

3R - 297

**GENERAL
CORRESPONDENCE**

YEAR(S):

1994



State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
 Santa Fe, New Mexico 87505

STATE OF
 NEW MEXICO
 OIL
 CONSERVATION
 DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

<input checked="" type="checkbox"/> Telephone	<input type="checkbox"/> Personal	Time 1030	Date 10/27/94
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<u>Originating Party</u>	<u>Other Parties</u>
Phil Nobis - Tierra Environmental	Bill Olson - Envir. Bureau

Subject
 Ground Water Contamination - Nassau Resources - Erin #1 E

Discussion OCD approves Nassau's October 26, 1994 "Erin 1E, Assessment of Groundwater Contamination And Remediation Plan" with following conditions:

- 1.) OXY-1 will be applied to pits only, no application to monitor wells
- 2.) Monitor wells will be constructed with at least 5 feet of well screen above the water table
- 3.) All monitor wells (including DP wells) will be sampled for BTEX, PAH's, Cations/Anions and Heavy Metals using appropriate EPA Methods
- 4.) A report on the investigation will be submitted to OCD by

Conclusions or Agreements

- a.) All sampling results (past and present)
- b.) A map showing locations of monitor wells and direction of hydraulic gradient and water table elevations
- c.) Monitor well completion diagrams

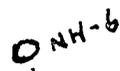
Distribution d.) Description of all investigation and remedial actions

Signed *Bill Olson*

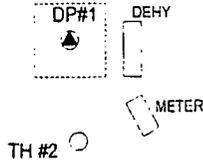
- 5.) Monitor wells NH-5 and NH-6 will be located as shown on attached map

NASSAU

ERIN I E



NH-4



TH #2

DP#4

SCALE 1" = 10'
0.8125" = 20'

WELL

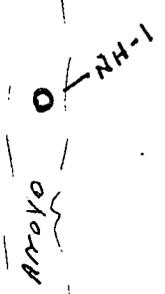
TH #7



TH #4

DP#3

NH-3



NH-2

NH (New Hole)



TIERRA ENVIRONMENTAL CORPORATION

CORPORATE OFFICE
P. O. Drawer 15250
Farmington, NM 87401
(505) 325-0924

October 26, 1994

Mr. Murphy Brasuel
Nassau Resources
2855 Southside River Road
Farmington, New Mexico 87401

RE: ERIN 1E, ASSESSMENT OF GROUNDWATER CONTAMINATION
AND REMEDIATION PLAN

Dear Mr. Brasuel:

The following is a summary to date of what has transpired at the Erin 1 E location and Tierra Environmental Corporation's recommended further assessment and corrective action.

Background

On or about October 11, 1994, On-Site Technologies on behalf of Conoco conducted an assessment of the above describe well location, belonging to Nassau Resources. The purpose of the assessment was to determine whether or not soil or water contamination existed on the site as Nassau had proposed to sell the location as part of a package to Conoco.

On-Site Technologies drilled a total of seven (7) test holes to a depth of about thirty (30) feet. One (1) test hole was drilled within the center of the Dehydrator Pit and a second was drilled in the center of the Separator Pit. Both identified soil contamination throughout. Groundwater was also encountered at a depth of about twenty-eight (28) feet. Both test holes were converted to monitor wells and described as DP#1 and DP#2 (See attached diagram by On-Site). Of the remaining test holes groundwater was also encountered at about twenty-eight (28) feet in DP#3 and DP#4 which were also converted to monitor wells. Groundwater contamination was identified in three (3) of the four (4) monitor wells. Only DP#3 was clean.

On October 14, 1994, Tierra Environmental Special Projects Manager, Ms. Connie Dinning PE, observed excavation of the Separator Pit and the Dehydrator Pit. Both pits were excavated to a depth of thirty (30) feet by Flint Engineering using a trackhoe. In the Dehydrator Pit, damp sand was encountered at a depth of about twenty-eight feet. The damp sand was sitting on a shale/clay layer located at about thirty (30) feet. No free flowing groundwater was encountered.

Mr. Murphy Brasuel
October 26, 1994
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Throughout the excavation of the Dehydrator Pit only fine, medium and course sand was observed above the clay/slate layer. The clay/slate layer appeared to be about six (6) to eight (8) inches thick and impermeable.

On that same date, the Separator Pit was also excavated to a depth of thirty (30) feet. Free flowing groundwater, about a gallon per hour, (estimated) was encountered at a depth of about twenty-eight (28) feet also sitting on a clay/slate layer of about six (6) to eight (8) inches at a depth of about thirty (30) feet. As with the Dehydrator Pit only fine, medium and course sand was identified above the clay/slate layer.

The well location, which is located in Township-25 North, Range 11 West, Section 2 is situated in the center and lowest portion to the east, north and west sides of a small natural basin. (See attached USGS Topographic Map cross section). To the south of the location about three hundred (300) feet is the beginning of a small arroyo that then slopes to the southwest. It's total depth near the location is about six (6) feet. Running from the southwest to northeast through the location is a gas pipeline.

It appears from the surface topography that the water encountered at the location may be a result of the location creating it's own aquifer. The well casing, pipeline, and other facilities upon the location forming natural conduits to collect surface runoff, which appeared to have traversed the sands described in the same manner as the contaminates from the pits and came to rest on the slate/clay layer. TDS samples of the groundwater indicated that it contains 8,000 ppm. Visual observation of the water encountered in DP#2 did not indicate any particular direction of flow. To further corroborate this theory, contamination was identified in DP# 1 but very little groundwater, also in DP#2 which had a static level of about two (2) feet and in DP#4 which also had a static level of about two (2) feet. DP#3 which is located a short distance southwest of DP #2 also had a static water level of about two (2) feet but did not show any contamination. That could indicate that the water table is stagnant.

Recommended Action

Tierra would propose to drill an additional six boreholes using a hollow stem auger to a depth of at least thirty-five (35) feet in an orbital pattern around and outside of the boundaries of the location. If groundwater is encountered in any of the boreholes, those will be converted to monitor wells. Said wells will be constructed in accordance with NMOCD guidelines as identified in the attached diagram. Water samples will be obtained and analyzed also in accordance with NMOCD standards for BTEX and TPH.

Most of the contaminated soil has been excavated from the Dehydrator Pit and the Separator Pit, thus removing the apparent source of groundwater contamination. That soil is currently stockpiled on location.

Mr. Murphy Brasuel
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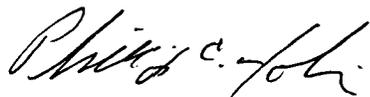
Once the extent of groundwater contamination has been identified, Tierra would propose to treat the contaminated groundwater with Tierra OXY-1, an oxidizer containing Potassium Permanganate, putting it into the existing and also into any new monitor wells as well as into the excavations of the two (2) pits. The wells would then again be sampled and those samples analyzed all in accordance with NMOCD guide lines for TPH and BTEX. If the analysis indicates that contamination no longer exists, Tierra would propose to continue to sample through an additional six month period. If contamination still exists, additional treatment using the same product would be administered until analysis of the groundwater indicated that all contamination above NMOCD standards was removed. Analysis would continue for an additional six months.

It is difficult to develop a specific corrective action for the groundwater until the additional soils boring is complete. A determination of whether or not the theory that the location itself is the source of groundwater is important and will effect the extent of remedial action.

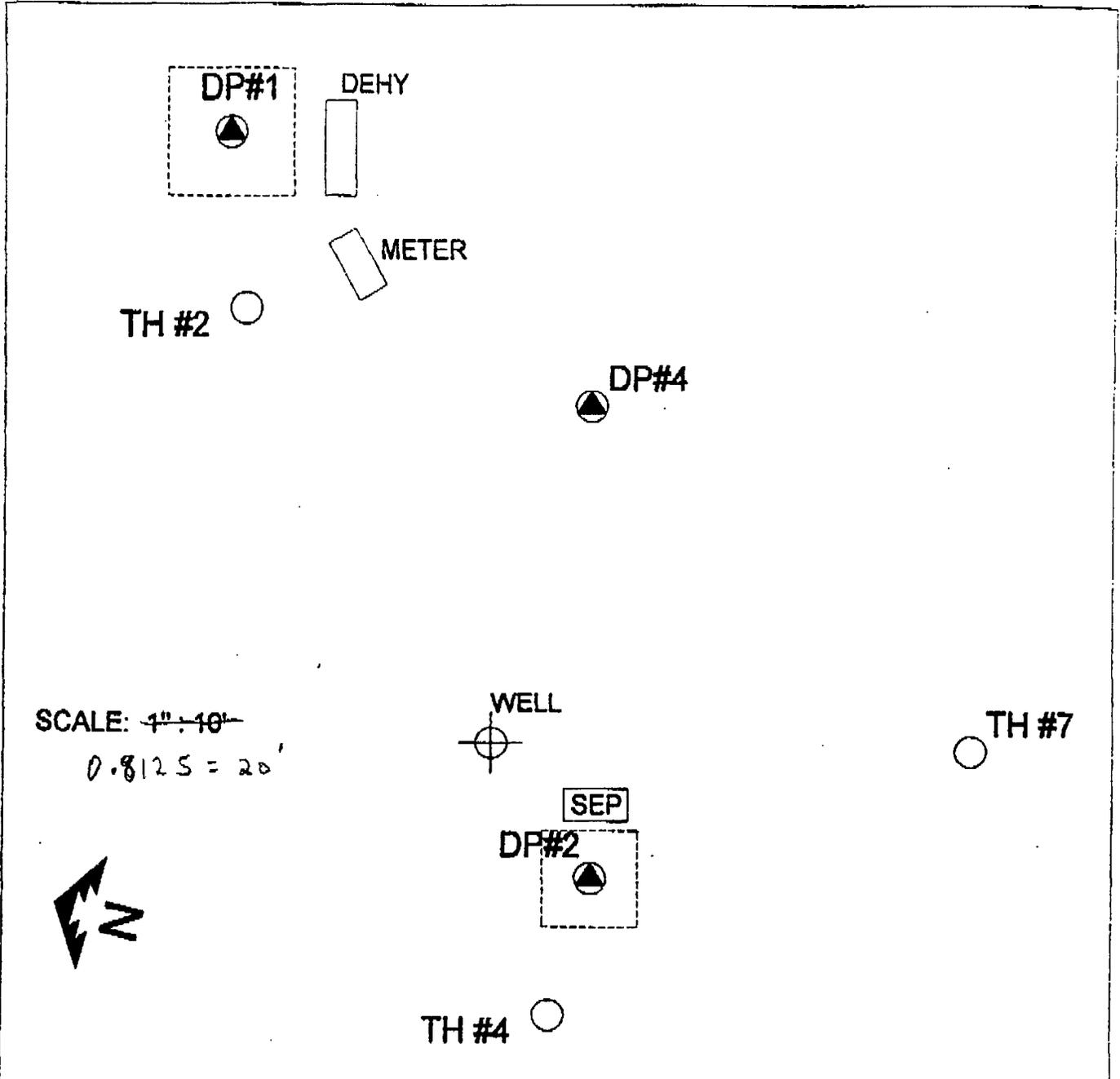
If you have any questions or require more information please contact me anytime.

Sincerely,

TIERRA ENVIRONMENTAL CORPORATION



Phillip C. Nobis
President/CEO

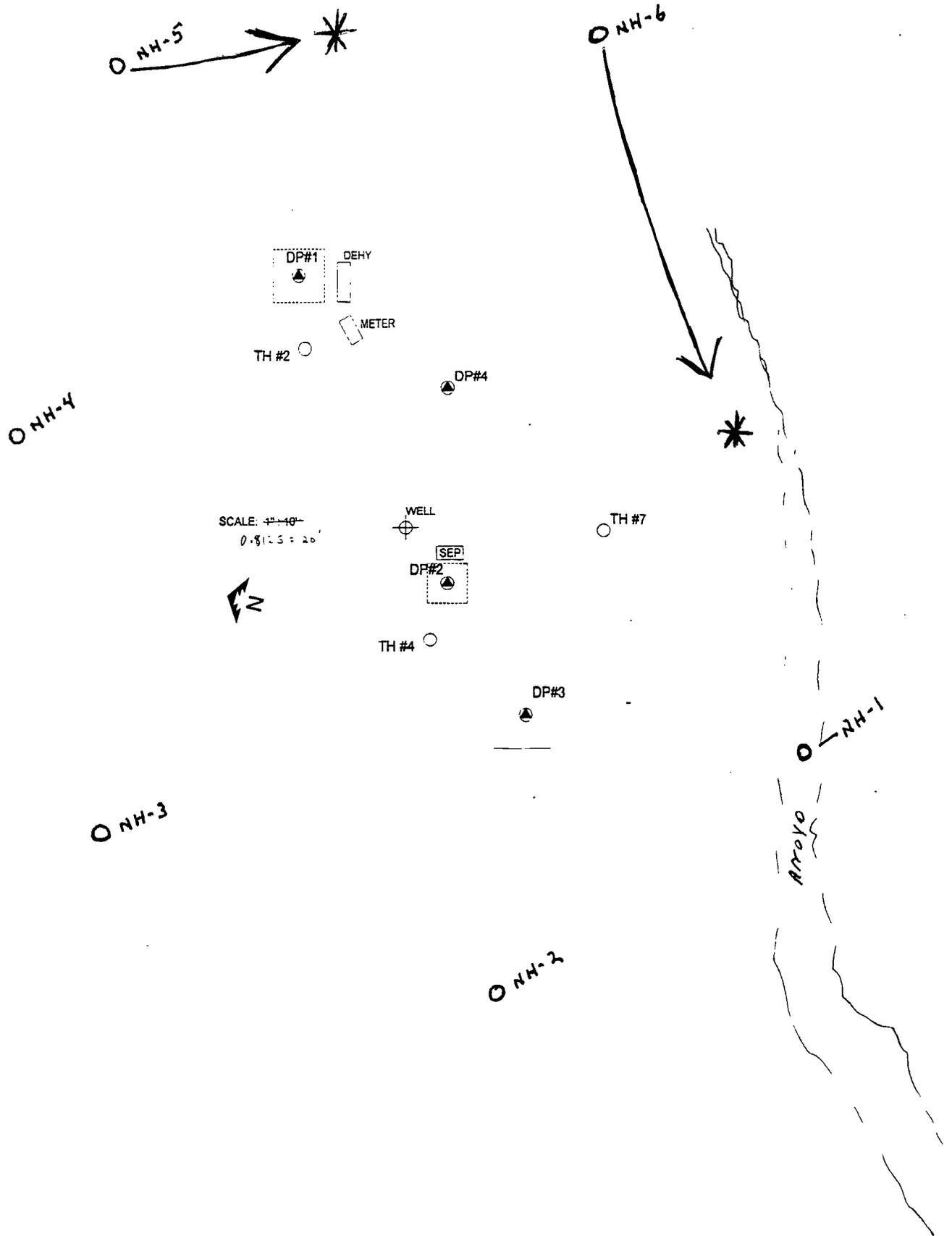


RELATIVE COORDINATES

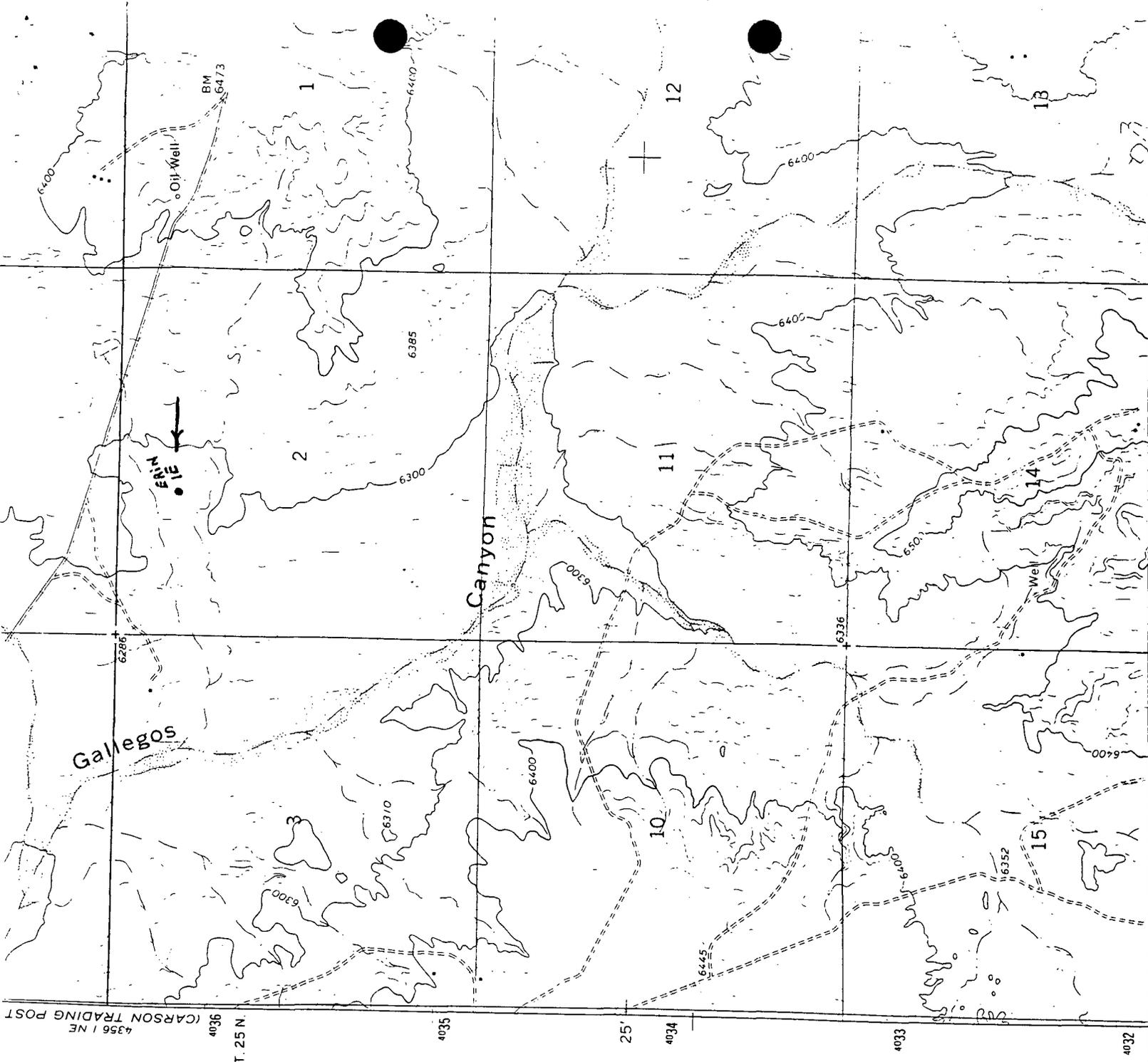
LOCATION	X	Y	ELEVATION	WATER LEVEL
DP#1	0.0'	0.0'	100.00'	72.58'
DP#2	-118.4'	-58.9'	97.45'	71.01'
DP#3	-168.8'	-89.9'	97.53'	70.50'
DP#4	-41.8'	-56.7'	99.75'	69.85' 70.85

CONOCO INC. NASSAU PIT ASSESSMENTS SAN JUAN BASIN, NM		ASSESSMENT SUMMARY		 ON SITE TECHNOLOGIES, LTD. P.O. BOX 2606, FARMINGTON, NM 87499 (505) 323-5667
PROJECT: ERIN STAY COM #12	DRWN: OCT 11, 1994			
PROJECT NO: 4-1127 (PIT #15)	DRWN BY: MKL			
SHEET: 1	FILE: 41127ESC.CAD REVISED:			

NASSAU
ERIN IE



NH (New Hole)



15 5 40
 15 11a
 15 14
 23

TIERRA ENVIRONMENTAL CORPORATION
907 WEST APACHE, P.O. DRAWER 15250
FARMINGTON, NEW MEXICO 87401
(505) 325-0924

MATERIAL SAFETY DATA SHEET - OXY-1

Section I - Product Identification

Product Name: OXY-1 Issue date 10-01-92
Manufacturers: Tierra Environmental Corporation 24 Hour Phone Number
907 West Apache, P. O. Drawer 15250 (505) 325-0924
Farmington, New Mexico 87401

HMIS Rating: H-2, F-0, R-1, S-none

DOT Hazard Class: Oxidizer

UN# 1490

Section II - Hazardous Ingredients

Ingredient	CAS No.	% by weight
Potassium Permanganate	7722647	< 5%

Section III - Physical Data

Boiling Point (F): = water	Vapor Pressure: unknown
Vapor density: unknown	Solubility (water): > 99%
Specific gravity: 0.99	% volatile: > 99
pH: 7	

Section IV - Reactivity Data

Stable: stable
Conditions to avoid: contact with organic or readily oxidizable materials
Incompatibility: see conditions to avoid
Hazardous polymerization: will not occur

MATERIAL SAFETY DATA SHEET - OXY-1

Section IV - Reactivity Data (cont'd)

Steps to be taken in the event of spill or leak: Flush area with water.

Waste Disposal Method: Consult local authorities.

Section V - Fire and Explosion Hazard

Flash Point: N/A

Flammable limits: N/A

Extinguishing Media: N/A

Special Fire Fighting Procedures: N/A

Unusual Fire and Explosion Hazards: N/A

Section VI - Health Hazard Data

Threshold limit value: >2000 ppm

Effects if overexposure: None

Emergency and first aid procedures: For contact with eyes, flush with water for 15 minutes and consult with a doctor if irritation persists. If swallowed, give large amount of milk or water and consult doctor immediately.

Section VII - Special Protection Information

Respiratory Protection: None

Ventilation: Avoid confined space.

Protective Gloves: Yes

Eye Protection: Goggles or face shield

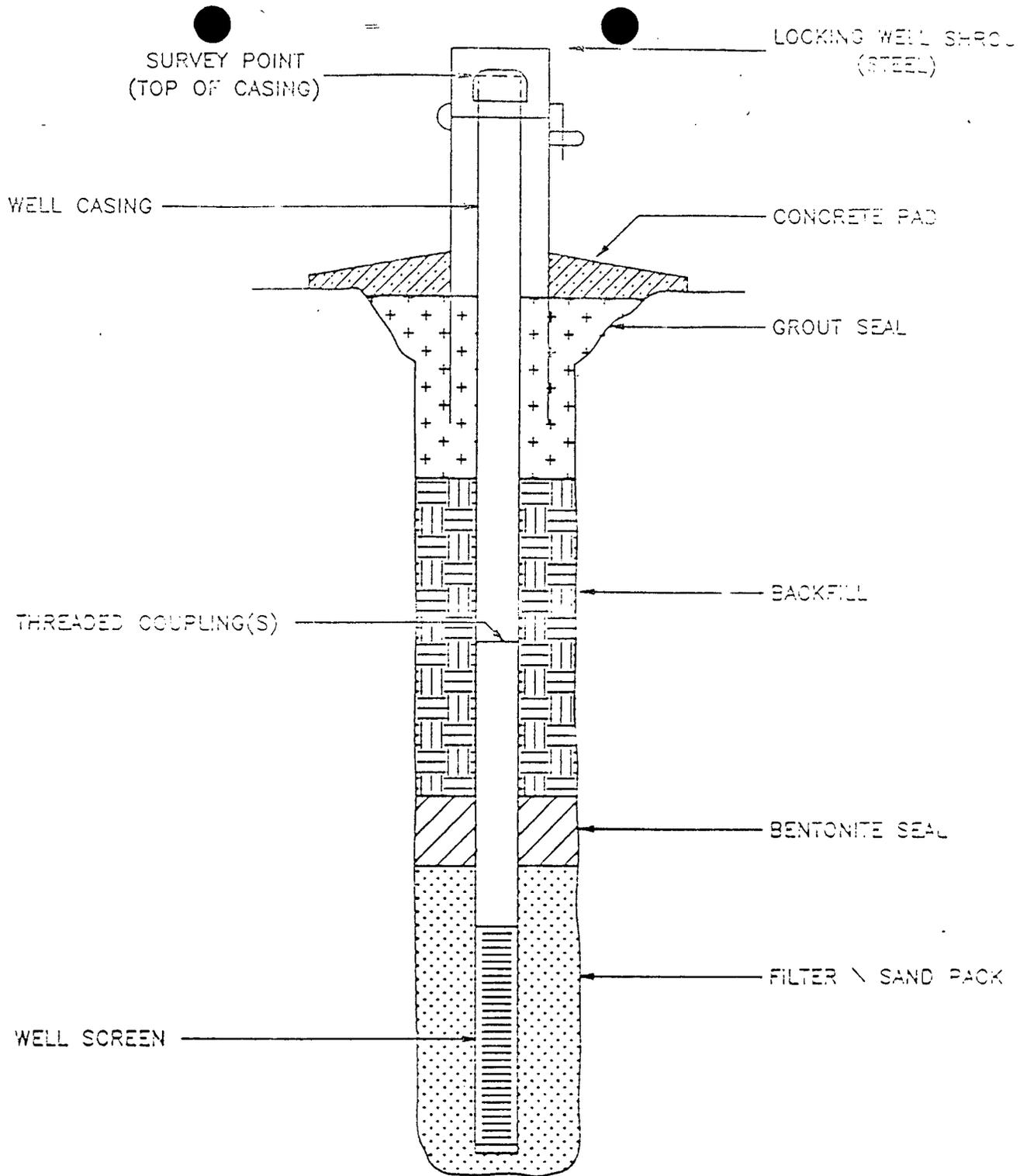
Other Protective Equipment: None

Section VIII - Special Precautions

Precautions to be taken Handling and Storage: None

Conditions to Avoid: Keep out of contact with Alcohol, Arsenites, Bromides, Iodides, Hydrochloric Acid, Charcoal, organic substances generally, Ferrous or Mercurous Salts, Hypophosphites, Hyposulfites, Sulfites, Peroxides, and Oxylates.

This information herein provided is believed to be accurate but is not warranted to be whether originating with the company or not.



GENERALIZED MONITORING WELL SCHEMATIC

(Not To Scale)

different analyses require specific types of containers. The laboratory can provide information on the types of containers and preservatives required for sample collection. The following procedures are accepted by OCD as standard sampling procedures:

- a) Monitor wells should be purged of a minimum of three well volumes of ground water using a clean bailer prior to sampling to ensure that the sample represents the quality of the ground water in the formation and not stagnant water in the well bore.
- b) Collect samples in appropriate sample containers containing the appropriate preservative for the analysis required. No bubbles or headspace should remain in the sample container.
- c) Label the sample containers with a unique code for each sample.
- d) Cool and store samples with cold packs or on ice.
- e) Promptly ship sample to the lab for analysis following chain of custody procedures.
- f) All samples must be analyzed within the holding times for the laboratory analytical method specified by EPA.

5. Ground Water Laboratory Analysis

Samples should be analyzed for potential ground water contaminants contained in the waste stream, as defined by the WQCC Regulations. All ground water samples must be analyzed using EPA methods, or by other OCD approved methods and must be analyzed within the holding time specified by the method. Below are OCD accepted laboratory analytical methods for analysis of ground water samples analyzed for petroleum related constituents. Additional analyses may be required if the substance leaked, spilled or release has been anything other than a petroleum based fluid or waste.

a. Analytical Methods

i.) Benzene, Toluene, Ethylbenzene and Xylene

- EPA Method 602/8020

ii.) Major Cations and Anions

- Various EPA or standard methods

iii.) Heavy Metals

- EPA Method 6010, or;

- Various EPA 7000 series methods

NASSAU

OIL CONSERVATION
DIVISION
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OCT 18 52

Nassau Resources, Inc.
P. O. Box 809
Farmington, NM 87499-0809
(505) 326-7793 Fax: (505) 327-0859

October 13, 1994

Roger Anderson, Environmental Bureau Chief
New Mexico Oil Conservation Division
P O Box 2088
Santa Fe, New Mexico 87504-2088

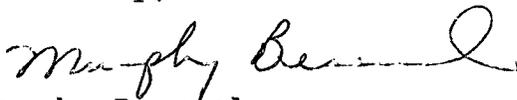
RE: Nassau Resources, Inc. Erin Stays Com #1E Well
Located in Unit C, Section 2 of T25N, R11W, NMPM
San Juan County, New Mexico

Dear Mr. Anderson:

Pursuant to verbal notification this date to Denny Foutz of the Aztec District Office and Bill Olson of your office, Nassau Resources is hereby giving written notification that the location of the subject well has been tested by an environmental testing firm and appears to have contamination under the dehydrator and separator pits.

Since this well is in the process of being sold to another operator, we are now working with them to develop a plan for remediation. A plan will be submitted to your office in the near future.

Sincerely,



Murphy Brasuel
Field Supt.

fp

xc: Denny Foutz, Aztec District Office, NMOCD