached are maps of surface pits operated by Southern Union Refining Company in New Mexico. The maps show the section, township, and range of the location of the pits per your request. If you have any further questions, please notify.

Very truly yours,

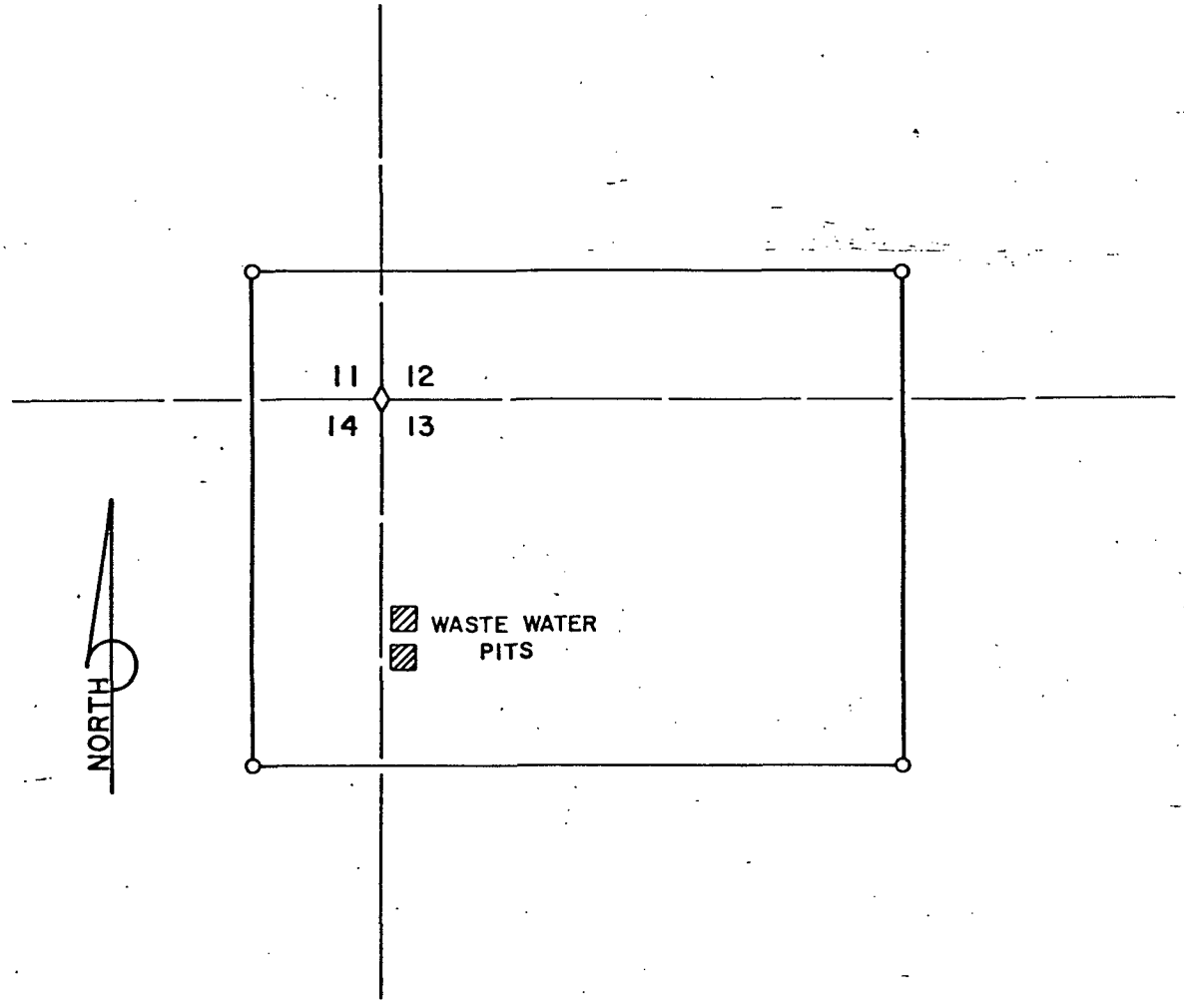
Russel A. Buss

Russel A. Buss
General Manager

RAB:jj

attch. (2)

Posted
1/26/79



T 28 N-R 11 W

KUTZ PLANT

GASOLINE PLANT SUMMARY 1984

OPERATOR	PLANT	DESIGN CAPACITY MMCF/D
Amoco Production Company P. O. Box 68 Hobbs, New Mexico 88240	Empire Abo Gasoline	42
Cabot Corporation 7120 I-40 West Amarillo, Texas 79106	Hobbs	65
Cities Service Company Box 300 Tulsa, Oklahoma 74102	Bluitt Abo Burton Flats	27 4 7.5
Conoco Inc. Box 2197 Houston, Texas 77001	Maljamar	36
El Paso Natural Gas Company P. O. Box 1492 El Paso, Texas 79978	Jal No. 1 Jal No. 3 Jal No. 4 Blanco Chaco San Juan River Wingate	303 225 185 558 594 71 (1) 1,328,000 Gal/D
Florida Hydrocarbons Company P. O. Box 973 Hobbs, New Mexico 88240	Antelope Ridge	30
Gas Company of New Mexico First International Building Dallas, Texas 75270	Indian Hills	30
Getty Oil Company Eunice, New Mexico 88231	Eunice No. 1 Eunice No. 2 Grama Ridge (Shut Down)	130 40 15
Intrastate Gathering Corporation P. O. Box 32999 San Antonio, Texas 78216	Gallup	1.2
Liquid Energy Corporation P. O. Box 618 Artesia, New Mexico 88210	Pecos Diamond	60
Marathon Oil Company Box 1324 Artesia, New Mexico 88210	Indian Basin	180
Mesa Petroleum Co. P. O. Box 2009 Amarillo, Texas 79189	South Blanco	6
Minerals, Inc. P. O. Box 1320 Hobbs, New Mexico 88240	Hobbs Kerr Mac	45 6
Navajo Refined Helium Company Box 312 Otis, Kansas 67565	Red Rock	4
Northern Natural Gas Company 2223 Dodge St. Omaha, Nebraska 68102	Hobbs	222
Pecos River Gas Plant, Ltd. P. O. Box 5939 Roswell, New Mexico 88202	White Ranch	7.5
Perry Gas Processors, Inc. P. O. Box 7059 Odessa, Texas 79760	Antelope Ridge	10
Phillips Petroleum Company Bartlesville, Oklahoma 74004	Artesia Eunice Hobbs (Shut Down) Lee Lovington (Shut Down) Lusk	43 80 38 35 10 60

OPERATOR	PLANT		DESIGN CAPACITY MMCF/D
Southern Union Refining Company ~~501 N. Linam~~ P.O. Box 1869 ~~Hobbs, New Mexico 88240~~ BLOOMFIELD N.M. 87413	Kutz Canyon		~~100~~ 125
	Kutz No. 2		85
	Lybrook		85
Texaco Inc. Box 3109 Midland, Texas 79702	Buckeye		23
Tipperary Resources Corporation Box 3179 Midland, Texas 79702	Denton		15
Warren Petroleum Corporation P. O. Box 2100 Houston, Texas 77001	Eunice		70
	Snyder Ranch		22.6
	Monument		77
	Saunders Area		26
	Vada		10
Yates Petroleum Corporation 207 So. 4th Artesia, New Mexico 88210	Yates Gathering and Transwestern Processing	(2)	5
	Penasco Gas Processing		5
TOTAL	46		3,776.6

(1) The Wingate Plant is a central fractionation plant that receives its feed from the Blanco and Chaco absorption plants.

(2) The processing plant is owned and operated by Transwestern Pipeline Company for all gas gathered by Yates Petroleum and transported by Yates Petroleum with capacity of 3.25 MMCFPD.

NEW MEXICO OIL REFINERIES, 1983

NAME AND ADDRESS	PLANT	RUNS TO STILLS BBLS/YEAR	RUNS TO STILLS BBLS/DAY	CAPACITY BBLS/DAY	EMPLOYEES
Caribou Four Corners, Inc. Box 457 Afton, Wyoming 83110	Kirtland (Shut Down)	-0-	-0-	3,500	0
Giant Refining Box 256 Farmington, New Mexico 87401	Bloomfield (Shut Down)	-0-	-0-	13,500	2
Giant Refining Star Route 3 Box 7 Gallup, New Mexico 87301	Ciniza	8,146,652	22,320	18,000	95
Navajo Refining Company P. O. Drawer 159 Artesia, New Mexico 88210	Artesia	12,179,914	33,369 *(Navajo North *(Navajo South	*35,000 5,000) 30,000)	305
Plateau, Inc. Suite 200 4775 Indian School Road Albuquerque, New Mexico 87110	Bloomfield	3,769,409	10,327	16,900	68
Southern Union Refining Company Box 980 Hobbs, New Mexico 88240	Lovington	12,533,229	34,338	36,100	123
Southern Union Refining Company Box 980 Hobbs, New Mexico 88240	Monument (Shut Down)	-0-	-0-	5,400	0
Thriftway Oil Company Box 1367 Farmington, New Mexico 87401	Bloomfield	411,545	1,128	7,500	15
TOTAL		37,040,799	101,482	135,900	606

Receipts: 27,686,243 barrels crude and condensate
97.5% New Mexico origin

33,846,417 barrels total all receipts
97.4% New Mexico origin

Receipts of crude and condensate equal 36.8% of New Mexico Production for 1983, down from 39.5% in 1982.