STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

REHEARING
CASE No. 8781 DE NOVO
Order No. R-8161-B

APPLICATION OF PETRO-THERMO CORPORATION FOR AN EXCEPTION TO DIVISION ORDER NO. R-3221, AS AMENDED, AND FOR AUTHORIZATION TO DISPOSE OF ASSOCIATED WASTE HYDROCARBONS AND OTHER SOLIDS, OBTAINED IN CONJUNCTION WITH THE DRILLING AND PRODUCTION OF OIL AND GAS INTO UNLINED PITS, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 18, 1986, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 23rd day of October, 1986, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) The applicant, Petro-Thermo Corporation, seeks an exception to the provisions of Order No. R-3221 to permit the commercial disposal of produced salt water into unlined surface pits and authorization to dispose of associated waste hydrocarbons and other related solids obtained in conjunction with the drilling and production of oil and gas into separate unlined pits all to be located in the SW/4 SE/4 of Section 16, Township 20 South, Range 32 East, NMPM, Lea County, New Mexico.

(3) The matter originally came on for hearing at 8 a.m. on December 18, 1985, at Santa Fe, New Mexico, before Oil Conservation Division Examiner Michael E. Stogner and, pursuant to his hearing, Order No. R-8161 was entered on February 13, 1986, granting the application.

(4) On March 4, 1986, application for Hearing De Novo was filed with the Commission by Snyder Ranches, Inc. and Pollution Control, Inc. (Protestants)

(5) The matter came on for hearing De Novo on April 10, 1986.

(6) On May 20, 1986, the Commission entered its Order No. R-8161-A granting the application.

(7) On June 9, 1986, Protestants filed an application for rehearing citing ten general areas as grounds therefore.

(8) On June 19, 1986, the Commission granted a partial rehearing of this case for the purpose of accepting additional testimony relative to the following allegations in the application for rehearing:

(a) Grounds 5 - The findings are not supported by substantial evidence - the applicant failed in its burden to prove that the contaminated discharge water can be safely deposited in the facility without adversely affecting fresh water.

(b) Grounds 6 - Order No. R-8161-A decretory Paragraph 2 denies Protestants' procedural due process - such paragraph does not afford Protestants the opportunity to contest the monitoring system to be established by the applicant in consultation with the Oil Conservation Division.

(c) Grounds 7 - The migration of contaminated waste water will destroy the grazing grasses and vegetation under the ownership and control of Snyder Ranches, Inc.

(8) Testimony and evidence was received relative to each of said grounds for rehearing.

(9) In granting the application of Petro Thermo in Order No. R-8161-A, the Commission relied heavily on the existence of a high TDS spring located at the northwest corner of the proposed pit disposal area and the water level elevation data presented on Figure 3 of applicant's Exhibit 9 to show that there is no usable fresh water in proximity to the proposed facility and that fluids disposed of therein will move toward and discharge to Laguna Plata.

(10) Subsequent to the April 9th Commission hearing a second high TDS spring was located in proximity to that described in Finding No. (9) above, further confirming applicant's position that the subsurface movement of water in the area of the proposed facility is toward Laguna Plata.

(11) At the September 18 rehearing, Protestants presented the analysis of a sample taken from one of said springs in September 1986, indicating the water therein was fresh.

(12) This anomalous sample may have resulted from rainfall in the area of said springs flushing the high TDS water from the collection pool of such spring prior to this recent sampling.

(13) Prior to use of the proposed disposal facility additional sampling and testing should be performed to confirm that such springs indeed naturally contain waters having TDS levels above the limits for fresh water established by the State Engineer.

(14) Such confirmation may be made by re-sampling said springs and by drilling to the aquifer and sampling the water in such drill hole or holes.

(15) The preponderance of evidence presented in this case otherwise establishes that there is no fresh water in the vicinity of the proposed site which may be affected by its use for disposal as proposed by the applicant.

(16) Protestants proposed an elaborate system of eight monitor wells to be emplaced around and in proximity to the proposed facility.

(17) The purpose of such wells would be to predict and monitor the movement of disposed fluids in the subsurface to detect the subsurface movement of heavy metals, soluble hydrocarbons, or other potentially deleterious materials from the pits in sufficient time to assure the protection of fresh water, the protection of grasses and vegetation on the Snyder Ranch to the east in adjoining Section 15, and the lake surface in order that appropriate action may be taken if needed.

(18) Given the absence of fresh water in the area, the number of monitor wells proposed by Protestants is excessive.

(19) Evidence indicates that disposed fluids are expected to move in a northerly direction from the facility, the northernmost monitor wells should be located more distant (approximately 200 feet) from the facility to better evaluate

the rate and direction of fluid movement and the impact of attenuation, volatilization, and other natural action tending to improve the quality of the disposed fluid in the subsurface.

(20) One monitor well to the West, two to the North, and one to the East should be drilled into the redbeds surrounding the proposed disposal site and a sample log should be prepared for each.

(21) Said monitor wells should be located approximately as shown for wells B, D, F, and G on Exhibit "A" attached to this order except that wells D and F should be located 200 feet north of the northernmost pit.

(22) Said wells should be completed in such a manner as to be able to intercept any fluids moving in the subsurface at a depth of from four feet to the top of the redbeds, unless such redbeds are shallower.

(23) Additional monitor wells may be required by the Director based upon lithologic logs or the results of water quality sampling performed at the four monitor wells to be completed.

(24) The Snyder Ranch, Inc. grasses and vegetation in question in this case are located in the West half of said Section 15.

(25) The benefit of such grasses and vegetation are derived from a grazing lease between Snyder Ranches, Ltd. and the United States Bureau of Land Management, the surface owner.

(26) The evidence presented in this case indicated that any subsurface movement of the disposed fluid which would harm such grasses and vegetation would take from a few years to 700 years.

(27) Should such fluids move toward said Section 15 in such a manner as to harm said grasses and vegetation, it should be detected in the monitoring wells in sufficient time to halt the operation of the facility or to require remedial action, if necessary, before said grasses and vegetation are impacted.

(28) Findings Nos. (6) through (31), Nos. (33) through (36), and No. (38) in said Order No. R-8161-A should be affirmed and readopted by the Commission.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Petro-Thermo Corporation, is hereby granted an exception to Decretory Paragraph No. (3) of Division Order No. R-3221, as amended, to dispose of water produced in conjunction with the production of oil or gas, or both, and oil-field waste products, including drill cuttings and drilling muds in unlined pits adjacent to Laguna Plata in the SW/4 SE/4 NE/4 of Section 16, Township 20 South, Range 32 East, NMPM, Lea County, New Mexico;

PROVIDED HOWEVER THAT, the disposal facility shall be constructed and maintained in accordance with the engineering plat and topographic map presented at the time of the hearing and marked as Petro-Thermo Corporation Exhibit No. 8;

PROVIDED FURTHER THAT, the facility shall have adequate fencing, gates, and cattle guards installed and maintained to preclude livestock and unauthorized persons from entering the facility;

PROVIDED FURTHER THAT, the applicant shall take the steps necessary to prohibit disposal by any person other than itself at any time the facility is unattended.

PROVIDED FURTHER THAT, the total disposal volume at the facility shall not exceed 30,000 barrels per day and the maximum fill level in each pit at the facility shall not exceed a plane three feet below the crest of the dikes surrounding the pits.

PROVIDED FURTHER THAT, no disposal shall take place in the facility until re-sampling and testing has confirmed that the water in the two springs referenced in this order exceeds the State Engineer's TDS limit for fresh water.

(2) Prior to operation, the applicant shall drill four monitor wells around the facility at the approximate locations shown as "B", "D", "F", and "G" on Exhibit "A" attached to this order except that wells "D" and "F" shall be located approximately 200 feet north of the northernmost pit.

(3) Said monitor wells shall be drilled, completed, and tested in accordance with the "Monitoring Plan" described on Exhibit "B" attached to this order.

(4) Monitor well lithologic logs and results of initial testing shall be submitted to the Director of the Division at least three weeks prior to use of the facility.

(5) The Director of the Division may by administrative order rescind the authorization and/or require additional conditions be met, or additional monitor wells drilled, if it is determined that such rescission or additional conditions would serve to protect fresh water supplies from contamination, assure the protection of human health and property, and prevent waste.

(6) Jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JIM BACA, Member

ED KELLEY, Member

R. L. STAMETS, Chairman and Secretary

S E A L

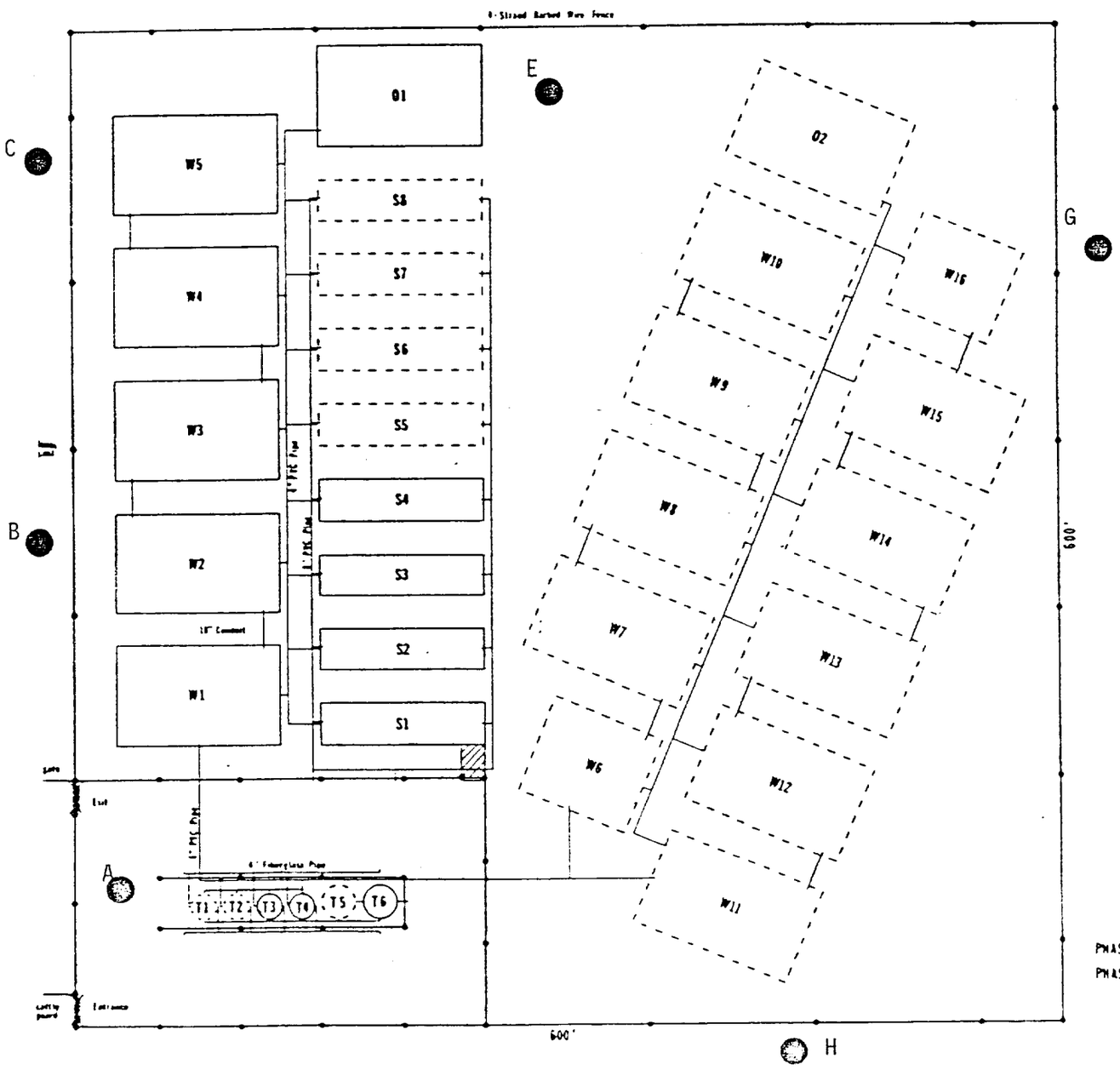
WELL NO. 1

WELL NO. 2

(See OBSERVATION WELL DIAGRAM)

W - WATER PIT
S - SOLIDS PIT
O - OVERFLOW PIT
T - TANK BATTERY

Proposed
Monitoring Well
Sites



PHASE 1 - solid lines
PHASE 2 - dashed line

CASE NO. 8771 DE NOVO REHEARING
Order R-8161-B
Exhibit "A"

MONITORING PLAN

1. Four monitoring wells shall be drilled at approximate locations shown as "B", "D", "F" and "G" as shown on Exhibit "A", except that wells "D" and "F" shall be located approximately 200 feet north of the northermost pit.

2. Monitoring wells shall be drilled through the alluvium with the base completed in the first clay, claystone or shale in the redbeds. The wells shall be constructed of 4-inch diameter PVC pipe which is slotted or perforated from a distance of 4 feet beneath the surface to total depth, and shall be adequately gravel packed or otherwise completed to allow fluids to enter the well for sampling, but to prevent silting. The wells shall have the upper four feet cemented to prevent surface fluid entry.

3. The wells shall be checked upon completion for fluids and monthly once the facility begins operation. The results shall be reported monthly to the Division's office in Santa Fe.

4. Upon detection of fluids in any of the monitoring wells, sampling of these fluids shall take place and be repeated at six-month intervals. Samples shall be analyzed for heavy metals and purgeable aromatic hydrocarbons as listed on the attached sheet. A copy of the results shall be submitted to the Division office in Santa Fe for review as to the nature and threat to human health, if any, of allowing such seepage movement to continue towards Laguna Plata or other locations. This review will take into consideration the fact that Laguna Plata is not, and does not have the potential to be, a drinking water source.

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EXHIBIT "B"

Water samples from the monitoring wells shall be analyzed for the following dissolved hydrocarbons (BTX):

Benzene	0-xylene
Ethylbenzene	m-xylene
Touluene	p-xylene

The suggested method is EPA Method 602 which is a purgeable aromatic scan and costs less than the use of a gas chromatograph/mass sprectrometer. Minimum detection limit should be 10 ppb (or 0.01 mg/l). The standard sample is 40 ml collected in a glass vial with a teflon septum seal. No air should be trapped between the water and the seal.

Water samples should be analyzed using an inductively coupled argon plasma scan (ICAP) with a minimum detection limit of 100 ppb (0.1) mg/l). One scan provides concentrations for the following elements:

Aluminum	Lead
Barium	Magnesium
Beryllium	Manganese
Boron	Molybdenum
Cadmium	Nickel
Calcium	Silicon
Chromium	Silver
Cobalt	Strontium
Copper	Tin
Iron	Vanadium
	Zinc

In addition samples shall be analyzed for arsenic and mercury using atomic adsorption methods. Minimum detection levels should be 10 ppb (0.01 mg/l) for arsenic and 1 ppb (0.001 mg/l) for mercury. A single one quart plastic container should be sufficient for all of the heavy metal analyses. Samples should be preserved with 5 ml of concentrated nitric acid.

The use of scans will provide much information on contaminants but is very much less time consuming and expensive than individual analyses. Your consultant can provide you with the names of several laboratories that will provide these services at a reasonable cost. The laboratory selected should also provide further information on sampling and preservation procedures. Contact the OCD or your consultant for the desired method of sampling to prevent false results from being obtained.