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**PERMITS,
RENEWALS, &
MODS**

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7497
Order No. R-6940

APPLICATION OF PARABO, INC.
FOR AN OIL TREATING PLANT PERMIT,
LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on March 31, 1982, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 14th day of April, 1982, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Parabo, Inc., seeks authority to construct and operate a chemical and heat-treatment type oil treating plant at its salt water disposal site in the SW/4 of Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico, for the processing of approximately 1500 barrels per day of raw material from tank bottoms, disposal water, and waste pits.
- (3) That dikes, dams and/or emergency pits should be constructed around the plant capable of holding the entire capacity of all tanks and vessels at the plant location in order that sediment oil, reclaimed oil, or waste oil cannot escape from the immediate vicinity of such plant.
- (4) That the proposed plant and method of processing will efficiently process, treat, and reclaim the aforementioned waste oil, thereby salvaging oil which would otherwise be wasted.

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Case No. 7497
Order No. R-6940

(5) That the Director of the Division should be authorized to administratively grant approval for the expansion or modification of said plant.

(6) That the subject application should be approved as being in the best interests of conservation.

IT IS THEREFORE ORDERED:

(1) That the applicant, Parabo, Inc., is hereby authorized to install and operate a chemical and heat-treatment type oil treating plant at its salt water disposal site in the SW/4 of Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico, for the purpose of treating and reclaiming sediment oil to be obtained from tank bottoms, waste pits and disposal water.

PROVIDED HOWEVER, that the continuation of the authorization granted by this order shall be conditioned upon compliance with the laws of the State of New Mexico and the rules and regulations of the New Mexico Oil Conservation Division;

PROVIDED FURTHER, that prior to commencing operation of said plant, the applicant shall file with the Division and obtain approval of a performance bond in the amount of \$10,000.00 conditioned upon substantial compliance with applicable statutes of the State of New Mexico and all rules, regulations and orders of the Oil Conservation Division.

(2) That the operator of the above-described oil treating plant shall clear and maintain in a condition clear of all debris and vegetation a fireline at least 15 feet in width and encircling the site upon which the plant is located.

(3) That dikes, dams and/or emergency pits shall be constructed around the plant capable of holding the entire capacity of all tanks and vessels at the plant location and capable of preventing the escape of any sediment oil, reclaimed oil, or waste oil from the immediate vicinity of said plant.

(4) That the disposal of waste water accumulated in conjunction with the operation of the above-described plant on the surface of the ground, or in any pit, pond, lake, depression, draw, streambed, or arroyo, or in any watercourse, or in any other place or in any manner which will constitute a hazard to any fresh water supplies is hereby prohibited.

(5) That the Director of the Division may administratively grant authority for the expansion or

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Case No. 7497
Order No. R-6940

modification of said plant upon request and a demonstration that such expansion or modification is upon contiguous acreage and is otherwise consistent with this order and Division Rules and Regulations.

(6) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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



STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

Joe D. Ramey
JOE D. RAMEY,
Director

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7497
Order No. R-6940

APPLICATION OF PARABO, INC.
FOR AN OIL TREATING PLANT PERMIT,
LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on March 31, 1982, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 14th day of April, 1982, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Parabo, Inc., seeks authority to construct and operate a chemical and heat-treatment type oil treating plant at its salt water disposal site in the SW/4 of Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico, for the processing of approximately 1500 barrels per day of raw material from tank bottoms, disposal water, and waste pits.
- (3) That dikes, dams and/or emergency pits should be constructed around the plant capable of holding the entire capacity of all tanks and vessels at the plant location in order that sediment oil, reclaimed oil, or waste oil cannot escape from the immediate vicinity of such plant.
- (4) That the proposed plant and method of processing will efficiently process, treat, and reclaim the aforementioned waste oil, thereby salvaging oil which would otherwise be wasted.

(5) That the Director of the Division should be authorized to administratively grant approval for the expansion or modification of said plant.

(6) That the subject application should be approved as being in the best interests of conservation.

IT IS THEREFORE ORDERED:

(1) That the applicant, Parabo, Inc., is hereby authorized to install and operate a chemical and heat-treatment type oil treating plant at its salt water disposal site in the SW/4 of Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico, for the purpose of treating and reclaiming sediment oil to be obtained from tank bottoms, waste pits and disposal water.

PROVIDED HOWEVER, that the continuation of the authorization granted by this order shall be conditioned upon compliance with the laws of the State of New Mexico and the rules and regulations of the New Mexico Oil Conservation Division;

PROVIDED FURTHER, that prior to commencing operation of said plant, the applicant shall file with the Division and obtain approval of a performance bond in the amount of \$10,000.00 conditioned upon substantial compliance with applicable statutes of the State of New Mexico and all rules, regulations and orders of the Oil Conservation Division.

(2) That the operator of the above-described oil treating plant shall clear and maintain in a condition clear of all debris and vegetation a fireline at least 15 feet in width and encircling the site upon which the plant is located.

(3) That dikes, dams and/or emergency pits shall be constructed around the plant capable of holding the entire capacity of all tanks and vessels at the plant location and capable of preventing the escape of any sediment oil, reclaimed oil, or waste oil from the immediate vicinity of said plant.

(4) That the disposal of waste water accumulated in conjunction with the operation of the above-described plant on the surface of the ground, or in any pit, pond, lake, depression, draw, streambed, or arroyo, or in any watercourse, or in any other place or in any manner which will constitute a hazard to any fresh water supplies is hereby prohibited.

(5) That the Director of the Division may administratively grant authority for the expansion or

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Case No. 7497

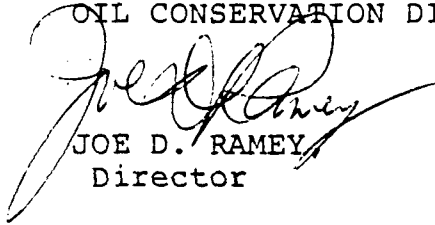
Order No. R-6940

modification of said plant upon request and a demonstration that such expansion or modification is upon contiguous acreage and is otherwise consistent with this order and Division Rules and Regulations.

(6) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



JOE D. RAMEY
Director

S E A L

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 5899
Order No. R-5516

APPLICATION OF ROBERT P. WALLACH,
RAY A. WALLACH, AND PATRICIA LOUISE
WALLACH HOUSE FOR AN EXCEPTION TO
ORDER NO. R-3221, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 20, 1977, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 30th day of August, 1977, 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:

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

(2) That the applicants, Robert P. Wallach, Ray A. Wallach, and Patricia Louise Wallach House, are the owners of certain gravel pits located in the SW/4 of Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico.

(3) That Order (3) of Commission Order No. R-3221, as amended, prohibits in that area encompassed by Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, the disposal, subject to minor exceptions, of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground, or in any pit, pond, lake, depression, draw, stream-bed, or arroyo, or in any watercourse, or in any other place or in any manner which would constitute a hazard to any fresh water supplies and said disposal has not previously been prohibited.

(4) That the aforesaid Order No. R-3221 was issued in order to afford reasonable protection against contamination of fresh water supplies designated by the State Engineer through disposal of water produced in conjunction with the production of oil or gas, or both, in unlined surface pits.

(5) That the State Engineer has designated, pursuant to Section 65-3-11 (15), N.M.S.A., 1953 Compilation, all underground water in the State of New Mexico containing 10,000 parts per million or less of dissolved solids as fresh water supplies to be afforded reasonable protection against contamination; except that said designation does not include any water for which there is no present or reasonably foreseeable beneficial use that would be impaired by contamination.

(6) That the applicants seek an exception to the provisions of the aforesaid Order (3) to permit the commercial disposal of produced salt water in the pits described in Finding No. (2) above.

(7) That said pits have been utilized for the mining of Ogallala formation gravels for many years.

(8) That said Ogallala gravels were laid down within an elongate East-West trending channel eroded into the underlying Triassic red bed formations.

(9) That percolation tests indicate that said Triassic red beds are highly resistant to the downward percolation of water within the area of said pits and are essentially impermeable.

(10) That the applicants propose to construct dikes and core trenches across and along said elongate channel in the Triassic red beds within said quarter section to create pits which are essentially impermeable to the lateral flow of water.

(11) That the applicants propose to limit the high water level in any such pit to at least four feet below the Triassic spill point in the pit.

(12) That salt water disposed of into any such impermeable pit as described in Findings Nos. (9) and (10) above will not percolate downward nor migrate laterally outward from said pit and create a hazard to fresh waters, but will evaporate.

(13) That approval for all of the pits requested by applicants in this case should not be granted at this time, but a pilot pit project utilizing the large central pit area

described as Pit 1 and Pit 2 on Figure 4 of Exhibit A in this case should be approved, subject to certain requirements.

(14) That applicants should be required to provide adequate salt water settling tanks to permit removal of oil from the water prior to placement of said water in the evaporation pit, in order to not impair water evaporation.

(15) That in order to ensure that no downward percolation nor outward migration of water from the authorized pit does occur, certain monitor wells should be drilled into the Triassic red beds at specified locations around the pit and a Commission-approved method for monitoring said red beds beneath the pit should be employed.

(16) That an administrative procedure should be adopted whereby additional pits within the SW/4 of said Section 29 may be utilized for salt water disposal.

(17) That approval of the application subject to the above-described conditions will not cause waste, will not violate correlative rights, nor harm fresh waters.

(18) That the application should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicants, Robert P. Wallach, Ray A. Wallach, and Patricia Louise Wallach House, are hereby granted an exception to Order (3) of Commission Order No. R-3221, as amended, to commercially dispose of produced salt water in an unlined surface pit located in the SW/4 of Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico, consisting of Pit 1 and Pit 2 as identified on Figure 4 of applicant's Exhibit A in the subject case.

(2) That prior to utilization of said pit for salt water disposal, applicant shall construct the following-described dikes and core trenches:

- A. A north-northeast/south-southwest trending dike at the west end of the pit area;
- B. A north-northwest/south-southeast trending combination core trench-dike at the east end of the pit area; and

- C. An east-west trending core trench at the south side of the pit area.

(3) That the above-described dikes and core trenches shall be constructed to an elevation of 3,451 feet above sea level and in accordance with good engineering practices and the specifications set forth on pages five and six of applicant's Exhibit "A" in this case. Construction shall be under the supervision and responsibility of the consulting hydrologist in this case.

(4) That prior to utilization of the aforesaid pit for salt water disposal, applicant shall drill the following described monitor wells around the outer perimeter of said pit:

- A. Nine monitor wells along the southern perimeter of said pit, being those wells depicted as monitor wells, pit one, on Figure 4 of applicant's Exhibit "A" in this case;
- B. Three monitor wells at the southeast end of said pit, being those wells depicted as monitor wells, pits one and three on the aforesaid Figure 4;
- C. Two monitor wells at the southwest end of said pit, being those wells depicted as monitor well, pits one and four on Figure 4;
- D. Four monitor wells at the west end of said pit, being those wells depicted as monitor wells on a north-northeast/south-southwest line approximately 75 feet west of the western dike for Pit No. 1; and
- E. Three monitor wells along the northern perimeter of said pit, being those monitor wells depicted as monitor well, pit one, monitor well, pits one and two, and monitor well, pits one, two, and three, on Figure 4.

(5) That each of the above-described monitor wells shall be drilled and cased under the supervision and responsibility of the consulting hydrologist in this case and shall be drilled to a sufficient depth to reach a plane 3427 feet above sea level, and shall be drilled six inches in diameter

and cased with 4-inch PVC casing; casing shall be perforated with at least eight holes per foot from the bottom of the casing to a point 3451 feet above sea level; the casing shall be capped at the surface and each monitor well checked for fluids at least once a month during the first two years of pit operation (for disposal purposes) and quarterly thereafter. Analyses of waters encountered during such tests and the results of such analyses, as well as water levels, shall be reported in writing to the Hobbs District Office of the Commission within 30 days following sampling.

(6) That the applicant shall bore a hole laterally into the Triassic red beds from a point east of the approximate middle of the easternmost dike described in Order No. (2) B above, said hole to be bored under the dike and penetrating a minimum of five feet into the pit area west of said dike; said hole shall be bored at an approximate depth of six to ten feet beneath the top of the Triassic red beds and shall be cased and gravel packed; the westernmost five feet of said casing shall be perforated and the easternmost end of said casing shall be positioned to drain into a covered impermeable sump to detect possible percolation of waters from the floor of the pit into the drain pipe; the monitoring procedures and reporting requirements of Order No. (5) above shall also apply to the aforesaid sump.

(7) In lieu of the percolation detection system required by Order No. (6) above, the Secretary-Director may authorize another acceptable means of detection of downward percolation of waters from the subject pit.

(8) The Secretary-Director shall order suspension of disposal operations into the subject pit if any of the monitoring procedures prescribed in Orders Nos. (4), (5), (6), or (7), or any other condition, gives him good cause to suspect outward migration or downward percolation of waters from said pit. Disposal operations shall not be resumed until the Secretary-Director is satisfied that such measures have been taken to ensure that continued disposal will not constitute a hazard to fresh waters in the area.

(9) That the applicants shall provide for the placement of a pipe, or acceptable substitute, in the pit, said pipe to be marked in such a manner as to readily indicate the depth of the water in the pit and the maximum elevation which the water in said pit shall be permitted to attain.

(10) That at no time shall disposal in the aforesaid pit be permitted if the total quantity of water in the pit,

from both natural precipitation and previous disposal, reaches a plane four feet below the level of the spill point of the Triassic red beds or dikes around such pit, said plane being at an elevation of 3447 feet above sea level.

(11) That the applicant shall install and maintain in good condition wooden or metal settling tanks, and shall allow all oil field brines to remain in such tanks for a sufficient period of time to permit residual oil contained in said brines to be skimmed off, and not be passed on with the brines to the disposal pit.

(12) That the applicant shall install and maintain in good condition meters or other measuring devices to permit an accurate determination of the quantity of water disposed of in the pit.

(13) That the applicant shall file a monthly report with the Commission in accordance with Rule 1120 of the Commission Rules and Regulations, reporting each source and quantity of disposal water and the total quantity disposed of.

(14) That the Secretary-Director of the Commission may administratively authorize the utilization of any of the remaining pits in the SW/4 of said Section 29 for salt water disposal upon a showing by the applicants that such pits will be constructed and operated in conformance with the provisions of this order and upon a showing of satisfactory operation of the pit authorized herein for a period of at least one year.

(15) The Secretary-Director may amend the above-specified frequencies for monitoring upon a showing that such amendment would not constitute a hazard to the fresh waters in the area.

(16) That the Secretary-Director of the Commission may by administrative order rescind the authorization for use of any pit approved under the provisions of this order whenever it reasonably appears to the Secretary-Director that such rescission would serve to protect fresh water supplies from contamination.

(17) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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Case No. 589
Order No. R-5516

DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Phil R. Lucero

Sept. 6, 1977

PHIL R. LUCERO, Chairman

Emery C. Arnold

EMERY C. ARNOLD, Member

Joe D. Ramey

JOE D. RAMEY, Member & Secretary

S E A L

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 7156
Order No. R-5516-A

APPLICATION OF PARABO, INC. FOR
AN ORDER AMENDING ORDER NO. R-5516,
LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on February 18, 1981, at Santa Fe, New Mexico, before the Oil Conservation Commission of the State of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 18th day of March, 1981, 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:

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

(2) That the applicant, Parabo, Inc., is the operator of a facility described and permitted in Order No. R-5516, being a multi-pit surface salt water disposal facility.

(3) That the applicant seeks the deletion of the requirements of Orders Nos. (6) and (7) of said Order No. R-5516 requiring the further use of a horizontal monitor well at the East end of "Pit No. 1" within said facility.

(4) That during the initial three years of operation of the disposal facility, no evidence of the downward percolation of fluids through the pit floor has been detected in said monitor well.

(5) That the surface location of said monitor well falls within the area of a newly constructed disposal pit rendering further use thereof impractical.

(6) That the proposed deletion of requirements for said horizontal monitor well should be approved.

(7) That with the periodic addition of new disposal pits at the facility, there will occur the need for the drilling of new monitor wells and the abandonment of old monitor wells.

(8) That rules should be adopted providing for the location, casing, and completion of new monitor wells and the plugging of monitor wells which would be abandoned.

(9) That at no time should disposal be permitted into any pit authorized by Order No. R-5516 or subsequently approved by the Division Director if the total quantity of water in such pit, from both natural precipitation and previous disposal, reaches a plane four feet below the level of the spill point of the Triassic red beds or the core dikes surrounding said pit, provided however, that the maximum water level in Pits Nos. 2 and 3 should be permitted to reach a plane three feet below such spill point; that the specific maximum water levels in the five pits authorized to date should be as follows:

Pit No. 1:	3447 feet above sea level
Pit No. 2:	3458 feet above sea level
Pit No. 3:	3458 feet above sea level
Pit No. 4:	3435 feet above sea level
Pit No. 5:	3446 feet above sea level

(10) That the amendment of Order No. R-5516 as described above and operation of the authorized disposal system in accordance with the provisions of said order amended as described above will afford reasonable protection to the underground fresh water supplies, will not cause waste nor impair correlative rights, and should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, Parabo, Inc., is hereby authorized to abandon the horizontal monitor well required by Orders Nos. (6) and (7) of Division Order No. R-5516 by filling such hole with cement.

(2) That the applicant is hereby authorized and required to drill additional monitor wells around new pits within the disposal facility, originally approved by Division Order No. R-5516 and as expanded from time to time, and to abandon existing monitor wells in accordance with the following rules:

Rule 1. That monitor wells shall be maintained around the entire perimeter of the permitted disposal facility with horizontal spacing not to exceed 300 feet and with no single monitor well to be more than 300 feet from the external perimeter of any pit.

Rule 2. No monitor well shall be required between any two single evaporating ponds unless the horizontal distance between said ponds exceeds 700 feet.

Rule 3. That as the facilities are enlarged or modified in such a way that any monitor well is abandoned because it contravenes the provisions of Rule 1 or Rule 2 hereof, said well shall be plugged to its entire vertical depth with cement.

Rule 4. That prior to any additions, modifications or changes in locations of monitor wells, advance written approval of the Director shall be procured.

Rule 5. New monitor wells shall be drilled and cased to an elevation equivalent to 20 feet below the average elevation of the floor of the pond(s) they are intended to monitor.

Rule 6. New monitor wells shall be cased with two inch inside diameter PVC casing, which shall be perforated with saw cuts or at least eight (8) one-quarter (1/4) inch holes from the bottom of said well, to an elevation equal to the maximum design water level of the highest of the pond(s) they are intended to monitor.

Rule 7. That at no time shall disposal be permitted into any pit authorized by Order No. R-5516 or subsequently approved by the Division Director if the total quantity of water in such pit, from both natural precipitation and previous disposal, reaches a plane four feet below the level of the spill point of the Triassic red beds or the core dikes surrounding said pit, provided however, that the maximum water level in Pits Nos. 2 and 3 may reach a plane three feet below such spill point; that the specific maximum water levels in the five pits authorized to date shall be as follows:

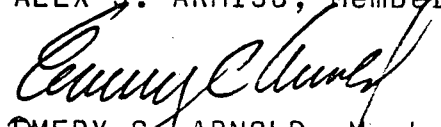
Pit No. 1: 3447 feet above sea level
Pit No. 2: 3458 feet above sea level
Pit No. 3: 3458 feet above sea level
Pit No. 4: 3435 feet above sea level
Pit No. 5: 3446 feet above sea level

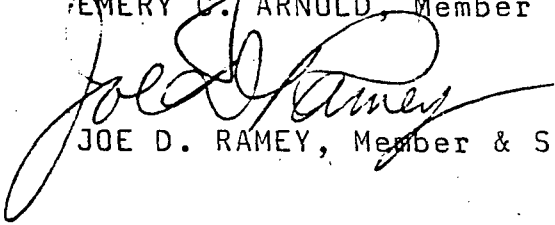
(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

ALEX J. ARMIJO, Member


EMERY C. ARNOLD, Member


JOE D. RAMEY, Member & Secretary

S E A L

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7986
Order No. R-5516-B

APPLICATION OF PARABO, INC. FOR
AN AMENDMENT TO DIVISION ORDER
NO. R-5516, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on October 26, 1983, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 16th day of December, 1983, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Parabo, Inc., is the operator of a facility described and permitted in Division Order No. R-5516 entered on August 30, 1977, and amended by Division Order No. R-5516-A entered on March 18, 1981, being a multi-pit surface salt water disposal facility.
- (3) That the applicant now seeks approval to dispose of drilling fluids, drill cuttings, and those materials that are normally connected with or are the results of drilling operations in New Mexico such as muds, tailings, and cement in an existing pit, known as "Pit No. 8", which is located in the eastern portion of the previously approved facility in Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico.
- (4) That the applicant also seeks approval to dispose of treated basic sediments and water (B.S. and W.) in a

previously approved salt water disposal pit, known as "Pit No. 4", which is located in the extreme western portion of said facility in the N/2 SW/4 of said Section 29.

(5) That said multi-pit surface salt water disposal facility has been in operation by the applicant since early 1978 and has expanded to include six active salt water disposal pits and the applicant is presently awaiting administrative approval from the Division on a seventh salt water disposal pit, known as "Pit No. 7", which will be located in the far eastern portion of said facility in said Section 29.

(6) That Pit No. 8 lies entirely within the essentially impermeable Triassic Red Bed Clay formation with its floor at an elevation of 3412 feet mean sea level.

(7) That Pit No. 8 is underlain by a layer of naturally deposited Triassic Red Clay at least 50 feet in thickness and that the highest level for the Red Clay or spill point for said pit is at an elevation of 3432.5 feet mean sea level.

(8) That Pit No. 8 was formed by the excavation of and the extraction of the Triassic Red Clay material which was used for the construction of dikes for the facility.

(9) That the applicant proposes that the maximum fill level for Pit No. 8 be limited to a plane one-half foot below the level of the spill point for said pit, said plane being at an elevation of 3432 feet mean sea level.

(10) That Pit No. 8 is located between the proposed Pit No. 7, as described in Finding No. (5) above, and all of the previously approved salt water disposal pits.

(11) That at such time as said Pit No. 7 is granted administrative approval by the Division, the entire eastern portion of the facility including Pit No. 8 will then be surrounded by monitor holes as required by Division Order Nos. R-5516 and R-5516-A.

(12) That the applicant requested that the requirements for new monitor holes around said Pit No. 8 be waived until such time as said proposed Pit No. 7 has received administrative approval from the Division.

(13) That Pit No. 4, as described in Finding No. (4) above, is completely contained by the essentially impermeable Triassic Red Bed Clay either by natural deposition or by man-made dikes

with its floor at an elevation of 3425 feet mean sea level.

(14) That Pit No. 4 is underlain by a layer of naturally deposited Triassic Red Clay at least 50 feet in thickness and that the highest level for the Red Clay or spill point for said pit is at an elevation of 3439 feet mean sea level.

(15) That the applicant also requested that the maximum water level limit of Pit No. 4 of 3435 feet mean sea level, as mandated by Rule No. 4 of Division Order No. R-5516-A, be amended to allow the maximum fill level in said Pit No. 4 to now be limited to a plane one-half foot below the level of the spill point for said pit, said plane being at an elevation of 3438.5 feet mean sea level.

(16) That the entire perimeter of the facility is presently surrounded by monitor holes as mandated by Division Order Nos. R-5516 and R-5516-A.

(17) That the applicant requested that the existing monitor holes in the far western portion of this facility be abandoned.

(18) That the applicant presented no evidence to support their claim that horizontal migration of fluids from the disposed material will not occur in the future.

(19) That that portion of this application proposing the abandonment of any existing monitor holes in the western portion of the facility should be denied.

(20) That the applicant failed to present sufficient evidence that their proposed maximum fill level limits of 3432 feet mean sea level for Pit No. 8 and 3438.5 feet mean sea level for Pit No. 4 are adequate or sufficient to retain any natural precipitation that could cause said pits to overflow their spill points.

(21) That the applicant should provide for the placement of a pipe, or acceptable substitute, in both pits, said pipe to be marked in such a manner as to readily indicate the depth of the disposed material in both pits and the maximum elevation which the disposed material in said pits shall be permitted to attain.

(22) That to promote solidification of disposed materials in Pit Nos. 4 and 8, the applicant proposes to decant, on a regular basis, any fluids which may reside on top of the disposed solids.

(23) That at such time as Pit No. 4 or Pit No. 8 is filled to capacity, it is proposed by the applicant that that pit then be covered in such a manner as to promote surface drainage away from that pit, and that its perimeter be resurveyed for future identification as to its location.

(24) That the amendment of Order No. R-5516 as described above and operation of the authorized disposal system in accordance with the provisions of said order amended as described above will afford reasonable protection to the underground fresh water supplies, will not cause waste nor impair correlative rights, and should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, Parabo, Inc., is hereby authorized to dispose of drilling fluids, drill cuttings, and those materials that are normally connected with or are the results of drilling operations in New Mexico such as muds, tailings, and cement in an existing pit, known as "Pit No. 8," which is located in the eastern portion of the previously approved multi-pit surface salt water disposal facility in Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico.

(2) That the monitor hole requirements for new pits as mandated in Division Order Nos. R-5516 and R-5516-A are hereby waived, for Pit No. 8, until such time as the proposed salt water disposal Pit No. 7, as described in Finding Nos. (5) and (10) of this Order, has received administrative approval from the Division or for a period of one year from the date of this Order.

(3) That if at the end of the one year period said Pit No. 7 has not received administrative approval for salt water disposal, the applicant shall then provide for the required monitor holes around said Pit No. 8 as mandated in Division Order Nos. R-5516 and R-5516-A.

(4) That the applicant is also authorized to dispose of treated basic sediments and water (B.S. and W.) in a previously approved salt water disposal pit, known as "Pit No. 4," which is located in the far western portion of said facility in the N/2 SW/4 of said Section 29.

(5) That the applicant's request for abandonment of existing monitor holes in the far western portion of said multi-pit surface salt water disposal facility is hereby denied.

(6) That at no time shall disposal be permitted into either Pit No. 4 or Pit No. 8 if the total quantity of disposed materials or water, from both natural precipitation and previous disposal, reaches a plane one foot below the level of the spill point of the Triassic Red Bed Clay formation or the clay dike surrounding said pit; that the specific maximum fill levels in said pits shall be as follows:

Pit No. 4: 3438 feet mean sea level

Pit No. 8: 3431.5 feet mean sea level

(7) That the applicant shall provide for the placement of a pipe, or acceptable substitute, in both pits, said pipe to be marked in such a manner as to readily indicate the depth of the disposed material in the pits and the maximum elevation which the material in said pits shall be permitted to attain.

(8) That the applicant shall, on a regular basis (determined by the applicant and approved by the Supervisor of the Hobbs district office of the Division) decant any fluids which are residing on top of the disposed solids in both Pit No. 4 and Pit No. 8.

(9) That the applicant shall file a monthly report on each pit in duplicate (one copy with the Division's Santa Fe office and one copy with the Hobbs district office of the Division) and shall be postmarked not later than the 15th day of the second month.

(10) That said report shall include: the date, the source, the quantity of disposed material, type of disposed material (drilling fluid, drill cuttings, cement, B.S. and W., etc.), and the total quantity disposed of for that month.

(11) That at such time as either said Pit No. 4 or Pit No. 8 is filled to capacity, the operator shall cover that pit with a layer one foot in thickness of Triassic Red Clay followed with a layer two feet in thickness of random fill material; the perimeter of that pit shall then be resurveyed and the data reported on the facility plot plan, to the Division's Santa Fe office and to the Hobbs district office of the Division.

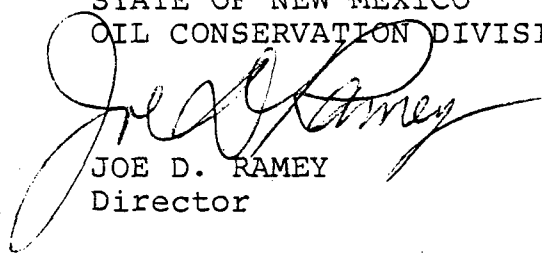
(12) That before the above-described covering procedures are initiated on either of said pits, the operator shall notify the Division Director so that a representative from the Division may be present to witness any or all of the said covering procedures.

(13) That the Director of the Division may by administrative order rescind the authorization for use of said Pit No. 4 or Pit No. 8 approved under the provisions of this Order whenever it reasonably appears to the Director that such rescission would serve to protect fresh water supplies from contamination.

(14) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



JOE D. RAMEY
Director

S E A L

fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 8582
Order No. R-5516-C

APPLICATION OF PARABO, INC. FOR
AN AMENDMENT TO DIVISION ORDER
NO. R-5516, AS AMENDED, LEA
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8 a.m. on April 24, 1985, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 23rd day of July, 1985, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

- (1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- (2) The applicant, Parabo, Inc., is the operator of a facility described and permitted in Division Order No. R-5516 entered on August 30, 1977, and amended by Division Order Nos. R-5516-A and R-5516-B entered on March 18, 1981, and on December 16, 1983, respectively, being a multi-pit surface salt water disposal facility.
- (3) Pits Nos. 2, 3, and 5 were approved by Division Order No. R-5516-A, dated March 18, 1981, with the following specific maximum fill levels:

Pit No. 2: 3458 feet above sea level
Pit No. 3: 3458 feet above sea level
Pit No. 5: 3446 feet above sea level

(4) Pits Nos. 6 and 7 were administratively authorized pursuant to said Division Order No. R-5516-A by order of the Division Director dated July 17, 1981, and December 27, 1982, respectively, with maximum fill levels for both pits to be three feet below their respective spill points.

(5) The applicant now seeks the amendment of said Division Order No. R-5516, as amended, and proposes that the maximum fill level for Pits Nos. 2, 3, 5, 6, and 7 be increased and limited to a plane two feet below the level of the spill point of the Triassic Red Bed Clay formation or the clay dikes surrounding said pits.

(6) The evidence submitted at the hearing indicates that the proposed maximum fill level limits in said Pits Nos. 2, 3, 5, 6, and 7 are adequate and sufficient to retain any natural precipitation that could cause said pits to overflow their respective spill points.

(7) The amendment of said Order No. R-5516, as amended, as described above will afford reasonable protection to fresh water, will not cause waste nor impair correlative rights, and should be approved.

IT IS THEREFORE ORDERED THAT:

(1) RULE 7 of Ordering Paragraph No. (2) on pages 3 and 4 of Division Order No. R-5516-A, dated March 18, 1981, be and the same is hereby corrected to read in its entirety as follows:

"RULE 7. That at no time shall disposal be permitted into any pit authorized by Order No. R-5516, as amended, or subsequently approved by the Division Director if the total quantity of water in such pit, from both natural precipitation and previous disposal, reaches a plane four feet below the level of the spill point of the Triassic Red Beds or the clay dikes surrounding said pit, provided however, that the maximum water level in Pits Nos. 2, 3, 5, 6, and 7 may reach a plane two feet below such spill point; that the specific maximum water levels in the following pits shall be as follows:

Pit No. 1: 3447 feet above sea level
Pit No. 2: 3459 feet above sea level
Pit No. 3: 3459 feet above sea level

Case No. 8581
Order No. R-5516-C

Pit No. 4: 3438 feet above sea level
Pit No. 5: 3447 feet above sea level
Pit No. 6: 3447 feet above sea level
Pit No. 7: 3440 feet above sea level"

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



R. L. STAMETS
Director

S E A L

fd/

PROPOSED EXPANSION OF THE
SALT WATER DISPOSAL FACILITY
EUNICE AREA
LEA COUNTY, NEW MEXICO

Prepared for
PARABO, INC.
HOBBS, NEW MEXICO

By
ED L. REED & ASSOCIATES, INC.
Consulting Hydrologists
Midland and San Angelo, Texas

January 1979

Proposed Expansion Of The Salt Water Disposal Facility,
Eunice Area Lea County, New Mexico

Introduction

Parabo Inc. proposes to expand its salt water disposal facility, which is presently operating near Eunice, Lea County, New Mexico. The proposed site lies immediately north of the current disposal pond.

Geology

Thirty test holes were drilled on a 14-acre site to evaluate the suitability of the Triassic redbeds for containment of salt water. A map of the sea level elevations of the top of the redbeds is submitted. The test drilling shows that a linear depression exists in the redbeds which is aligned in a north-south direction. This depression probably represents a tributary to the larger east-west channel which has been utilized in the present operations. In the center of the depression the redbed is at a elevation of 3453 and it rises to 3460 or above on the edges of the depression.

Adaptation to Salt Water Disposal

Approximately 5 acres of the 14-acre site has been mined out (sand & gravel) exposing the redbed. Most of the remaining area will eventually be mined, such that potentially 13 to 14 acres would be available for salt water disposal.

The floor of the proposed pits is presently at an elevation of 3453 or higher. This area cannot be made a simple extension of the existing facilities without excavating the floor to an elevation lower than 3447 (the design water level elevation of the existing pit.) Additionally, part of the proposed area lies east of the existing easternmost dike. Therefore, a dike will be constructed across the southern end of the linear redbed depression such that salt water will

be contained within this depression. The dike will be constructed in a manner similar to the existing dikes. It is proposed that the dike be constructed to an elevation of 3459, with each end of the dike tied to the redbed where it reaches an elevation of 3459. It is further proposed that a 3 foot freeboard be maintained at all times in the pit. Therefore, the maximum water level elevation would be 3456. A staff gauge will be placed in the pit to monitor the water levels.

A 5-acre area which lies below elevation 3456 is presently available for salt water disposal. It is recommended that this area be utilized immediately after construction of the dike. Pit expansion can be accomplished in two ways: 1) an additional 5 acre area which lies below elevation 3456 will be available after sand and gravel is removed. 2) the redbed in the rest of the 14-acre site lies above elevation 3456. Once this area has been mined out, the pit floor can be lowered to an elevation below 3456 at which time it can receive salt water. Neither of these expansion possibilities call for additional diking.

Monitoring

Fifteen monitor holes will be installed to detect leakage from the pit. These holes will be drilled to an elevation of 3436 and completed as outlined in the existing permit. Two existing holes (MH-18 and 20) will also be used to monitor the pit. Monitor hole 19 which lies in the area of the proposed dike will be abandoned and plugged with cement. The monitor holes will be examined on a schedule similar to that outlined in the permit.

Respectfully submitted,

ED L. REED & ASSOCIATES, INC.

V. Steve Reed

V. Steve Reed

BEFORE THE ENERGY AND MINERALS DEPARTMENT,
OIL CONSERVATION DIVISION OF THE STATE OF NEW MEXICO

APPLICATION OF PARABO, INC.
FOR AN AMENDMENT TO ORDER R-5516

DOCKET NO. 7986

A P P L I C A T I O N

COMES NOW, Parabo, Inc., by and through its attorneys, the Law Offices of R. E. Richards, P.A., and moves the Division for an Order approving the operation by applicant of an oilfield solid wastes repository and a heavy drilling fluids, muds, tailings, cement and cuttings repository, in connection with and as a part of its' production brine disposal facility, and in support thereof, states:

1. That applicant has been, under the authority of Order R-5516, as amended, operating a production brine disposal facility, all as more clearly shown in those Orders which are incorporated herein by reference as if fully set forth herein.

2. That in the scope and course of said operation, applicant is periodically tendered materials commonly called heavy drilling fluids, muds, tailings, cement and cuttings as well as oilfield solid wastes as they are defined in the Division's Rules and Regulations, as amended.

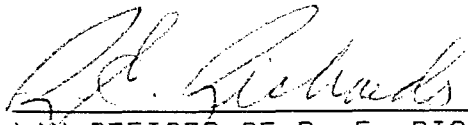
3. That applicant proposes to deposit the aforementioned drilling materials in an existing pit to be known as Pit #8 located to the Northeast of present Pit #6; and that the proposed Pit #8 has the same geologic formation as the previously permitted pits but because of its average depth versus its surface area it is not well suited for utilization as a production brine evaporation pond.

4. That applicant seeks permission to convert previously permitted Pit #4 to an oilfield solid waste repository.

5. That the aforementioned operations will be located at the site of the Parabo, Inc., facility in the Southwest quarter of Section 29, Township 21 South, Range 38 East, N.M.P.M., Lea County, New Mexico.

6. That the Division should, pursuant to the Rules and Regulations, set this Application for hearing and, after hearing, grant to applicant authority to accept pursuant to the Rules and Regulations of the Division; and that applicant is by this application acknowledging the restrictions and requirements placed upon it by said rules and the duties incumbent thereto, with all of which it agrees to comply.

WHEREFORE, premises considered, applicant prays the Division enter its Order in conformity with the allegations hereof and Order and authorize the operations as described.



LAW OFFICES OF R. E. RICHARDS, P.A.
Post Office Box 761
Hobbs, New Mexico 88240
505-393-7737
Attorneys for Applicant.

Law Offices of
R. E. RICHARDS

R. E. RICHARDS
LAWRENCE D. HANNA

(505) 393-7737
119 North Dalmont
P. O. Box 761
Hobbs, New Mexico 88240

February 10, 1982

Case 7497

Mr. Joe D. Ramey, Director
Oil Conservation Division
Energy and Minerals Department
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico 87501

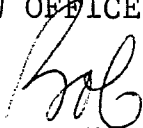
Application of Parabo, Inc.,
for a Treating Plant Permit

Dear Joe:

I enclose herewith Application. Thank you.

Very truly yours,

LAW OFFICES OF R. E. RICHARDS


R. E. RICHARDS

RER/da
enclosure
cc:
Parabo, Inc.
Post Office Box 1383
Hobbs, New Mexico 88240 (w/enc)

BEFORE THE ENERGY AND MINERALS DEPARTMENT,
OIL CONSERVATION DIVISION OF THE STATE OF NEW MEXICO

APPLICATION OF PARABO, INC.
FOR A TREATING PLANT PERMIT.

DOCKET NO. 7997

A P P L I C A T I O N

COMES NOW, Parabo, Inc., by and through its attorney, R. E. Richards, and moves the Division for an Order approving the operation by applicant of a treating plant, and in support thereof, states:

1. That applicant has been under the authority of Order R-5516, as amended, operating a production brine disposal facility, all as more clearly shown in those Orders which are incorporated herein by reference as if fully set forth herein.

2. That in the scope and course of said operation, applicant is periodically tendered materials commonly called "hot oiler unit blow downs, basic sediment and water, tank bottoms, and other miscellaneous hydrocarbons" as they are defined in Rule 311 of the Division's Rules and Regulations, as amended and effective February 1, 1982.

3. That pursuant to Rule 312 of the Division's Rules and Regulations, as amended and effective February 1, 1982, prior to continued operation regarding those materials described in paragraph 2 hereof in conformity with its prior

operations, applicant is required to seek a treating plant permit; and that such desire is the purpose and intent of this application.

4. That in prior operations (which have been terminated pending approval of this application), such materials when tendered have been deposited into a 1,000 barrel tank and thereafter treated with chemicals and/or hot oil to free marketable hydrocarbons therefrom; that when said oil is broken out from the brine and other materials, it is floated off at the 12' 0" elevation through a 4" pipeline to a 300 barrel oil storage tank, where thereafter more treatment by way of chemicals and/or hot oil is applied in an effort to further segregate the marketable hydrocarbons from any production brine; and that after such treatments have been performed, the material remaining in the 1,000 barrel tank, which has been demonstrated to have less than 50% by volume of marketable hydrocarbons, is sold or otherwise disposed of to an oil processing plant.

5. That the aforementioned operation is located at the site of the Parabo, Inc., facility in the Southwest quarter of Section 29, Township 21 South, Range 38 East, N.M.P.M., Lea County, New Mexico, and has a capacity of 1,000 barrels per cycle.

6. That the proposed plant and method of processing will and does efficiently process, treat, and reclaim marketable hydrocarbons in conformity with Rule 312.

7. That the Division should, pursuant to the requirements of Rule 312, set this application for hearing and after hearing grant to applicant a permit to operate a treating plant pursuant to the Rules and Regulations of the Division; and that applicant is by this application acknowledging the restrictions and requirements placed upon it by said Rule and the duties incumbent thereto, with all of which it agrees to comply.

WHEREFORE, premises considered, applicant prays the Division enter its Order in conformity with the allegations hereof and Order and authorize the granting of a treating plant to applicant.


LAW OFFICES OF R. E. RICHARDS
Post Office Box 761
Hobbs, New Mexico 88240
Attorneys for Applicant.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7497
Order No. R-6940

APPLICATION OF PARABO, INC.
FOR AN OIL TREATING PLANT PERMIT,
LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on March 31, 1982, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 14th day of April, 1982, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Parabo, Inc., seeks authority to construct and operate a chemical and heat-treatment type oil treating plant at its salt water disposal site in the SW/4 of Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico, for the processing of approximately 1500 barrels per day of raw material from tank bottoms, disposal water, and waste pits.

(3) That dikes, dams and/or emergency pits should be constructed around the plant capable of holding the entire capacity of all tanks and vessels at the plant location in order that sediment oil, reclaimed oil, or waste oil cannot escape from the immediate vicinity of such plant.

(4) That the proposed plant and method of processing will efficiently process, treat, and reclaim the aforementioned waste oil, thereby salvaging oil which would otherwise be wasted.

(5) That the Director of the Division should be authorized to administratively grant approval for the expansion or modification of said plant.

(6) That the subject application should be approved as being in the best interests of conservation.

IT IS THEREFORE ORDERED:

(1) That the applicant, Parabo, Inc., is hereby authorized to install and operate a chemical and heat-treatment type oil treating plant at its salt water disposal site in the SW/4 of Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico, for the purpose of treating and reclaiming sediment oil to be obtained from tank bottoms, waste pits and disposal water.

PROVIDED HOWEVER, that the continuation of the authorization granted by this order shall be conditioned upon compliance with the laws of the State of New Mexico and the rules and regulations of the New Mexico Oil Conservation Division;

PROVIDED FURTHER, that prior to commencing operation of said plant, the applicant shall file with the Division and obtain approval of a performance bond in the amount of \$10,000.00 conditioned upon substantial compliance with applicable statutes of the State of New Mexico and all rules, regulations and orders of the Oil Conservation Division.

(2) That the operator of the above-described oil treating plant shall clear and maintain in a condition clear of all debris and vegetation a fireline at least 15 feet in width and encircling the site upon which the plant is located.

(3) That dikes, dams and/or emergency pits shall be constructed around the plant capable of holding the entire capacity of all tanks and vessels at the plant location and capable of preventing the escape of any sediment oil, reclaimed oil, or waste oil from the immediate vicinity of said plant.

(4) That the disposal of waste water accumulated in conjunction with the operation of the above-described plant on the surface of the ground, or in any pit, pond, lake, depression, draw, streambed, or arroyo, or in any watercourse, or in any other place or in any manner which will constitute a hazard to any fresh water supplies is hereby prohibited.

(5) That the Director of the Division may administratively grant authority for the expansion or

-3-

Case No. 7497

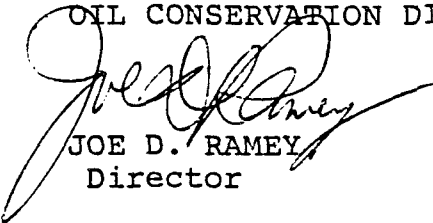
Order No. R-6940

modification of said plant upon request and a demonstration that such expansion or modification is upon contiguous acreage and is otherwise consistent with this order and Division Rules and Regulations.

(6) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



JOE D. RAMEY
Director

S E A L

Law Offices
R. E. RICHARDS

P. O. Box 761
Hobbs, New Mexico 88240

JAN 19 1981
OIL CONSERVATION DIVISION
SANTA FE (505) 393-7737
119 North Dalmont

January 15, 1981

Mr. Joe D. Ramey, Director
Oil Conservation Division
Energy and Minerals Department
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico 87501

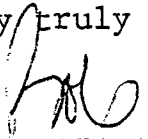
Case 7156

Order No. R-5516

Dear Joe:

I enclose herewith Petition of Parabo, Inc., for amendment to Order No. R-5516. Also, as we discussed by telephone earlier today, I would be most happy to cooperate with Florene in choosing a hearing date.

Very truly yours,


R. E. RICHARDS

RER/da
enclosure
cc:
Parabo, Inc.
Post Office Box 1383
Hobbs, New Mexico 88240 (w/enc)

Mr. V. Steve Reed
Ed L. Reed and Associates, Inc.
Oil Industries Bldg., Suite 315
723 Upper N. Broadway
Corpus Christi, TX 78403 (w/enc)

BEFORE THE ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
OF THE STATE OF NEW MEXICO

APPLICATION OF PARABO, INC., FOR
AN ORDER AMENDING ORDER R-5516.

Case 7156

P E T I T I O N

COMES NOW, Parabo, Inc., by and through its attorney, R. E. Richards, and moves the Division for an Order amending Order No. R-5516 and in support thereof states:

1. That applicant has been, under the above described Order, operating a facility as described in that Order whereby it commercially disposed of and does dispose of produced salt water.
2. That certain changes and amendments should be made in and to that Order to more adequately reflect the Division's desires for the operation of said facility and to approve and authorize certain modifications because of desired and contemplated growth and expansion of said facility.
3. That Paragraph 6 of the Division's Order described above should be amended by deleting the requirement of a horizontal monitor hole in that operations, since the entry of Order R-5516, have shown that the described and ordered horizontal monitor hole is not required for the

safety and integrity of the operation; or that in the alternative, the Division should authorize the abandonment of the above described horizontal monitor hole and the substitution in lieu thereof of a similiar horizontal monitor hole beneath the westernmost part of Dike No. 1 just to the east of monitor well No. 21 in a precise location to be more completely described at hearing herein.

4. That Paragraph 4 of Order R-5516 requires certain monitor wells which should be continued; however, as the orderly expansion of the facilities at Parabo occur, periodic adjustments must be made in the location of the monitoring well system locations, which necessitate that program be amended as follows:

A. Monitor wells should be maintained around the perimeter of the disposal facility with a horizontal spacing not to exceed 300 feet with no well to be more than 300 feet from the external perimeter of any pits.

B. No monitor wells would be required to be maintained between any two evaporating ponds unless the horizontal distance between said ponds exceed 700 feet.

C. That as expansion requires the abandonment of any monitoring well, said well should be plugged to its entire vertical heighth with cement.

D. Any modifications or change in location of monitoring wells necessitated by expansion or modification are subject to the advance written approval of the Director.

5. In order to facilitate the objective of monitoring wells, certain amendments should be made to Paragraph 5 of said Order R-5516 to provide that hereafter newly constructed monitor wells will be drilled and maintained as follows:

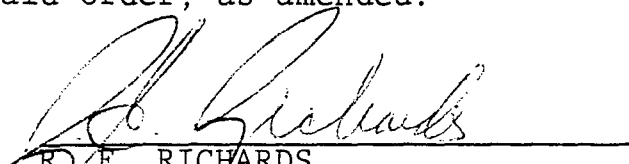
A. Wells will be drilled and cased to an elevation equivalent to 20 feet below the average elevation of the floor of the pond(s) they are intended to monitor.

B. The monitor wells will be cased with 2 inch ID-PVC casing which will be perforated with saw cuts or at least eight 1/4 inch holes per vertical foot from an elevation equal to the maximum design water level to the bottom of said well.

6. That Paragraph 10 of Order R-5516 requires what can be described as a 4 foot freeboard, which should be amended to provide that in those pits or ponds authorized by the Division which are completely encircled by the man-made dikes constructed in accordance with the Division's Order, a 3 foot freeboard should be required; and that the Order should be affirmed at a 4 foot freeboard in any pit(s) which rely in part on natural redbed topographic relief for impoundment.

WHEREFORE, premises considered, petitioner prays the Division amend Order R-5516 in conformity with the

allegations hereof and order and authorize further and continued operations under said Order, as amended.

A handwritten signature in cursive script, appearing to read "R. E. Richards", is written over a horizontal line.

R. E. RICHARDS
Post Office Box 761
Hobbs, New Mexico 88240
Attorney for Petitioner,
Parabo, Inc.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

3 March 1982

EXAMINER HEARING

IN THE MATTER OF:

Application of Parabo, Inc.
for an oil treatment plant permit, CASE
Lea County, New Mexico. 7497

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation
Division:

W. Perry Pearce, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

R. E. Richards, Esq.
119 North Dalmont
Hobbs, New Mexico 88240

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I N D E X

ROBERT WALLACH

Direct Examination by Mr. Richards

Cross Examination by Mr. Nutter

2

3

4

E X H I B I T S

Applicant Exhibit One, Testimony

3

1
2 MR. NUTTER: We'll call next Case Number
3 7497.

4 MR. PEARCE: Application of Parabo, Inc.
5 for an oil treatment plant permit, Lea County, New Mexico.

6 MR. RICHARDS: May it please the Commis-
7 sion, I'm R. E. Richards, Attorney at Law, Hobbs, New Mexico.
8 I represent the applicant and I have one witness who needs
9 to be sworn.

10
11 (Witness sworn.)

12
13 ROBERT WALLACH
14 being called as a witness and being duly sworn upon his oath,
15 testified as follows, to-wit:

16
17 DIRECT EXAMINATION

18 BY MR. RICHARDS:

19 Q May it please the Hearing Examiner?

20 MR. NUTTER: Yes, sir.

21 Q Mr. Wallach, I hand you what's been
22 marked for identification as Exhibit Number One. Can you
23 tell the Commission -- the Examiner what that is?

24 A It's my direct testimony on the proposal
25 of a treatment plant.

Q Do you have any additions, deletions, or corrections you wish to make to that testimony?

A Yes, sir. I would like to add the location of the plant as being on the southwest quarter of Section 29, Township 21 South, Range 38 East.

Q Is that in Lea County, New Mexico?

A Lea County, New Mexico.

Q Is it also the site of a salt water -- a previously permitted salt water disposal operation?

A Yes, sir, it is.

Q Do you have any other additions or corrections?

A No, sir.

MR. RICHARDS: May it please the Hearing Examiner, I move the introduction of Exhibit One as Mr. Wallach's direct testimony, and tender the witness for cross examination.

MR. NUTTER: Haven't had time to read his direct yet.

You said that the location was the southwest quarter of Section 29. I believe the application was for the southeast quarter of Section 29.

MR. RICHARDS: That may well be my error, Mr. Nutter, and I will plead guilty if it is.

1
2 MR. NUTTER: No, the application says
3 the southwest quarter.

4 The docket says the southeast quarter.

5 MR. RICHARDS: As far as I know, the
6 southwest quarter is correct.

7 MR. NUTTER: Southwest quarter, yeah,
8 we'd better check the ad.

9 The docket may have the error; the ad
10 may be correct.

11 MR. RICHARDS: The fact of the matter,
12 Mr. Nutter, and on the record, the entire section is owned
13 by the applicant or affiliated interests herein.

14 MR. NUTTER: Right, I realize they own
15 quite a bit of land right around that.

16 MR. RICHARDS: Yes, sir.

17 MR. NUTTER: Yeah, the ad for this case
18 was the southeast. That error was in the ad for the case.
19 We will have to continue the case and readvertise it and
20 will hold any order until such time.

21 In the meantime, Mr. Wallach, we may
22 have some questions on this direct testimony. If we do,
23 we'll get in touch with you.

24 A. Okay.

25 MR. NUTTER: For explanation and how

you're going to be reporting some of this recovered oil.

A. Yes, sir.

MR. NUTTER: And so forth.

And in the meantime, we will take the case under advisement and we'll readvertise it. We will readvertise the case for March 31st.

MR. RICHARDS: Mr. Hearing Examiner --

MR. NUTTER: For the location of the proposed treating plant.

MR. RICHARDS: Mr. Hearing Examiner, in light of the fact it will need to be readvertised, I'd like to ask that notice be required of any intent to protest or intervene, and that absent any protest, that the attorney and the representative of the applicant attendance be waived.

MR. NUTTER: Well, in the event someone should come in and protest it, we would continue it to such time as you would be notified of the hearing.

MR. RICHARDS: If that's satisfactory, I would appreciate it.

MR. NUTTER: Right. I doubt if anyone will show up if they didn't show up today, but just for procedure sake, we'll have to reopen the case.

MR. RICHARDS: Yes, sir.

MR. NUTTER: Your attendance here will

7
1 not be necessary that date, and if opposition appears, we'll
2 make them wait until you've shown up.
3

4 MR. RICHARDS: All right. Thank you.

5 May we be excused?

6 MR. NUTTER: With that, we'll take the
7 case -- we've continued the case till March the 31st for
8 readvertising and you may be excused.

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10 (Hearing concluded.)
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C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7497 heard by me on 3/3 1982.

[Signature], Examiner
Oil Conservation Division

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

BEFORE THE ENERGY AND MINERALS DEPARTMENT,
OIL CONSERVATION DIVISION OF THE STATE OF NEW MEXICO

APPLICATION OF PARABO, INC.
FOR A TREATING PLANT PERMIT.

DOCKET NO. 7497

DIRECT TESTIMONY

of

ROBERT RAY WALLACH

LAW OFFICES OF R. E. RICHARDS
Post Office Box 761
Hobbs, New Mexico 88240
ATTORNEYS FOR APPLICANT.

EXH 1

DIRECT TESTIMONY OF ROBERT RAY WALLACH:

Q:

Please state your full name.

A:

Robert Ray Wallach.

Q:

Where do you live, Mr. Wallach?

A:

I live at 1027 Nambé, Hobbs, New Mexico 88240. Home phone 392-7477. Business phone 392-5008.

Q:

Are you employed by Parabo, Inc.?

A:

SW/4 see 29

Yes.

Q:

In what capacity?

A:

I am the Operations Manager for Parabo, Inc., and in that capacity I am responsible for the overall supervision and control of the receipt and treatment of production brine prior to its surface disposal and the operation of an oil treating plant.

Q:

Is Parabo, Inc., the applicant in this docket for a permit from the Oil Conservation Division of the Energy and Minerals Department for an oil treating plant permit?

A:

Yes.

Q:

Please describe the operation proposed for the treatment of materials brought to Parabo, Inc., which require a Form C-117A.

A:

It is my understanding that Form C-117A is required for what is described under the Division Rules as sediment oil and miscellaneous hydrocarbons which include tank bottoms from leases as well as those occurring at pipeline stations, crude oil storage terminals, refineries and pipeline brake oil catching in traps, drips, or scrubbers and any other liquid hydrocarbon which is not lease crude or condensate.

We propose to process the materials by utilization of a 1,000 barrel tank and an auxillary 500 barrel tank.

Upon the arrival at the plant of a load requiring a permit we will first determine the volume of the load

and place an equivalent of 1 gallon per 100 barrels of emulsion breaker into the 1,000 barrel tank and the equivalent of 5 gallons of soap per 100 barrels of fluid, i.e., a 140 barrel load would have 1.4 gallons of emulsion breaker and 7 gallons of soap. The load is then pumped off into the top of the 1,000 barrel tank. This is repeated with each load requiring a C-117A permit until the 1,000 barrel tank is full. We will then switch to the totally separate 500 barrel tank where the process will be identical. The 1,000 barrel tank or the 500 barrel tank, whichever is being used, will be permitted to settle out with the benefit of the emulsion breaker and soap action. The light oils move to the top of the tank with an interface with basic sediment and water (BSW) below them. Below the BSW in a rather indistinct interface is a layer of water. On the very bottom of the tank we find the solids primarily iron sulfides, sand and other grit which fall by gravity to the bottom of the tank. This settling process takes a period of 48 to 72 hours, depending upon the ambient air temperature.

Because there is a decrease vertically in the oil content in all materials in the 1,000/500 barrel treating tanks, we propose by utilizing an electric pump, to

transfer all material containing 40% or more of marketable hydrocarbons to our production brine disposal tanks where they are injected at the bottom of the tank under pressure and actually flushed under high pressure through the brine. The determination of the amount of material to be transferred is made by thieving the 1,000/500 barrel treating tanks from the top down and grinding out each sample until the 40% level is reached. The injection and flushing process through the brine disposal tanks results in a significant improvement in the amount of marketable oil, which then rises to the top of those tanks. This is subsequently floated off to an oil sales tank.

The brine water which underlays the area of BSW containing less than 40% oil is pumped off to the production brine disposal facility and treated as other production brine received which do not require Form C-117A. The BSW is sold to other secondary treating plants for additional thermal treating to recover additional amounts of marketable hydrocarbons.

Q:

How do you propose to account for the oil which is brought to you under the C-117A permits?

A:

It is my understanding that the C-117A's will be

required for those things I have described in a previous answer and will come to us with a shake out or ground sample report. Since we will sell from the same tank in our production brine disposal operation all materials which have come from the treating plant, we will, for audit purposes at the end of each month, allocate the oil sold based upon the ratio shown on the C-117A's to the total volume from hot oilers and production brine. The demonstrated hydrocarbon content of the material sold to thermal oil treating plants will, by virtue of the grind out or shake out required prior to their transportation, also be used to show to the extent possible the disposition of all quantities of hydrocarbons shown as received under various Form C-117A's.

Q:

Mr. Wallach, would the operation which you have described constitute an efficient processing, treating and reclaiming of sediment oil?

A:

Yes, although it is not the total reclamation of all sediment oil from the material received by us, it is an efficient and cost effective method of recovering a substantial portion of it with additional portions

being recoverable by the traditional thermal treating
plant methods.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

31 March 1982

EXAMINER HEARING

IN THE MATTER OF:

Application of Parabo, Inc., for an
oil treatment plant permit, Lea County,
New Mexico.

CASE
7497

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation
Division:

W. Perry Pearce, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

R. E. Richards, Esq.
119 North Dalmont
Hobbs, New Mexico 88240

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MR. NUTTER: We'll call next Case Number 7497.

MR. PEARCE: Application of Parabo, Inc. for an oil treatment plant permit, Lea County, New Mexico.

MR. NUTTER: Case Number 7497 was heard, the record made at the hearing on March the 3rd, 1982; however there was an error in the advertisement of the case, being the location of the treating plant, which has been corrected.

Are there any appearances to be made now in Case Number 7497?

MR. RICHARDS: Mr. Nutter, please note the appearance, continued appearance of R. E. Richards, attorney for the applicant and principals in the applicant corporation.

MR. NUTTER: Thank you. If there is no other appearance, Case Number 7497 will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7497, heard by me on 3/31 1982.

[Signature] Examiner
Oil Conservation Division

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B

Santa Fe, New Mexico 87501

Phone (505) 455-7409

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 5899
Order No. R-5516

APPLICATION OF ROBERT P. WALLACH,
RAY A. WALLACH, AND PATRICIA LOUISE
WALLACH HOUSE FOR AN EXCEPTION TO
ORDER NO. R-3221, LEA COUNTY,
NEW MEXICO.

Also see R-5516-A

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 20, 1977, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 30th day of August, 1977, 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:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicants, Robert P. Wallach, Ray A. Wallach, and Patricia Louise Wallach House, are the owners of certain gravel pits located in the SW/4 of Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico.
- (3) That Order (3) of Commission Order No. R-3221, as amended, prohibits in that area encompassed by Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, the disposal, subject to minor exceptions, of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground, or in any pit, pond, lake, depression, draw, stream-bed, or arroyo, or in any watercourse, or in any other place or in any manner which would constitute a hazard to any fresh water supplies and said disposal has not previously been prohibited.

(4) That the aforesaid Order No. R-3221 was issued in order to afford reasonable protection against contamination of fresh water supplies designated by the State Engineer through disposal of water produced in conjunction with the production of oil or gas, or both, in unlined surface pits.

(5) That the State Engineer has designated, pursuant to Section 65-3-11 (15), N.M.S.A., 1953 Compilation, all underground water in the State of New Mexico containing 10,000 parts per million or less of dissolved solids as fresh water supplies to be afforded reasonable protection against contamination; except that said designation does not include any water for which there is no present or reasonably foreseeable beneficial use that would be impaired by contamination.

(6) That the applicants seek an exception to the provisions of the aforesaid Order (3) to permit the commercial disposal of produced salt water in the pits described in Finding No. (2) above.

(7) That said pits have been utilized for the mining of Ogallala formation gravels for many years.

(8) That said Ogallala gravels were laid down within an elongate East-West trending channel eroded into the underlying Triassic red bed formations.

(9) That percolation tests indicate that said Triassic red beds are highly resistant to the downward percolation of water within the area of said pits and are essentially impermeable.

(10) That the applicants propose to construct dikes and core trenches across and along said elongate channel in the Triassic red beds within said quarter section to create pits which are essentially impermeable to the lateral flow of water.

(11) That the applicants propose to limit the high water level in any such pit to at least four feet below the Triassic spill point in the pit.

(12) That salt water disposed of into any such impermeable pit as described in Findings Nos. (9) and (10) above will not percolate downward nor migrate laterally outward from said pit and create a hazard to fresh waters, but will evaporate.

(13) That approval for all of the pits requested by applicants in this case should not be granted at this time, but a pilot pit project utilizing the large central pit area

described as Pit 1 and Pit 2 on Figure 4 of Exhibit A in this case should be approved, subject to certain requirements.

(14) That applicants should be required to provide adequate salt water settling tanks to permit removal of oil from the water prior to placement of said water in the evaporation pit, in order to not impair water evaporation.

(15) That in order to ensure that no downward percolation nor outward migration of water from the authorized pit does occur, certain monitor wells should be drilled into the Triassic red beds at specified locations around the pit and a Commission-approved method for monitoring said red beds beneath the pit should be employed.

(16) That an administrative procedure should be adopted whereby additional pits within the SW/4 of said Section 29 may be utilized for salt water disposal.

(17) That approval of the application subject to the above-described conditions will not cause waste, will not violate correlative rights, nor harm fresh waters.

(18) That the application should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicants, Robert P. Wallach, Ray A. Wallach, and Patricia Louise Wallach House, are hereby granted an exception to Order (3) of Commission Order No. R-3221, as amended, to commercially dispose of produced salt water in an unlined surface pit located in the SW/4 of Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico, consisting of Pit 1 and Pit 2 as identified on Figure 4 of applicant's Exhibit A in the subject case.

(2) That prior to utilization of said pit for salt water disposal, applicant shall construct the following-described dikes and core trenches:

- A. A north-northeast/south-southwest trending dike at the west end of the pit area;
- B. A north-northwest/south-southeast trending combination core trench-dike at the east end of the pit area; and

- C. An east-west trending core trench at the south side of the pit area.

(3) That the above-described dikes and core trenches shall be constructed to an elevation of 3,451 feet above sea level and in accordance with good engineering practices and the specifications set forth on pages five and six of applicant's Exhibit "A" in this case. Construction shall be under the supervision and responsibility of the consulting hydrologist in this case.

(4) That prior to utilization of the aforesaid pit for salt water disposal, applicant shall drill the following described monitor wells around the outer perimeter of said pit:

- A. Nine monitor wells along the southern perimeter of said pit, being those wells depicted as monitor wells, pit one, on Figure 4 of applicant's Exhibit "A" in this case;
- B. Three monitor wells at the southeast end of said pit, being those wells depicted as monitor wells, pits one and three on the aforesaid Figure 4;
- C. Two monitor wells at the southwest end of said pit, being those wells depicted as monitor well, pits one and four on Figure 4;
- D. Four monitor wells at the west end of said pit, being those wells depicted as monitor wells on a north-northeast/south-southwest line approximately 75 feet west of the western dike for Pit No. 1; and
- E. Three monitor wells along the northern perimeter of said pit, being those monitor wells depicted as monitor well, pit one, monitor well, pits one and two, and monitor well, pits one, two, and three, on Figure 4.

(5) That each of the above-described monitor wells shall be drilled and cased under the supervision and responsibility of the consulting hydrologist in this case and shall be drilled to a sufficient depth to reach a plane 3427 feet above sea level, and shall be drilled six inches in diameter

and cased with 4-inch PVC casing; casing shall be perforated with at least eight holes per foot from the bottom of the casing to a point 3451 feet above sea level; the casing shall be capped at the surface and each monitor well checked for fluids at least once a month during the first two years of pit operation (for disposal purposes) and quarterly thereafter. Analyses of waters encountered during such tests and the results of such analyses, as well as water levels, shall be reported in writing to the Hobbs District Office of the Commission within 30 days following sampling.

(6) That the applicant shall bore a hole laterally into the Triassic red beds from a point east of the approximate middle of the easternmost dike described in Order No. (2) B above, said hole to be bored under the dike and penetrating a minimum of five feet into the pit area west of said dike; said hole shall be bored at an approximate depth of six to ten feet beneath the top of the Triassic red beds and shall be cased and gravel packed; the westernmost five feet of said casing shall be perforated and the easternmost end of said casing shall be positioned to drain into a covered impermeable sump to detect possible percolation of waters from the floor of the pit into the drain pipe; the monitoring procedures and reporting requirements of Order No. (5) above shall also apply to the aforesaid sump.

(7) In lieu of the percolation detection system required by Order No. (6) above, the Secretary-Director may authorize another acceptable means of detection of downward percolation of waters from the subject pit.

(8) The Secretary-Director shall order suspension of disposal operations into the subject pit if any of the monitoring procedures prescribed in Orders Nos. (4), (5), (6), or (7), or any other condition, gives him good cause to suspect outward migration or downward percolation of waters from said pit. Disposal operations shall not be resumed until the Secretary-Director is satisfied that such measures have been taken to ensure that continued disposal will not constitute a hazard to fresh waters in the area.

(9) That the applicants shall provide for the placement of a pipe, or acceptable substitute, in the pit, said pipe to be marked in such a manner as to readily indicate the depth of the water in the pit and the maximum elevation which the water in said pit shall be permitted to attain.

(10) That at no time shall disposal in the aforesaid pit be permitted if the total quantity of water in the pit,

from both natural precipitation and previous disposal, reaches a plane four feet below the level of the spill point of the Triassic red beds or dikes around such pit, said plane being at an elevation of 3447 feet above sea level.

(11) That the applicant shall install and maintain in good condition wooden or metal settling tanks, and shall allow all oil field brines to remain in such tanks for a sufficient period of time to permit residual oil contained in said brines to be skimmed off, and not be passed on with the brines to the disposal pit.

(12) That the applicant shall install and maintain in good condition meters or other measuring devices to permit an accurate determination of the quantity of water disposed of in the pit.

(13) That the applicant shall file a monthly report with the Commission in accordance with Rule 1120 of the Commission Rules and Regulations, reporting each source and quantity of disposal water and the total quantity disposed of.

(14) That the Secretary-Director of the Commission may administratively authorize the utilization of any of the remaining pits in the SW/4 of said Section 29 for salt water disposal upon a showing by the applicants that such pits will be constructed and operated in conformance with the provisions of this order and upon a showing of satisfactory operation of the pit authorized herein for a period of at least one year.

(15) The Secretary-Director may amend the above-specified frequencies for monitoring upon a showing that such amendment would not constitute a hazard to the fresh waters in the area.

(16) That the Secretary-Director of the Commission may by administrative order rescind the authorization for use of any pit approved under the provisions of this order whenever it reasonably appears to the Secretary-Director that such rescission would serve to protect fresh water supplies from contamination.

(17) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

-7-

Case No. 5899

Order No. R-5516

DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Phil R. Lucero

Sept. 6, 1977

PHIL R. LUCERO, Chairman

Emery C. Arnold

EMERY C. ARNOLD, Member

Joe D. Ramey

JOE D. RAMEY, Member & Secretary

S E A L

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 7156
Order No. R-5516-A

APPLICATION OF PARABO, INC. FOR
AN ORDER AMENDING ORDER NO. R-5516,
LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on February 18, 1981, at Santa Fe, New Mexico, before the Oil Conservation Commission of the State of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 18th day of March, 1981, 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:

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

(2) That the applicant, Parabo, Inc., is the operator of a facility described and permitted in Order No. R-5516, being a multi-pit surface salt water disposal facility.

(3) That the applicant seeks the deletion of the requirements of Orders Nos. (6) and (7) of said Order No. R-5516 requiring the further use of a horizontal monitor well at the East end of "Pit No. 1" within said facility.

(4) That during the initial three years of operation of the disposal facility, no evidence of the downward percolation of fluids through the pit floor has been detected in said monitor well.

(5) That the surface location of said monitor well falls within the area of a newly constructed disposal pit rendering further use thereof impractical.

(6) That the proposed deletion of requirements for said horizontal monitor well should be approved.

(7) That with the periodic addition of new disposal pits at the facility, there will occur the need for the drilling of new monitor wells and the abandonment of old monitor wells.

(8) That rules should be adopted providing for the location, casing, and completion of new monitor wells and the plugging of monitor wells which would be abandoned.

(9) That at no time should disposal be permitted into any pit authorized by Order No. R-5516 or subsequently approved by the Division Director if the total quantity of water in such pit, from both natural precipitation and previous disposal, reaches a plane four feet below the level of the spill point of the Triassic red beds or the core dikes surrounding said pit, provided however, that the maximum water level in Pits Nos. 2 and 3 should be permitted to reach a plane three feet below such spill point; that the specific maximum water levels in the five pits authorized to date should be as follows:

Pit No. 1:	3447 feet above sea level
Pit No. 2:	3458 feet above sea level
Pit No. 3:	3458 feet above sea level
Pit No. 4:	3435 feet above sea level
Pit No. 5:	3446 feet above sea level

(10) That the amendment of Order No. R-5516 as described above and operation of the authorized disposal system in accordance with the provisions of said order amended as described above will afford reasonable protection to the underground fresh water supplies, will not cause waste nor impair relative rights, and should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, Parabo, Inc., is hereby authorized to abandon the horizontal monitor well required by Orders Nos. (6) and (7) of Division Order No. R-5516 by filling such hole with cement.

(2) That the applicant is hereby authorized and required to drill additional monitor wells around new pits within the disposal facility, originally approved by Division Order No. R-5516 and as expanded from time to time, and to abandon existing monitor wells in accordance with the following rules:

Rule 1. That monitor wells shall be maintained around the entire perimeter of the permitted disposal facility with horizontal spacing not to exceed 300 feet and with no single monitor well to be more than 300 feet from the external perimeter of any pit.

Rule 2. No monitor well shall be required between any two single evaporating ponds unless the horizontal distance between said ponds exceeds 700 feet.

Rule 3. That as the facilities are enlarged or modified in such a way that any monitor well is abandoned because it contravenes the provisions of Rule 1 or Rule 2 hereof, said well shall be plugged to its entire vertical depth with cement.

Rule 4. That prior to any additions, modifications or changes in locations of monitor wells, advance written approval of the Director shall be procured.

Rule 5. New monitor wells shall be drilled and cased to an elevation equivalent to 20 feet below the average elevation of the floor of the pond(s) they are intended to monitor.

Rule 6. New monitor wells shall be cased with two inch inside diameter PVC casing, which shall be perforated with saw cuts or at least eight (8) one-quarter (1/4) inch holes from the bottom of said well, to an elevation equal to the maximum design water level of the highest of the pond(s) they are intended to monitor.

Rule 7. That at no time shall disposal be permitted into any pit authorized by Order No. R-5516 or subsequently approved by the Division Director if the total quantity of water in such pit, from both natural precipitation and previous disposal, reaches a plane four feet below the level of the spill point of the Triassic red beds or the core dikes surrounding said pit, provided however, that the maximum water level in Pits Nos. 2 and 3 may reach a plane three feet below such spill point; that the specific maximum water levels in the five pits authorized to date shall be as follows:

-4-

Case No. 7156

Order No. R-5516-A

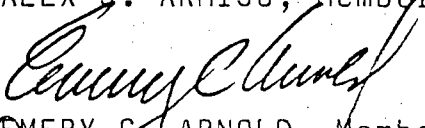
Pit No. 1: 3447 feet above sea level
Pit No. 2: 3458 feet above sea level
Pit No. 3: 3458 feet above sea level
Pit No. 4: 3435 feet above sea level
Pit No. 5: 3446 feet above sea level

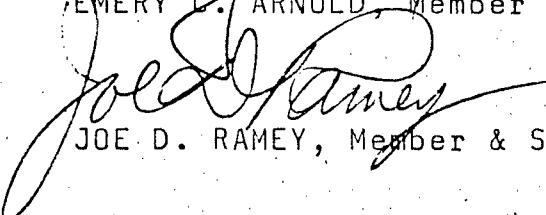
(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

ALEX J. ARMIJO, Member


EMERY C. ARNOLD, Member


JOE D. RAMEY, Member & Secretary

S E A L

fd/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 5899
Order No. R-5516

APPLICATION OF ROBERT P. WALLACH,
RAY A. WALLACH, AND PATRICIA LOUISE
WALLACH HOUSE FOR AN EXCEPTION TO
ORDER NO. R-3221, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 20, 1977, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 30th day of August, 1977, 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:

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

(2) That the applicants, Robert P. Wallach, Ray A. Wallach, and Patricia Louise Wallach House, are the owners of certain gravel pits located in the SW/4 of Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico.

(3) That Order (3) of Commission Order No. R-3221, as amended, prohibits in that area encompassed by Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, the disposal, subject to minor exceptions, of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground, or in any pit, pond, lake, depression, draw, stream-bed, or arroyo, or in any watercourse, or in any other place or in any manner which would constitute a hazard to any fresh water supplies and said disposal has not previously been prohibited.

(4) That the aforesaid Order No. R-3221 was issued in order to afford reasonable protection against contamination of fresh water supplies designated by the State Engineer through disposal of water produced in conjunction with the production of oil or gas, or both, in unlined surface pits.

(5) That the State Engineer has designated, pursuant to Section 65-3-11 (15), N.M.S.A., 1953 Compilation, all underground water in the State of New Mexico containing 10,000 parts per million or less of dissolved solids as fresh water supplies to be afforded reasonable protection against contamination; except that said designation does not include any water for which there is no present or reasonably foreseeable beneficial use that would be impaired by contamination.

(6) That the applicants seek an exception to the provisions of the aforesaid Order (3) to permit the commercial disposal of produced salt water in the pits described in Finding No. (2) above.

(7) That said pits have been utilized for the mining of Ogallala formation gravels for many years.

(8) That said Ogallala gravels were laid down within an elongate East-West trending channel eroded into the underlying Triassic red bed formations.

(9) That percolation tests indicate that said Triassic red beds are highly resistant to the downward percolation of water within the area of said pits and are essentially impermeable.

(10) That the applicants propose to construct dikes and core trenches across and along said elongate channel in the Triassic red beds within said quarter section to create pits which are essentially impermeable to the lateral flow of water.

(11) That the applicants propose to limit the high water level in any such pit to at least four feet below the Triassic spill point in the pit.

(12) That salt water disposed of into any such impermeable pit as described in Findings Nos. (9) and (10) above will not percolate downward nor migrate laterally outward from said pit and create a hazard to fresh waters, but will evaporate.

(13) That approval for all of the pits requested by applicants in this case should not be granted at this time, but a pilot pit project utilizing the large central pit area

described as Pit 1 and Pit 2 on Figure 4 of Exhibit A in this case should be approved, subject to certain requirements.

(14) That applicants should be required to provide adequate salt water settling tanks to permit removal of oil from the water prior to placement of said water in the evaporation pit, in order to not impair water evaporation.

(15) That in order to ensure that no downward percolation nor outward migration of water from the authorized pit does occur, certain monitor wells should be drilled into the Triassic red beds at specified locations around the pit and a Commission-approved method for monitoring said red beds beneath the pit should be employed.

(16) That an administrative procedure should be adopted whereby additional pits within the SW/4 of said Section 29 may be utilized for salt water disposal.

(17) That approval of the application subject to the above-described conditions will not cause waste, will not violate correlative rights, nor harm fresh waters.

(18) That the application should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicants, Robert P. Wallach, Ray A. Wallach, and Patricia Louise Wallach House, are hereby granted an exception to Order (3) of Commission Order No. R-3221, as amended, to commercially dispose of produced salt water in an unlined surface pit located in the SW/4 of Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico, consisting of Pit 1 and Pit 2 as identified on Figure 4 of applicant's Exhibit A in the subject case.

(2) That prior to utilization of said pit for salt water disposal, applicant shall construct the following-described dikes and core trenches:

- A. A north-northeast/south-southwest trending dike at the west end of the pit area;
- B. A north-northwest/south-southeast trending combination core trench-dike at the east end of the pit area; and

- C. An east-west trending core trench at the south side of the pit area.

(3) That the above-described dikes and core trenches shall be constructed to an elevation of 3,451 feet above sea level and in accordance with good engineering practices and the specifications set forth on pages five and six of applicant's Exhibit "A" in this case. Construction shall be under the supervision and responsibility of the consulting hydrologist in this case.

(4) That prior to utilization of the aforesaid pit for salt water disposal, applicant shall drill the following described monitor wells around the outer perimeter of said pit:

- A. Nine monitor wells along the southern perimeter of said pit, being those wells depicted as monitor wells, pit one, on Figure 4 of applicant's Exhibit "A" in this case;
- B. Three monitor wells at the southeast end of said pit, being those wells depicted as monitor wells, pits one and three on the aforesaid Figure 4;
- C. Two monitor wells at the southwest end of said pit, being those wells depicted as monitor well, pits one and four on Figure 4;
- D. Four monitor wells at the west end of said pit, being those wells depicted as monitor wells on a north-northeast/south-southwest line approximately 75 feet west of the western dike for Pit No. 1; and
- E. Three monitor wells along the northern perimeter of said pit, being those monitor wells depicted as monitor well, pit one, monitor well, pits one and two, and monitor well, pits one, two, and three, on Figure 4.

(5) That each of the above-described monitor wells shall be drilled and cased under the supervision and responsibility of the consulting hydrologist in this case and shall be drilled to a sufficient depth to reach a plane 3427 feet above sea level, and shall be drilled six inches in diameter

and cased with 4-inch PVC casing; casing shall be perforated with at least eight holes per foot from the bottom of the casing to a point 3451 feet above sea level; the casing shall be capped at the surface and each monitor well checked for fluids at least once a month during the first two years of pit operation (for disposal purposes) and quarterly thereafter. Analyses of waters encountered during such tests and the results of such analyses, as well as water levels, shall be reported in writing to the Hobbs District Office of the Commission within 30 days following sampling.

(6) That the applicant shall bore a hole laterally into the Triassic red beds from a point east of the approximate middle of the easternmost dike described in Order No. (2) B above, said hole to be bored under the dike and penetrating a minimum of five feet into the pit area west of said dike; said hole shall be bored at an approximate depth of six to ten feet beneath the top of the Triassic red beds and shall be cased and gravel packed; the westernmost five feet of said casing shall be perforated and the easternmost end of said casing shall be positioned to drain into a covered impermeable sump to detect possible percolation of waters from the floor of the pit into the drain pipe; the monitoring procedures and reporting requirements of Order No. (5) above shall also apply to the aforesaid sump.

(7) In lieu of the percolation detection system required by Order No. (6) above, the Secretary-Director may authorize another acceptable means of detection of downward percolation of waters from the subject pit.

(8) The Secretary-Director shall order suspension of disposal operations into the subject pit if any of the monitoring procedures prescribed in Orders Nos. (4), (5), (6), or (7), or any other condition, gives him good cause to suspect outward migration or downward percolation of waters from said pit. Disposal operations shall not be resumed until the Secretary-Director is satisfied that such measures have been taken to ensure that continued disposal will not constitute a hazard to fresh waters in the area.

(9) That the applicants shall provide for the placement of a pipe, or acceptable substitute, in the pit, said pipe to be marked in such a manner as to readily indicate the depth of the water in the pit and the maximum elevation which the water in said pit shall be permitted to attain.

(10) That at no time shall disposal in the aforesaid pit be permitted if the total quantity of water in the pit,

from both natural precipitation and previous disposal, reaches a plane four feet below the level of the spill point of the Triassic red beds or dikes around such pit, said plane being at an elevation of 3447 feet above sea level.

(11) That the applicant shall install and maintain in good condition wooden or metal settling tanks, and shall allow all oil field brines to remain in such tanks for a sufficient period of time to permit residual oil contained in said brines to be skimmed off, and not be passed on with the brines to the disposal pit.

(12) That the applicant shall install and maintain in good condition meters or other measuring devices to permit an accurate determination of the quantity of water disposed of in the pit.

(13) That the applicant shall file a monthly report with the Commission in accordance with Rule 1120 of the Commission Rules and Regulations, reporting each source and quantity of disposal water and the total quantity disposed of.

(14) That the Secretary-Director of the Commission may administratively authorize the utilization of any of the remaining pits in the SW/4 of said Section 29 for salt water disposal upon a showing by the applicants that such pits will be constructed and operated in conformance with the provisions of this order and upon a showing of satisfactory operation of the pit authorized herein for a period of at least one year.

(15) The Secretary-Director may amend the above-specified frequencies for monitoring upon a showing that such amendment would not constitute a hazard to the fresh waters in the area.

(16) That the Secretary-Director of the Commission may by administrative order rescind the authorization for use of any pit approved under the provisions of this order whenever it reasonably appears to the Secretary-Director that such rescission would serve to protect fresh water supplies from contamination.

(17) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

-7-

Case No. 5899

Order No. R-5516

DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Phil R. Lucero

Sept. 6, 1977

PHIL R. LUCERO, Chairman

Emery C. Arnold

EMERY C. ARNOLD, Member

Joe D. Ramey
JOE D. RAMEY, Member & Secretary

S E A L

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 7156
Order No. R-5516-A

APPLICATION OF PARABO, INC. FOR
AN ORDER AMENDING ORDER NO. R-5516,
LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on February 18, 1981, at Santa Fe, New Mexico, before the Oil Conservation Commission of the State of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 18th day of March, 1981, 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:

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

(2) That the applicant, Parabo, Inc., is the operator of a facility described and permitted in Order No. R-5516, being a multi-pit surface salt water disposal facility.

(3) That the applicant seeks the deletion of the requirements of Orders Nos. (6) and (7) of said Order No. R-5516 requiring the further use of a horizontal monitor well at the East end of "Pit No. 1" within said facility.

(4) That during the initial three years of operation of the disposal facility, no evidence of the downward percolation of fluids through the pit floor has been detected in said monitor well.

(5) That the surface location of said monitor well falls within the area of a newly constructed disposal pit rendering further use thereof impractical.

(6) That the proposed deletion of requirements for said horizontal monitor well should be approved.

(7) That with the periodic addition of new disposal pits at the facility, there will occur the need for the drilling of new monitor wells and the abandonment of old monitor wells.

(8) That rules should be adopted providing for the location, casing, and completion of new monitor wells and the plugging of monitor wells which would be abandoned.

(9) That at no time should disposal be permitted into any pit authorized by Order No. R-5516 or subsequently approved by the Division Director if the total quantity of water in such pit, from both natural precipitation and previous disposal, reaches a plane four feet below the level of the spill point of the Triassic red beds or the core dikes surrounding said pit, provided however, that the maximum water level in Pits Nos. 2 and 3 should be permitted to reach a plane three feet below such spill point; that the specific maximum water levels in the five pits authorized to date should be as follows:

Pit No. 1:	3447 feet above sea level
Pit No. 2:	3458 feet above sea level
Pit No. 3:	3458 feet above sea level
Pit No. 4:	3435 feet above sea level
Pit No. 5:	3446 feet above sea level

(10) That the amendment of Order No. R-5516 as described above and operation of the authorized disposal system in accordance with the provisions of said order amended as described above will afford reasonable protection to the underground fresh water supplies, will not cause waste nor impair relative rights, and should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, Parabo, Inc., is hereby authorized to abandon the horizontal monitor well required by Orders Nos. (6) and (7) of Division Order No. R-5516 by filling such hole with cement.

(2) That the applicant is hereby authorized and required to drill additional monitor wells around new pits within the disposal facility, originally approved by Division Order No. R-5516 and as expanded from time to time, and to abandon existing monitor wells in accordance with the following rules:

Rule 1. That monitor wells shall be maintained around the entire perimeter of the permitted disposal facility with horizontal spacing not to exceed 300 feet and with no single monitor well to be more than 300 feet from the external perimeter of any pit.

Rule 2. No monitor well shall be required between any two single evaporating ponds unless the horizontal distance between said ponds exceeds 700 feet.

Rule 3. That as the facilities are enlarged or modified in such a way that any monitor well is abandoned because it contravenes the provisions of Rule 1 or Rule 2 hereof, said well shall be plugged to its entire vertical depth with cement.

Rule 4. That prior to any additions, modifications or changes in locations of monitor wells, advance written approval of the Director shall be procured.

Rule 5. New monitor wells shall be drilled and cased to an elevation equivalent to 20 feet below the average elevation of the floor of the pond(s) they are intended to monitor.

Rule 6. New monitor wells shall be cased with two inch inside diameter PVC casing, which shall be perforated with saw cuts or at least eight (8) one-quarter (1/4) inch holes from the bottom of said well, to an elevation equal to the maximum design water level of the highest of the pond(s) they are intended to monitor.

Rule 7. That at no time shall disposal be permitted into any pit authorized by Order No. R-5516 or subsequently approved by the Division Director if the total quantity of water in such pit, from both natural precipitation and previous disposal, reaches a plane four feet below the level of the spill point of the Triassic red beds or the core dikes surrounding said pit, provided however, that the maximum water level in Pits Nos. 2 and 3 may reach a plane three feet below such spill point; that the specific maximum water levels in the five pits authorized to date shall be as follows:

Pit No. 1: 3447 feet above sea level
Pit No. 2: 3458 feet above sea level
Pit No. 3: 3458 feet above sea level
Pit No. 4: 3435 feet above sea level
Pit No. 5: 3446 feet above sea level

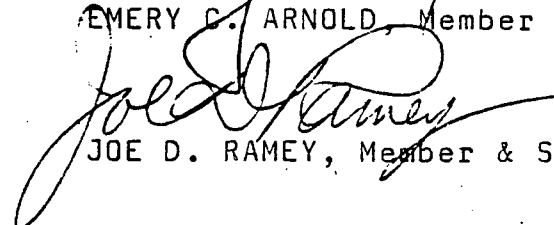
(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

ALEX J. ARMIJO, Member


EMERY C. ARNOLD, Member


JOE D. RAMEY, Member & Secretary

S E A L

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7986
Order No. R-5516-B

APPLICATION OF PARABO, INC. FOR
AN AMENDMENT TO DIVISION ORDER
NO. R-5516, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on October 26, 1983, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 16th day of December, 1983, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Parabo, Inc., is the operator of a facility described and permitted in Division Order No. R-5516 entered on August 30, 1977, and amended by Division Order No. R-5516-A entered on March 18, 1981, being a multi-pit surface salt water disposal facility.

(3) That the applicant now seeks approval to dispose of drilling fluids, drill cuttings, and those materials that are normally connected with or are the results of drilling operations in New Mexico such as muds, tailings, and cement in an existing pit, known as "Pit No. 8", which is located in the eastern portion of the previously approved facility in Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico.

(4) That the applicant also seeks approval to dispose of treated basic sediments and water (B.S. and W.) in a

previously approved salt water disposal pit, known as "Pit No. 4", which is located in the extreme western portion of said facility in the N/2 SW/4 of said Section 29.

(5) That said multi-pit surface salt water disposal facility has been in operation by the applicant since early 1978 and has expanded to include six active salt water disposal pits and the applicant is presently awaiting administrative approval from the Division on a seventh salt water disposal pit, known as "Pit No. 7", which will be located in the far eastern portion of said facility in said Section 29.

(6) That Pit No. 8 lies entirely within the essentially impermeable Triassic Red Bed Clay formation with its floor at an elevation of 3412 feet mean sea level.

(7) That Pit No. 8 is underlain by a layer of naturally deposited Triassic Red Clay at least 50 feet in thickness and that the highest level for the Red Clay or spill point for said pit is at an elevation of 3432.5 feet mean sea level.

(8) That Pit No. 8 was formed by the excavation of and the extraction of the Triassic Red Clay material which was used for the construction of dikes for the facility.

(9) That the applicant proposes that the maximum fill level for Pit No. 8 be limited to a plane one-half foot below the level of the spill point for said pit, said plane being at an elevation of 3432 feet mean sea level.

(10) That Pit No. 8 is located between the proposed Pit No. 7, as described in Finding No. (5) above, and all of the previously approved salt water disposal pits.

(11) That at such time as said Pit No. 7 is granted administrative approval by the Division, the entire eastern portion of the facility including Pit No. 8 will then be surrounded by monitor holes as required by Division Order Nos. R-5516 and R-5516-A.

(12) That the applicant requested that the requirements for new monitor holes around said Pit No. 8 be waived until such time as said proposed Pit No. 7 has received administrative approval from the Division.

(13) That Pit No. 4, as described in Finding No. (4) above, is completely contained by the essentially impermeable Triassic Red Bed Clay either by natural deposition or by man-made dikes

with its floor at an elevation of 3425 feet mean sea level.

(14) That Pit No. 4 is underlain by a layer of naturally deposited Triassic Red Clay at least 50 feet in thickness and that the highest level for the Red Clay or spill point for said pit is at an elevation of 3439 feet mean sea level.

(15) That the applicant also requested that the maximum water level limit of Pit No. 4 of 3435 feet mean sea level, as mandated by Rule No. 4 of Division Order No. R-5516-A, be amended to allow the maximum fill level in said Pit No. 4 to now be limited to a plane one-half foot below the level of the spill point for said pit, said plane being at an elevation of 3438.5 feet mean sea level.

(16) That the entire perimeter of the facility is presently surrounded by monitor holes as mandated by Division Order Nos. R-5516 and R-5516-A.

(17) That the applicant requested that the existing monitor holes in the far western portion of this facility be abandoned.

(18) That the applicant presented no evidence to support their claim that horizontal migration of fluids from the disposed material will not occur in the future.

(19) That that portion of this application proposing the abandonment of any existing monitor holes in the western portion of the facility should be denied.

(20) That the applicant failed to present sufficient evidence that their proposed maximum fill level limits of 3432 feet mean sea level for Pit No. 8 and 3438.5 feet mean sea level for Pit No. 4 are adequate or sufficient to retain any natural precipitation that could cause said pits to overflow their spill points.

(21) That the applicant should provide for the placement of a pipe, or acceptable substitute, in both pits, said pipe to be marked in such a manner as to readily indicate the depth of the disposed material in both pits and the maximum elevation which the disposed material in said pits shall be permitted to attain.

(22) That to promote solidification of disposed materials in Pit Nos. 4 and 8, the applicant proposes to decant, on a regular basis, any fluids which may reside on top of the disposed solids.

(23) That at such time as Pit No. 4 or Pit No. 8 is filled to capacity, it is proposed by the applicant that that pit then be covered in such a manner as to promote surface drainage away from that pit, and that its perimeter be resurveyed for future identification as to its location.

(24) That the amendment of Order No. R-5516 as described above and operation of the authorized disposal system in accordance with the provisions of said order amended as described above will afford reasonable protection to the underground fresh water supplies, will not cause waste nor impair correlative rights, and should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, Parabo, Inc., is hereby authorized to dispose of drilling fluids, drill cuttings, and those materials that are normally connected with or are the results of drilling operations in New Mexico such as muds, tailings, and cement in an existing pit, known as "Pit No. 8," which is located in the eastern portion of the previously approved multi-pit surface salt water disposal facility in Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico.

(2) That the monitor hole requirements for new pits as mandated in Division Order Nos. R-5516 and R-5516-A are hereby waived, for Pit No. 8, until such time as the proposed salt water disposal Pit No. 7, as described in Finding Nos. (5) and (10) of this Order, has received administrative approval from the Division or for a period of one year from the date of this Order.

(3) That if at the end of the one year period said Pit No. 7 has not received administrative approval for salt water disposal, the applicant shall then provide for the required monitor holes around said Pit No. 8 as mandated in Division Order Nos. R-5516 and R-5516-A.

(4) That the applicant is also authorized to dispose of treated basic sediments and water (B.S. and W.) in a previously approved salt water disposal pit, known as "Pit No. 4," which is located in the far western portion of said facility in the N/2 SW/4 of said Section 29.

(5) That the applicant's request for abandonment of existing monitor holes in the far western portion of said multi-pit surface salt water disposal facility is hereby denied.

(6) That at no time shall disposal be permitted into either Pit No. 4 or Pit No. 8 if the total quantity of disposed materials or water, from both natural precipitation and previous disposal, reaches a plane one foot below the level of the spill point of the Triassic Red Bed Clay formation or the clay dike surrounding said pit; that the specific maximum fill levels in said pits shall be as follows:

Pit No. 4: 3438 feet mean sea level
Pit No. 8: 3431.5 feet mean sea level

(7) That the applicant shall provide for the placement of a pipe, or acceptable substitute, in both pits, said pipe to be marked in such a manner as to readily indicate the depth of the disposed material in the pits and the maximum elevation which the material in said pits shall be permitted to attain.

(8) That the applicant shall, on a regular basis (determined by the applicant and approved by the Supervisor of the Hobbs district office of the Division) decant any fluids which are residing on top of the disposed solids in both Pit No. 4 and Pit No. 8.

(9) That the applicant shall file a monthly report on each pit in duplicate (one copy with the Division's Santa Fe office and one copy with the Hobbs district office of the Division) and shall be postmarked not later than the 15th day of the second month.

(10) That said report shall include: the date, the source, the quantity of disposed material, type of disposed material (drilling fluid, drill cuttings, cement, B.S. and W., etc.), and the total quantity disposed of for that month.

(11) That at such time as either said Pit No. 4 or Pit No. 8 is filled to capacity, the operator shall cover that pit with a layer one foot in thickness of Triassic Red Clay followed with a layer two feet in thickness of random fill material; the perimeter of that pit shall then be resurveyed and the data reported on the facility plot plan, to the Division's Santa Fe office and to the Hobbs district office of the Division.

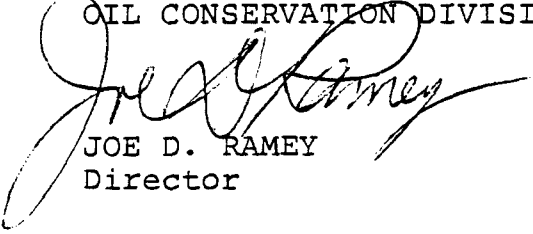
(12) That before the above-described covering procedures are initiated on either of said pits, the operator shall notify the Division Director so that a representative from the Division may be present to witness any or all of the said covering procedures.

(13) That the Director of the Division may by administrative order rescind the authorization for use of said Pit No. 4 or Pit No. 8 approved under the provisions of this Order whenever it reasonably appears to the Director that such rescission would serve to protect fresh water supplies from contamination.

(14) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



JOE D. RAMEY
Director

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 8582
Order No. R-5516-C

APPLICATION OF PARABO, INC. FOR
AN AMENDMENT TO DIVISION ORDER
NO. R-5516, AS AMENDED, LEA
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8 a.m. on April 24, 1985, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 23rd day of July, 1985, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

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

(2) The applicant, Parabo, Inc., is the operator of a facility described and permitted in Division Order No. R-5516 entered on August 30, 1977, and amended by Division Order Nos. R-5516-A and R-5516-B entered on March 18, 1981, and on December 16, 1983, respectively, being a multi-pit surface salt water disposal facility.

(3) Pits Nos. 2, 3, and 5 were approved by Division Order No. R-5516-A, dated March 18, 1981, with the following specific maximum fill levels:

Pit No. 2: 3458 feet above sea level
Pit No. 3: 3458 feet above sea level
Pit No. 5: 3446 feet above sea level

(4) Pits Nos. 6 and 7 were administratively authorized pursuant to said Division Order No. R-5516-A by order of the Division Director dated July 17, 1981, and December 27, 1982, respectively, with maximum fill levels for both pits to be three feet below their respective spill points.

(5) The applicant now seeks the amendment of said Division Order No. R-5516, as amended, and proposes that the maximum fill level for Pits Nos. 2, 3, 5, 6, and 7 be increased and limited to a plane two feet below the level of the spill point of the Triassic Red Bed Clay formation or the clay dikes surrounding said pits.

(6) The evidence submitted at the hearing indicates that the proposed maximum fill level limits in said Pits Nos. 2, 3, 5, 6, and 7 are adequate and sufficient to retain any natural precipitation that could cause said pits to overflow their respective spill points.

(7) The amendment of said Order No. R-5516, as amended, as described above will afford reasonable protection to fresh water, will not cause waste nor impair correlative rights, and should be approved.

IT IS THEREFORE ORDERED THAT:

(1) RULE 7 of Ordering Paragraph No. (2) on pages 3 and 4 of Division Order No. R-5516-A, dated March 18, 1981, be and the same is hereby corrected to read in its entirety as follows:

"RULE 7. That at no time shall disposal be permitted into any pit authorized by Order No. R-5516, as amended, or subsequently approved by the Division Director if the total quantity of water in such pit, from both natural precipitation and previous disposal, reaches a plane four feet below the level of the spill point of the Triassic Red Beds or the clay dikes surrounding said pit, provided however, that the maximum water level in Pits Nos. 2, 3, 5, 6, and 7 may reach a plane two feet below such spill point; that the specific maximum water levels in the following pits shall be as follows:

Pit No. 1: 3447 feet above sea level
Pit No. 2: 3459 feet above sea level
Pit No. 3: 3459 feet above sea level

P. J. Backin
Case File

-3-
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Pit No. 4: 3438 feet above sea level
Pit No. 5: 3447 feet above sea level
Pit No. 6: 3447 feet above sea level
Pit No. 7: 3440 feet above sea level"

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



R. L. STAMETS
Director

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

24 April 1985

EXAMINER HEARING

IN THE MATTER OF:

Application of Parabo, Inc., for CASE
amendment of Division Order No. R-5516, 8582
as amended, Lea County, New Mexico.

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division:	Maryann Lunderman Attorney at Law Energy and Minerals Department Energy and Minerals Division Santa Fe, New Mexico 87501

For the Applicant:	R. E. Richards Attorney at Law P. O. Box 761 Hobbs, New Mexico 88241

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I N D E X

V. STEVE REED

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3 MR. STOGNER: Call next Case
4 8582, which is the application of Parabo, Incorporated, for
5 amendment of Division Order No. R-5516, as amended, Lea
6 County, New Mexico.

7 Call for appearances in this
8 matter.

9 MR. RICHARDS: Attorney for the
10 applicant, Parabo, R. E. Richards, Law Offices of R. E.
11 Richards, P. A., Post Office Box 761, Hobbs, New Mexico, Zip
12 Code 88241..

13 MR. STOGNER: Are there any
14 other appearances in this matter?

15 Mr. Richards, do you have any
16 witnesses?

17 MR. RICHARDS: I do. Mr. Steve
18 Reed, and I ask that he be sworn.

19 MR. STOGNER: Is he the only
20 witness you have?

21 MR. RICHARDS: Yes, he's the
22 only one.

23 MR. STOGNER: We'll ask that he
24 stand and be sworn.

25 (Witness sworn.).

MR. STOGNER: You may proceed,

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Mr. Richards.

V. STEVE REED,

being called as a witness and being duly sworn upon his
oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. RICHARDS:

Q Please state your name, sir.

A My name is Steven Reed.

Q Mr. Reed, with whom are you associated?

A I'm employed by Ed L. Reed and Associates, Consulting Hydrologists, with offices in Corpus Christi and Midland, Texas.

Q Mr. Reed, have you testified before this Commission on numerous prior occasions?

A I have.

Q Has that been not only in the matter of Parabo, Incorporated, in salt water disposal operations, but other situations?

A Yes, sir.

Q Have your qualifications and opinions been accepted heretofore by this Commission?

A They have.

MR. RICHARDS: Ask that the witness' qualifications be noted and he be permitted to enter opinions herein.

MR. STOGNER: He may.

MR. RICHARDS: Thank you.

Q Mr. Reed, are you particularly familiar with the operation of Parabo, Inc., as described on Exhibit Number Two, shown on the map?

A Yes, I am.

Q Are you the consulting hydrologist that has worked with that operation since its inception some eight or nine years ago?

A Yes. I did the preliminary site investigation and the work on the -- on the facility itself from that time.

Q At the time of the original operation were there certain freeboard requirements established by the predecessor of this Division, the Oil Conservation Commission?

A There were.

Q And what were those freeboard requirements?

A Initially the freeboard requirements were four feet.

Q Have those freeboard requirements subsequently been modified in certain of the areas?

A They have.

Q Are you familiar to what depth?

A The freeboard modifications were -- were made to a three foot level in those ponds for which dikes

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completely encircle the pond and were left at four feet for those that were not entirely surrounded by levees.

Q Are you familiar with the application here today?

A I am.

Q Does it seek to further freeboard relief to two feet of freeboard in certain of the pits?

A It does.

Q And which of those pits are they, is the relief sought?

A The relief is sought in Pit Nos. 2, 3, 5, 6, and 7.

Q In conjunction with the application for two foot freeboards, have you made an investigation of the various components which would go into a determination by the Division of the propriety of such freeboard requirements?

A Yes, I have.

Q What have you done in that regard?

A I looked basically at the strength of the structures to maintain an additional one foot of water in the lagoons.

I have looked at the effects of rainfall occurring on and in the drainage areas of the lagoons to insure that significant rainfalls would not create overtopping, and I have also looked at the generation of waves on the face of the dike.

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2 Q All right, sir. In that regard I direct
3 your attention to an exhibit you have before you marked Ex-
4 hibit Number One.

5 Can you tell the hearing examiner and the
6 Division what that is?

7 A This is a schematic diagram essentially
8 of the southwest corner of Pit No. 6. Again I'll point out
9 on this map on the wall that Pit No. 6 is the southernmost
10 one. The schematic goes across the southwest corner. The
11 purpose of selecting that location for the diagram, that is
12 the area where the -- it's the highest freestanding dike on
13 the property. Most of the dikes have been completed inside
14 of mined out gravel pits and so the dikes reside directly
15 against the walls of those pits.

16 Pit No. 6 has a freestanding dike around
17 a goodly portion of it and this is where that dike is the
18 highest and has the most water behind it.

19 Q What is the significance of the choice of
20 the highest freestanding dike for your calculations?

21 A For the calculations, particularly the
22 strength of the dike, that's where the dike is the highest
23 and has the most potential for failure.

24 Q Do you care to elaborate any more on the
25 particulars of Exhibit Number One after you've described its
location?

A No, I do not.

Q All right, sir. You also have before you

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on the wall a copy of exhibit, marked Exhibit Number Two.

What is that and how does it relate to your testimony?

A Exhibit Number Two is a survey prepared at my direction of the pits as they now stand, particularly with reference to the amount of drainage area that allows runoff to flow directly into the -- into the pits themselves.

The significance of drainage diversion, where it has been done over the years at this facility and the dashed line on Exhibit Number Two represents that portion of the area outside the dikes that currently drains into the pit itself.

The hard line, the solid line, represents the -- essentially the inside of the dike.

Q Let me ask you specifically if within each of the pit areas there is a description of the acreage to hundredths of a foot of their -- each of their capacities.

A That is correct.

Q And in each of the pit areas which are in question here today, is there an additional designation of area to hundredths of a foot which is drained?

A Yes, there is.

Q What is the highest drainage area to surface area ratio pit?

A The highest drainage to surface area

ratio pit is No. 6 again. Basically the -- the ratio is one of 20 percent; that is to say 20 percent is in the drainage area of the total area of that pit.

Q In that regard have you again chosen Pit No. 6 for certain calculations as to rainfall effect?

A I have.

Q Is that reflected on Exhibit Number Three?

A Yes, it is.

Q Please explain to the hearing examiner what you have calculated and demonstrated on Exhibit Number Three.

A For Pit No. 3 -- No. 6 on Exhibit Three, the drainage area being 2.3 acres, the surface area of the pit being 11.5 acres, we've calculated the -- the total impact in rise of fluid level in the pit from a 100-year 24-hour recurring storm of half a foot.

Assuming no absorption in the materials in the drainage area, which of course is unrealistic, but it's the conservative approach, we see a total rise in fluid level in the pit after the 100-year storm of .6 feet.

In addition to that I doubled the 100-year storm rainfall to a 12-inch storm and see there is direct relationship, a total rise of fluid level expected at 1.2 feet as a result of a 12-inch storm.

Q That is true only of Pit No. 6, is it not?

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A Yes, that's correct.

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Q And would the rise be relatively less on each of the other pits in question because of the ratio of drain area to total pit area?

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A That is correct.

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Q Let me direct your attention, Mr. Reed, to Exhibit Number Four and as if you'd describe to the hearing examiner and the Division what that is?

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A I will. Exhibit Number Four is a calculation designed principally to show the relative strength of the dike versus the forces acting against the dike to insure that the structures themselves are sufficiently strong to maintain the water behind them.

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Essentially what we have at the facility are dikes that are 15 feet across at their crest. I used a 10-foot high dike and the 35-foot base width with a water elevation of 8 feet behind the dike.

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Now if you would refer back to Exhibit Number One you'll see that we expect in the southwest corner of Pit 6, where the dike is the highest and the water is deepest, is 5 feet, but I chose 8 feet again to be somewhat conservative, could be areas in the pit where the water level is deeper than the 5 feet, so I chose 8 feet as the more conservative approach.

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I've used 100,000 parts per million sodium chloride water and 200,000 parts per million sodium chloride water to calculate the pressures on the face of the

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2 dike itself.

3 The horizontal pressures identified as PX
4 on the first page of Exhibit One, is calculated 267 pounds
5 per square foot. It's the horizontal pressure on the dike.

6 The total hydrostatic force against the
7 dike is therefore calculated at 2138 pounds per linear foot
8 of dike. That's the force along each foot of the dike it-
self.

9 Q Is that at totally static pond condi-
10 tions?

11 A That is true.

12 Q Have you made other calculations to
13 determine what other horizontal hydrostatic forces might
14 exist given changes in the pond condition?

15 A We did. We also calculated what hydrody-
16 namic forces would be exerting themselves on the dike assum-
17 ing a very strong wind and the fetch that we expect, again,
principally at Pit No. 6, which is the largest of the pits.

18 Q Are those hydrodynamic forces actually
19 those forces that are variant and changeable and add to the
20 statis horizontal forces?

21 A That is correct.

22 Q All right, please continue.

23 A We used a wind velocity of 50 miles per
24 hour, a fetch of 500 feet, which is appropriate for the Pit
25 No. 6, an average water depth of 5 feet, which again prob-
ably is the conservative approach. The average water depth

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2 probably is not quite that high because it varies from zero
3 on the upper side of the pits to 5 feet towards the dike,
4 but I still used the 5-foot average depth, and we calculate
5 a wave length and a breaking depth, and more importantly, a
6 wave height.

7 The wave height is shown on the bottom of
8 page one, Exhibit Four. It's .875 feet. That's the total
9 wave height from peak to valley.

10 Therefore, as shown in the diagram up on
11 the top of page one, Exhibit Four, the wave height on the
12 dike itself, if I assume a water depth 8 feet above the
13 base, is 8.44 feet from the base of the dike, or .44 feet
14 higher than the still water elevation.

15 Q Why is the increased elevation of the
16 wave only approximately one-half of the total wave height?

17 A Because the wave is developed on the
18 still water surface and half rises above and half is below
19 the still water depth as the wave is developed.

20 Q Okay. Please continue with Exhibit Four.

21 A On page two of Exhibit Four are the cal-
22 culations that basically show that the strength of the
23 structure to maintain the water behind it. I'm calculating
24 the shearing forces of the structure, which takes into ac-
25 count the weight of the structure and other uplift forces.

The weight of the structure, we have from
previous experience and measurements of material in the dike
itself, which is 112 pounds per foot, actually in several

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2 instances we've seen weights of the structure to be in terms
3 of -- or densities to be in terms of 114 per foot, but I've
4 used 112, so the total weight of that particular structure
5 is 28,000 pounds per linear foot of dike.

6 The weight of the water using 100,000
7 parts per million of sodium chloride water is 2138 pounds
8 per foot, as we described in the previous page.

9 Uplift forces, that is to say the
10 counter-balancing forces acting from below the dike upward,
11 and other vertical forces, we do not anticipate there to be
12 any, so we have discounted any other outside forces.

13 I therefore calculated a safety factor,
14 which is very simpling the shearing force ratioed against
15 the horizontal, total horizontal forces. The shearing --
16 the safety factor, therefore, is the number we've previously
17 described of 12,000 divided by the, again, the weight of the
18 water on the dike, 2138, which gives a safety factor of
19 5.64.

20 Q At this point let me ask you a couple of
21 questions, Mr. Reed.

22 Did you reach any conclusion as to the
23 impact of the hydrodynamic forces on the dikes? I notice
24 you've said on the dikes that the horizontal hydrostatic
25 force was 2138 pounds.

A That's right.

Q And you've again in this calculation on
shear factor used 2138 pounds. Did the hydrodynamic forces

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2 impact on that?

3 A No. Because of very, very low wave
4 height of .4 feet, the hydrodynamic forces are negligible.

5 Q Given a -- with that calculation of the
6 -- you have said that there was a safety factor of 5.64.
7 What is -- can you tell the hearing examiner and the Divi-
8 sion what the impact in terms of normal design and operation
is when you have a safety factor of 5.64?

9 A Well, that is -- it exceeds the minimum
10 design criteria. Normally one is looking to a safety factor
11 of something around 2, so this exceeds that by -- by an ad-
12 ditional factor of 2.

13 Q All right, sir, please continue.

14 A I also made the same calculations, safety
15 factor calculations using a sodium chloride concentration of
16 200,000 parts per million, which we expect ultimately to --
17 to be the concentration near the base of the structures, and
18 again, even using that additional weight of water, we still
have in excess of a safety factor of 5.

19 Q Is that shown on page 3 as 5.27?

20 A Yes, sir.

21 Q And is that again to be related to a de-
22 sign safety factor using industry standards of 2.0?

23 A Yes, it is.

24 Q All right, please continue.

25 A The last page of Figure 4, we can go into
it if need be.

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2 Basically, I indicated before it's part
3 of the calculations of the hydrodynamic stresses that the
4 breaking wave depth is -- in one foot. These calculations
5 are those calculations reflecting that one foot breaking
6 depth, which is to say that is the depth that the water has
7 to be before that wave will break. That's essentially at
8 the dike itself, so there is virtually no -- no breaking of
waves in the pits themselves.

9 Q Mr. Reed, after you had completed your
10 work and based upon the information presented in Exhibits
11 One, Two, Three, and Four, do you have an opinion based on
12 your training, background, and knowledge of this operation,
13 specifically Parabo, Inc., whether or not the permitting of
14 a 20-foot freeboard in the pits described in the application
15 would be consistent with the orders heretofore entered in
16 terms of containing, disposing of, and evaporating produced
17 oil pit brines and other liquids totaly within the Triassic
18 Redbed area, which has been defined and heretofore permit-
ted?

19 A Yes, it is consistent with that, yes.

20 Q All right. Is it your opinion that the
21 relief to a 2-foot freeboard would be proper?

22 A Yes, it is.

23 Q Would you recommend that to this Division
24 and to the hearing examiner?

25 A Yes, I would.

MR. RICHARDS: Move the intro-

duction of Exhibits One, Two, Three, and Four, and tender the witness for cross examination, Mr. Stogner.

MR. STOGNER: Exhibits One through Four will be admitted into evidence.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Reed, when was the last 100-year ran we had out in Lea County?

A Pardon?

Q When was the last 100-year rain we had out in Lea County?

A I don't recall; have not looked at it.

Q How long have you lived in Hobbs, or do you live in Hobbs?

A No, I do not live in Hobbs.

Q Okay. Let's go to Exhibit Two. On the pit that you want to raise the water level in, could you show me on the exhibit hanging on the wall where the actual dikes are built around this?

A Okay. There are, of course, maps in the files of the Oil Conservation Division that show exactly where those dikes are, but I will point them out.

Pits 2 and 3, the dikes conform with the hard, solid line on the -- on this Exhibit Two.

Pit No. 5, the dikes simply are along the west side, along the south side, and along the east side.

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2 The Redbed elevation itself goes quite
3 high north of Pit No. 5 and forms a natural barrier at that
4 point.

5 And Pit No. 6 essentially has dikes all
6 the way around it, actually goes through the area between
7 the two pits on the west, these two dots tied together and
8 these two dots tied together, and then goes all the way
around east and west, east and south sides.

9 Q So essentially for all intents and
10 purposes we've got dikes all the way around the -- the pits
11 that we're here today, is that correct?

12 A Yes, sir.

13 MR. RICHARDS: Pit No. 7.

14 A Pit No. 7 also essentially has a dike all
15 the way around it. A portion of that dike is now completed.
16 The southern half and the northern half will ultimately be
completed.

17 Q Mr. Reed, what are the prevailing winds
18 out here?

19 A Prevailing winds, I believe, are from the
20 southwest.

21 Q Let's go to Exhibit One.

22 A All right.

23 Q The dike that you show on here, what is
24 the material that it's made of?

25 A The dike is constructed of Triassic Red-
bed material, which is -- which is essentially a silt and

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2 sand free clay.

3 Q All this was covered in previous cases,
4 were they not, Mr. Reed?

5 A Yes, it was.

6 Q At this time we'll take administrative
7 notice of those cases previous to today, and I believe those
8 were Case No. 5899, Case No. 7156, and Case No. 7986.

9 Is that what you have, Mr. Richards?

10 MR. RICHARDS: Yes, that's my
11 recollection, Mr. Stogner.

12 Q What -- this information may be in those
13 but however I'd like to bring it up.

14 What is the compaction method used when
15 you built these dikes?

16 A The compaction method was to lay the
17 material down at something very close to optimum moisture,
18 which is approximately 20 percent, and we have measured
19 that. Lay the material down in 6-inch lifts, either with a
20 scrapper or with a tractor vehicle, dozer, or a front end
21 loader; lay it down in approximately 6-inch lifts, as I
22 said, and compact it either with a sheep's foot roller or a
23 grid roller.

24 The densities that we are getting, as I
25 said, are 112 to 114 pounds per cubic foot.

26 We have measured those in the field.

27 Q And what kind of maintenance is done on
28 these dikes regularly?

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2 A Regular maintenance is done. As a matter
3 of fact, one of the things that Exhibit Number One does not
4 show is that all of the dikes are covered with one to two
5 feet minimum of material such as the overburden material
6 that has been removed in this area, to protect, not only
7 protect the dikes from erosion, but to keep them -- keep the
8 moisture content up in the dikes, as well.

9 On a regular basis Parabo maintains those
10 dikes in as erosion-free state as they can. They have the
11 equipment on site and they regularly maintain those struc-
12 tures.

13 Q In what way? Explain to me that method.

14 A The dikes are, if there is erosion along
15 the -- particularly in the fill along the dikes, the fill
16 material being that material that has been placed on the
17 dikes, a maintainer is brought in and that erosion spot is
18 fixed by filling it in and regrading.

19 Also all the diversion structures are
20 maintained the same way. If there is a deterioration in
21 dikes that divert runoff around the pits, they are main-
22 tained.

23 Q What kind of an influx of the water level
24 do you have? Do you have enough that, say it drops down to
25 about 3 foot, that you can actually see the dike and make
26 sure that the subsurface or is the stuff below the water-
27 line?

28 A You cannot see the dike itself because it

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2 is covered, but we can see the material that's been placed
3 on the dike and when that deteriorates we don't want the
4 dike to be exposed so that is -- that is repaired.

5 Q Okay. On Exhibit Four you show the top
6 of the dike being 15 foot in width.

7 A That's correct.

8 Q Does that hold true for most of the
9 dikes?

10 A It does, yes, and that again is
11 essentially the clay portion thereof.

12 Q And not the over fill.

13 A Right.

14 Q You said the dike that's represented on
15 Exhibit One is your highest one in the area. What was the
16 height of that one again?

17 A Refer back to Exhibit Number One. The
18 elevation of that dike is 3450. The ground level is 3443,
19 approximately.

20 Q Okay. So it's about 8 foot.

21 A Correct.

22 Q Has any of these dikes ever broke
23 through?

24 A In terms of overspill?

25 MR. RICHARDS: Actual breaching
of the dikes?

Q Actual breaching --

A No.

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2 Q How about actual erosion pulling back the
3 water? Do you have a bad erosional problem of wave action
4 on any of your present dikes?

5 A No.

6 Q Okay, your figures in Exhibit Four, you
7 show the wave height as being .875 feet.

8 A Right, total wave height, crest to val-
9 ley.

10 Q And your water level as being 8 foot,
11 which would be --

12 A Up on the dike, yes.

13 Q Right, 2 foot, your maximum, in other
14 words.

15 A Right.

16 Q That's your average spill.

17 Now, then, you said the 100-year rain out
18 here would maybe add an extra half foot at the most?

19 A Yes, sir, a little over a half foot,
20 6/10ths of a foot.

21 Q Okay, so that would mean, let's say you
22 had 8.5 feet and we had a wind come up about 50 mile an
23 hour, which is not unusual out there, how would -- how would
24 those conditions affect the calculations on the dikes, if
25 you had your 100-year rain, a maximum fill level, with a
maximum amount of wind?

A It would still, even before the spill
point of the Redbed itself would essentially have a foot of

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2 freeboard left, not counting the material that we have
3 placed on the dike itself to cover it up.

4 Q What kind of equipment is out there on
5 the grounds itself to -- if one would see something breaking
6 loose?

7 A There's a large Caterpillar tractor with
8 a 12-foot wide blade on it. There's a backhoe and there's a
9 compactor, all on location.

10 Q Do you feel that would give you somewhat
11 of a relief if one was seeing a dike giving away to have
12 immediate --

13 A Yes, I do.

14 Q -- have that equipment available out
15 there on site to deter any -- any possible -- at least some-
16 what deter some possible erosion?

17 A Yes, I do.

18 Q Okay. Back on Exhibit Number Two, I'm
19 curious about No. 6, since that particular lake -- I'm sor-
20 ry, pond is on the, essentially on the outskirts, I might
21 say.

22 A Yes.

23 Q What is on the back side of that dike?

24 A By the back side do you mean the north
25 side?

Q No, the south, further south. What's
further south of the dike?

A This is open -- open country down off the

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2 dike. The material has been pushed up on the dike and over
3 the dike and covered, and then mesquite, sandy soil, terrain
4 beyond that.

5 Q Is that leased for -- is that leased for
6 grazing purposes?

7 A I do not know.

8 Q On Exhibit Two you shows some pit areas.
9 Is that the increased volumetric pit, pit area?

10 A No, Mr. Examiner, that's basically a line
11 of shots taken pretty close to -- to the -- just off the in-
12 side of the dike, best we can tell without following the
13 water very closely, the line of elevation inside those
14 structures.

15 It's essentially, under your normal oper-
16 ating conditions, that's essentially the evaporating zone.

17 Q Will that evaporating surface be affected
18 very much by raising the --

19 A Actually it would be enhances, but very
20 slightly, because the slopes on these dikes are -- are one
21 to one, or a little over one to one, so the actual increase
22 there will be very slight..

23 Q Okay.

24 MR. STOGNER: Are there any
25 other questions pertaining to this particular subject, dike
construction, or anything like that?

Okay. Mr. Reed, Mr. Richards,
in preparing for this case today I was reading over the old

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2 case files and I see that Order No. R-5516, which originally
3 approved this, approved unlined surface pit locations on the
4 southwest quarter of Section 29.

5 MR. RICHARDS: Yes, sir.

6 MR. STOGNER: And I never show
7 anything else after that, you know, a map or anything to
8 show that we have pits covering the southeast section, the
9 southeast of Section 29, has the southwest, and a little bit
up there in the northeast.

10 MR. RICHARDS: Mr. Stogner, I
11 did not bring my whole file cabinet. I will, that has been
12 modified in subsequent proceedings.

13 I will dig that out and indi-
14 cate where you can find it. I believe it's in one of the
subsequent cases.

15 MR. STOGNER: I would appre-
16 ciate that, sir.

17 MR. RICHARDS: Yes, sir.

18 MR. STOGNER: That way I can be
19 better --

20 MR. RICHARDS: It has grown
21 from there and it may be in 5516. I'll have to check my
22 file.

23 MR. STOGNER: Okay, and --

24 MR. RICHARDS: And I will do
so.

25 MR. STOGNER: Will you get back

1 with me on that, in case we have to --

2 MR. RICHARDS: Sure.

3 MR. STOGNER: -- or I have to
4 do any changes on this?

5 MR. RICHARDS: Sure.

6 MR. STOGNER: So I can get that
7 squared away.

8 I have no further questions of
9 Mr. Reed.

10 MR. RICHARDS: May I inquire of
11 Mr. Reed just a couple of questions?

12 REDIRECT EXAMINATION

13 BY MR. RICHARDS:

14 Q Mr. Reed, what is the average annual
15 rainfall in that part of Lea County?

16 A The average annual rainfall is something
17 between 11 and 12 inches.

18 Q Within your use of the term and simply
19 for the record, what is the definition of 100-year rainfall?

20 A Well, --

21 Q How is that determined?

22 A -- basically it means that any particular
23 year there's a one percent probability of having a rainfall
24 of that magnitude occurring up for a 24-hour period.

25 Q And your calculations are based upon --
are based on actually there being a 2-foot freeboard, the

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pits full, and there being no absorption in the runoff area.

A Right, so it's a very conservative calculation.

Q Thank you, sir.

MR. RICHARDS: Nothing further.

MR. STOGNER: Anybody else have any questions for this witness?

If not, he may be excused.

Is there anything further in Case Number 8582.

MR. RICHARDS: If I have not done so, I again tender the exhibits.

MR. STOGNER: If not, we'll enter Exhibits One through Four.

And there being nothing further in this case, it will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY
CERTIFY that the foregoing Transcript of Hearing before the
Oil Conservation Division was reported by me; that the said
transcript is a full, true, and correct record of the
hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 8532,
heard by me on 24. March 19 35.

Michael J. Boyce Examiner
Oil Conservation Division

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARINGSANTA FE, NEW MEXICOHearing Date OCTOBER 26, 1983 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
William L. Carr	Campbell, Tynd and Blake	Santa Fe
Joel B. Perkins	Inexco Oil Co.	Houston, Tex
Bub Huhner	Byrum	Santa Fe
Rich Bradley	Toul and	Hobbs
Jim Butler	Unichem	Hobbs
Robertas	Atty	Hobbs
Steve Reed	Pardus	Corpus Christi
Jim Bruce	~~Robt.~~ Enfield	Santa Fe
Steven M. Kf	Petro - Lewis Corp	Subrock, TX
Jon Lee	Petro Lewis	Hubbuck, TX
Francis	Inexco Oil Company	Houston, TX
Jerry Lytton	OCD	Hobbs
Chad Dickerson	Low Carbon Dickerson	Antonia
Eddie Mahgood	Yates Petr	Antonia
Bob Strand	Atwood, Malone	Roswell

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARINGSANTA FE, NEW MEXICOHearing Date OCTOBER 26, 1983 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
Robert Lonsford	alpha-21	Midland
Raul E. Martinez	BLM-NM50 - Div. of Min. Res.	Santa Fe
W. J. Kellohin	Kellohin + Kellohin	Santa Fe
Louis Montez	State Land Office	S.F.
Louis Mazzucco	CHAMA PETROLEUM	MIDLAND, TX
Mark Heasburg	Chama Petrol.	Dallas, Tex.
Delbert Fortner	BLM-NM50	Santa Fe
Dan Miller	R.N. Enfield	Santa Fe

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
26 October 1983

EXAMINER HEARING

IN THE MATTER OF:

Application of Parabo, Inc. for an
amendment to Division Order No.
R-5516, Lea County, New Mexico.

CASE
7986

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation
Division:

For the Applicant:

R. E. Richards, Esq.
R. E. Richards, P.A.
P. O. Box 761
Hobbs, New Mexico 88241

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I N D E X

RICHARD BRAKEY

Direct Examination by Mr. Richards 4

STEVE REED

Direct Examination by Mr. Richards 7

Cross Examination by Mr. Stogner 24

E X H I B I T S

Parabo Exhibit One, Chart 10

Parabo Exhibit Two, Map 10

Parabo Exhibit Three, List 11

Parabo Exhibit Four, Photograph 14

Parabo Exhibit Five, Cross Section 15

Parabo Exhibit Six, Cross Section 15

Parabo Exhibit Seven, Cross Sections 21

1
2 MR. STOGNER: Call next Case
3 No. 7986, which is the application of Parabo, Incorporated,
4 for an amendment to Division Order No. R-5516, Lea County,
5 New Mexico.

6 MR. RICHARDS: May it please
7 the Hearing Officer, my name is R. E. Richards, Law Offices
8 of R. E. Richards, P.A., Post Office Box 761, Hobbs, New
9 Mexico, Zip Code 88241. I appear for the applicant and we
are prepared to proceed.

10 MR. STOGNER: Are there any
11 other appearances in this case?

12 Mr. Richards, do you have any
13 witnesses at this time?

14 MR. RICHARDS: If it please the
15 Hearing Officer, I intend to call Mr. Richard Brakey and
16 Mr. Steve Reed.

17 MR. STOGNER: Will both
18 witnesses please stand to be sworn in.

19 (Witnesses sworn.)
20

21 MR. RICHARDS: Mr. Brakey,
22 would you take this chair right here, please?
23
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RICHARD BRAKEY

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. RICHARDS:

Q Please state your name and address.

A Richard Brakey, 418 South Grimes, Hobbs, New Mexico.

Q Mr. Brakey, by whom are you employed?

A Rowland Trucking Company.

Q What is the business of Rowland Trucking Company?

A Transportation of oilfield water, produced water, drilling fluids.

Q Is that pursuant to authorization of the New Mexico State Corporation Commission to act as a common carrier?

A Yes, sir.

Q In the course of your regulated activity as a transporter of those materials, have you -- do you come in contact with those products which are traditionally called drilling fluids?

A Yes, sir.

Q What do -- what generally makes up drilling fluids?

A Drilling fluids, as far as Rowland

Trucking is concerned, is the spent mud, drilling muds, or cuttings, tailings, cement, from a drilling operation.

Q As a special matter, is Rowland Trucking Company as a transporter faced with any unique problems in the transportation of those materials you've just described when the well, or wells, from which they're to be transported is serviced by surface steel pits or tanks?

A Yes, sir.

Q What are those problems?

A The problems we're faced with right now with drilling rigs using steel pits instead of reserve pits, those pits must be cleaned pretty rapidly, due to the setting up of the drilling fluids.

As far as transportation of that drilling fluid, the time that it takes to haul it to the present disposal facility is about 45 or 50 miles west of Hobbs; by the time we get that product to the disposal site we are unable to unload all of it into the waste pit.

Q Have you had a special instance that you could cite to the Hearing Officer and to the Division to illustrate the problem you've just described?

A Yes, sir. This last Sunday, for example, we were hauling an Amoco rig in town using steel pits. We picked up a load, 150 barrels of fluids and cement. By the time we got to the disposal facility we were only able to unload 20 barrels of the 150. The rest of it had set up in the trailer.

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Q How did you clean the trailer?

A Two days with a jackhammer inside the trailer to get the cement and mud out.

Q Does that take the service vehicle of Rowland Trucking Company out of service for that two day period?

A Yes, sir, it sure does.

Q Does it also incur a substantial additional expense to the shipper because of the costs which are incurred in the removal of that set-up material?

A Yes, sir.

Q Are you familiar with the location of the facility known as Parabo, Inc.?

A Yes, sir, I am.

Q Is it more conveniently located in terms of your current needs as a transporter for the disposal of the drilling fluids which you have described?

A Yes, sir, it's approximately 20 miles south of Hobbs. Driving time would be cut in half, giving us more time to get rid of -- or less time, really, to get rid of the fluid, as far as driving time takes.

Q Would it result in a substantial economy not only to Rowland but to the shippers, and provided that the Division permitted a facility for the disposal and storage of this material at the Parabo site?

A Yes, sir. As far as the shipper?

Q Yes.

A Oh, you bet. You bet. It would benefit

not only the transporter but the shipper.

MR. RICHARDS: May it please the Hearing Officer, I tender the witness for cross examination.

MR. STOGNER: I have no questions of Mr. Brakey at this time; however, I may have some as we proceed in the hearing.

MR. RICHARDS: We won't let him go.

MR. STOGNER: Before you go, Mr. Brakey, what is your position with Rowland Trucking?

A I'm the Division Manager of Rowland Trucking Company.

MR. STOGNER: Thank you, Mr. Brakey.

MR. RICHARDS: Mr. Reed.

STEVE REED,

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. RICHARDS:

Q. Please state your name, address, and occupation.

1
2 A. My name is Steven Reed. I'm a hydro-geologist
3 with Ed L. Reed and Associates, with offices in Corpus Christi
4 and Midland.

5 My Corpus Christi address is 708
6 Guarantee Bank Plaza, Corpus Christi, 78475.

7 Q Mr. Reed, what is your specialty, if you
8 have one?

9 A My specialty is in waste management.

10 Q Are you familiar with a corporation by the
11 name of Parabo, Inc.?

12 A I am.

13 Q For how long have you been involved with
14 Parabo, Inc., or its predecessor?

15 A I would say seven or eight years.

16 Q Please, by way of general background,
17 would you for the Hearing Examiner and the Division bring
18 the operations of Parabo, Inc., up to date in a very general
19 manner from the date of your first involvement with it to
20 this time?

21 A I will. If I could direct the Examiner's
22 attention to the map--

23 MR. STOGNER: Before we
24 proceed, Mr. Reed, Mr. Richards, I believe we need to
25 qualify this witness.

Mr. Reed, you have testified
before, haven't you, or are you getting around to that, Mr.
Richards?

1
2 MR. RICHARDS: Oh, I'd be glad
3 to be more extensive with Mr. Reed. In this particular pro-
4 ject it's become almost routine for me to forget to do that.

5 MR. STOGNER: I'm sorry, Mr.
6 Richards.

7 MR. RICHARDS: No, thank you,
8 Mr. Stogner.

9 Q Mr. Reed, are you by training a hydrolo-
10 gist?

11 A Correct.

12 Q Within your training and specialty have
13 you made numerous investigations into the surface disposal
14 and evaporation of oilfield fluids?

15 A I have.

16 Q Is that both in the New Mexico and Texas?

17 A Yes, sir.

18 Q Have you made extensive investigations
19 into the specific facility known as Parabo, Inc.?

20 A Yes, I have.

21 Q Have you testified before this Division
22 and its predecessor, the Commission, on numerous occasions
23 as an expert witness, not only in regard to Parabo, Inc.,
24 but numerous other disposal facilities in the southeastern
25 area of New Mexico?

A I have.

Q Have you been permitted to by the
Division and predecessor Commission, and other regulatory

1
2 bodies, both in Texas, New Mexico, and other states to
3 render expert opinions in your area of hydrology and the
4 disposal of produced fluids from the oilfield?

5 A I have.

6 MR. RICHARDS: Tender the
7 witness as an expert.

8 MR. STOGNER: He is so
9 qualified.

10 MR. RICHARDS: Thank you, sir.

11 A Thank you.

12 MR. RICHARDS: Now I believe
13 the question before I skipped the necessary step, Mr.
14 Hearing Officer, was to ask Mr. Reed to bring the operations
15 of Parabo in a very brief manner from his first involvement
16 to date, and in that regard, Mr. Stogner, Applicant's
17 Exhibits Number One and Two, representing certain charts and
18 mappings, have been placed on the wall.

19 A Mr. Examiner, the map on my right, if the
20 court reporter can't hear me, please let me know and I'll
21 speak louder.

22 Exhibit Number One is a survey map of the
23 existing facility giving the location within the section
24 lines of the Parabo site.

25 Exhibit Number Two, the map on the right,
is basically the facility's plot plan showing the location
of the pits and related features.

Very briefly for a general background on

1
2 the facility, the facility has been operated as a salt water
3 evaporation project continuously for almost six years.
4 Initially, evaporation commenced in the central area of the
5 facility and since that time, in 1978, I believe, early '78,
6 the project has expanded to include 6 active pits and one
7 proposed pit to the east which has not yet been completed.

8 Very briefly, the reason this operation
9 has been successful is because there are a significant
10 thickness of very impermeable Triassic red clays -- the
11 minimum thickness in this area of 50 feet -- which by a
12 system of dikes and clay-filled trenches we have confined in
13 this trench area and constructed dikes on top of that red
14 clay surface in the balance of the facility.

15 Q Approximately how many acres, Mr. Reed,
16 has at this point been converted to the surface disposal or
17 evaporation ponds?

18 A Approximately 40 acres.

19 By way of background for the containment,
20 existing and proposed, I would like to present the next
21 exhibit.

22 Q Are you referring to Applicant's Exhibit
23 Number Three, a copy of which has been handed to the Hearing
24 Examiner?

25 A Exhibit Three, that is correct. Exhibit
Number Three is a list of -- of permeability and Atterburg
limits data that was collected early on in my investigation
of this site.

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2 The yellow dots in Exhibit Number Two
3 represent the locations where those data were collected.
4 These were Shelby tube samples taken down to a depth of 1415
5 feet in some instances, on which we ran the soils test.

6 You can see from the test data which we
7 have previously submitted, the permeability of these clays
8 is quite low. The plasticity index and the liquid limits
9 are either -- they either equal or exceed what the EPA would
10 recommend for a Class One facility. The clays, therefore,
11 represent excellent confinement for both the liquids and
solids.

12 Q Mr. Reed, let me interrupt you just a
13 moment. Are those Shelby samples which you referred to all
14 of the sampling and testing you have done regarding the
15 permeability of the Triassic clays in the region?

16 Have you done any remold?

17 A We've done some remolded samples to look
18 at what the dikes would be like for construction of the con-
19 fining structures. Those remolded samples permeabilitywise
are at least as good as the in-place material.

20 Q Has there been a monitor well program
21 mandated by this Division and its predecessor Commission?

22 A There has. For the salt water
23 evaporation facility we installed initially a configuration
24 around the first pit that went for all practical purposes
25 entirely around the structures, the central pits. These are
the red dots that you see on Exhibit Two. As we have

1
2 expanded the facility some of the monitor holes in between
3 existing pits and the new pits have been abandoned by
4 filling with cement and new rings of monitor holes,
5 basically on a 2- or 300 foot horizontal spacing, have been
6 constructed around the entire perimeter of all the salt
7 water pits.

8 Q Have any of the monitor holes ever
9 evidenced any indication or sign of horizontal migration or
10 leakage from within the contained pits?

11 A They have not.

12 Q Directing your attention to Exhibit
13 Number Three, and particularly the far righthand portion of
14 it, an area outlined in blue to the east, is that a
15 presently permitted but not yet developed pond?

16 A It is.

17 Q In the operation or construction of the
18 facility to date, are there two particular locations which
19 because of their depth and surface size are not particularly
20 suited for the evaporation of deposited liquids?

21 A Yes, there are. There's two such pits,
22 Pit No. 8, which is this yellow colored area on the east
23 side of the map, and our Pit No. 4 on the east side. Both
24 of these depths relative to the surface areas is quite high.
25 So they have high volumes but low surface area.

Q And what is the effect of high volume and
low surface area?

A They make good storage facilities but

1
2 poor evaporation facilities.

3 Q How was Pit 8 formed?

4 A Pit 8 was formed by excavation of clay
5 material for the construction of the dikes around Pit No.
6 6, which is the one in the southeast side.

7 Q Are you familiar if the application has
8 been made herein by Parabo for an amendment to its operating
9 order?

10 A Yes, I am.

11 Q What is the purpose and the objective of
12 the application as it relates to Pit No. 8?

13 A To designate Pit No. 8 and permit Pit No.
14 8 for receipt of materials that Mr. Brakey has just
15 described as drilling mud and cement and related materials.

16 Q Is that material basically and generally
17 hydrocarbon free?

18 A Yes, in general it is.

19 Q By way of just further location, and
20 directing your attention to the photo identified as
21 Applicant's Exhibit Number Four, could you point out to the
22 Hearing Officer the location of Pit No. 8?

23 A. Yes, I can. The Pit No. 8 is in the fore-
24 ground of this photograph. The large pit that you see on
25 the left, for your orientation to Exhibit No. 2, is No. 6.
The important thing to notice on this exhibit is the red
clays in the bottom of Pit No. 8, the very nice and sharp
contact and very discernable contact between the red clays

1
2 and the overlying waste material.

3 Q. Mr. Reed, have you done or had done under your
4 direction control certain surveys including elevations and
5 or test borings to determine the approximate elevation of
6 the Triassic material in the area of Pit No. 8?

7 A. Yes, I have. Some of those show up on Exhi-
8 bit No. 2 and some future exhibits that we'll introduce in
9 just a minute. We've surveyed the Triassic in the floor of
10 the pit and 3 or 4 locations on the rim of the pit. The bot-
11 tom of the pit has a sea level elevation of 3412. And the
12 top and side in the pit walls ranges from a low of 3432-1/2
to 3440.

13 Q. Are you directing your attention now to
14 Applicant's Exhibits 5 and 6?

15 A. I am.

16 MR. RICHARDS: Let the
17 record show that have I placed copies of those exhibits
before the hearing.

18 A. Exhibits 5 and 6 are cross sections that we
19 constructed through Pit No. 8 in two different directions to
20 show the context of Pit No. 8, particularly within the red
21 clay. These two cross section locations are shown on the map.
22 D-D is basically an east-west cross section and E-E is a
23 north-south cross section.

24 What should be noticed on these exhibits,
25 principally, is the fact that Pit No. 8 lies entirely, its
bottom particularly, lies entirely within red clay and by

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2 extrapolation we can see that there is a minimum of 4 feet
3 of clay beneath the pit. In reality there is considerably
4 more than that, but by the data we have in the immediate
5 area we can see a minimum of 4 feet of clay beneath the pit.

6 Also these exhibits show the elevation of the top
7 of the red bed surface on the margins of the pit. On the E-E
8 cross section, which is Exhibit No. 6, there is a line drawn
9 --actually in both exhibits--there's a line drawn, a dashed
10 line drawn that indicates the elevation of the lowest
11 elevation of the red bed in the pit wall, of 3432.5. In
12 other words, that's the place where the red bed is at the
lowest level in the pit wall that we see.

13 Q. Mr. Reed, based upon your experience, your
14 training, your background, and your familiarity with the
15 operation of Parabo and the disposal of, or storage of for
16 disposal, heavy drilling fluids, muds, tailings, cement, and
17 cuttings, as well as solid waste, do you have an opinion as
18 to whether or not the area you've described as Pit No. 8 is
19 suitable, within the parameters heretofore set by this
Division for the disposal of those materials?

20 A. I do.

21 Q. What is your opinion?

22 A. I believe that Pit No. 8 would be an
23 excellent disposal site for these materials.

24 Q. Mr. Reed, based upon your prior dealings with
25 this operation, as well as with the Division and its
regulation of Parabo, do you have any recommendations as to

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2 the proper method to dispose of or operate Pit No. 8 in
3 regard to the proper containment and non-contamination of
4 surrounding areas by the use of the pit for the materials
5 described?

6 A. I do.

7 Q. Would you please advise the Hearing Officer
8 of those recommendations?

9 A. Yes sir, I will. The intent in the
10 utilization of Pit No. 8 is to be able to contain all the
11 materials within clay so that there is no future potential
12 for leaching migration from the pit. In order to achieve
13 this aim, first and foremost, we have a proposed design
14 filled level that is a half a foot below the lowest point in
the red bed.

15 Q. What is that design elevation, if you recall?

16 A. 3432.0

17 Q. All right, sir.

18 A. Additionally, we propose and recommend that
19 as Pit No. 8 is being filled that any fluids which reside on
20 top of the solids be decanted on a regular basis. This will
21 do two things. It will promote solidification of the mater-
22 ials in the pit and also allow quite a bit more room in the
pit, and ultimate ability to cover these materials.

23 Q. In regard to volume of the pit, have you made
24 studies to determine the approximate capacity of the pit as
it is presently configured?

25 A. Yes, I have. We've measured the present

1
2 capacity at about 80- to 85,000 barrels. There is a large
3 volume of loose debris which had been placed in the bottom
4 of the pit which the Parabo company may or may not choose to
5 remove and create a larger storage capacity. But
6 approximately as is 80- to 85,000 barrels.

7 Q. In the normal consistency and with regard to
8 your recommendation of decanting, is the ultimate solid
9 capacity when solidified or condensed in excess of the
10 capacity of 80- or 85,000 barrels, plus or minus 10,000 bar-
rels, because of the loose material?

11 A. Yes.

12 Q. About what is the total ultimate solid capa-
13 city as you have calculated?

14 A. With the removal of the loose material?

15 Q. And the removal by decanting of fluids that
16 migrate to the top as a part of consolidation.

17 A. We estimate that the total volume of waste
18 materials that ultimately can be disposed of in this pit to
be in the neighborhood of 100- to 110,000 barrels.

19 Q. At the point that the 100- to 110,000 barrels
20 has been deposited do you have any further recommendations
21 as to the management of Pit No. 8?

22 A. Yes, I do. We recommend that the pit be
23 covered with one foot of clay on top of the waste product.

24 Q. Is the clay you describe the Triassic
material that you have heretofore discussed?

25 A. Yes, it is.

1
2 Q. Thank you, sir.

3 A. And in addition to that, a two foot layer of
4 random material, random filling material on top of the clay
5 surface would promote drainage away from the pit.

6 Q. Do you have any recommendation to the
7 Division regarding further surveying at the time the pit is
8 closed?

9 A. Yes, I do. Just prior to cover I recommend
10 that the pit be surveyed, the perimeter of the pit be sur-
11 veyed along the margins of the waste material and that that
12 survey data be reported on the facility plot plan so that in
13 the future once the pit has been covered it can be readily
14 identified as this location.

15 Q. Do you have any recommendation regarding
16 monitor holes for Pit No. 8?

17 A. Yes. I do not recommend monitor holes for
18 this operation.

19 Q. Please elaborate.

20 A. The salt water disposal operation has shown
21 over the last 6 years that the clays are excellent contain-
22 ment, provide excellent containment for the salt water and
23 certainly the solids, being less mobile, have even much less
24 chance for mobility away from the pit and we at this point
25 do not see any justification for monitor well installation.

Q. As proclaimed, Mr. Reed, are you familiar
with the application for and the Division's approval of the
utilization of Pit No. 7?

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2 A. Yes, I am.

3 Q. At the time that final approval is requested
4 on Pit No. 7 will Pit No. 8 in fact be encapsulated with
5 monitor holes because of the previous requirements for Pit
6 No. 7?

7 A. Yes, it will.

8 Q. Thank you, sir. Directing your attention to
9 Pit No. 4, please locate that specifically for the Hearing
10 Officer.

11 A. Pit No. 4 is on the west side of the
12 property, this large yellow area on Exhibit No. 2. It's the
13 farthest, easternmost pit. I do not believe it shows on the
14 photograph. It's back in here but because when this
15 photograph was taken it was essentially dry and very
difficult to pick out.

16 Q. Is Pit No. 4 currently permitted under the
17 order and the authority of the Director for use by Parabo?

18 A. It is.

19 Q. What is the current permitted use?

20 A. For salt water storage and evaporation.

21 Q. Is it, how is it suited for the evaporation
22 of produced brine?

23 A. If we can look now at Exhibit No. 7?

24 Q. Directing your attention to Exhibit No. 7, a
25 copy of which is before the Hearing Officer.

A. Exhibit No. 7 is the two cross sections
through the middle of, basically through the middle of Pit

No. 4. Cross section F-F is essentially east-west through Pit No. 4 and G-G is north-south through the middle of Pit No. 4. The purpose of this exhibit is to demonstrate that to a certain elevation, that elevation being 3439, Pit No. 4 is also completely contained by the red Triassic clays. Either by natural red bed highs or by manmade dikes. The dikes were completed, as I said, to an elevation of 3439 and the current salt water maximum fill elevation is 4 feet below that level.

Q. Are you familiar with the depth of the Triassic clay material below the bottom of Pit No. 4 as it is presently configured?

A. Yes, I am. I would direct your attention to cross section F-F particularly. Monitor Hole No. 46 encounters red clay below the base of Pit No. 4 to a depth in fact off of the bottom of the cross section here. That hole is drilled to an elevation of 3390 and was still in uniform, non-sandy, non-silty red clay. So, once again, we see that the floor of this pit is underlain by a significant thickness of uniform low permeability red clay.

Q. You have previously testified you were familiar with the application and request of Parabo in this docket. Is that correct?

A. That is correct.

Q. Are you familiar with the request of Parabo to utilize the Pit No. 4 for the deposit and permanent storage of treated basic sediments and waters?

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A. Yes, sir. I am.

Q. Based upon your involvement, your experience, and your prior work in the area do you have an opinion as to whether Pit No. 4 would be suited for the ultimate deposit and retainage of treated basic sediments and waters?

A. Yes. I believe Pit No. 4 would be an excellent depository for these materials.

Q. Based upon your involvement, your experience and background, and your knowledge of the previous regulatory requirements of this Division and its predecessor the Commission in the operation of the facility at Parabo, do you have any recommendations as to operations if it is permitted for the retainage or disposal of treated BS&W?

A. Yes. And my recommendations are very similar to those that I proposed for Pit No. 8. That being a maximum fill level of one half foot below the 3439 dike elevation, a program where any free-standing fluids on the pit would be decanted on a regular basis, and a cover program similar to that which I proposed for No. 8.

Q. Are there any specifics in regard to the cover program which you'd like to --

A. The cover program is essentially the same as I have previously described, with one foot of clay above the waste material underlain by two feet of random fill for drainage.

Q. Do you have any recommendation regarding survey of Pit No. 4 at the point in time at which it is

1
2 fully utilized and to be covered?

3 A. Yes I do. Prior to the actual cover I
4 recommend that the perimeter of the waste material be
5 surveyed for future location of the pit.

6 Q. Is Pit No. 4 presently surrounded by monitor
7 wells?

8 A. Yes, it is.

9 Q. Do you have any recommendation regarding
10 additional monitor wells, or what is your feeling regarding
11 the existing monitoring program as to Pit No. 4?

12 A. The existing monitor program is designed
13 principally for detection of fluids migration from Pit No. 4
14 at the present time. My comments in regard to the monitor
15 wells is essentially the same as it was for Pit No. 8. From
16 a technical standpoint I see no need to maintain those
17 monitors for the solid disposal.

18 Q. Are they presently in place?

19 A. Yes, they are.

20 Q. Would they, if the Division desires, be
21 available for a period of time as monitors for Pit No. 4 by
22 way of a trial period if desired by the Division?

23 A. Yes, sir.

24 MR. RICHARDS: If it
25 please the Hearing Examiner, I move the introduction of
Applicant's Exhibits 1 through 7 and tender the witness for
cross examination.

MR. STOGNER: Exhibits One through Seven will be admitted into evidence.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Reed, when you talk about the decanting of the liquids, how will the disposal of those liquids, where will they dispose of them?

A Principally in the existing facility, particularly the fluids from the drilling mud will be cleaned with salt water and it and other fluids will be cycled through the current treatment and disposal process.

Q Same with the oily type substances that may --

A Yes, sir.

Q -- be dumped in there.

A Yes, sir.

Q Will there be some sort of record keeping system by Parabo of what comes in and is dumped in these two pits?

A You would have to ask the Parabo personnel. I would assume so but I cannot answer for them.

MR. RICHARDS: May I inquire of the Hearing Officer if he -- if the Hearing Officer is asking as to the source or the specific identity of the shipper or tenderer of any given unit of material?

MR. STOGNER: Well, I --

1
2 MR. RICHARDS: Or as to their
3 basic content?

4 MR. STOGNER: Yes, sir, that's
5 essentially what I meant.

6 MR. RICHARDS: At the pleasure
7 of the Division, Parabo has always heretofore done whatever
8 the Division desired that could be reasonably done to
9 identify source and content of material. I would respect-
10 fully submit that the difficulties in doing a chemical
11 analysis of each load would be prohibitive and not
12 productive. As to the drilling fluids in Pit No. 8,
13 they're of a rather traditional nature. As to Pit No. 4,
14 I'd certainly suggest to the Division that those materials
15 will be of a treated nature and will not constitute the
16 traditional bottoms and that the parameters of their content
17 could be established at such point as they can actually be
18 determined based upon technology and with whatever
19 requirement the Division would wish to place on that, I
20 would certainly represent as attorney for Parabo that they
21 be most cooperative in that regard.

22 MR. STOGNER: Thank you, Mr.
23 Richards.

24 I have no further questions of
25 Mr. Reed at this time.

Are there any further questions
of this witness?

MR. RICHARDS: I have none.

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The applicant is at rest, sir.

MR. STOGNER: If not, he may be
excused.

A Thank you, Mr. Examiner.

MR. RICHARDS: The applicant is
at rest.

MR. STOGNER: Is there anything
else to come before Case Number 7986 at this time?

If not, this case will be taken
under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY
CERTIFY that the foregoing Transcript of Hearing before the
Oil Conservation Division was reported by me; that the said
transcript is a full, true, and correct record of the
hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 1986
heard by me on Oct. 26 1983.
Michael E. Stogner, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

18 February 1981

COMMISSION HEARING

IN THE MATTER OF:

Application of Parabo, Inc., for
amendment of Order No. R-5516,
Lea County, New Mexico.

CASE
7156

BEFORE: Commissioner Ramey
Commissioner Arnold

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation
Division:

Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

R. E. Richards, Esq.
P. O. Box 761
Hobbs, New Mexico

I N D E X

V. STEVE REED

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MR. RAMEY: Call next Case 7156.

MR. PADILLA: Application of Parabo, Inc., for amendment of Order No. R 5516, Lea County, New Mexico.

MR. RAMEY: Ask for appearances.

MR. RICHARDS: May it please the Director, I appear as attorney for applicant, Parabo, Inc., in the noted docket.

My name is R. E. Richards, Post Office Box 761, Hobbs, New Mexico.

I have Mr. Robert P. Wallach, the President of Parabo in attendance, and also have Mr. V. Steve Reed of Ed L. Reed and Associates, as a consultant and witness herein.

MR. RAMEY: Any other appearances?
I'd ask that Mr. Reed stand and be sworn at this time.

(Witness sworn.)

MR. RAMEY: You may proceed, Mr. Richards.

MR. RICHARDS: Thank you, sir.

Gentlemen, for the -- by way of just a little background, this is an application to amend Order

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2 R-5516, which sanctioned the operation of a surface salt
3 water disposal, a produced brine disposal operation, in
4 Lea County, some three years ago. Matter of fact, the con-
5 struction was completed three years ago this month and it
6 has been in operation since then under that Commission's
7 noted order.

8 The purpose of the proceeding here today
9 is to ask the Division to authorize certain modifications
10 to that order, some being clerical in nature, so that the
11 operation can be brought into -- the ruling can be brought
12 into conformity with good operating practices in the -- in
13 the area.

14 The first matter has to do, and there
15 are basically three in nature, the first has to do with
16 a horizontal monitoring hole concept, which has been
17 located, and is presently located at a point the evidence
18 will show to be here.

19 The second part of the request is for
20 a clarification of the Commission's Order R-5516 regarding
21 the monitor holes which are noted in green, being the posi-
22 tion of the applicant and operator here that the prior
23 order authorized the Director, after the development of
24 what was -- is Pit Number One, to permit by executive order
25 the expansion into other areas within the general geographic

area outlined in that order.

As a practical matter as these areas have been developed, certain of the original monitor holes, and in the instance of Numbers 25 through 28, drilled subsequent to the original Pit Number One, the monitor holes have de facto been abandoned by the Director's order authorizing the adjacent pits or the expansions.

The operator, Parabo, would ask that the Commission clarify the treatment of these abandoned wells, monitor wells, by permitting them to be cemented and to include that within the specific authority of the Director.

The third matter is -- has to do with the freeboard requirement, which is, you all will recall, is four feet of freeboard in the earlier order, and we would present testimony to modify that portion of the order.

I think it's a fairly straightforward proceeding and I can proceed with Mr. Reed if you all are ready.

MR. RAMEY: We're ready.

V. STEVE REED

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. RICHARDS:

Q. Please state your name, sir.

A. Steven Reed.

Q. Mr. Reed, where do you live?

A. Corpus Christi, Texas.

Q. And with whom are you associated, sir?

A. I'm associated with Ed L. Reed and Associates, Incorporated.

Q. And for how long have you been associated with Ed L. Reed and Associates?

A. For about six years.

Q. Mr. Reed, have you been involved in the development and operation, construction, of the facility known as Parabo, Inc., in Lea County, New Mexico, since its very formative planning stages?

A. Yes, I have.

Q. Have you acted as a consulting hydrologist and construction engineer, if you will, overseer, for the operators of that facility since its original

1
2 conception, the early construction stages and to date?

3 A. I have as well as other members of my
4 firm have also participated.

5 Q. All right. Mr. Reed, you will recall
6 that in the earlier order there was a requirement for a loca-
7 tion of a horizontal monitor hole at approximately the mid-
8 point and down gradient on the Number One Pit. Do you recall
9 that, sir?

10 A. Yes, I do.

11 Q. Fine. Has that colloquially become to
12 be known as the Ramey Hole?

13 A. Yes, it has.

14 Q. All right.

15 MR. RICHARDS: Now if the Director will
16 not be offended, it's easier to say Ramey Hole than it is
17 horizontal monitor hole, so if we may, we'll use the short-
18 hand description.

19 MR. RAMEY: If I were offended, I would
20 have been a long time ago.

21 MR. RICHARDS: That's probably true,
22 sir.

23 Q. Mr. Reed, recap for us the original
24 theses underlying the Ramey Hole, or the horizontal monitor
25 hole, if you would, and the reason for its placement and in-

1
2 stallation as it was.

3 A In our original work prior to recommending
4 this site as a suitable site for disposal of salt water brines
5 we secured core samples on which we ran permeability tests
6 demonstrating that our site was underlain by quite impervious
7 clays.

8 The intent of the horizontal monitoring
9 well was to provide data that the imperious nature of these
10 clays would be -- that we predicted from our core analysis --
11 was indeed -- was indeed correct. It was a first -- firsthand
12 detection system for vertical migration of salt water through
13 the bottom of the salt water pits.

14 Q What has been the experience with that
15 Ramey Hole, or the horizontal monitoring well, from the date
16 of its construction, the initial date of operation, to this
17 date, sir?

18 A There has been no salt water detected
19 in the Ramey Hole.

20 Q The request of Parabo herein, Mr. Reed,
21 in the first instance asks that the requirement of the hori-
22 zontal monitor hole be deleted from the Department's require-
23 ments.

24 Based upon your examination and work
25 there, are you prepared to discuss with the Department and --

1
2 your findings and your feelings as regards the necessity --
3 continued necessity of the horizontal monitor hole?

4 A. Yes, I am.

5 Q. Would you please outline your current
6 feelings and the bases upon which you base any opinion you
7 might have?

8 A. Yes, I will. This operation has been --
9 had been in continual operation for three years this month.
10 The Number One Pit, which was the first pit in place, had been --
11 has contained salt water on a continual basis since the start
12 up date in 1978. The horizontal monitor well was constructed
13 prior to any salt water being discharged into the Number One
14 Pit. It lies approximately ten feet below the bottom of the
15 Number One Pit.

16 Based on its depth and an estimate that
17 the Number One Pit at this end contains on the average about
18 five feet of water, which I think is conservative because the
19 end of the pit where the Ramey Hole is -- is probably on the
20 average deeper than five feet from the bottom of the pit to
21 the average water level. But using these data I determined
22 that the permeability of the clays underlying this pit are at
23 least as low as two times two to the minus seven centimeters
24 per second. This is based on the fact that we see no salt
25 water after a three year period through ten feet of clay.

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2 What this tells me is that indeed the
3 clays are as impervious and our initial core samples indicated
4 and that there are no structural deficiencies in the clay
5 which would -- which would create permeabilities that were
6 higher than we demonstrated in these core tests.

7 In other words, there appears to be in
8 this area no fracturing that would cause permeabilities to
9 be higher than what we've actually analyzed.

10 So I believe in that intent that the
11 intent of the -- of the Ramey Hole has now been satisfied and
12 in my opinion can now safely be abandoned.

13 Q Mr. Reed, in the alternative, the appli-
14 cant has asked that a amendment be permitted changing the
15 location of a horizontal monitoring hole. Directing your
16 attention to Parabo Exhibit Number One, which has been taped
17 to the wall, please indicate again for the record the location
18 of the current Ramey Hole, and a proposed alternative site.

19 After you've done that, would you please
20 give the Department the benefit of your years as to alterna-
21 tive sites, if any, that are available and the practicality
22 from an operational standpoint of locating a monitor hole
23 in those positions?

24 A Yes, I will. The original location of
25 the horizontal monitor well is beneath the dike labeled Dike

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2 B on this exhibit, which is the easternmost dike of Pit Number
3 One.

4 As we build pits east of Pit Number One,
5 we find that this location now will be within a new pit that
6 we would construct to the east. This, from a monitoring stand-
7 point, the integrity of that particular well will be in an
8 unsatisfactory position, to have the monitor well within a new
9 pit.

10 There -- we have identified a location
11 which could be constructed -- at which could be constructed a
12 new horizontal monitoring well. This location is in the
13 vicinity of Monitor Well Number Twenty-one, which is just
14 west of the dike labeled A, which is also the westernmost dike
15 of Pit Number One.

16 This is an area where the surface ele-
17 vation is near the surface elevation of the floor of Pit
18 Number One. It's in an area where a horizontal monitoring
19 well could be drilled beneath the westernmost dike and there-
20 for would monitor the vertical integrity of Pit Number One
21 on the west side.

22 Practically there could be some problems
23 with this location in that it is between two pits, this loca-
24 tion, Pit Number One and Pit Number Four. In order for us to
25 build a new horizontal monitor well we would need to construct

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2 a trench into which we could lower a horizontal bomb boring
3 machine and if we build the horizontal monitoring well ten
4 feet beneath the elevation of -- the floor of the Number One
5 Pit, the elevation of that boring is at a similar elevation
6 to the maximum design water level elevation of Pit Number Four.

7 Q Pit Number Four being which pit, sir?

8 A Pit Number Four is the pit just to the
9 west of Pit Number One.

10 Q Is it the pit immediately to the west -
11 northwest of the four green dots just to the west of Dike A?

12 A Yes, that's correct.

13 Q What problems are consistent with the
14 drilling of a -- or digging of a ditch for the use in drilling
15 a monitor hole at or near the maximum design elevation for
16 storage in Pit Number Four? What problems could arise from
17 that?

18 A In -- in digging the trench for the
19 boring machine, which by necessity would have to be deeper
20 than the depth of our horizontal monitoring well, the material
21 would have to be removed to a depth probably of twelve to
22 fifteen feet from the present surface. The horizontal monitor
23 well would then be constructed and those materials would be
24 placed back in this trench created for the boring machine.

25 This would have to be done extremely

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2 carefully. The cementing around the standpoint for the verti-
3 cal -- for the horizontal monitor well would have to be done
4 extremely carefully, such that we would have no possibility
5 of salt water that now is contained within Pit Four migrating
6 into the vicinity of our horizontal monitor hole.

7 The triassic red beds which -- materials
8 which floor our pits, dips very steeply off into Pit Number
9 Four, and we are with this new horizontal monitor location,
10 we would be -- we would reside on this sloping red bed into
11 Pit Number Four. So conceivably if we dig as deep as the
12 water level of Pit Number Four, we could have the water from
13 Pit Number Four migrate to the vicinity of the horizontal --
14 new horizontal monitor well.

15 Q Would that then give you false readings
16 as to the possibilities of vertical migration from beneath pit
17 through the floor of Pit Number One?

18 A It could, yes.

19 Q All right, sir. Mr. Reed, is it a cor-
20 rect statement that the basic -- basic down slope character-
21 istics of the area in which the pits are located is to the
22 east - northeast beyond what is described currently as Pit
23 Number Five?

24 A I'm sorry, I'm confused. You'll have
25 to rephrase the question. I'm not sure I'm --

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2 Q All right. There's a new pit Number
3 Five that has just been completed, located to the easternmost
4 extremity of the series of pits, is there not?

5 A Yes, sir.

6 Q Is the east and southeast portion of
7 that pit basically down slope, as far as the Triassic goes,
8 from the other pits?

9 A Yes, it is.

10 Q What would be the practical possibilities
11 of constructing a horizontal monitor hole beneath the east -
12 southeast portion of Pit Number Five, taking into account the
13 surface topography?

14 A Just outside the dike of Pit Number Five
15 there is rather extensive cover on top of the Triassic red
16 beds and indeed in the southeast corner of that dike, which
17 is labeled G, on this exhibit, I believe there is as much as
18 fifteen to eighteen feet of material on top of the -- top of
19 the red bed.

20 MR. NUTTER: Where is that Dike G, Mr.
21 Reed?

22 A It's this one right here.

23 In order to construct a horizontal
24 monitoring well at this point one has to trench through the
25 cover, which is primarily sand and gravel and caliche, and

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2 then trench into the red beds ten feet in order to lower the
3 horizontal -- the boring device in and have it -- have it be
4 boring ten feet beneath the floor of the Pond, Pit Number Five.

5 So we're talking of a trench just to
6 build the boring of at least twenty-five feet deep.

7 Q As a practical matter can you advise the
8 Commission about as to the gross amount of materials that
9 would have to be removed to get the horizontal boring machine
10 in place if the Commission were to order a horizontal monitor
11 well in the area of dike -- the southeast corner of Dike G?

12 A I have not calculated the actual yards
13 of material that would have to be removed, but the trench in
14 order to get the boring machine in, would probably be an --
15 and in order to build the trench itself, would probably have
16 to be on the order of forty to fifty feet in length, perhaps
17 more at this depth, and as I say, twenty-five feet deep.
18 It has to be a trench that is at least ten or twelve feet
19 wide.

20 Q Based upon your experiences, do you have
21 a specific recommendation to this Department as to further
22 horizontal monitoring, and if so, what is it?

23 A In my opinion, the existing horizontal
24 monitoring well can be abandoned and I think the intent of
25 a horizontal monitoring program has been fulfilled, and it's

1
2 my opinion that -- that no new horizontal monitoring well
3 is indicated.

4 Q Are you familiar with the contents of
5 paragraph four of Order R-5516, dealing with certain monitor-
6 ing wells?

7 A Yes, I am.

8 Q Have you recommended to the operators,
9 and do you recommend to this Commission, that that order be
10 amended in certain particulars regarding paragraph four?

11 A Yes, I have.

12 Q Will you please describe your recom-
13 mendations to the Department, and also, the bases for them?

14 A In order to have a practical and a well
15 run expansion program there is a periodic need to reconfigure
16 the vertical monitoring wells, which are shown by the red and
17 green dots on my exhibit. For instance, when Pit Number Two
18 was constructed, which is just to the north of Pit Number One,
19 this is Pit Number Two, a ring of vertical monitoring wells
20 was constructed totally around this pit.

21 When Pit Number Three was built, which
22 is to the north of Pit Number Two I just addressed, by neces-
23 sity four vertical monitoring wells had to be abandoned be-
24 cause they now lie within the new pit.

25 The intent of the vertical monitoring

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2 wells is to detect horizontal migration of salt water away
3 from the immediate vicinity of our pits. This intent is sat-
4 isfied, I believe, by maintaining at all times a ring of vert-
5 ical monitoring wells, principally on the down dip, structurally
6 down dip side of the pits, which are drilled well within the
7 within the red beds, and which are perforated in a manner that
8 would detect any fluid migration away from the pits.

9 Q Mr. Reed, let me ask you specifically,
10 if in your opinion satisfactory perimeter monitoring could
11 be accomplished with an order of this Commission, this Depart-
12 ment, permitting the perimeter wells to be constructed no more
13 than 300 feet from the external perimeter of any pit, and all
14 at 300 foot intervals?

15 A It is my opinion that this spacing is
16 adequate for the perimeter monitoring wells.

17 Q As to the abandonment during expansion
18 of any existing vertical monitoring wells, do you have a re-
19 commendation to this Department, to the operator and applicant,
20 as to the technique which should be followed in abandoning
21 those wells?

22 A In my opinion the abandoned monitor
23 wells should be filled with cement top to bottom.

24 MR. RICHARDS: May it please the Director
25 and Mr. Arnold, the remainder of the question I've already

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2 outlined, which was in an effort to clarify the prior order
3 and to give the Director specific right to make advance approval
4 to the abandonment of any wells caused by expansion. We didn't
5 think that was clear in the prior order, and this was basically
6 a clarification for the benefit of the Director.

7 Q Mr. Reed, do you have some specific
8 recommendations regarding the methodology and type of future
9 monitoring wells and how they should be constructed to serve
10 the purposes for which they are intended?

11 A Yes, I do. These amount essentially to
12 this same philosophy used in the original monitor well pro-
13 gram in that the monitoring wells in my proposal would be
14 drilled to an elevation equivalent to twenty feet below the
15 average elevation of a pit intended to be monitored.

16 Q All right, sir. As a practical matter,
17 is that what the original order did on Pit Number One?

18 A Yes, that's correct.

19 Q Has that, as the pits have been expanded
20 and additional pits, has the intent of the original order
21 been carried out by drilling to an average -- to a depth
22 equivalent to twenty feet below the average pond figure?

23 A Yes, it has.

24 Q Is that simply a clarification then to
25 expand the original order to make it conform, if you will, to

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the subsurface geology of the Triassic in the various areas?

A. This is essentially correct. The initial monitoring program which was designed specifically for Pit One, the depth that the holes were to be drilled and the -- and the height that the perforations were to be constructed in the casing were based essentially on the sea level elevation of the maximum fluid level, and the expansion process, we now have pits which have maximum fluid levels other than that for Pit Number One.

The program that I propose today provides some flexibility for expansion and is designed to be sensitive to a particular pit.

Q. Do you have any specific recommendations as to the type of -- pit type and size of casing and perforations necessary to achieve the monitoring result which has been required by this Department?

A. Yes. I believe these monitoring wells need to be constructed, cased, I should say, with casing that has at least a 2-inch inside diameter. This enables ready access to the hole and if fluids appeared in the hole, they can be bailed from holes cased with 2-inch pipe.

Q. Do you recommend polyvinylchloride pipe for that?

A. Yes, I do.

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2 Q All right, sir.

3 A The perforations, we recommend at least
4 eight-quarter inch holes per foot.

5 Q Let me digress just a moment, Mr. Reed.
6 When we spoke of a 300-foot perimeter ring of monitoring wells,
7 as the operations expanded what do you do about wide expanses
8 between various of the pits, as to monitoring wells?

9 A If I use the 300-foot spacing for the
10 monitoring wells, if I were in the expansion process to con-
11 struct two pits that were -- were more than 700 feet apart,
12 then I would recommend a completion of a peripheral monitoring
13 well ring between those two pits, and my proposal today for
14 pits closer than 700 feet, I would not recommend placing
15 monitor wells.

16 Q As a practical matter, is there 700
17 feet horizontally between of the existing pits?

18 A No, there is not.

19 Q And within your contemplation, based
20 upon any additional studies you've run, do you envisage such
21 a situation existing in the near future?

22 A No, I do not.

23 Q All right. Mr. Reed, do you recall
24 that in the original order for Pit Number One and any subse-
25 quent expansions, there was a requirement of what's called

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2 a four foot freeboard.

3 A. Yes, sir.

4 Q As I recall that was a point of some
5 considerable discussion and your testimony at the original
6 hearing in this matter.

7 A. That's correct.

8 Q Based upon your -- the operations and
9 your examination of the effects, if you will, of rainfall, and
10 the actual operations, the wind conditions, do you recommend
11 to this Department and to the applicant that the freeboard
12 requirements be modified in any respect?

13 A. Yes, I do.

14 Q Would you please outline those recom-
15 mendations and also outline your reasons therefor?

16 A. Yes. Initially for Pit Number One we
17 recommended a four foot freeboard for the primary purpose of
18 insuring that we had adequate drain between the -- the main-
19 tained water level in these pits and the top of the confining
20 structures, be they dikes or natural red bed surface, to con-
21 tain runoff in the event of heavy rainfall.

22 Last fall there was a period of rainfall
23 I believe two, two-and-a-half days, where the City of Eunice,
24 or a gauge near Eunice recorded almost eight inches of preci-
25 pitation. Pit Number One during that storm caught about a

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2 foot and a half of water. In other words, the water level in
3 that pit rose approximately one and a half feet.

4 Pit Number One has perhaps more --
5 catches more runoff than any of the other pits that we have
6 at this site. There's a large area just to the south of Pit
7 Number One that drains into -- into Pit Number One. It also
8 has high banks and -- and a great deal of runoff into the pit.

9 Pits Number Two and Three, which have
10 been constructed by building dikes entirely around the pits,
11 have much more limited runoff into these pits.

12 Q Is the runoff into Pits Two and Three,
13 by way of example, essentially parallel and equal to the rain-
14 fall amount?

15 A Yes.

16 Q In other words, if you get a five-inch
17 rain as a practical matter you'll experience about a five-inch
18 gain in Pits Two and Three. Is that a fair statement?

19 A Yes, somewhat more but certainly nowhere
20 to the extent of Number One.

21 It's my opinion based on the fact that
22 we adequately contained an eight-inch rainfall, where indeed
23 the 100-year 24 hour storm in this area is only six inches,
24 that for the pits totally surrounded by manmade dikes we can
25 safely maintain a three-foot freeboard and contain the runoff

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and the added water from an event such as the one last fall.

Q I take it from your testimony, Mr. Reed, that you have already eliminated Pit Number One as being proper for a three-foot freeboard, is that right?

A I have, yes.

Q Would you indicate by number and location to the members of the Department that might not be familiar with the physical layout, which pits you are recommending be permitted a three-foot freeboard at the present time?

A I'm recommending two pits at the present time for a three-foot freeboard, Pit Number Two and Pit Number Three, both of which lie just north of the original Pit Number One.

Q Is Pit Number Four what's been traditionally called the deep hole or the dip pit?

A That's correct.

Q Does it fall within your description of completely surrounded by artificial or elevated dikes?

A No, it does not.

Q All right. The new pit Number Five, which I understand you've just completed and has been inspected by the -- by the Department personnel, is it completely encapsulated or encircled by manmade dikes?

A No, it is not.

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2 Q What's the approximate acreage in surface
3 acres of Pit Numbers Two and Three?

4 A There's about six or seven acres in
5 those two pits.

6 Q Out of a total of how many acres in the
7 facility including Pit Number Five?

8 A There are about twenty-three or four
9 acres.

10 Q So you're actually recommending a
11 three-foot freeboard for roughly twenty-five percent of the
12 present pit operation. Is that correct?

13 A Correct, yes.

14 Q Is a three-foot freeboard, in your ex-
15 pert opinion, consistent with good and safe operation?

16 A It is.

17 Q Is the abandonment of horizontal moni-
18 toring holes, in your opinion, consistent with good, safe,
19 practical operation?

20 A It is.

21 Q Is the abandonment by plugging with
22 cement vertical monitor wells within the total pit area, as
23 indicated by the green markings, consistent with good, safe,
24 practical operation?

25 A It is.

Q Is an outside perimeter ring of monitor wells no more than 300 feet from a pit and on 300-foot spacing consistent with, in your opinion, good, safe, practical operation?

A Yes.

MR. RICHARDS: I pass the witness.

MR. RAMEY: Any questions of the witness?

Mr. Nutter.

QUESTIONS BY MR. NUTTER:

Q Mr. Reed, the order at the present time requires four-foot freeboard in all of the pits, is that it?

A That is correct, yes.

Q And you would leave a four foot requirement in effect with the exception of Pits Numbers Two and Three, is that correct?

A That is correct, yes.

Q Okay, so changing the freeboard really doesn't change the amount of water that you can put into the pits, with the exception that the water level would -- the area would expand slightly by raising the freeboard.

A Correct.

Q You've got banks around those pits so they're in essence almost vertical.

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A. Correct.

Q. You're not going to increase the area, you're not going to increase the total water that can be put into the pit. You would merely increase the amount that could be put in during low evaporative periods, is that it?

A. We essentially increase the storage capacity of --

Q. Storage capacity during low evaporation periods.

A. That is correct, yes.

Q. Okay. Now that we're on storage capacity, and evaporation rates, there's always been some disagreement as to exactly what evaporation rates are for salt water in ponds --

A. Yes.

Q. -- that may have a film of oil on them, as compared with the pan evaporation rates of fresh water.

A. Yes.

Q. Over the years now you've been operating this for several years, has it been determined what the actual evaporation rates are in a pond of this nature?

A. We're -- we have installed a Class A evaporation pan at the site and it is being operated with brine, and we are finding, and we only have a few months of

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2 real history on this pan, but the evaporation that we get from
3 the pan approximates what that -- that that we predicted from
4 fresh water Class A pan at Red Bluff Reservoir.

5 For instance, in the month of December
6 we had approximately two inches of net evaporation, and from
7 fresh water evaporation we predicted, I believe, 2.2 inches.
8 So other than these few months of data we -- we think another --
9 which are redesigned to calibrate our pond, and tell us exactly
10 what we can evaporate, we feel that our evaporation rate will
11 be very close to that we predicted and slightly less.

12 Q How successful has the operation been
13 keeping oil off the surface of the water?

14 A I believe it's been quite successful.
15 There are -- there are periods of time when -- when there is
16 a slight film develop on -- on the pits. Normally it's --
17 it's a small in areal extent and oftentimes piles up in small
18 areas on the downwind side, but I think the majority of the
19 time the oil film is at a minimum.

20 Q Have you noticed any effect on the
21 evaporation rates due to this oil film?

22 A We have -- we have not really calibrated
23 the system to the extent to where we can say from month to
24 month what the effects of -- effectiveness of our system is.
25 So I'm not sure I can answer any particular time with a slight

1
2 oil film what -- what the change in evaporation is, but --

3 Q Now your testimony leads me to believe
4 that you think that the water is not percolating downward
5 and that there's no horizontal migration through the red beds
6 of this water, so is it your assumption, then, that all the
7 water that's been placed in those pits that's not there today
8 has evaporated out?

9 A That's -- that's correct, yes.

10 Q Now the green wells on your Exhibit One
11 have all been abandoned as monitor wells and they have been
12 replaced by wells that are further out, is that it?

13 A They have been replaced by other wells,
14 and for obvious reasons, green line within -- between these
15 two points, and these.

16 Q Now is the dike between Pits Numbers
17 One and Four still there?

18 A This dike?

19 Q Yes, sir.

20 A Yes, it is.

21 Q And there's water on both sides of it;
22 the dike is just separating the two waters, is that it?

23 A The water in Pit Number One, the actual
24 fluid probably resides in here, the edge of the water somewhere
25 in here.

0. So those monitor wells are not under water. inundated at the present

water.

A. They are not inundated at the present time --

I see

no.

A. -- no.

Q Will they be when the water reaches the level that the four-foot freeboard would allow?

A They are -- they are not -- would

level that the four-foot freeboard would

A. No, they are -- they are not -- would not be inundated at the surface. They are -- they were within this major east/west channel, and the top of the red beds, for instance in this well right here, is at an elevation of 3438.

... we know at the time of

3438.

Q Well, didn't we know at the time of first hearing, Mr. Reed, that there was going to be water in Pit Number Four and also in Pit Number One and wasn't it considered important that that line of monitor wells be installed there between the two pits?

A I recall why but didn't we think

there between the two pits?

I don't recall why but didn't we think it was important then?

... our initial approach, a

Q. It was important then?

A. Our initial -- our initial approach, as I recall, had these monitor wells, these approximate locations even before the -- before the Pit Number One.

Q. That the peripheral ring cer-

I believe that the peripheral ring cer-

1
2 tainly serves the intent of the monitoring well system.

3 MR. RICHARDS: Mr. Director, may I in-
4 terrupt just a minute? I'm not sure Mr. Reed understood Mr.
5 Nutter's question, and might I suggest that the only record,
6 Mr. Nutter, shows that the pits were to be constructed essen-
7 tially in the sequence that they have been; i.e. Number One,
8 in the pilot project; Numbers Two and Three; you'll recall that
9 Number Four is an extremely deep, essentially storage capacity
10 for winter months, or lowered operation months; and that there
11 was not too much consideration given at that time because it's
12 a rather smaller surface area, to utilization of that.

13 I think, as I recall, Pit Number Five,
14 was as presently constructed, was considered to be way, way
15 down the road.

16 Q Well, was the purpose of the monitor
17 wells, then, Mr. Richards, to prevent water -- to monitor
18 water that might be migrating from Pit Number One westward --

19 MR. RICHARDS: As I recall --

20 Q -- before water was stored in Number
21 Four?

22 MR. RICHARDS: As I recall, Mr. Nutter,
23 that was the situation in that the original order required a
24 one-year Pit Number One operation only. In this instance, I
25 think now that Pit Number Four has been utilized, superfluous

1
2 monitor holes along the west edge, but that was my recollection
3 of the earlier testimony --

4 Q I didn't recall why we needed those wells.
5 But they were real important at the time.

6 A It's my recollection, sir, it was because
7 we were going to run a real hard test year under some rather
8 stringent requirements on Pit One before the expansion was
9 permitted.

10 Q And now that red dot that's immediately
11 north of the green dot at the east end of Pit One, is that a
12 horizontal monitor well, Mr. Reed?

13 A The horizontal monitoring well is pre-
14 sently right here.

15 Q That's that red dot there.

16 A That's the red dot right here, yes, sir.

17 Q And you would suggest that it be moved
18 over to the west if a horizontal hole is necessary at all, or
19 possibly to the extreme east.

20 A That's correct, primarily because it now
21 will be inundated.

22 Q But you don't think any horizontal well
23 is necessary.

24 A I really do not believe that a horizontal
25 monitoring well is indicated.

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Q Now, that well at the present time bores in under that dike and --

A Yes.

Q -- in under Pit Number One.

A That is correct.

Q And it never has shown any water migrating through that wellbore. What, it extends ten feet in under the pit One?

A I believe at least five was the way the order was originally -- was written, and we tended to follow that order as close as --

Q And how deep below the pit floors?

A It's about ten feet lower.

MR. NUTTER: I believe that's all.

Thank you.

MR. RAMEY: Any other questions? Mr.

Stamets.

QUESTIONS BY MR. STAMETS:

Q Mr. Reed, have you made any projections of the life of this project?

A At one time I did. It was based primarily, Mr. Stamets, on the accumulation of salt in the bottom of the pit, and again short of consulting my notes, I believe

1
2 we were looking at a life at that time of about twenty years.

3 Q So the cost of any additional horizontal
4 drain hole can be spread over a seventeen year period?

5 A Well, that -- as far as the projected
6 life of the pit is concerned, I believe that should be yes.

7 Q Is there any way that you could install
8 a riser on this original horizontal drain hole and continue
9 to use it?

10 A I believe to have salt water completely
11 surrounding this riser would -- would really be an impractical
12 situation. We have -- we have dug a large trench at that
13 location to -- to install the horizontal bomb boring machine.
14 It was randomly backfilled; no attempt to -- at that point to
15 compact materials over, and -- and should one detect salt
16 water in the horizontal hole, he would not know whether it was
17 percolation down through -- down around the standpipe or
18 whether it was indeed vertical percolation.

19 So, again, I think the basic intent of
20 the hole has been satisfied; that we -- if we used that ap-
21 proach and found salt water, we would only be confused. We
22 really would not have an answer.

23 MR. STAMETS: That's all.

24 MR. RAMEY: So it looks like my monument
25 to posterity is going to be plugged. You are going to put

1
2 a marker on there and adequately name it the Ramey Hole?

3 MR. RICHARDS: May it please the Director,
4 I already have some of my poet and calligrapher friends working
5 on an appropriate plaque.

6 MR. RAMEY: Thank you. I'm sure it will
7 be appropriate.

8 Any other questions of the witness?

9 MR. RICHARDS: I have nothing further.

10 MR. RAMEY: Mr. Padilla.

11
12 CROSS EXAMINATION

13 BY MR. PADILLA:

14 Q Mr. Reed, I think you mentioned that
15 there's -- you can put a horizontal drain -- or a monitor
16 hole on the west side and on the east side, but as a practical
17 matter, I think you testified also that you're structurally
18 down dip to the south - southeast, so actually, there's where
19 you would want to -- would be the best place for a monitor
20 drain hole, to install one.

21 A Well, in reality the intent of the
22 horizontal boring is to -- is to look at vertical migration.
23 And -- and the two locations would certainly look at vertical
24 migration regardless of the structural configuration. The --
25 the western location intentionally is in the same sort of

1
2 configuration as far as the top of the Triassic as the existing
3 hole.

4 The eastern location in that -- in that
5 the -- they both really lie within that major east/west drain-
6 age, so with regards to the major structural trend to the
7 southeast, those locations both are within -- within this
8 east/west channel which trends through here.

9 That's also the location that we would --
10 we would put a monitoring well if we installed one on the
11 southeast corner. Unfortunately, over here there's much more
12 to cover -- it's much more expensive to construct this well
13 here than it is on the side because of -- because of the
14 channel, it is covered by so much material on this side.

15 MR. PADILLA: That's all I have.

16 MR. STAMETS: Just one more question.

17
18 QUESTIONS BY MR. STAMETS:

19 Q Does this Exhibit Number One identify
20 the pits by number?

21 A Yes, it does.

22 MR. STAMETS: Okay.

23 MR. RAMEY: Any other questions of the
24 witness?

25 MR. RICHARDS: I have nothing further.

1
2 MR. RAMEY: He may be excused.

3 Any statement, Mr. Richards, to wind it up?

4 MR. RICHARDS: Just very briefly, Mr.
5 Director. No more than I'd move the introduction of our --
6 Applicant's Exhibit Number One, as introduced and identified
7 by Mr. Reed.

8 MR. RAMEY: It will be admitted.

9 MR. RICHARDS: In addition, let me just
10 very briefly, Mr. Director, suggest to the department that
11 rather stringent initial requirements in this have been met
12 by my client and that I think our fondest hopes and dreams and
13 plans have borne fruition and that the project is operated
14 exactly as Mr. Reed said it would, and certainly well within
15 the expectations of the Department or the staff.

16 At this point I think it appropriate
17 that the Department update their order in light of Mr. Reed's
18 testimony, to bring it in line with the operational details
19 which do not change the underlying philosophy in any regard.

20 The two changes regarding the horizontal
21 monitoring hole and the freeboard requirements, and I would
22 suggest, have come to maturity and are proper.

23 With regard to the freeboard requirements
24 Mr. Nutter correctly pointed out that by increasing the free-
25 board, or decreasing the required freeboard, that there's no

1
2 additional surface of any substantial quantity generated; how-
3 ever it has been the experience of the operator, Parabo, that
4 the periods of low evaporation have somehow tied to periods
5 when alternate sources of disposal have not been available
6 for various reasons: wells down, problems that may well be
7 commensurate with cold weather; and that periods of low evap-
8 oration is sometimes when they have the highest demand for
9 their services, and the ability to accept in those situations
10 the additional capacity of -- well, in Wells Two and Three --
11 some six or seven acre feet of water certainly is consistent
12 with the intent of this Department and the operators, to pro-
13 vide essentially alternate disposal sites for operators in
14 the -- in the area.

15 Additionally, and although we have all
16 had an inordinate amount of fun with the Ramey Hole, I think
17 it is legitimately serves its useful function and should be
18 laid to rest with the monument that the Director suggested,
19 an appropriate brass plate calligraphy. It was overkill, as
20 were the four -- the five monitor wells to the west of Pit
21 Number One at the time this was done. It was designed in
22 some consideration -- the staff, Mr. Arnold and Mr. Ramey will
23 recall, was given to why not just trench it out, put it in
24 place, and recompact it, and the discussion very frankly was
25 why then you'd created an artificial situation. It's got to

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drilled in divergent red bed with as small a bore as possible.

It is at this point and before -- because of the expansion become a horrendously expensive project, for instance, to locate it in the southeast corner of Dike G, you're talking about literally thousands and thousands of cubic feet of material that must be removed. I fear that Mr. Reed's description of a ten or twelve foot wide trench twenty five feet deep are not consistent with the requirements that will be made by the Occupational Safety and Health Administration for a ditch like that; that their showing in width requirements probably would mean that you're talking about thirty to forty thousand cubic feet of material before you can ever put your machine in the ditch.

As to the location in the general area of the dike A, I think it's consistent with Mr. Reed's testimony that that is a marginal situation in that it might, like the standpipe Mr. Stamets suggested, if it were to show salt water, it might do nothing more than confuse and alarm in that it might as readily indicate some transmigration within the confines of the outer perimeter holes between Pits One and Four as it would a vertical penetration or transmissivity with the underlying Triassic.

With those brief comments I ask the Department to enter its order making all changes as indicated

1
2 in the petition for amendment, and I certainly think supported
3 by Mr. Reed's testimony.

4 MR. RAMEY: In line with that, Mr.
5 Richards, I'm going to ask you to prepare a dummy order for
6 us.

7 MR. RICHARDS: Is there any humor in-
8 cluded in that, Mr. Ramey, sir?

9 I'd be most happy to do so, sir.

10 MR. RAMEY: And with that, the Commis-
11 sion will take this case under advisement and the hearing is
12 adjourned.

13
14 (Hearing concluded.)
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25

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREPY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd C.S.R.

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B

Santa Fe, New Mexico 87501

Phone (505) 455-7409

NEW MEXICO OIL CONSERVATION COMMISSION

COMMISSION HEARINGSANTA FE, NEW MEXICOHearing Date APRIL 20, 1977 TIME: 2:00 P.M.

NAME	REPRESENTING	LOCATION
Robert P. Wallach	Wallach Wallach & Assoc	Elmice, New Mexico
V. Steve Reed	Ed L. Reed & Assoc.	San Angelo, TX
Glen Houston	Tom Lineberry	Hobbs, NM.
Tom Lineberry		
Les Clement	N.M.O.C.S.	MOBAS, NM

Case 5899
Robt P. Wallach
et al
for exception to
Lea Co, NM
R-3221,

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
April 20, 1977

COMMISSION HEARING

IN THE MATTER OF:

Application of Robert P. Wallach, Ray A.)	CASE
Wallach and Patricia Louise Wallach)	5899
House for an exception to Order No.)	
R-3221, Lea County, New Mexico.)	

BEFORE: Joe D. Ramey, Secretary-Director
Phil Lucero, Member
Emery Arnold, Member

Daniel S. Nutter
Richard L. Stamets
Carl Ulvog

TRANSCRIPT OF HEARINGA P P E A R A N C E S

For the New Mexico Oil	Lynn Teschendorf, Esq.
Conservation Commission:	Legal Counsel for the Commission
	State Land Office Building
	Santa Fe, New Mexico

For the Applicant:	R. E. Richards, Esq.
	Attorney at Law
	P. O. Box 761
	Hobbs, New Mexico

For R. D. Sims, Fred Boyd	Glen L. Houston, Esq.
and Tom Linebery:	Attorney at Law
	P. O. Box 1948
	Hobbs, New Mexico

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25

1 MR. RAMEY: The hearing will come to order. We will
2 call Case 5899.

3 MS. TESCHENDORF: Case 5899, application of Robert P.
4 Wallach, Ray A. Wallach and Patricia Louise Wallach House for
5 an exception to Order No. R-3221, Lea County, New Mexico.

6 MR. RAMEY: I'll ask for appearances at this time.

7 MR. RICHARDS: If it please the Commission, I'm
8 R. E. Richards, Attorney at Law, Post Office Box 761, Hobbs,
9 New Mexico, zip code 88240. I represent the applicants.

10 MR. RAMEY: Any other appearances?

11 MR. HOUSTON: Glen Houston, Box 1948, Hobbs,
12 New Mexico, 88240.

13 MR. RAMEY: Will you have any witnesses, Mr. Houston?

14 MR. HOUSTON: Yes, I will.

15 MR. RAMEY: I ask at this time that all of the
16 witnesses stand and be sworn.

17 MR. HOUSTON: Mr. R. D. Sims, Mr. Fred Boyd,
18 Mr. Tom Linebery.

19 (THEREUPON, the witnesses were duly sworn.)

20 MR. RAMEY: You may proceed, Mr. Richards.

21
22 ROBERT P. WALLACH

23 called as a witness, having been first duly sworn, was examined
24 and testified as follows:
25

DIRECT EXAMINATION

BY MR. RICHARDS:

Q. Please state your name and address?

A. Robert P. Wallach, 1800 Avenue I, Eunice, New Mexico.

Q. Mr. Wallach, are you related to Ray A. Wallach?

A. Yes.

Q. Are you related to Patricia Louise Wallach House?

A. Yes.

Q. What is the relation?

A. Brother and sister.

Q. Do you, Ray A. Wallach, Patricia Louise Wallach House own the fee simple surface in the southwestern quarter of Section 29, Township 21 South Range 38 East NMPM?

A. Yes.

Q. How long has that property either been owned by you and your brother and sister or in the Wallach family?

A. Probably -- Bob, I'm not real sure on the date that thing was purchased.

Q. Give the Commission your best estimate.

A. That was approximately in 1945, I believe.

Q. And in the period since the time of acquisition and up to and including today, is there a sand, gravel and rock business being operated in this land?

A. Yes, that was in 1949 and 1950 the rock business and the sand and gravel business was started in that area.

1 Q And who is the present operator of that sand and
2 gravel business?

3 A I am.

4 Q Do you, as the operator of that business, lease and
5 acquire materials from, purchase materials from your brother
6 and your sister as co-partners or co-tenants?

7 A Yes.

8 Q Did this land pass to you all from the estate of your
9 late father, Paul Wallach?

10 A Yes.

11 Q Did you, or your brother and sister contact and retain
12 the firm of Ed L. Reed and Associates of Midland and
13 San Angelo, Texas for the purpose of examining the gravel pit
14 area that we just described for the possible purpose of the
15 disposal of salt water or other oil field production liquids?

16 A Yes.

17 Q And are you here today as an applicant for an
18 exception and spokesman for the three of you for an exception
19 to Rule 3221 which prohibits the surface disposal except under
20 specific permission of the Commission?

21 A Yes.

22 Q Historically, Mr. Wallach, tell the Commission in
23 your own words what water is available in the area made up
24 of the southwest quarter of that section?

25 A Well --

1 Q Subsurface water?

2 A Well, we operate a sand and gravel operation which
3 takes some water to operate and where we get the water for this
4 operation is we have two water wells that are located in
5 Monument Draw which is approximately two miles west of the pit
6 area and they supplement the water that we purchase from the
7 City of Eunice. Most of the water that we use to operate this
8 plant is piped four miles and Eunice is where we purchase the
9 water for this. Now, we have done extensive -- or my father
10 did, at one time he was in the water well drilling business and
11 he did extensive exploring around the pit area for water to
12 operate this sand and gravel operation but never did develop
13 any water in that line.

14 Q Do you know about how many wells or test holes he
15 drilled in the search for water around the pit area?

16 A Bob, it was numerous but I can't recollect how many
17 but he did extensive drilling in that area, around the pit area
18 trying to develop water for the operation and north of the
19 pit we have a pit there that he even excavated down to the top
20 of the Redbed formation and tried to develop some water there so
21 we could have plant water there but there was not enough water
22 there to furnish anything for the plant supply.

23 Q Where was that now in relation to the current pit
24 area?

25 A It's north about a quarter of a mile or two-thirds

1 of a mile.

2 Q Did it develop any water ever of any substantial
3 amount?

4 A Well, not substantially, no, enough to water cattle,
5 et cetera, but nothing for commercial use.

6 Q Was that seep water from the Ogallala?

7 A I'm not sure, Bob, I couldn't testify to that.

8 Q Mr. Wallach, let me ask you, and with the leave of
9 the Commission, to attempt to move this along, to tell the
10 Commission if they see fit to grant this application whether or
11 not based upon the studies and recommendations of Reed and
12 Associates, with whatever restrictions that the Commission might
13 see fit to place on the operation if you, Ray A. Wallach, and
14 Patricia Louise Wallach House would undertake to scrupulously
15 follow any recommendations or directions which they might give
16 to you as conditions to operate this facility?

17 A Yes, we would.

18 MR. RICHARDS: I have no further questions.

19 MR. RAMEY: Any questions of the witness? Mr.
20 Houston?

21

22 CROSS EXAMINATION

23 BY MR. HOUSTON:

24 Q Mr. Wallach, on your operations there, you have
25 dug down into the water sands, have you?

1 A. No, sir, not the water sands, no.

2 Q. Has water seeped into your pits?

3 A. Not in these pit areas that we are referring to here,
4 no, sir.

5 Q. Now, as you drive up from the highway, from State
6 Road 18, there is a pit on the right-hand side before you get
7 to your office?

8 A. Yes, sir.

9 Q. And you have a pressure pump?

10 A. Yes, sir.

11 Q. And a pressure tank?

12 A. Yes, sir.

13 Q. And you are using that water for your office area,
14 aren't you?

15 A. Right.

16 Q. Where does that water come from?

17 A. That is rain water, Mr. Houston, strictly. We had
18 seventeen inches of rain three years ago, I think, and we
19 caught twenty-five foot of rainwater in that pit at that time.

20 Q. -- And you installed your pressure pump and pumped at
21 that time?

22 A. That pressure pump was installed about nine months
23 later, I believe, unless it has been -- I think it was in
24 August, I'm not sure, Mr. Houston. When we did the work for
25 the Wallach Brothers on the four-lane highway down there we

1 used that water to make concrete with and also we do use it
2 for office use right now.

3 Q And that's sweet water?

4 A That is rainwater, yes, sir, it sure is.

5 Q Are there any fish in that water?

6 A There is some bass, yes, sir.

7 Q Did your father plant fish in some of the water out
8 there when he was alive?

9 A Well, he did, yes, sir, he sure did.

10 Q When did he pass away?

11 A He passed away in '75.

12 Q He had retired many years prior to that, though,
13 hadn't he?

14 A Well, he had, yes, sir, he had retired approximately
15 in 1962.

16 Q And he had planted bass prior to that time?

17 A Yes.

18 Q Is there any vegetation in any of the pits?

19 A There is salt cedar and some wild willows, weeping
20 willows I guess you would call them, that have been in there.

21 Q Now, there are some cattails also, aren't there?

22 A Whereabouts are you referring to, Mr. Houston?

23 Q Probably the north pit that your dad dug to --

24 A Yes, in the north pit, three-quarters of a mile there
25 is on the far end of that.

1 Q On the north end of that there are cattails?

2 A Yes, sir.

3 Q And that water is fresh water there too?

4 A That is fresh water, yes, sir.

5 Q Now, have you in digging your gravel, have you used
6 explosions to do your excavating?

7 A Yes, sir, in the red formations we do use explosives.

8 Q How long have you been using explosives?

9 A Since we were in operation, since '49 or '50.

10 Q And you have used substantial charges in order to
11 dislodge the material or make excavations?

12 A Not necessarily, Mr. Houston, it all depends on the
13 strata, et cetera.

14 Q What is the largest charge you recall using?

15 A Now, personally or what my father had used?

16 Q What you have used then tell us what you know your
17 father used.

18 A What we are doing now is drilling with an air track
19 drill into the bank from the bottom of the formation and we
20 probably shoot, oh, twenty or thirty holes at a time, charges,
21 which is not an extensive amount of powder. Now, my father at
22 one time used some free running powder in the big pit that you
23 are talking about and put on an extensive explosion there to
24 loosen up that material but that was back in, I believe 1954,
25 '55 or somewhere along in there, Mr. Houston.

1 Q Now, some of the maps which Reed and Associates have
2 prepared at your request reflect the Baker Spring east of the
3 pit area, do you recall where that is?

4 A Yes.

5 Q Does that spring still flow?

6 A I'm not real sure, Mr. Houston?

7 Q You have never been to it?

8 A Well, I was over there and it had some water in it
9 the last time I was there, but very little, I believe that was
10 about three weeks ago.

11 Q But you are not familiar with it like on a monthly
12 or --

13 A No, sir, I feel like when it rains a lot the thing
14 fills up.

15 Q You went there in connection probably with this
16 hearing to see if there was water there?

17 A No, I went over there to look for rattlesnakes.
18 Somebody told me there was some snakes over there so that's
19 why I went over there.

20 Q Now, in connection with the pit areas are you still
21 using all of the pits at the present time?

22 A What are you referring to, all of the pits?

23 Q There are several pits there, aren't there?

24 A Well, there is an extensive number of pits, yes. The
25 pit to the north of us is not being used, the furtherest one

1 north if that's one that you are referring to, where we tried
2 to develop water.

3 Q Where the cattails are?

4 A No, it hasn't been used.

5 Q Are the other pits being used for gravel and
6 material?

7 A Some of them are, not all of them, no, sir.

8 Q Is there still material suitable for gravel, sand
9 and gravel business, available in all of the pits on your
10 property?

11 A No, sir, not all of them.

12 Q Which ones do not have sand and gravel material in
13 them?

14 A Well, we have worked some north, worked them out or
15 into what they call sugar sand that are not feasible for
16 concrete. The pits that we are referring to, the deep hole
17 that you looked at, we have worked those completely out,
18 extensively, where we can't work them anymore, the rainwater
19 has drained in, that's been worked out. The pit area that we
20 are proposing for, the big area for the water disposal is
21 completely worked out, there will be no more evacuation in
22 that particular --

23 Q Could there be more if you were not successful in
24 this application, would you use it for sand and gravel?

25 A No, sir. We worked it out to the point where it's

1 not economical to work it anymore.

2 Q And is that in the Reed report, is that denoted
3 pit number one or do you recall?

4 A That's pit number six I believe it is. Let's see,
5 you are talking about the pit we're proposing to use. Let me
6 clarify that, we are not taking any material out of these areas
7 at all at this time.

8 Q When did you last take any material out of them?

9 A Oh, we've been working in the area we're are working
10 in now for I imagine it has been a year ago since we worked
11 the east end of the pit, the last pit that we've worked out.
12 Now we are moving back north, in a northerly direction and
13 taking some material out there.

14 Q Are you down to the clay in the pit number six?

15 A Pit number six is -- that pit is on the clay
16 bottom, yes, sir.

17 Q Now, what do they call that clay?

18 A That's the Redbed, I believe.

19 Q The Redbed?

20 A Yes.

21 Q Have you drilled any water wells in that area, in
22 the Eunice area?

23 A Have I personally?

24 Q Yes, have you observed anyone drilling water
25 wells, are you familiar with the terminology?

1 A. When I was in high school I worked on a water well
2 rig.

3 Q. All right, where do we find our fresh water there in
4 drilling down, where in relation to the Redbeds normally?

5 A. Well, it's been on the area but it is generally on
6 top of the Redbed.

7 Q. Immediately on top of the Redbed?

8 A. Yes, well, this is my assumption here.

9 Q. All right, you're down to the Redbed --

10 A. If there is water there in the Eunice area, there's
11 not much water.

12 Q. Well, there is a windmill just west of the pit where
13 you turn off the highway?

14 A. Just west? There is one north, I believe. Just
15 west of the highway?

16 Q. There is a homestead right there where you turn off
17 to your property?

18 A. That is two miles from our pit area, yes, sir, that
19 is down in the Monument Draw area. That's the wells I was
20 telling you about that we supplement with.

21 Q. All right, are there windmills?

22 A. There have been windmills since the property was
23 homesteaded, I assume, isn't that right? I'm not really sure,
24 Mr. Houston, there are wells there now, like I say, we are
25 using two wells there now.

1 Q. Were they there when you first saw the property?

2 A. Mr. Jones homesteaded that place and there was a
3 windmill there at that time, yes, sir.

4 Q. And that windmill is drilled down to the Redbed?

5 A. I have no idea.

6 Q. As a boy when you worked water wells in that area
7 they drilled down to the Redbed and usually got their water
8 right above the Redbed?

9 A. Well, you know that all depends on what area you
10 were in. I know, you know, it was hard to find water in the
11 Eunice area, real hard.

12 Q. Are there any other windmills to the north of your
13 pits?

14 A. There is one over on Mr. Stevens' property, Bill
15 Stevens. It used to be owned by Pete Stevens.

16 Q. Are there any windmills to the east of your
17 property?

18 A. Well, I'm sure -- how far east?

19 Q. Within a mile or so.

20 A. There is an old well on Monroe Baker's old place
21 which is probably three-quarters of a mile.

22 Q. Would that be closer to your property than the
23 Baker Springs or farther away?

24 A. I imagine it is about the same distance.

25 Q. Are there any windmills south between your pits and

1 the Andrews Highway?

2 A. No.

3 Q. Do you own all the way to the Andrews Highway?

4 A. Yes, sir.

5 MR. HOUSTON: I believe that's all.

6 MR. RICHARDS: If it please the Commission, I didn't
7 mean this -- who does Mr. Houston represent in this proceeding?

8 MR. HOUSTON: As I introduced them.

9 MR. RICHARDS: As individuals?

10 MR. HOUSTON: Yes.

11 MR. RICHARDS: That's fine.

12 MR. HOUSTON: If it please the Commission, when I
13 qualify my witnesses one of them is the President of the Fee
14 Land Owners Association of South Lea County but they are also
15 citizens of New Mexico and Texas.

16
17 REDIRECT EXAMINATION

18 BY MR. RICHARDS:

19 Q. Mr. Wallach, let me see if I can clear up something,
20 I'm a little confused. Are you familiar with the areas which
21 are contained within the Reed report?

22 A. Yes.

23 Q. Described as pit areas one through six?

24 A. Yes.

25 Q. Are you working out any sand, gravel or other

1 materials from any of the areas enclosed within the Reed report
2 and described as one through six?

3 A. No.

4 Q. The cattail pond, is that included within the numbers
5 one through six in the Reed report?

6 A. No.

7 Q. Is it approximately three-quarters of a mile north-
8 northwest of the middle of these pits?

9 A. Yes.

10 MR. RICHARDS: That's all.

11

12 CROSS EXAMINATION

13 BY MR. RAMEY:

14 Q. Mr. Wallach, on this cattail pond, you say your
15 father excavated this pit?

16 A. Yes.

17 Q. Seeking water?

18 A. Yes.

19 Q. Is there water in the pit?

20 A. There is at this time, yes.

21 Q. Well, the cattails is an indication that there has
22 been water a long time, I assume?

23 A. Well, we had a pump there at one time. Can I
24 clarify this?

25 Q. Yes.

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1 A. We had a pump that we tried to pump water to our
2 plant to furnish water, you know, to help supplement for the
3 operation of the sand and gravel pit. This thing, you could
4 pump it a day and the thing would go dry, it was this type, and
5 we discontinued this and the last time we used that pit there
6 was a drilling rig that drilled a little bit north of us and
7 we tried to furnish water for that rig, or he wanted to try
8 to get water out of that pit. Well, he pumped for awhile
9 and the thing went dry and he couldn't use it or it went
10 practically dry to where we couldn't use anymore water out of
11 it so he run a line from our plant and picked up water there
12 and used it for his well, from that source and I believe that
13 is the last time that thing has been used.

14 Q But this pit does have other rainwater in it?

15 A. Yes, it does have.

16 Q The water seeps?

17 A. Yes, it seeps.

18 Q I think you said from the Ogallala?

19 A. Well, I didn't say Ogallala, I don't know where it
20 seeps from, you know, the bottom of the formation there.

21 Q It's not rainwater in the pit?

22 A. No, this would not be, we do not have any rain
23 drainage into this particular pit.

24 REDIRECT EXAMINATION

25 BY MR. RICHARDS:

1 Q Let me ask you, in addition to the pit to the east
2 side of the road where you say you are pumping, is there
3 another area close to the plant that has water in it?

4 A State that again.

5 Q To the pit to which Mr. Houston referred, immediately
6 adjacent to the entrance road that has some rainwater, is
7 that right?

8 A Uh-huh.

9 Q Now, is there another pit very close to the plant
10 that has rainwater in it too?

11 A Yes, sir.

12 Q And are either of these self-recharging to your
13 knowledge or are they both dependent upon rainwater?

14 A Both are dependent on rainwater. I would like to
15 clarify something else, Bob. Now, Mr. Houston asked a question
16 about us working in a pit area, is that pit -- could I see
17 the map -- let me make sure. Okay, we are working in this
18 pit back here only this is not a pit.

19 Q Well --

20 A I would like to clarify this for Mr. Houston. Pit
21 two, we are extending it back at this time and I'm sorry, I
22 didn't make that clear at that time. That's where the bench
23 is and we are going over the bench and that's where we are
24 working in this area now.

25 MR. RICHARDS: Nothing further, Mr. Ramey.

1 MR. RAMEY: Any other questions of the witness?
2 Mr. Nutter?

3
4 CROSS EXAMINATION

5 BY MR. NUTTER:

6 Q Mr. Wallach, the pit that has been referred to as
7 the cattail pit, would that be the one that is up in the north
8 part of Section 29 there? The application is for the pits
9 that are in the southwest quarter of Section 29?

10 A Yes, sir.

11 Q And I think you mentioned this cattail pond is some
12 three-quarters of a mile north?

13 A Yes, sir, that is the pit area there.

14 Q So that would be where there is natural seepage into
15 the pit that recharges that water?

16 A Yes, right.

17 MR. NUTTER: That's all, thank you.

18 MR. RAMEY: Any other questions of the witness?

19 MR. STAMETS: Just a couple. Mr. Wallach, do you
20 know how deep the wells are that you get water from?

21 MR. WALLACH: Approximately eighty feet.

22 MR. STAMETS: So they are probably getting water
23 from the top of the Redbeds too?

24 MR. WALLACH: I'm sure they are, yes, sir, well,
25 that's where they are coming from.

MR. STAMETS: Thank you. That's all.

MR. RAMEY: Mr. Lucero?

CROSS EXAMINATION

BY MR. LUCERO:

Q You said that your father had attempted to find water and had drilled several wells?

A Yes, sir.

Q Is this around the edges of these pits or --

A Well, he did extensive -- anywhere in the area that he thought he might -- I think he drilled wells down to six hundred feet and developed no water at all in those areas. That's right up by the pit area is where he was trying to develop the water in this area there.

Q Did he keep any field notes or any results of this drilling?

A No, sir, he sure didn't. This was back several years ago when he first developed the area up there.

Q Since then there are traces of water that seeped to the surface in any number of these pits in the conduct of your business then?

A No. The pit areas that we are referring to have no seepage at all from out of these sand and gravel formations on top of the Redbed that we are talking about on the -- in other words, this material, we are working what we call a red

1 conglomerate up there. I guess that Mr. Reed can probably
2 explain this a lot more than I can but when we blast this thing
3 and shoot it there is no -- the only time we get any moisture
4 in these beds is when we have extensive rainfall but this is
5 a dry process I go through on my sand and gravel operation in
6 these red conglomerate pits. All of the material that came out
7 of these pits is, the first primary step is a dry screen process
8 and that's what we go through. We go through, we don't wash
9 it on the primary screen. Everything that comes out of these
10 pits are dry, they have to be to go through the plant, so this
11 is what we are referring to here.

12 Now, the deep hole was a little bit different there
13 but the pits that we are working now with the red conglomerate
14 Redbed in it is all a dry process.

15 Q Where is the nearest fresh water well to the pits
16 that you intend to utilize?

17 A I imagine Stevens' windmill, probably a mile north
18 and then I think that the Baker Springs is three-quarters of
19 a mile and there is an old windmill, it's not being used now to
20 my knowledge, on the Baker place there. I think it's blown
21 down and I don't think it's in use now. It is about three-
22 quarters of a mile due east of us.

23 Q What kind of vegetation is around the pit area, let's
24 say within a mile or two of the pits?

25 A Mesquite and shinnery and some grass.

1 MR. LUCERO: That's all.

2 MR. RAMEY: Any other questions? The witness may
3 be excused.

4 (THEREUPON, the witness was excused.)

5

6 VICTOR STEVEN REED

7 called as a witness, having been first duly sworn, was examined
8 and testified as follows:

9

10 DIRECT EXAMINATION

11 BY MR. RICHARDS:

12 Q For the record please state your name?

13 A Victor Steven Reed.

14 Q Mr. Reed, where do you live?

15 A 1900 Sherwood Way, San Angelo, Texas is my office.

16 Q By whom are you employed?

17 A By Ed L. Reed and Associates.

18 Q Mr. Reed, tell the Commission a little bit about
19 your education and background?

20 A I received a Bachelor's degree in geology at
21 Northern Arizona University in Flagstaff and I went on at
22 Northern Arizona University and completed a Master's degree at
23 the same university, with a Master's thesis on Precambrian
24 Redbed formations near the bottom of the Grand Canyon.

25 Q Is Precambrian Redbed formation -- what relationship

1 does that bear to the Redbed we are talking about?

2 A. Well, it is a similar kind of formation, considerably
3 older but in many characteristics it is quite similar.

4 Q. During the period of time that you were studying at
5 Northern Arizona were you employed?

6 A. I worked from 1967 through 1975 which was the time
7 that I was going to school, with the U. S. Geological Survey
8 branch of Astro-Geology. I was a cartographer for the first
9 three and a half years of that time and a geologist with the
10 Apollo field geology team in the last part of that eight years.

11 Q. How long have you been associated with Ed. L. Reed
12 and Associates?

13 A. A little over two years.

14 Q. What is the business of Ed L. Reed and Associates?

15 A. We are consulting hydrologists.

16 Q. In the organization of Ed L. Reed and Associates is
17 there a certain primary division of interest in certain types
18 of work?

19 A. Well, yes, there is, I, myself, the large majority of
20 my work is in disposal related problems, environmental problems,
21 environmental impact statements but there is a great deal in
22 connection with disposal projects. Similar kinds of things
23 that I have been involved in are disposal sites in playa lakes,
24 salty playa lakes. I'm presently working with Sandia Corpora-
25 tion right now in the nuclear waste disposal site down near

1 Carlsbad.

2 Q What is the function of a hydrologist in nuclear
3 waste disposal?

4 A We are examining the hydrologic characteristics
5 of the formations that the material will be placed in if this
6 is done, as well as examining the hydrology above and below
7 this depository zone to predict over the next two hundred and
8 fifty thousand years what would happen in this area.

9 Q Are you a member of any professional societies or
10 registrations?

11 A I'm a registered professional geologist for the
12 State of Arizona, I'm a member of the Geologic Society of
13 America, American Society for the Advancement of Science and
14 Society of Economic Paleontologists and Mineralogists, as well
15 as the West Texas Geological Society.

16 Q Are you a registered geologist in the State of Texas
17 or New Mexico?

18 A No, I'm not but neither of these states require or
19 have registration for geologists at this time.

20 Q All right, sir. Mr. Reed, in the course of your
21 business were you contacted by the so-called Wallach brothers
22 and sister to undertake an investigation and study for them?

23 A Yes, sir, my firm was contacted.

24 Q Were you in charge of that study?

25 A Yes.

1 Q And you prepared a report?

2 A Yes, I prepared a report, it summarizes my findings.

3 Q Please tell the Commission how you approached this
4 project and what you in fact did?

5 A Okay, the first thing we did, of course, was to go
6 to the site and make a preliminary investigation. It was a
7 very quick investigation, about an afternoon's work, driving
8 around the site, looking it over and seeing if there was any
9 point in going any further and it appeared to both myself and
10 one of the members of my firm who visited the site that it was
11 worth pursuing. So with this in mind I went to the field and
12 with the aid of a drill rig provided by Wallach, we began drill-
13 ing a number of holes in the area, again looking at the
14 characteristics.

15 To give a little bit of setting this is a USGS
16 topographic map which was shot from a one forty-four thousand
17 map. This is essentially the outline of the pit that we are
18 talking about now. The configuration has changed a little bit
19 since this map was produced but not too much.

20 If you will follow one of these contour lines, such
21 as this thirty-four fifty contour line, you will notice that
22 the pits themselves are on a nose, so to speak, but they
23 reenter here and not surprisingly at that reentry is Baker
24 Springs and again the topography curves around this way. This
25 is a high spot, these are low reentrance into this high terrain

1 to the north.

2 MR. NUTTER: Mr. Reed, while you are on that would
3 you point out the cattail pit, please?

4 A. I believe it is up in here.

5 MR. NUTTER: That is that old area where there is a
6 mining symbol shown then?

7 A. That is correct and if you will notice the location
8 of that it is back beyond the front of this nose, it is now
9 in line with Baker Springs, along this trend. It is not out
10 on the nose and that will be an important point later on.

11 Again with the aid of this drill rig we drilled
12 almost eighty holes out in this area. I must emphasize that
13 these were all drilled with air, no water was used to drill
14 any of these holes. We completely circled all of these pits
15 which really is one major pit which was mined in several
16 segments and it is now all one pit. So we essentially
17 completely surrounded these pits and this outline here that
18 you see right here is essentially the outline of the pits as
19 a whole.

20 While we were drilling I was out there not only to
21 watch the samples as they came out of the drill rig, but also
22 I had a plane table man out there and I shot in those surface
23 elevations of the locations of these drill sites as well as
24 elevations both in the bottom of the pits and up on the ridge.

25 You can see right here on this what is a contour map

1 of the surface as I constructed it from my data I took here in
2 the field during the test drilling. This is a fairly deep pit,
3 these are contours going down into the pit. This is a very
4 long, low pit here. This one is somewhat shallower. This is a
5 very deep pit and this one which is called the two by four
6 slopes gently up to the north and there is a small pit right
7 here. Here is another pit that is also fairly deep.

8 Q (Mr. Richards continuing.) In conjunction with the
9 surface topographic map which I believe that you just displayed
10 is also figure number two or three, figure number three to
11 your report. Have you brought the Commission some photographs
12 that might --

13 A Yes, I do. I would like to show them now so we can
14 get a setting of this whole thing because it is a little
15 confusing.

16 Okay, this is a shot essentially looking north to
17 perhaps northwest. Here is one of the large pit areas here that
18 you can see the rim of. That is this pit right here.

19 MR. RAMEY: Would you kind of identify those pits as
20 to direaction, east pit, or --

21 A Okay, this is the easternmost pit or this one right
22 here.

23 Q (Mr. Richards continuing.) Is that pit described as
24 pit number two in your report, sir?

25 MR. WALLACH: Mr. Chairman, I believe that is

1 described in the report as pit number three.

2 A. Number three, that is correct.

3 MR. LUCERO: Excuse me, before you go on to the
4 next slide, is all that green around there grass?

5 A. Well, grass and mesquite and other things.

6 MR. RICHARDS: Mr. Commissioner, these were taken
7 in, and if I may, I'm aware of the circumstances under which
8 they were taken. They were taken two days after we finally
9 got some rain and that shinnery and that mesquite down there
10 that is -- the cattle had just been taken off the shinnery
11 when this picture was taken.

12 MR. WALLACH: We would like to have that much grass.

13 MR. LUCERO: Well, did that much grass grow in
14 two days after the rain?

15 MR. RICHARDS: Yes, sir, that country turns green
16 over night. The shinnery was coming out about the time these
17 pictures were taken.

18 MR. LUCERO: But it is all grass all through the
19 whole picture. I didn't see any bald earth or anything like
20 that.

21 MR. RICHARDS: Well, it's grass green down there.

22 MR. LUCERO: Okay, thank you.

23 A. Okay, this is a little closer shot of the same pit.
24 This is again the easternmost pit or pit number three. You can
25 see the steep walls of the pit. Again that shot, this back

1 wall, essentially looking at this portion right here, you can
2 see the pit there is quite deep as reflected by these contours
3 back here.

4 Q (Mr. Richards continuing.) What is the material in
5 the bottom of that pit, Mr. Reed?

6 A Throughout the entire bottom of this pit is Triassic
7 Redbed. As a matter of fact, you can see a small portion of
8 the Triassic right there, the Triassic Redbed you can see
9 just a tinge of red in here. That is all Triassic and a little
10 more difficult to see but this right here is a bench or a
11 terrace that is about three feet above the level of the rest
12 of the pit. There are minor little erosional channel. Just a
13 few inches deep in this terrace you can see very good looking
14 Triassic.

15 Q Is there anything else of significance that you wish
16 to tell the Commission about?

17 A I believe I would like to go on to the next slide.

18 Okay, this is looking now a little bit further to
19 the west of that first pit. This is primarily in this area
20 right there. This pit that you can just barely see in the
21 background, right here, is pit number two. The rest of this
22 right in here and incidentally it goes behind this pile of
23 spoil right here, is this portion of the pit right here.

24 MR. RAMEY: What pit number is that, Mr. Reed?

25 A This large pit right in here I called number one, if

1 I'm not mistaken.

2 MR. WALLACH: It's a seven and a half acre pit.

3 A. It's a large pit in the central part of the area.

4 This road right here again comes up right in through here going
5 this direction.

6 MR. LUCERO: Sir, could I ask you one thing on that
7 one too, that one slide. How far away was that picture taken
8 there?

9 A. I didn't take these.

10 MR. LUCERO: Is it on top of a little hill?

11 A. No, these were taken from an airplane. This I
12 believe was a two hundred millimeter.

13 MR. RICHARDS. It was a two hundred millimeter lens
14 at approximately twenty-five hundred feet and five hundred
15 feet elevation, sir.

16 MR. LUCERO: How deep are those pits where you show
17 the red and everything right there, by the road right there,
18 from the highest point there?

19 A. How deep is this pit here?

20 MR. LUCERO: Yes.

21 A. I can't read the slide very well so I'll have to --
22 The surface up there on that rim is an elevation of thirty-four
23 sixty, that's sea level elevation. Down there in the bottom it
24 is thirty-four forty-four.

25 I would like to have the next slide here. Okay, again,

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1 this is a little farther down to the west. We are now looking
2 at an area right in here. This gray area right here is water,
3 again run-off water in the bottom of this pit which is number
4 five. This deep pit is just off to the left of this photograph
5 but this is again part of the largest pit that we have in this
6 area, right in here. This that you see on your map is
7 boulders, represents these boulders here and to the right.

8 See a spot right there with a little bit of a red
9 tinge, that's Triassic Redbed right there in the bottom of the
10 pit. On the ground you can follow that red on up this road.
11 In fact, I have drilled holes up that road.

12 This is a little better overview of this centralized
13 pit, the larger pit, pit number one, essentially this whole
14 area right in here. Again, the boulders that you see illustra-
15 ted on my map right in here represent this line of boulders
16 right here.

17 Next slide, please. This is a photographic view
18 further to the west, the rim that you see right here extends
19 all of the way back into about here is the large, very deep
20 pit right here.

21 The elevation differences up on the rim is an eleva-
22 tion of somewhere around thirty-four fifty six, thirty-four
23 sixty. The water's edge when I was out there was thirty-four
24 twenty-four and the pit is quite a bit deeper than that.

25 MR. LUCERO: Could I ask a question with respect to

1 the showing of the slides and the map?

2 A. Yes, sir.

3 MR. LUCERO: Is the top of it north?

4 A. Yes, the north arrow right here, it's not quite
5 north but it is essentially north.

6 MR. LUCERO: I'm sorry, I couldn't see it.

7 MR. RICHARDS: The photographs basically, Mr.

8 Commissioner, were taken on a east to west course generally in
9 line and parallel to what would be the bottom of the map.

10 A. This slide again shows an overview of this area. It
11 shows again the very deep pit to the far west with its somewhat
12 vertical walls and as you walk along these walls you can find
13 Triassic outcrops all the way around the pit. This pit that
14 you see down at the bottom of the photograph is pit number
15 six. Pit number seven will be just off to the right of the
16 slide.

17 MR. LUCERO: Is there something growing, is there
18 something that looks like it's green there?

19 A. That's just vegetation, again from rainwater coming
20 down and settling in the top of that pit.

21 Q (Mr. Richards continuing.) In addition to your
22 surface elevations, Mr. Reed, did you do a study of certain
23 Triassic elevations?

24 A. Yes, I did. In order to evaluate these pits from the
25 standpoint of being able to discharge brine into them,

1 obviously we've got to be able to contain the brine. We can't
2 just get them down to the Triassic and leave them there if
3 it happened to be a nice flat surface. Again we drilled
4 something on the order of seventy-five to eighty test holes
5 into the Triassic.

6 This next slide shows, without any surface elevations
7 on it, it shows the configurations of the top of the Triassic
8 Redbeds. All of these dots that you see, the black dots,
9 those holes encountered Triassic somewhere in them. Again I
10 will emphasize that all of these holes as well as the ones
11 outside and inside, were drilled with air.

12 Q Was the Triassic Redbed all at the same elevation
13 as it regards sea level?

14 A No, sir.

15 Q Is there a significance to that?

16 A Yes, there is. Essentially there is an east-west
17 trending trough in the Triassic Redbeds. The Triassic Redbed
18 rises in elevation to the north and it rises in elevation to
19 the south. This contour line that you see right here is on a
20 high spot in the Triassic here on the step. This contour line
21 right here, the elevation thirty-four fifty-five. This one
22 is thirty-four fifty. It shows again that once you get out
23 of this pit area that the Triassic is rising in elevation to
24 the north.

25 Contrast this thirty-four fifty-five elevation with

1 the exposures, the surface exposures of Triassic in the bottom
2 of the pit is somewhere in the neighborhood of thirty-four
3 forty-five, sometimes less than that, but thirty-four forty-five
4 at least in the pit one area, is a fairly consistent elevation
5 for the Triassic in the bottom of the pits and these are not
6 elevations that I just merely took off the ground and assumed
7 they were Triassic, I drilled several holes in the pits
8 themselves to make sure we were in good Triassic Redbeds.

9 The Triassic in pit number three is as deep as thirty-
10 four forty. In pit number four, the deep pit to the far west,
11 the Triassic is as deep as -- well, the top of the Triassic in
12 that particular pit again is about thirty-four forty and the
13 pit is dug down into the Triassic.

14 Q Mr. Reed, in layman's terms, does this Triassic
15 Redbed undulate or form a trough or bowl or saucer in the area
16 of these pits?

17 A Well, essentially it represents a linear trough
18 aligned in an east-west direction. The trough opens up on the
19 west side, it opens up on the east side. In other words this
20 is high country as far as the Triassic is concerned and this
21 is high country as far as the Triassic is concerned. this is an
22 arroyo that cut into the Triassic on an east-west trend.

23 Q Is this arroyo the area in which the sand and gravels
24 were deposited?

25 A That's correct and it's not coincidental that they

1 find the gravels in this deep channel. It is there because the
2 channel is there.

3 Q Mr. Reed, please continue. After you told us you
4 did some surface elevations and then determined some of the
5 elevations of the Triassic, be good enough to tell us what you
6 next did in your investigation?

7 A After these surface maps, the Triassic map was
8 constructed, I took a look at both of the maps together in
9 order to evaluate the feasibility of using these pits for
10 storage and disposal of salt water.

11 Using primarily the Triassic map, I looked particularly
12 for areas in the Triassic that were low spots, in other words,
13 small swales, any small swales in the Triassic where the
14 Triassic was slightly lower in elevation I noted particularly.
15 And the reason for this is obvious. Any time we have the
16 Triassic up high around the periphery of these pits, we are in
17 very good shape as far as holding the brine in these pits.

18 There are a few areas where there is a bit of a
19 Triassic swale. I pointed it out to you just awhile ago.
20 There is a low spot on the east side and on the west side in
21 conjunction with this linear trough. There is a very slight
22 swale, a low spot in the Triassic of just a few feet just to
23 the south of pit number one.

24 Do we have that last slide?

25 This is the Triassic map I had over there just a

1 moment ago. You can see by the contour a low spot here that
2 lines up with the main trough in the pit areas themselves. A
3 low spot here. There is just a bit of a low spot here. This
4 contour bends around like this and the other side of the
5 contour bends around like this. This is thirty-four-fifty,
6 thirty-four fifty and something on the order of thirty-four
7 forty-eight right here in the middle.

8 So after finding these low places in the Triassic
9 which was what this program was designed to do, we have proposed
10 what we consider not only reasonably simple but very sound
11 methods of blocking off essentially these low spots to make
12 the pit areas themselves, to enable them to completely contain
13 any brine that we may place in them.

14 Q I'm not sure I've asked you, Mr. Reed, but please
15 tell the Commission what is magic, so to speak, about the
16 Triassic Redbed?

17 A The primary importance of the Triassic from the
18 standpoint of disposing of materials in or near the Triassic
19 is really twofold. Number one, it does not transmit fluid
20 very readily. It is composed almost entirely of clay-sized
21 particles and the clay beds do not transmit water except in
22 a very minor degree.

23 Q Mr. Reed, do you know about how thick the Triassic
24 is through this area of the Redbed material?

25 A In this area it is somewhere between -- and it varies

1 of course, it is an erosional surface so that the thickness
2 varies somewhere between six hundred and a thousand feet.

3 Q And is that generally true over the entire area we
4 are talking about?

5 A In this area, yes.

6 Secondly, the importance of the Triassic is that
7 in this area particularly, except in a few minor isolated
8 cases, not similar to this particular area, the top of the
9 Triassic represents the base of the fresh water.

10 Q Are you telling us that there is no fresh water
11 below the Triassic?

12 A That is correct.

13 Q Did you do studies to determine the permeability
14 of this material that you are calling the Triassic Redbed?

15 A I had a drill crew from Southwestern Laboratories
16 in Arlington come to the area with the purpose in mind of
17 drilling a number of holes in the bottom of these pits to
18 indeed test their permeability or these clays' ability to
19 transmit water.

20 Q What did you find out?

21 A Essentially what we did was to take this rig into
22 the pits, drive three inch hollow tubes in the ground,
23 recovered those tubes intact, extracted the material out of
24 them, took these cores that we had collected, wrapped them in
25 plastic and tinfoil to preserve them. They took them back to

1 the Arlington Laboratory and ran permeability tests on them,
2 two kinds. They determined a coefficient of permeability for
3 the undisturbed material. They determined a coefficient of
4 permeability for the remolded samples. They took two sets of
5 samples, broke them up, recompactd them and ran permeability
6 tests on them.

7 Q In general what were the results of these tests?

8 A Generally without exception, with only two exceptions
9 I should say, these permeabilities which can be considered
10 in-place permeability, that is what you are going to expect
11 out here in these pits, is less than five times ten to the
12 minus seven centimeters per second.

13 Q What does that mean in English?

14 A And I'll say that I do mean less than, they get it
15 down to ten to the minus ten centimeters per second. In
16 English, five times ten to the minus seven means that with a
17 foot of continual one foot of head throughout an entire year
18 that the water would penetrate about five tenths of a foot
19 into the bottom of the pit, into the sediments at the bottom
20 of the pit.

21 Q Was that the most permeable material or porous that you
22 found in your testing?

23 A There were two samples that were less than ten to
24 the minus seven that were more permeable than ten to the
25 minus seven. Both of these are in the upper portions or more

1 aptly described as the weathered part of the Triassic, it is
2 an erosional surface and they had slightly higher permeability
3 on the order of one times ten to the minus six which means again
4 translated into English, about a foot of penetration per year,
5 but those are only on the uppermost surfaces and are underlain
6 by materials more impermeable.

7 The compacted samples, we ran them for the primary
8 purpose of determining what would happen if we used this clay
9 in the construction of any retention structures.

10 MR. ARNOLD: What are retention structures?

11 A. These are structures designed to retain or prohibit
12 the movement of any fluids.

13 MR. ARNOLD: Dikes and core trench material?

14 A. Dikes and core trench material.

15 MR. ARNOLD: Thank you.

16 A. These two samples that we removed and ran permeability
17 tests on were essentially one over ten less than in their
18 recomacted state which is not an unusual situation so they
19 will be, these materials in the core trenches and dikes will
20 be as impermeable or perhaps more impermeable than the pit
21 bottom itself.

22 Q (Mr. Richards continuing.) Now, you were speaking of
23 core trenches and dikes and a little earlier you told the
24 Commission, I believe, that this was not a completely closed
25 vessel that you found. Is this where core trenches and dikes

1 come into it?

2 A. That is correct. It is essentially enclosed except
3 on its eastern and western ends but there are a couple of
4 little low spots I would like to beef up to insure the integrity
5 of the system.

6 Q. After you completed your permeability tests, Triassic
7 elevations, surface elevations, did you come to the conclusion
8 with certain modifications to the ends of this pit area that it
9 had potential as an oil field production liquid disposal site?

10 A. That is correct, with a few modifications I think
11 it should have very high integrity with that regard.

12 Q. Would you please tell the Commission in some detail
13 the modifications which you feel are necessary and how you
14 would propose that they be undertaken?

15 A. There are two kinds of modifications, there are those
16 which I call core trenches which are in areas that pits do not
17 now exist, in other words, these are outside the margins of the
18 pits, then there are proposed structures that I call dikes which
19 are simply mounded levees, if you will. Again, both of these are
20 constructed of compacted Triassic Redbeds. To utilize the
21 entire area of these pits there is a core trench that I would
22 propose in the far western side. The best way to see it is
23 right here, again you see a low spot in the Triassic and I
24 tie this into the core trench to a known high verified by a
25 drilled hole there. I would tie that side of the core trench to

1 a known high of the Triassic verified by a drill hole right there

2 Another structure down here just to the south of
3 the main pits is another core trench to raise this slight
4 depression here in the Triassic about three feet up to the
5 level of this surrounding Triassic material.

6 This one is a combination core trench outside and
7 a dike within for the primary reason to hold the level to
8 contain materials within this major pit and not at this time
9 let them go into this far eastern pit.

10 There is another structure which didn't come out on
11 the slide at all but you can see on the map, is primarily a
12 dike which cuts off this western part of the largest pit.

13 Both of these structures are designed to contain
14 water as well or better than the materials that underlay the
15 floor of the pits. The best way to do that is to find Triassic
16 material to construct the structures. The core trenches could
17 be constructed by means of removing what we know is permeable
18 material on top. In other words, this just narrows out, the
19 deep pit is here, what we saw before but this is up on the
20 surface covered by sands and gravel. We dig down through what
21 we know is permeable materials, sands and gravels, with a
22 bulldozer, dig it well into the Triassic so we key this
23 core trench to the Triassic, backfill the trench with compacted
24 clay, very simply done by laying down six to eight inches of
25 clay, adding moisture to it to aid the compaction and compacting

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1 it with a sheeps foot or some device like that. You continue
2 this process until the core trench is brought up to the
3 desired elevation.

4 Q And then do you have something similar to the
5 recompacted samples you were telling the Commission about that
6 Southwestern had run?

7 A This is the reason for the recompacted samples, to
8 test the integrity of the material that we are going to lay
9 into these trenches. It looks very good.

10 The dikes are essentially the same kind of structure
11 without being lain in a deep trench. They are levees that are
12 laid down and clay six to eight inches thick compacted and
13 brought up to the elevation that is desirable.

14 Q Mr. Reed, after assuming that this diking was done
15 and any boulders removed from the bottom of the pit, did you
16 calculate for the Wallachs some potential storage or disposal
17 quantittites?

18 A I looked at evaporation data of the Red Bluff Dam to
19 give me a good idea, I felt, of what the average evaporation
20 should be. One can't dispose of all of the evaporation that
21 these kind of numbers tell you that you can dispose of in one
22 year because you have periods of low evaporation such as
23 during the winter, so using the evaporation figures derived
24 from Red Bluff, plus rainfall records, I came up with what I
25 thought was a maximum amount of fluids that could be introduced

1 into these pits on a year around basis. In other words, the
2 same amount per month per twelve-month period. Essentially it
3 amounts to about four-tenths of a foot of water per month into
4 each of the pits.

5 Q Did you in using your evaporation datum use conserva-
6 tive figures from the Red Bluff area?

7 A The evaporation datum themselves are averaged over
8 about a fifteen year period.

9 Q Now, are your results as to the calculations of
10 the barrels per month of materials that can be disposed of in
11 the site contained within your report?

12 A Yes.

13 Q Are they mathematically accurate?

14 A Yes.

15 Q And are they conservative in nature?

16 A Yes.

17 I'll say very quickly that this amount that I have
18 predicted you can dispose of in these trenches is such that
19 there should be zero accumulation of water in the trench during
20 a twelve month period so that we do not have an increase in
21 the amount of accumulation of water in these ponds carried over
22 from year to year. You have to be able to have enough storage
23 to carry it through the low evaporation winter months and
24 this is done with this rate of discharge.

25 Q Mr. Reed, did you put any elevation limitations on

1 your recommendations as to the amount of water that could be
2 disposed of in these pits?

3 A. Yes, I have. In each pit which I treat essentially
4 separately in this report, I place an upper elevation which in
5 my opinion right now we should not exceed this elevation with
6 water.

7 Q. What is that?

8 A. It essentially represents an elevation which is four
9 feet below the highest Triassic or the Triassic high around the
10 pits. In other words, it's a four foot free board below what
11 water should be below which level -- well, there's a better
12 way to put it. If we think of the Triassic as a flat surface
13 for just a minute, with a hole in the middle of it, this repre-
14 sents an elevation that is four feet below that level Triassic.

15 Q. All right. Are you aware of any statutory or
16 regulatory designed criteria for this type of operation in the
17 State of New Mexico?

18 A. There is a couple of criteria that the Texas Water
19 Quality Board uses in similar kinds of instances. The first
20 involves permeability.

21 Q. What is the Texas Water Quality Board's permeability
22 standards?

23 A. They consider a pit to be impermeable with a perme-
24 ability coefficient of one times ten to the minus seven.

25 Q. Is that what you found here?

1 A. We found permeabilities generally less than one times
2 ten to the minus seven.

3 Q. Less permeability is better, is that right?

4 A. That's right.

5 Q. Okay, do they have any criteria for free board?

6 A. They generally recommend and in most cases require
7 adherence to a three foot free board. I recommend a four foot
8 free board because the system should be operated for a period
9 of time, in my opinion, perhaps ultraconservatively to be
10 a hundred percent sure of this integrity before we go even as
11 high as the Water Quality Board recommends.

12 Q. I see. Now, do I understand that there are certain
13 numbers of material that you say can be disposed of within
14 this area with the trenching and boulder removal, the diking
15 that you have described?

16 A. That's correct.

17 Q. All right, and are you of the opinion that this is
18 a feasible project from a hydrologist's standpoint?

19 A. With the modifications that I recommend I think so,
20 yes.

21 Q. Would you put any other safety features in your
22 recommendation?

23 A. Absolutely.

24 Q. What are they?

25 A. Again to insure the integrity of this system and not

1 only that but to -- primarily to insure the integrity but if
2 there was a problem to detect it early. A system of monitor
3 wells or monitor holes, I should say. I have laid out in
4 this area, again paying attention to low spots in the Triassic,
5 where for some reason we did have a leak these wells would pick
6 them up because they are in a low spot of the Triassic.

7 All of these which are double circles on the map,
8 show up plainly on this map, represent holes that I would
9 recommend drilling to detect escape from the pits. These
10 holes are drilled five or so feet into the Triassic, they are
11 cased with perforated PVC pipe and they are monitored
12 regularly for the presence of water.

13 Q In the unlikely event that water was ever present
14 there, does your report contain certain criteria and recommenda-
15 tions for how that should be handled?

16 A If we ever did find salt water in them, I say salt
17 water on purpose, then there are very easy methods and I
18 emphasize very quick methods to catch those leaks and it
19 involves digging a narrow trench down into the Triassic once
20 again and lining it with gravel and a perforated PVC pipe,
21 collecting this water into what we call a French drain which
22 is graded toward a centralized wet well. The water is then
23 drained into the wet well and pumped out of the wet well back
24 into the pit. So if you detect water when you monitor the wells
25

1 you immediately go down to the south, if it's in that direction,
2 to the south of those monitored wells and construct this
3 French drain which I will say again, it is a tried and true
4 method, we have used it a number of times for all kinds of
5 purposes really.

6 Q Mr. Reed, what is the effect of dynamiting in the
7 Triassic of the Redbed?

8 A My opinion is that there would be very little
9 damage to it. These clays are fairly plastic in nature.

10 Q Are they at all like caliche?

11 A Oh, no. Now, there is caliche. Some people think
12 of caliche as being nice stuff on the roadbed and some of it
13 is nice and dry up on the surface where an outcrop is, not
14 like this dry stuff up on top. Caliche is a brittle substance
15 most times and these clays are not brittle at all, they are
16 very plastic.

17 Q All right, based upon your investigation, your
18 training and your background, do you have an opinion as to
19 whether or not the operation of an oil field production liquid
20 disposal facility in the southwest quarter of Section 29,
21 Township 21 South, Range 38 East NMPM, also known as the
22 Wallach gravel pit area, would or would not and according to
23 the recommendations that you have put into your design
24 parameters, would or would not create a hazard or contaminate
25 any fresh waters in the area?

1 A. In my opinion it could be operated very safely and
2 would not be a hazard to any ground or surface waters in the
3 area.

4 MR. RICHARDS: Thank you. I pass the witness.

5 MR. RAMEY: Let's have a fifteen minute recess
6 before we start on the cross examination.

7 (THEREUPON, the hearing was in recess.)
8

9 MR. RAMEY: The hearing will come to order.

10 Are there any questions of Mr. Reed? Mr. Ulvog?
11

12 CROSS EXAMINATION

13 BY MR. ULVOG:

14 Q. This depression or channel or syncline or low area,
15 the general area in which these pits are located that you
16 described, do you feel that this is a structural depression,
17 a syncline or is it channeled out?

18 A. I don't think it's a syncline because, well, just
19 for instance, in one of these pits, the first pit that I
20 showed you, the easternmost side, you see green clays that
21 appear to be truncated. I think it's erosional channels on the
22 Triassic which is a very common -- the Triassic is a very
23 hummocky channeled surface and I think this is what it is and
24 it is also a very linear feature but not very big and not very
25 wide so I think it's a channel and there is a little bit of

1 evidence in some places of little side channels, shallow side
2 channels that come into it.

3 Q Well, since you have several formations missing this
4 makes sense. Now, the entire channeled out place is filled
5 in with Ogallala, is that correct?

6 A Yes, sir, basal Ogallala. There are a few Cretaceous
7 boulders in the basal Ogallala as again you might suspect.

8 Q Then these pits, they are all essentially in the
9 Ogallala, is that correct?

10 A No, sir, the material that was removed is Ogallala
11 material.

12 Q That's what I mean, what has been mined is Ogallala?

13 A That is correct.

14 Q And when the pit is mined out sometimes it reaches
15 to the Triassic and maybe sometimes it doesn't, is that right?

16 A In these pits that I've seen, almost without exception
17 they are scoured down to -- the materials are removed down to
18 the Triassic.

19 Q But the sides of the pits then will still be Ogallala?

20 A No, sir, but the nature of it being erosional, an
21 erosional channel, you see, and I've got a slide that I'll
22 show you, the sides of these pits are also Triassic. The
23 V-shaped or U-shaped channel with Triassic coming up on both
24 sides, the Ogallala fills on the outside and then drapes in
25 into the inside of this channel but I do see, walking around

1 the edges of these pits Triassic up higher than the pit floor.

2 Let me show you this one slide right quick. Here
3 is Triassic in the bottom. I drilled a hole right there,
4 Triassic unweathered, essentially unweathered Triassic very
5 close to the surface. I drilled another hole right here on
6 this road, right in the road, again Triassic very close
7 to the surface but a little bit of weathering on top as again
8 you expect but that is several feet higher than that and this
9 is reflected on my Triassic map and the same thing happened
10 on the other side. Let's go back one more slide.

11 Here's the bottom of the pit, a bench three or so
12 feet higher, Triassic material, on the rim here that you
13 can't see in the foreground. The Triassic comes back up quite
14 a bit higher than the bottom of the pit. There is a place
15 that the Triassic is peeking through. This debris has
16 essentially fallen over the edge of the pit.

17 Q Now, if this is so then the dip of the formation then
18 is -- this is a monolith dip dipping one direction in the
19 Triassic do you think?

20 A Generally in this area, right now there is a gentle
21 dip on the Triassic, southward.

22 Q Do you detect any bedding planes at all in the
23 Triassic, any geologic changes or anything of that sort? You
24 mentioned that you had seen where some of it was truncated and
25 so on and so forth?

1 A. Yes, uh-huh, in this one bench is a suggestion of
2 truncation. I can't swear to it because the exposures are
3 fairly poor. In the drill holes it is extremely difficult to
4 correlate beds because it is just all clays. There are one
5 or two very thin sand sequences occurring on the top sometimes,
6 six or eight inches, I think, but you don't seem to be able to
7 correlate them across.

8 Q. If one of these pits had mined down into a silty or
9 sandy member then of the Triassic this in effect would become
10 a seep zone, would it not?

11 A. Well, yes, for the few centimeters or whatever it
12 might be right there in that area. Like I say the pits
13 themselves are underlain by Triassic materials. There is a
14 thin erosional surface up on top as again you expect. In one
15 or two instances I have seen in the deep pit on the far west
16 there is a thin sand layer, so, yes, if you fill the pit up to
17 the sand layer which is right at the top of the Triassic it
18 would leak, yeah, perhaps. I don't know that for sure but I
19 think it probably would but already you are in trouble because
20 you are getting very close to the Ogallala Triassic inner face
21 and we are recommending staying four feet down below the lowest
22 part of the Triassic with our water. We are essentially
23 containing these waters entirely within impermeable Traissic
24 material.

25 Q. In the report I believe that I understood that your

1 monitor wells would go five feet into the Triassic, is that
2 correct?

3 A. That is correct and the casing would then be set into
4 that five foot zone and extend to the surface perforated from
5 the bottom to the maximum elevation of a particular -- of
6 the water that we would recommend in any particular pit.

7 Q And all of these monitor wells will be outside of
8 this area of the pits?

9 A. That is correct but quite close and most of these
10 monitor wells are somewhat staggered, again as I say they are
11 put -- and they are put behind the core trenches, for instance,
12 to monitor the integrity of the core trenches and they are
13 also put around the pits themselves to monitor the integrity,
14 yes.

15 Q So at least some of them, maybe none of them, would
16 reach an equivalent stratigraphic point within the Triassic
17 equal to the bottom of the pit?

18 A. No, they probably wouldn't reach levels of an equal
19 stratigraphic layer.

20 Q Probably none of them?

21 A. No, in most cases that's right, none of them will,
22 that's correct, but in our core hole program it was the bottom
23 of the pits that we tested and I put them on the map, I placed
24 the location of these on the map prior to drilling the test
25 holes so they are not placed where I saw a nice little piece of

1 good red clay sticking on the surface, well, we'll drill here,
2 I put them on the map first and scattered them throughout the
3 whole pit area. So the permeabilities in the table in my
4 report represent the permeability of the bottom of that pit
5 that's going to see the water.

6 Q Could there be some impermeable members up on the
7 walls somewhere?

8 A I haven't seen them, but again they look similar
9 to the clay that I see in the bottom of the trench.

10 Q However, your slides show that there was a great deal
11 of overburden that had fallen in over the walls of the pits
12 and kind of obscured the Triassic as was apparent in some
13 of your photographs?

14 A Yes, particularly in the pit that I showed you, in
15 the deep pit. You can see Triassic nearly all the way around
16 except in the zones that I've -- again the westernmost side
17 where there is a little swale, yes, and in those I see a little
18 sand near the top but again good clay down underneath that
19 zone.

20 MR. ULVOG: That's all I have.

21

22 CROSS EXAMINATION

23 BY MR. RAMEY:

24 Q Let me dwell on these monitor wells, Mr. Reed, now,
25 you state that the monitor wells will go five feet in the

1 Redbed, is that correct?

2 A. That is correct.

3 Q. Why wouldn't it be better to go ten feet or to some
4 point lower, say, than the bottom of, say, pit one?

5 A. Primarily because the water if it escapes is not
6 going to escape through the Triassic because and, again, I have
7 drilled fairly deeply through these zones, through this
8 Triassic, and a number of holes and it's comprised, except on
9 the upper surface, of good clay so we don't anticipate leaks
10 through the Triassic. If we have a problem the place that it's
11 going to leak is at the inner face between the Ogallala and
12 the Triassic, that's where it is going to escape.

13 There will be minor penetration of the water into
14 the wall of the pits similar to what you will find at the
15 bottom but as an avenue of escape the Triassic is not a
16 candidate but that inner face is and, in fact, there are some
17 pits lined with polyvonchloride in the State of Texas which
18 I'm presently constructing closure plants for because that
19 twenty ml PVC after a little bit of weathering leaks. These
20 pits are constructed in the Ogallala, ten feet up off the
21 Triassic, it leaks down through the PVC, hits the Triassic
22 inner face and runs out and away from the site.

23 Q. So you are not at all concerned about any seepage
24 occurring through the bottom of the pit?

25 A. No, neither through the bottom nor the sides.

1 Q You feel like you have six to a thousand feet of
2 protection?

3 A That's correct.

4 Q The only concern we should have would be leakage
5 on the inner face of the Ogallala?

6 A Yes, and the reason I say that is, the density of
7 my drill holes here is pretty good but the Triassic is an
8 erosional surface. Perhaps, and I think the possibility is
9 remote because of the density of my points, but perhaps there is
10 a little bit of a swale in the Triassic that I did not pick up
11 in my drilling program, then this perhaps, if it was below
12 the level of the water which again based on the density of the
13 drill hole I don't think it's conceivable but if it happened,
14 if it occurred, the water would run down through this little
15 depression, this depression in the Triassic that will be filled
16 with permeable sand and gravel and it is these areas that we
17 would pick up in our monitoring program.

18 Q How close to the pits do you recommend that these
19 monitor wells be?

20 A Well, I spaced them at various distances really,
21 more based on what I knew of the Triassic surface. Most of
22 them are less than a hundred and fifty feet from the edge of
23 the pit. There are some that are within a hundred feet.

24 Q How are these wells coded on your map, say on the
25 Triassic map?

1 A. On figure four of my illustration in my report they
2 are double circle wells. In the legend the double circle wells
3 are the proposed monitor holes.

4 Q. So in essence, say you take pit one, you have your
5 monitor wells everywhere but to the east of the pit, is that
6 correct?

7 A. In pit number one?

8 Q. Yes.

9 A. Well, yeah, the number next to each monitor hole,
10 that number represents the pit which that monitor hole will
11 monitor. In other words, there is a monitor hole that I have
12 located just east of the easternmost dike of pit one, labeled
13 one-three. That will monitor pit one as well as pit three.

14 Q. Now, would it be necessary on pit one to have this
15 dike to the south of the core trench, I think it utilizes that
16 pit or --

17 A. I beg your pardon?

18 Q. Would you need the core trench to the south?

19 A. Should those two be connected, is that what you're
20 saying?

21 Q. Just to utilize pit one, what construction work are
22 you going to have to utilize to use pit one?

23 A. I see. If we just utilized pit one I would put --
24 I've got these labeled on one of these maps if I can find out
25 which one. Oh, it's on the dikes and monitor holes. I would

1 put the one labeled C which is the easternmost dike, combination
2 dike-core trench, I would put core trench labeled B and the
3 dike labeled A.

4 Q Now, what did you find the permeability of your
5 samples that you took out of the pit area?

6 A The permeability is ---many of them were less than
7 ten to the minus seven centimeters per second. There were a
8 couple that were -- one of them was one point four times ten
9 to the minus six centimeters per second. The liquid limit of
10 that sample, though, is very high, fifty. The liquid limit is
11 a measure of how much water a sample will hold prior to flowing.
12 That high liquid limit suggests there is something wrong with
13 that test because it indicates very fine grained material so
14 I suggest that was a poor and the lab technician also said
15 that he thought there was something wrong with that particular
16 one.

17 There is another one that was --

18 MR. RICHARDS: Mr. Chairman, that is contained in
19 table seven in the report.

20 MR. RAMEY: Table seven?

21 MR. RICHARDS: Yes, it's immediatly --

22 THE WITNESS: It's page sixteen, fifteen and sixteen.

23 Q (Mr. Ramey continuing.) In other words, the sample
24 that is five times ten to the minus seven would be five times
25 as impermeable as your one times ten to the minus seven?

1 A. More permeable.

2 Q. More permeable?

3 A. In other words, the permeability of one times ten
4 to the minus seven essentially says that within one year with
5 a foot of hydraulic head, the water will penetrate a tenth of
6 a foot in that twelve-month period. Five times ten to the
7 minus seventh means that it will penetrate zero point five feet
8 in that one year with the same amount of head.

9 MR. RAMEY: Okay. Any other questions of the witness?
10 Mr. Stamets?

11
12 CROSS EXAMINATION

13 BY MR. STAMETS:

14 Q. In response to Mr. Ulvog's question awhile ago you
15 indicated that perhaps the Redbeds had a southward dip, is
16 that correct?

17 A. That's right, in this immediate area.

18 Q. Is that a very steep dip or is it relatively flat?

19 A. No, it's fairly gentle, it's fairly gently. I don't
20 have a real good handle on the amount of dip but I would say
21 fifty feet per mile, sixty feet per mile perhaps.

22 Q. Quite gentle?

23 A. Yeah, quite gentle.

24 Q. Just in case there should be any leakage through
25 the bottom of these pits, any vertical leakage, would the

1 likelihood be that it would leak down to some impermeable
2 layer and then progress down dip towards the south?

3 A. Well, the bottom is impermeable and I guess I
4 don't see how it could reach a more impermeable layer.

5 Q. Well, I just said "if", this is hypothetical.

6 A. Well, conceptually if we were putting this
7 material in a pit with a high permeability such as the one I
8 described a few minutes ago, that would happen, it would
9 percolate down to an impermeable zone and migrate away from
10 the site down dip.

11 Q. Okay, now, it's a very gentle dip, how about the
12 thickness of the beds that you observed, were they fairly
13 thick or fairly thin?

14 A. Some of the core holes that I drilled into the pit
15 bottom I drilled, well, one that I remember, fifteen to
16 eighteen feet through the bottom and it was continuous good,
17 red clay down to the bottom of that.

18 Q. Without any break or any differentiation as to
19 color or --

20 A. Well, sometimes there is a change in color. There
21 are green chloritic clays.

22 Q. This would indicate some sort of a bedding or some
23 sort of a change?

24 A. I think there is bedding there certainly so, but
25 again the green chloritic clays are just as tight as the red

1 ones.

2 Q Assuming now that the Commission wanted a test hole
3 to be drilled, say to the depth of at least ten feet below
4 any formations which would be in contact with the bottom of
5 pit one, how deep would these test holes have to be drilled
6 say on the south side of the pit?

7 A Well, the bottom of pit one is at an elevation of
8 in the neighborhood of thirty-four forty-five or forty-six.
9 The rim on the south side of pit one is thirty-four sixty. We
10 are talking about fifteen feet before you get to the elevation
11 of the pit.

12 Q So you would have a hole twenty-five feet deep?

13 A If you went to ten feet below the bottom, yes.

14 Q You might want to add a few feet because of this
15 gentle dip then, twenty-five or thirty feet of depth?

16 A I'm not understanding what you are saying.

17 Q Well, because of this southward dip you might want
18 to add a few feet to the twenty-five.

19 A You are saying to get to the same stratigraphic
20 horizon?

21 Q No, to get ten feet below the same stratigraphic
22 horizon.

23 A Well, in order to get ten feet below the bottom of
24 the pits, it wouldn't make any difference about the dip if you
25 are trying to intercept the same stratigraphy that you see at

1 the bottom of the pit you would have to go a few feet deeper,
2 five, ten, fifteen feet deeper.

3 MR. STAMETS: Okay, that's all the questions I have.

4 MR. RAMEY: Mr. Nutter?

5

6 CROSS EXAMINATION

7 BY MR. NUTTER:

8 Q Mr. Reed, in estimating what your evaporation rates
9 out of these pits would be, you have assumed that you would be
10 able to keep the water completely free of any oil films, is
11 that correct?

12 A That's assumed in these calculations, that is correct.

13 Q Now, --

14 A These are Class A pan evaporation figures.

15 Q Well, I notice on your table four you had used the
16 net evaporation for Red Bluff which is in 1941, the low year
17 as far as net evaporation was concerned?

18 A That's right. That was a year of both high rainfall
19 and low evaporation.

20 Q Okay. And so in that year you had a total net
21 evaporation of thirty-nine point six inches of water in table
22 number three?

23 A That is correct, that is with rainfall taken out.

24 Q Now, looking at your evaporation rate then for the
25 first twelve months exhibited there on table four and adding

1 those columns up I come up with three point three feet of water
2 or thirty-nine point six inches and I find that you would be
3 discharging, however, an estimated rate according to table five
4 of point four one feet of water per year. Now, why would you
5 be discharging more than your evaporation rate would be?

6 A. You get that from doing what?

7 Q. Well, your table number three says that Red Bluff
8 evaporated thirty-nine point six inches of water per year and
9 then on table number four --

10 A. In a low evaporation period that is correct, that's
11 an abnormal --

12 Q. That's a bad year. Don't you have to work on a bad
13 year as far as making an estimate of what this pit can do?

14 A. Well, not if we have an emergency standby system
15 and so what I have done, I have used the average, that average
16 evaporation from Red Bluff and again you can't evaporate out,
17 you can't add up twelve months and say you have sixty-five
18 inches of net evaporation, you cannot put that much water in
19 those pits because you have six months of low evaporation and
20 you have too much accumulation so you have to tailor it through-
21 out a twelve-month period, so I indicate that a maximum of
22 this amount of water, four-tenths of a foot, can be discharged
23 if we -- I believe I have a table in here also that shows what
24 would happen, yes, table four, the fourth column under
25 "Accumulation" shows that after what, a year and a half of poor

1 evaporation you would have an accumulation of two point two
2 feet.

3 Q All right.

4 A After August.

5 Q Now, you said these were pan rates but yet you have
6 used Red Bluff Dam, are these evaporation rates out of the
7 lake or are these panned over at Red Bluff?

8 A No, these were panned at Red Lake. To continue, I
9 have a suggestion in my report that we set aside one of these
10 pits and in my mind that is pit number four, which is very
11 deep and has lots of storage for emergency overflow, for when
12 you have more accumulation than you can expect during average
13 conditions.

14 Q Now, have you taken into consideration the reduced
15 rate of evaporation because of the salinity of the water?

16 A We have not, these are calculations based on --

17 Q On fresh water?

18 A On fresh water, yes.

19 Q Normally salt water doesn't evaporate as fast as
20 fresh water?

21 A Not quite, no.

22 MR. NUTTER: I believe that's all. Thank you.

23 MR. RAMEY: Any other questions, Mr. Houston?

24

25

CROSS EXAMINATION

BY MR. HOUSTON:

Q. Mr. Reed, in looking at these pits on the site the floor doesn't appear to be level and doesn't appear to me to have -- what did you say?

A. Fifty to sixty feet per mile.

Q. It doesn't appear to have any gentle slope to them at all, when you drive around on them you are climbing hills and valleys and dales.

A. In the pits you are talking about?

Q. Quite a bit in getting from pit to pit. There is one pit that is flat.

A. In the arroyo you have interrupted the regional dip by the arroyo.

Q. But the pits are not generally flat. There is one pit that is flat and the rest of them aren't, isn't that true?

A. Pit number one by and large for the most part is flat; pit number three by and large is flat.

Q. The rest of them are irregular?

A. In some form or another, yes.

Q. The walls of those pits are caliche and gravel, rock?

A. Above a certain point, yes, that's right.

Q. And it is your testimony that the Triassic Redbed is clearly evident all the way around the walls of the pit on

1 the level?

2 A Well, if you will examine my Triassic map which is
3 in the report that I believe you have a copy of you will see
4 that --

5 Q Which map are you referring to?

6 A This is figure number two. Very simply what this
7 map shows is that up to the north of the pits the Triassic is
8 high, elevation thirty-four fifty-five. It shows that in the
9 central part of this linear depression that the Triassic is low,
10 thirty-four forty-three, forty-four and forty-five. It shows
11 that in addition south of the pit the Triassic is again high.
12 Now, this does not necessarily have any direct connection
13 necessarily in terms of concern to what you see in the edges
14 of the pits. It does not concern me the slightest amount that
15 there are some edges of the pits that I can't see Triassic
16 coming up well above the pit floor because I see it coming up
17 higher than the pit floor, just outside that pit in my drill
18 holes.

19 So to be walking those pits and to be totally
20 surrounded by Triassic above your eye level is not a concern
21 but you do have to make sure that the Triassic is higher than
22 the bottom of your pits, on the outside of the pits and that is
23 what I have shown here on this map.

24 Q In other words, it can be irregular in the walls of
25 the pit but you are confident that beyond the walls of the pit

1 that it is level?

2 A. That what is level?

3 Q. The Triassic.

4 A. It is not level, it is sloping up out of the pits.
5 It's high on the south, it's high on the north and it's low
6 inside.

7 Q. With no valleys in the edges?

8 A. As I pointed out before there is a slight swale
9 down here to the south of pit one and the ends, the east and
10 west ends are low spots.

11 Q. The east end flows into Monument Draw -- the west
12 end flows into Monument Draw?

13 A. Let's look at my topographic map here. Just a
14 minute.

15 Again, we are on this nose, if you are up on the
16 surface we are strictly above the surface, the dip is in this
17 direction, the surface. This lineation here, I have drilled
18 across this road and I find a low spot in the Triassic, I do
19 not know what direction that goes. I know it is a low and I'm
20 going to put that core trench directly across that low, tie it
21 into two known points that I've got.

22 Q. Where is Monument Draw in relation to that?

23 A. Monument Draw essentially is out here to the south,
24 the southeast.

25 Q. Monument Draw actually is to the west, to the north-

1 west and then comes right down parallel to it, doesn't it?

2 A. Well, I would have to show you on a smaller scale
3 topographic map which might simplify things.

4 This is the same scale map. Here is the nose and
5 the surface is sloping out essentially this way and this way
6 and this way.

7 Q. My question was, where is Monument Draw?

8 A. Well, Monument Draw is out here to the southwest,
9 essentially. There is a small extension of it down around
10 here to the west and to the south.

11 Q. Show us up in the upper northwest corner of that map
12 where Monument Draw is?

13 A. Right here.

14 Q. And it comes right on down?

15 A. This is part of it, it comes down through here. You
16 can see it better on some other maps of a little bit larger
17 scale.

18 Q. You stated that the sand and gravel is in this trough
19 and that you naturally expected it to be there?

20 A. Yes, sir.

21 Q. And is it found anywhere else in this area?

22 A. Oh, there is sand and gravel throughout the Ogallala
23 in varying quality in terms of mining operations.

24 Q. You said that the Triassic Redbeds do not transmit
25 water and they vary in thickness there from six hundred feet

1 to a thousand feet below this point?

2 A. That is correct.

3 Q And that the top of the Triassic Redbed represents
4 the base of the fresh water?

5 A. In most areas this is correct.

6 Q In that area specifically. I'm talking about
7 within a radius of some miles of that point, ten or twelve
8 miles?

9 A. To my knowledge this is correct.

10 Q Now then I didn't hear you say what the rainfall
11 was at Red Bluff or the rainfall at Eunice, did you correlate
12 that in your evaporation tables?

13 A. No, I didn't say and I'll have to look back through
14 my report to answer that directly. I honestly don't remember
15 whether I used Red Bluff or whether I used Eunice. I don't
16 have the rainfall in my table and I honestly don't remember
17 which I did. Normally anytime I can use local rainfall I do
18 that.

19 Q I believe the rainfall at Eunice would be substantially
20 more, although it is low, than at Red Bluff.

21 A. I just don't recall. Like I say, normally when I
22 can get local data, local rainfall data, I do so.

23 Q Mr. Wallach referred to that pit to the north that
24 his father excavated?

25 A. Yes.

1 Q Where the cattails are growing now and that water
2 stands in that pit, seeps into that pit, fresh water, did you
3 observe that pit?

4 A I saw it in the early stages of my investigation.

5 Q Did you observe a water well at that pit?

6 A I don't remember one, no, sir.

7 Q Did you observe the cattails growing in that pit?

8 A Yes, I did.

9 Q Did you observe cattails and willows growing in
10 the other pits that have water in them?

11 A In this one deep pit it seems like there were some
12 cattails, yeah.

13 Q Did you observe the willow trees, weeping willows?

14 A Well, I don't know what the trees were because it
15 was wintertime when I did my investigation.

16 MR. HOUSTON: I believe that's all.

17

18 CROSS EXAMINATION

19 BY MR. RAMEY:

20 Q Mr. Reed, just as a matter of curiosity how do you
21 account for the salt cedars growing in, say in pit one?

22 A I'm not aware that there are any in pit one, are
23 there? The only logical way I can explain them in my mind is
24 an accumulation by rainfall. The reason I say that is simply
25 that I watched the drilling of every one of these test holes

1 and I also walked the rim of every one of these pits and I
2 did not see in any of the test holes or in any of the rims of
3 the pits, water flowing into the pits and the first time I
4 went to the site was after a fairly good rain. So I can say,
5 based on that evidence, in my opinion, there is no Ogallala
6 water seeping into the pits. There obviously is rainfall
7 that comes into that area and you can see large muddy areas
8 and these waters don't go anywhere because it has got an
9 impermeable bottom, they only are moved by evaporation so
10 they are retained there, after a good rain they are retained
11 there for a substantial length of time.

12 MR. RAMEY: Any other questions of the witness?
13 Mr. Nutter?

14
15 CROSS EXAMINATION

16 BY MR. NUTTER:

17 Q Well, do the salt cedars grow there without roots
18 going down to look for water there? They are growing in the
19 hard pan if they are growing in the Triassic, do they have
20 roots?

21 A I presume so, yes.

22 Q What are their roots for, there is no water down
23 there you say?

24 A Well, I won't say that the Triassic is absolutely
25 dry. You cannot produce a well out of it, out of the Triassic

1 Q But you said that the permeability was something
2 like five times ten to the minus centimeter per year or
3 something, did you, Mr. Reed?

4 A Yes, sir.

5 Q I wouldn't think those salt cedars would need roots
6 if there is no more permeability than that.

7 A I don't have any idea what the salt cedars are
8 doing.

9 MR. NUTTER: I believe that's all.

10 MR. RAMEY: Mr. Lucero?

11

12 CROSS EXAMINATION

13 BY MR. LUCERO:

14 Q Did you say you walked the rim of all of these pits?

15 A Yes, I have.

16 Q How long ago was that?

17 A Well, a number of times. The very first time I
18 went out there which was, if my memory serves me right, last
19 fall sometime, late last fall.

20 Q And the latest time?

21 A The latest time was -- it was early last fall,
22 probably September, perhaps October -- the last time probably
23 was in December.

24 Q And you also walked the bottoms of the pits, you
25 said?

1 A. Yes, sir.

2 Q. Did you walk the bottom and the rim of pit one or
3 the pit that is supposed to have salt cedars in it?

4 A. I walked throughout most of the area visible on
5 this map, portrayed on this map.

6 Q. Can you say now that you did or did not see salt
7 cedars in the one pit that we are talking about now in all of
8 those times that you walked the pits because I noticed that
9 you looked over at one of the previous witnesses as to knowledge
10 as to whether there were salt cedars or not in that pit. We
11 are asking you of your own personal observation and knowledge.

12 A. I believe in pit one and also in pit four that
13 there are some salt cedars.

14 Q. Are you making that from your own recollection, now,
15 conclusions?

16 A. I believe so, as far as I can tell I am but it does
17 seem like I remember seeing them in the bottom of the pit.

18 Q. Was there a great profusion of salt cedars in
19 terms of numbers or just one or two or three?

20 A. My recollection is that they were fairly sparse.

21 Q. Well, are you sure or are you just saying that you
22 think?

23 A. That is my recollection that they were -- to my
24 knowledge I didn't ever have any trouble walking through any
25 in that area and so --

1 Q Well, of course, by walking through you mean that
2 you weren't walking through a forest of salt cedars, is
3 that what you mean?

4 A Yes, sir.

5 Q That's the difference between walking around two
6 or three of them, is that it, we are talking about extremes.
7 How many salt cedars do you think are growing in that area?

8 A I'm afraid I wouldn't hazard a guess.

9 Q Well, then there is some?

10 A They were not dense.

11 Q Then there is some doubt in your mind as to whether
12 or not the amount of salt cedars that were there, there is
13 some doubt in your mind now?

14 A To the amount?

15 Q Yes.

16 A Well, to the specific density there is some question
17 in my mind. When the question was initially raised I do
18 remember at that time of seeing them in pit number four. I
19 did not immediately remember seeing them in pit number one but
20 again to the best of my knowledge I did see them in pit
21 number one, not densely, but there were other things in there
22 to my recollection, you know, it is bouldery for one thing
23 and in places it is my recollection, it's not dense.

24 Q But we are in agreement then that there were salt
25 cedars but you are not sure as to the density, am I correct

1 in that conclusion?

2 A. No, sir, I'm not sure of their density at all.

3 Q. Another thing when you were looking at that figure
4 one, the map, it shows the gravel pits and I presume that
5 shows the surface configuration and elevations there?

6 A. That's correct.

7 Q. And I assume that the top of it is north, is that
8 correct?

9 A. To my knowledge that is also correct.

10 Q. As you move away from the southern edge of the pits
11 then and check the different elevations shown there, there is
12 one that runs right to the south part of the pits or near
13 there of thirty-four seventy-five. Then we move on to another
14 dark one and you've got thirty-four fifty.

15 A. Yes, sir.

16 Q. And we are going further south and off to the
17 right a little bit and you've got thirty-four twenty-nine and
18 then you've got one real thick one there that is thirty-four
19 twenty-five and so -- we are going south and when we get down
20 to where I guess it says roadside park and all that we are
21 near thirty-four hundred or thirty-three ninety-one. Does
22 that indicate a slope of less elevations from the gravel pits
23 going south?

24 A. Yes, the surface is sloping towards the south and
25 the thirty-four hundred would be an elevation below the bottom

1 of the pits.

2 Q Would that indicate that the Triassic formation that
3 you say has low permeability follows that slope and to what
4 degree if it goes south?

5 A On a regional basis it does but again in the area of
6 these pits there is a depression and that's the only reason
7 that I proposed that we can use these pits is because of that
8 depression. By and large I think that the Triassic reflects
9 somewhat this dip, I don't know how closely.

10 Q Then there is a downward slope going south of the
11 Triassic too?

12 A Well, I think I said the Triassic should slope
13 downward to the south also.

14 Q I had one other question. If you are going to
15 place thousands of barrels of this salt water in these pits
16 over here and then you have an indication in the monitor well
17 that there is a leak, I don't think you explained to the
18 Commission what remedial action you are going to take other
19 than this emergency pit over here. What are you going to do to
20 prevent this leak and once you have a leak, you have a leak, all
21 you are doing there by the monitor well is determining that
22 you have a leak.

23 A The monitor well, like you say, is to determine a
24 leak. If a leak is ever found a French drain down dip, down
25 slope from that leak would be immediately constructed. It

1 involves about an eighteen inch wide trench dug down into the
2 Triassic, a layer of gravel put on that surface, a four inch PVC
3 casing laid on top of the gravel, more gravel put up on top of the
4 PVC to bring it well up above the top of the Triassic and
5 that drain then discharges into a wet well. The wet well
6 in turn takes the water back into a pit. During the
7 operation of the French drain, during the construction of the
8 French drain, I should say, the leak itself, the configuration
9 of the leak should be able to be determined and at that time
10 remedial measures can be taken similar to the ones I have
11 proposed for retention type structures.

12 Q Suppose you have a manifestation of several leaks
13 in several of the monitor wells on the south side of these
14 pits and you intend to take remedial action and you take into
15 consideration that you have this downward slope on the surface
16 of this Triassic as you said to the south, what remedial action
17 could you take if several of the monitor wells on the south
18 side of this leak, you aren't going to trench up the whole south
19 side of the valley, are you?

20 A If we had leaks all the way along the south side?

21 Q Yes.

22 A Well, again --

23 Q Taking into consideration that you have this slope,
24 general regional slope going towards the south?

25 A If I saw a leak all the way along the south side of

1 the pits which in my mind is inconceivable, then the French drain
2 initially would be constructed all the way across that zone.

3 Q But by that time you don't know how far it will have
4 leaked?

5 A Yes, we will because the monitor wells pick it up
6 right away and in the first period of time I think two years
7 if I remember my words, the monitor wells will be inspected on
8 a fairly closely spaced, so, yes, you hit it the minute it hits
9 one of those monitor wells and you dig your French drain and
10 you have captured it right there.

11 Q To the depth of the monitor well. The monitor well
12 will only show what has happened to the depth that it has been
13 drilled?

14 A The monitor well will show if there is going to be
15 a leak in the Triassic, in the whole system, it is going to
16 be along that inner face and that's what your monitor well is
17 going to determine. Our permeability tests show that that clay
18 is well within what the Texas Water Quality Board, for instance,
19 uses as a guideline to call the bottom of a pit impermeable.

20 MR. LUCERO: I don't have anything further.

21 MR. RAMEY: Mr. Stamets.

22

23 CROSS EXAMINATION

24 BY MR. STAMETS:

25 Q Mr. Reed, I presume you are aware that the Commission

1 is responsible for protecting fresh water?

2 A. Yes, sir.

3 Q. From the potentially harmful effects of oil field
4 brine?

5 A. Yes, sir.

6 Q. Now, in examining such an application as this is, is
7 it unreasonable for a body so charged to look at such an
8 application in a worst case basis or to consider the
9 inconceivable?

10 A. No, I think it is legitimate to look at the worst
11 cases.

12 Q. In this particular case would it be unreasonable to
13 require that at least some of the monitor wells be drilled, say
14 ten or twenty-five feet below the base of the pits?

15 A. I would not be opposed to that recommendation.

16 Q. Perhaps you don't know the answer to this question
17 but maybe the original witness would.

18 Is all of the water which is going to go into these
19 pits going to originate in New Mexico or would some of it
20 come across the line from Texas?

21 A. I cannot answer that question.

22 MR. RICHARDS: Mr. Wallach.

23 MR. WALLACH: As far as we know it is all going to
24 come out of New Mexico.

25 MR. RICHARDS: This witness wasn't sworn, would you

1 like to swear him, Mr. Ramey?

2 (THEREUPON, a discussion was held
3 off the record.)

4 MR. STAMETS: That's all of the questions.

5 MR. RICHARDS: May I make a response for the applicant?

6 They haven't solicited nor have they been solicited by any
7 customers because, as you have noted, the uniqueness of the
8 situation, they have contracted with no one to accept materials.
9 I assume you are considering since they won't let us -- they
10 want to steal our Ogallala in Texas anyway we shouldn't let
11 them bring it back brack and I don't think that -- if that's
12 a requirement or a recommendation they will abide by it.
13 Obviously brine being produced in western Andrews County as
14 well as central and southern Lea County fall into this
15 category.

16

17 CROSS EXAMINATION

18 BY MR. RAMEY:

19 Q Mr. Reed, along Mr. Stamets line of questioning,
20 would it be possible, let's just suppose for a minute that the
21 water did seep up from the bottom of the pit and maybe hit a
22 silty zone in the Triassic maybe ten feet below in twenty years
23 or something, would it be possible then that that water could
24 migrate to the south or on the regional slope down this less
25 permeable silty zone and then perhaps intersect another

1 channel of the Triassic and be at the base of the Ogallala?

2 A. Well, yes, if this permeable clay in the bottom of
3 the pit was penetrated and it got into a silty zone it would
4 naturally migrate down that silty zone, down dip, and that
5 down dip is to my knowledge towards the south.

6 Secondly, like you point out, that silty zone
7 would again have to be breached for it to discharge back
8 into the Ogallala.

9 Q. But this is a remote possibility and --

10 A. That's an extremely remote possibility and I just
11 cannot myself conceive of it happening.

12 Q. But it would --

13 A. But that's the mechanics of what would occur, yes.

14 Q. It could be a basis for requiring deeper monitor
15 wells?

16 A. Well, as I said, I would not be opposed to a few of
17 these and I stress the word "few" because I've got a number
18 of monitor wells located here but a few of them to be drilled
19 down to say a little below the level of the ponds for two
20 reasons, to watch this very thing, but perhaps as important as
21 anything, to see what the lithology is down there.

22 MR. RAMEY: Thank you. Any more questions of the
23 witness? He may be excused.

24 (THEREUPON, the witness was excused.)

25 MR. RICHARDS: The applicant is at rest.

1 MR. RAMEY: Do you tender those exhibits?

2 MR. RICHARDS: I move the introduction of Exhibit A
3 to the application for all purposes.

4 MR. RAMEY: Exhibit A is the booklet, the yellow
5 booklet?

6 MR. RICHARDS: Yes, sir.

7 (THEREUPON, Exhibit A was admitted into
8 evidence.)

9 MR. RAMEY: Do you have anything further, Mr. Richards?

10 MR. RICHARDS: No, that is all of the exhibits and
11 the applicant is at rest.

12 MR. RAMEY: Mr. Houston, would you like to take over?

13 MR. SIMS: I would like to call Mr. Sims.

14
15 R. D. SIMS

16 called as a witness, having been first duly sworn, was examined
17 and testified as follows:

18
19 DIRECT EXAMINATION

20 BY MR. HOUSTON:

21 Q State your name and address, please?

22 A R. D. Sims, Eunice, New Mexico.

23 Q And how long have you lived in Eunice, Mr. Sims?

24 A I've lived there sixty-one years, around Eunice,
25 I never lived right in town.

1 Q Do you have a homestead near Eunice?

2 A Yes, sir.

3 Q How far from Eunice, Mr. Sims?

4 A About seven miles.

5 Q And how far is it from the gravel pits that are the
6 subject matter of this hearing?

7 A Probably straight across six or seven miles.

8 Q So you have lived all of your life in that general
9 area?

10 A Yes, sir.

11 Q Are you personally acquainted with these gravel pits?

12 A Well, I've been to them several times.

13 Q Have you observed anything about them that you think
14 would be of material -- are you opposed to this application,
15 first of all?

16 A Yes, sir.

17 Q Can you state in your own words generally why you
18 are opposed to this application?

19 A Well, the Redbed varies, for one reason, and another
20 reason there are fresh water ponds that are there with willows
21 and salt cedar growing out of there, they don't grow in
22 brackish water.

23 Q You feel that there is fresh water standing in
24 these gravel pits, that they are in a fresh water bearing
25 formation?

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1 A. Yes, sir, I feel that it seeps in through the gravel.

2 Q. Now, you heard the testimony that one of those pits,
 3 the one to the west, was rainwater runoff from the rain two
 4 years ago?

5 A. Well, in my mind I wouldn't think so.

6 Q. Was there water there prior to those rains two years
 7 ago?

8 A. Yes, there was water there for several years.

9 Q. Do you know that of your own personal knowledge?

10 A. Yes, sir.

11 Q. Is that in periods of drought, we have had periods of
 12 drought, haven't we?

13 A. Yes, quite a few.

14 Q. Was that water there then?

15 A. Yes, sir.

16 Q. Now, you heard the testimony of Mr. Reed, did you
 17 not?

18 A. Yes, sir.

19 Q. You heard him testify that the Triassic Redbeds do
 20 not transmit water and it varies in thickness from six hundred
 21 feet to a thousand feet. Have you drilled wells in that area?

22 A. Yes, sir.

23 Q. Are those Redbeds that thick?

24 A. At different depths, they will run from shallow to
 25 deep and you run sometimes through a Redbed where it's not over

1 twenty feet through it.

2 Q And then you go into other formations?

3 A Yes, sir. A lot of times you will hit water right
4 on that Redbed and sometimes you will go on down two or three
5 hundred feet and hit water in the Redbed at different depths.

6 Q Now, you heard Mr. Reed testify about his qualifica-
7 tions?

8 A Yes, sir, I heard that.

9 Q That he has worked on the astronaut programs and
10 everything else?

11 A That's not like experience.

12 Q You are just a rancher down there?

13 A Yes, sir.

14 Q You don't belong to any societies or have any
15 geological degrees, do you?

16 A No.

17 Q Do you know what you testified to to be a fact
18 regardless of his theories?

19 A Yes, sir.

20 Q His theories are not true?

21 A No, sir.

22 Q You heard him say that the top of the Triassic
23 represents the base of the fresh water?

24 A Not always.

25 Q And you just got through saying that sometimes right

1 under the Triassic Redbeds you find good fresh water?

2 A. Yes, sir.

3 MR. RICHARDS: I'm going to object to this witness
4 until I can take him on voir dire as to his scientific qualifica-
5 tions as a geologist and this Commission reserve rulings until
6 I have had a chance to cross examine him on his qualifications
7 as to the admissiblity of his testimony.

8 MR. HOUSTON: If it please the Commission, I'm not
9 asking him about his opinion, I'm asking him about facts. He
10 is testifying as to what he personally has done and has observed.

11 MR. RICHARDS: If it please the Commission, what he
12 is and what he is not, Triassic Redbed is a scientific fact.

13 MR. HOUSTON: If I may proceed until the Commission
14 can make its ruling based on --

15 MR. RAMEY: Please proceed, Mr. Houston.

16 Q (Mr. Houston continuing.) Have you observed in the
17 area that there are varying formations there in these pits?

18 A. Well, I wouldn't say they are in the pits but I
19 imagine they are because they are all around it.

20 Q And that's been your opinion from your personal
21 experience?

22 A. Yes, sir.

23 Q Now, are you the head of the South Lea County Fee
24 Land Association?

25 A. Yes, I'm President of it.

1 Q And do most of the fee land owners in that region
2 meet together to discuss common problems?

3 A Yes, sir.

4 Q Did you have a meeting of the fee land owners within
5 the last few weeks concerning this application?

6 A We had two.

7 Q Did they instruct you to come here to protest this
8 application?

9 MR. RICHARDS: Object, hearsay. Objection hearsay.

10 MR. HOUSTON: I didn't ask them what they said. I
11 asked them --

12 MR. RICHARDS: May it please the Commission, Mr.
13 Houston, let me finish my objection. The best evidence of what
14 they did is a resolution or document from the body over the
15 seal of the secretary of the body. Anything less is not
16 evidence of what the corporate body did and I object to this
17 witness attempting to testify. There is no evidence of
18 authority, your honor.

19 MR. HOUSTON: I can clarify that, I think, if you
20 will let me.

21 MR. RAMEY: All right, clarify it.

22 Q (Mr. Houston continuing.) Mr. Sims, your organization
23 is not a corporation, is it?

24 A No, sir.

25 Q It is an association of people who own land in that

1 region, isn't that true?

2 A. Yes, sir.

3 Q. And as such you have no corporate charter, corporate
4 seal or anything else?

5 A. No.

6 Q. And you are not representing that you do have a
7 corporation?

8 A. No.

9 MR. RICHARDS: Then I'm going to further object. If
10 they have no standing as an organization and no bylaws, it is
11 not an organization for which he can speak or testify and his
12 testimony stands on that alone and, again, depriving me of the
13 right of cross examining this amorphous group of people who
14 may have met together, if they have any bylaws they will set
15 out the rights of the president and/or authority of the president
16 and we have no evidence of that.

17 MR. RAMEY: Could you bring this out on cross
18 examination, Mr. Richards?

19 MR. RICHARDS: I will, sir, I object to the testimony
20 at this point, it is just not admissible.

21 MR. RAMEY: We will admit the testimony and consider
22 it for what it's worth.

23 Q. (Mr. Houston continuing.) Mr. Sims, in connection
24 with your drilling water wells in that region over many years,
25 have you encountered this Redbed clay?

1 A. Yes, sir.

2 Q. All right, in that Redbed clay, have you found it to
3 be a solid, that is, not permeable but with no gravel or
4 imperfections in it or what have you found in that?

5 A. Well, sir, you will find different types of clay in
6 it and and you will find gravel streaks and sand in it. It
7 won't all be the same.

8 Q. Have you drilled wells and found that they are
9 generally good or have you had sporadic results six miles
10 away from these gravel pits, for example, where you live and
11 in the area?

12 A. Well, we've got Redbed wells in the area I live in.

13 Q. Do you have good wells that are drilled to the same
14 depth very nearby?

15 A. Yes, sir.

16 Q. How do you account for that?

17 A. We haven't figured it out yet.

18 Q. In other words, there is a water pay that may be
19 very close and you may miss it in one well but hit it in
20 another one?

21 A. That's right. The well that Stevens has right north
22 there, they drilled twelve to fifteen feet from that well and
23 didn't get any water at all and they've got a good vein of
24 water where the well is. It's right to the north of those
25 gravel pits.

1 Q How far to the north would you say?

2 A Probably three-quarters of a mile.

3 Q Now, you heard testimony about that pit to the
4 north that Mr. Wallach dug, that has water standing in it, fresh
5 water and cattails?

6 A Yes, sir.

7 Q How far is it from the pits, do you know?

8 A You mean the well?

9 Q Well, I'm talking about -- you said the Stevens well
10 was three-quarters of a mile. I understood that that cattail
11 pit was three-quarters of a mile from the pits that we are
12 talking about here.

13 A Well, I don't think it's that far. It could be, but
14 I don't think it is.

15 Q Do you have an opinion of how far it is?

16 A No, sir, I don't. I haven't been up there to that
17 north pit.

18 Q Are you acquainted with the old Baker springs?

19 A Yes, sir.

20 Q Do you remember that as being a good water well or
21 what is it?

22 A Well, it's just like these up here, it's a seep. It
23 makes more in wet weather than it does in dry weather but it
24 always watered the cattle that are on that place there before
25 it went dry.

1 Q. Has it gone dry since these gravel pits have been
2 dug?

3 A. Yes, sir.

4 Q. Do you have anything else to add that I haven't
5 brought out?

6 A. I don't believe so.

7 MR. HOUSTON: I believe that's all.

8 MR. RAMEY: Are there any questions of the witness?
9 Mr. Richards?

10
11 CROSS EXAMINATION

12 BY MR. RICHARDS:

13 Q. Is the South Lea County Land Owners Association a
14 corporation organized not for profit or a non-profit organiza-
15 tion, chartered by the New Mexico State Corporation Commission?

16 A. I don't think so.

17 Q. Does it have any bylaws?

18 A. Yes, sir.

19 Q. Does it provide for a secretary recording official
20 actions of the association?

21 A. Yes, sir.

22 Q. Do you have with you any official document by the
23 custodian of the records of the corporation, who I assume is
24 the secretary, of any action or activity by the association
25 regarding this hearing today?

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1 A. I didn't bring them.

2 Q. Do any, in fact, exist?

3 A. Yes, sir.

4 MR. RICHARDS: I move to exclude that portion of
 5 the testimony where he purports to speak for anyone but
 6 himself as not being the best evidence of the action of the
 7 association or the president, Mr. Chairman.

8 (THEREUPON, a discussion was held
 9 off the record.

10 MR. RAMEY: We are going to overrule your objection,
 11 Mr. Richards. Do you have anymore questions of Mr. Sims?

12 MR. RICHARDS: Yes, sir.

13 MR. RAMEY: You may proceed.

14 Q. (Mr. Richards continuing.) I did understand,
 15 Mr. Sims, you told this Commission that you had no training
 16 in geology or hydrology?

17 A. No, sir.

18 Q. Now, you say in drilling water wells down there
 19 you have struck some red material, is that right?

20 A. Right.

21 Q. And below that red material you got some water?

22 A. Yes, sir, we did.

23 Q. Have you ever heard of red Ogallala?

24 A. I don't know Ogallala or whatever it is.

25 Q. You don't know then what the red material really was,

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1 do you, Mr. Sims?

2 A. Yes, I know what red clay is.

3 Q. Do you know what red Ogallala is?

4 A. I suppose it's a red clay.

5 Q. The red Ogallala that you struck then could well be
 6 the red clay that you are talking about, is that right?

7 A. It's red clay, yes.

8 Q. You don't know, do you, when you can't tell this
 9 Commission that as a matter of fact that the red Ogallala which
 10 you struck in drilling water wells is the same as the Triassic
 11 Redbed which Mr. Reed was testifying about?

12 A. It's all the same thing.

13 Q. Tell me, what training and experience are you basing
 14 this knowledge on, Mr. Sims?

15 A. Experience.

16 Q. Just experience?

17 A. Yes, sir.

18 Q. And you are a geologist by experience, is that
 19 right?

20 A. I didn't say that.

21 Q. Okay, sir. You did tell the Commission that the
 22 water is spotty in this area?

23 A. Yes, it sure is.

24 Q. Did you hear Mr. Reed's testimony about the nature
 25 of the Ogallala water as it relates to the topographic map,

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1 figure one behind you?

2 A. I heard Mr. Reed's testimony, yes, sir.

3 Q. Do you understand that that is generally true in
 4 your experience in the area that the Ogallala fingers out and
 5 then begins to develop to the north and east of this area?

6 A. I didn't say that.

7 Q. Well, isn't that correct?

8 A. I don't know what your term of Ogallala is but that
 9 Redbed, it varies in that part of the country --

10 Q. But, Mr. Sims, my question was --

11 MR. HOUSTON: If it please the Commission, I would
 12 like you to instruct counsel to permit the witness to answer
 13 his question and not interrupt him. He has a right to
 14 answer the question.

15 MR. RICHARDS: I would be glad to have him answer
 16 the question if he can answer the question. Go ahead, Mr. Sims.

17 A. I can answer it in my cowboy fashion but I don't
 18 know it in an educated way but we do have the Redbed and it
 19 varies in depth and sometimes it will come up to the top of
 20 the ground and other times it will be deeper and sometimes you
 21 will go through it and it will be shallow in places and deep
 22 in places and a lot of the time you will hit water under it
 23 and a lot of the time you won't.

24 Q. (Mr. Richards continuing.) Now, that is whatever this
 25 red is, whether it is red Ogallala or Triassic Redbeds, is

1 that right?

2 A. Yes, sir.

3 Q. Okay, just tell the Commission if the water, the
4 surface water, gets stronger and more prevalent as you go in
5 this direction from the pits, if you know generally?

6 A. It will get stronger west and south but it is weaker
7 east and southeast but the water travels to the southeast mostly,
8 it travels to the southeast in that part of the country.

9 Q. Now, where in relation to these pits are you?

10 A. Southwest.

11 Q. Southwest, across the so-called Monument Draw?

12 A. Part of my place is in the Draw. I am in the Draw
13 and on the west side of the Draw.

14 Q. Do you have any interest in as an investment or as
15 an operator of a facility for the disposal of oil field brine?

16 A. I don't have any interest in it. There is a
17 disposal well on my place but I don't have no interest in
18 it.

19 Q. Who owns that disposal well?

20 A. Agua.

21 Q. Do you receive any benefits for the operation of
22 this well?

23 A. I receive a lease on the surface.

24 Q. You don't personally own an interest in any disposal
25 facility?

1 A. No, sir, no way.

2 Q. Are you in partnership with any members of your
3 family in the ranching business?

4 A. Yes, sir.

5 Q. Are you in partnership with Pat Sims?

6 A. No.

7 MR. RICHARDS: Nothing further.

8 MR. RAMEY: Mr. Sims, did all of the members of your
9 association support your coming up here or was it a split vote?

10 MR. SIMS: I think there were two votes against it,
11 two that didn't vote, I'll put it that way.

12 MR. RAMEY: Thank you. Mr. Stamets.

13

14 CROSS EXAMINATION

15 BY MR. STAMETS:

16 Q. Mr. Sims, have you drilled any wells near these
17 pits?

18 A. I haven't but my uncle had a ranch just across the
19 line that runs right up to this and I worked for him a lot and
20 he drilled a lot of wells over in there. I don't know how
21 many he did drill but he got very few with water. Ed Tinsel
22 owns the ranch now. They've got the land that the old Baker
23 Springs is on.

24 Q. Did you actually participate in the drilling of any
25 of these wells?

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1 A. I was with him on several wells, yes, sir.

2 Q. How close to the pits?

3 A. Well, I imagine a mile is the closest well.

4 Q. A mile southwest?

5 A. South and east.

6 Q. A mile to the south and east?

7 A. Yes, sir.

8 Q. How deep was that well?

9 A. Well, they drilled them all different depths to try
 10 to get water.

11 Q. Well, this one particular well to the south and
 12 east, do you recall specifically?

13 A. Well, they just drilled to the Redbed on it and I
 14 think to the best of my knowledge, it has been several years,
 15 and to the best of my knowledge it was around sixty feet.

16 Q. So you haven't drilled any wells deeply into the
 17 Redbeds in the immediate vicinity?

18 A. Not right in the immediate vicinity, no.

19 MR. STAMETS: Okay, thank you.

20 MR. RAMEY: Mr. Houston?

21 MR. HOUSTON: I have no further questions.

22 MR. RAMEY: Any other questions of the witness?

23 MR. CLEMENTS: I've got one.

24 MR. RAMEY: Mr. Clements.

25 MR. CLEMENTS: Are there any precautions that you feel

1 like would make this usable, do you have any precautions
2 that you find acceptable on this sort of thing?

3 MR. SIMS: What, to store water in there?

4 MR. CLEMENTS: Right.

5 MR. SIMS: I don't think it's a perfect seal in that
6 formation because on my knowledge and experience the clay is not
7 all, you know, there will be cracks and things in it and I don't
8 think they would find one of them with the wells that they've
9 got around here. I think you would have to have a solid trench
10 around it and then another thing, as heavy as those pits have
11 been shot at times they could have holes going down into some
12 of these little veins that go through that Redbed where there
13 is gravel and sand and different kinds of formations.

14 MR. HOUSTON: Let me ask you in that connection, have
15 you heard the shots?

16 MR. SIMS: Yes, sir, they shook the windows?

17 MR. HOUSTON: Six miles away? You felt the ground
18 vibrate six miles from there?

19 MR. SIMS: Yes, sir.

20 MR. RAMEY: Are there any other questions of the
21 witness? Mr. Lucero?

22

23 CROSS EXAMINATION

24 BY MR. LUCERO:

25 Q You mentioned that Baker Springs had gone dry?

1 A. Yes, sir.

2 Q. How far is this natural spring from water?

3 A. When these gravel pits first got started they started
4 down where they call this Baker Springs and they dug down into
5 this water. This Baker Springs started, Shorty Berry was the
6 first man who started a gravel pit over in that area.

7 Q. Well, how far is this Baker Springs from the present
8 gravel pits?

9 A. It's probably half a mile or three-quarters maybe,
10 in that vicinity.

11 Q. When did it dry up, if you can recall?

12 A. Well, it has been dried up for five or six years,
13 four or five years, or somewhere in that neighborhood. They
14 haven't used it, they finally piped water from the ranch over
15 to the springs, it's on this side of the line.

16 MR. HOUSTON: Was there a big watering just north
17 of this back years ago that produced a lot of water?

18 A. It was northeast of these pits.

19 MR. HOUSTON: Whereabouts was it?

20 A. Well, it's about a mile east of the stateline.

21 MR. HOUSTON: In Texas?

22 A. Yes, sir.

23 MR. HOUSTON: What is the name of that watering?

24 A. They called it the Scratch water, it was the old
25 Scratch headquarters.

1 MR. HOUSTON: How big a well was it?

2 A. It had a four-inch pump in it and it would throw a
3 stream of water almost full with a windmill and it watered
4 several hundred cattle and now it is plumb dry. It went dry
5 about four years ago. The cattle that used to water there, it
6 was the only water for about twelve miles at one time.

7 MR. RAMEY: Mr. Richards, do you have a question?

8 MR. RICHARDS: Let me ask just two, please, Mr.
9 Chairman.

10
11 RECROSS EXAMINATION

12 BY MR. RICHARDS:

13 Q. Mr. Sims, you are aware that the Ogallala is
14 declining, the water levels are declining due to pumping aren't
15 you?

16 A. All of the water is declining.

17 Q. Due to pumping?

18 A. I don't know that it's due to pumping.

19 Q. When do you recall that your windows were shaken?

20 A. They shook several times from these shots. I haven't
21 gotten any in the last year or two but back before then there
22 was --

23 Q. Twenty years ago?

24 A. Oh, no, back three or four years back.

25 Q. You are sure they weren't sonic booms?

1 A. You could see the dirt go up in the air three
2 hundred feet.

3 Q. Fine, I appreciate that. Do you know anything about
4 the Rustler limestones?

5 A. No, sir.

6 MR. RICHARDS: Okay, thank you, that's all.

7 MR. RAMEY: Mr. Ulvog?

8

9 CROSS EXAMINATION

10 BY MR. ULVOG:

11 Q. I had one question. Do you remember when you had
12 been working on these water wells, when you drilled water wells
13 and so on, what the greatest thickness of this red material,
14 Redbed, red clay or whatever, do you remember the most thickness
15 of that that you penetrated?

16 A. No, not too many of them go through the Redbed, most
17 of them will quit when they get down to the Redbed but in
18 certain places they have to go through the Redbed to get any
19 water to amount to anything.

20 Q. When you did that how much Redbed did you go through
21 before you quit?

22 A. Well, it was different depths, it would run from a
23 hundred and fifty feet on down to five or six hundred feet.

24 Q. So how much of the red material would you have cut
25 in any one well, if you can remember, the most you have ever

1 cut through?

2 A. Well, I never did help drill any of the deep wells.

3 Q. I see, so you don't have any knowledge then of the
4 most of that that has ever been penetrated?

5 A. No, sir.

6 MR. ULVOG: Thank you.

7 MR. RAMEY: Any other questions?

8 MR. HOUSTON: No, sir.

9 MR. RAMEY: The witness may be excused. You may
10 call your next witness.

11 MR. HOUSTON: Mr. Fred Boyd.

12

13 FRED BOYD

14 called as a witness, having been first duly sworn, was examined
15 and testified as follows:

16

17 DIRECT EXAMINATION

18 BY MR. HOUSTON:

19 A. Fred Boyd, Box 822, Eunice, New Mexico.

20 Q. What is your occupation, Mr. Boyd?

21 A. Oh, I have a place out there and raise cows and I
22 work for McCasland, drive trucks for him.

23 Q. Drive water trucks?

24 A. Yes, sir.

25 Q. You haul salt water and brine from wells as well as

1 fresh water and brine water?

2 A. Yes, I do and I own a percentage in the brine water
3 wells.

4 Q. In the disposal wells?

5 A. Yes.

6 Q. Where is your place in relation to the gravel pits
7 that are the subject matter here?

8 A. Well, two miles off to the west, right down in the
9 Monument Draw and then four miles to the south, about a mile
10 north of R. D.'s house.

11 Q. How long has your family owned those properties?

12 A. They homesteaded there.

13 Q. So you are a homestead family in that area?

14 A. Yes.

15 Q. Are you acquainted with the gravel pits?

16 A. Yes, I have worked out there with them.

17 Q. When did you work out there?

18 A. I worked for Paul and Bob's daddy out there.

19 Q. You worked there before they got to be grown, is
20 that right?

21 A. Yes, that's right.

22 Q. What kind of work did you do?

23 A. Anything there was to do from running the plant to
24 doing dynamiting to hammering rocks with a sledge hammer so
25 they would go in the crusher or drive trucks or anything that

1 there was to do.

2 Q You heard Mr. Sims' testimony that large shots of
3 explosives were set off?

4 A Yes, sir.

5 Q Did you set off some of the dynamite when you worked
6 there?

7 A Yes.

8 Q What is the largest shot you ever set off in these
9 gravel pits?

10 A The largest shot I ever shot was six tons at one
11 time.

12 Q In these pits?

13 A Uh-huh, and that was at the east side of what I
14 think they are calling Pit Number One, I don't know, if pit
15 number one is the first one south of the office, when they
16 started expanding it back, back to the east, that's when I
17 shot that one shot, of course, I shot all around that country
18 over there for them but that's the biggest one I shot.

19 Q What were the other shots?

20 A On down to one to two sticks.

21 Q Were there any as much as a ton?

22 A No, I doubt if any of them went up to as much as
23 a ton at one time but that one was at six tons I know because
24 I had to wait several hours after I got the holes dug for the
25 truck to come and bring them and we dumped them right off the

1 truck and into the holes.

2 Q Now, were you there when the pits were dug into
3 fresh water?

4 A I was.

5 Q Describe that for the Commission?

6 A When it was dug down to them, of course -- of course,
7 they can't produce any pit, you don't load the screens with
8 anything that is wet. You dig down to it and when it gets too
9 wet you quit and then the next morning the water would be
10 seeped up enough, you know, that you could get a drink or
11 something like that.

12 Q Was it drinking water, drinking water quality?

13 A Yes, I've carried water home from there to cook beans
14 in, it's good soft drinking water.

15 Q Okay.

16 A I took the water home to cook beans in.

17 Q You heard Mr. Wallach testify that his father planted
18 bass there prior to his retirement in '62?

19 A Yes.

20 Q Did you ever fish out there?

21 A I never did but I've looked in and seen the fish and
22 I've watched other people fishing but I never fished.

23 Q Commissioner Lucero asked a question about the green
24 in some of the colored slides that were shown here today, about
25 what vegetation was growing in those pictures. What vegetation

1 grows in those pits?

2 MR. RICHARDS: Pardon me, I want to object to the
3 form of the question, Mr. Chairman, Commissioner Lucero was
4 describing an area outside of the pits and without relation
5 then he later asked about something that is not even shown in
6 the photograph, was there salt cedars in the pits. I think
7 it's a duplicitous question.

8 MR. LUCERO: Excuse me and I'll explain my second
9 question. There was some green in one of those pits over
10 there that I asked about. The first one was as to the general
11 area and then the second one was to some green that appeared
12 in them.

13 Q (Mr. Houston continuing.) What is the vegetation
14 in the general area?

15 A. In the pits or outside of the pits?

16 Q Outside the pits?

17 A. Well, mesquite and I think there is some sagebrush
18 and grass.

19 Q All right, what's the vegetation in the pit?

20 A. The vegetation in the pit, now, the long, steeper
21 one over to the left, the second one, the long deeper one,
22 there are salt cedars growing up to a certain point and right
23 down to that point it has -- I mean, growing down to a certain
24 point and inside that water up to a certain point is cattails.

25 Q Now, this is not the north pit, what has been called

1 the cattail pit?

2 A. No, this is south of the office, this big, long one
3 here and in years back I helped personally set a water pump
4 down in that to pump some water to the thing?

5 Q. How long ago?

6 A. Oh, I would say in the early fifties.

7 Q. In the early 1950's?

8 A. Yes, and there wasn't enough water there, you know,
9 to really supply anything at all but we would run the water
10 pump from time to time to, you know, pump water in the pit
11 to wash the gravel with but it wasn't a big water supply at
12 all.

13 Q. Do you have an opinion as to whether or not these
14 pits are suitable for salt water disposal?

15 A. Well, I'm not here to defend my interest in mine
16 because we truck our own water and I feel that they would get
17 very little business from us whatsoever, if it does I got a
18 living made, I never had it, but in my own mind I doubt it is
19 and, you know, I don't have anything to base it on whatsoever
20 except to say that the water does come to a certain level and
21 that the cattails grow up to a certain level and the salt
22 cedars grow down to a certain level and that indicates to me
23 that there is a definite water level there.

24 Q. There is live water in those pits is what you're
25 saying?

1 A. Yes, I think so.

2 Q. Do you have anything else you would like to add that
3 I haven't asked you about?

4 A. Well, just like he was saying there awhile ago, all
5 of the pits that I worked in which I quit in 1957 and all of
6 the pits that we dug, you know, that the Redbeds channeled off
7 to the west towards Monument Draw, just like he was showing
8 awhile ago, anything that we worked in up there and, of course,
9 the whole business on it is up on the hill, you know, and off
10 to the west is off the hill and off to the south and the west
11 is off the hill which would indicate that there would be
12 a drainage towards Monument Draw and in an old pit that they
13 had down towards -- by their other water stations down in
14 Monument Draw, he produced it awhile but they couldn't sell
15 the sand out of it because it wasn't suitable to the people.
16 There is a sand strata about six foot in the ground which varies
17 and my daddy dug many holes into it to plant fruit trees through
18 a soft caliche that's there and he dug it down into that sand
19 strata which, you know, for the trees to root and if the water
20 ever got to that then it is definite that it would run.

21 Q. If this brine water ever got to this sand strata it
22 would contaminate your --

23 A. It would follow the Redbed on bottom, you know, and
24 it doesn't just go down to our house it goes up north too
25 because I've hauled lots of it out of caliche pits on Eubank's

1 place up further in the draw.

2 Q Are you familiar with Baker Spring?

3 A Yes, I've been there a few times. It has been just
4 years and years and years since I have been there, but I have
5 been there a few times.

6 Q Do you know anything about when it went dry, what
7 Mr. Sims was testifying about?

8 A I didn't know it went dry until I heard some of
9 them talking because I haven't been in there since Monroe
10 Baker died. Whenever he was there I would occasionally visit
11 him and I have been up there two or three different times to
12 his place.

13 MR. HOUSTON: That's all the questions I have.

14 MR. RAMEY: Any questions of the witness?

15 MR. RICHARDS: Please, Mr. Chairman.

16

17 CROSS EXAMINATION

18 BY MR. RICHARDS:

19 Q This fruit tree planting is miles away from this,
20 isn't it?

21 A You're right, possibly straight through it's at least
22 five or six miles that way.

23 Q You don't have any idea what the Redbed configuration
24 is between the two areas, do you?

25 A The only thing I know is that the further away it

1 gets the deeper it gets, I mean, down into the Draw there it
2 gets deeper.

3 Q You say you saw your daddy dig through some soft
4 caliche and found sand under it?

5 A That's right.

6 Q You're not trying to tell this Commission that soft
7 caliche and Triassic Redbeds are the same thing, are you?

8 A No, I'm just trying to say if the water gets to that
9 string of sand which I know is as close as two miles to it
10 then it is going to travel in all of the wells that are drilled
11 and not cased, you know, in that country, it will just trickle
12 right off into them.

13 Q You say you own a disposal well?

14 A I own a half interest.

15 Q Where is it?

16 A Twelve miles northwest of Eunice, straight west of
17 Eunice.

18 Q Do you pump it under pressure?

19 A It all goes on gravity.

20 Q Do you have any test holes around it?

21 A I don't have any test holes around it.

22 Q Do you ever check down there to see what shape
23 that casing is in?

24 A I sure do.

25 Q How?

1 A. I have a continuous check on it.

2 Q. Well, good, tell me how?

3 A. The casing is set and full of treated water and we
4 have gauges on the top of it to meet the State requirements.

5 Q. Good, but you don't have any test holes around it to
6 see if it is leaking out of the Redbed, do you?

7 A. I sure don't.

8 Q. How deep is that well?

9 A. We do know that it is traveling down in the oil pay.
10 It's thirty-eight hundred.

11 Q. Good. When did you set off six tons out there?

12 A. About '55.

13 Q. All right.

14 A. I quit out there in '57, it was just awhile before
15 that.

16 MR. RICHARDS: I believe that's all.

17 MR. RAMEY: Any other questions of the witness? Mr.
18 Stamets?

19

20 CROSS EXAMINATION

21 BY MR. STAMETS:

22 Q. Mr. Boyd, Mr. Reed testified that the gravel pits are
23 kind of in a bowl-shaped area in the Redbeds and that this bowl
24 although it's not complete would contain some water. Do you
25 suppose that is why that water was in there when they were

1 mining this gravel out, that it collected in there over a
2 period of time and when you mined the gravel out you just got
3 down to the water that was sitting there on top of the Redbeds,
4 kind of like dipping sand out of a bathtub, take out the
5 bottom inch?

6 A. You're right but the only thing that I see against
7 that is that the standing water in the pit they are talking
8 about putting the water in, if it's the one I'm thinking about,
9 it holds its own level until the trees grow to it and the
10 cattails grow up out of it, you know.

11 Q. There are a number of pits down there and the one --
12 are you thinking of the pit that is closest to the little
13 black-topped road?

14 A. That's right.

15 Q. That's not what they are calling their pit number one,
16 if I understand it right. That pit number one is that long
17 pit east of this deep pit.

18 A. The one I'm speaking of is the first one south of
19 the office beside the black-topped road.

20 MR. STAMETS: That's all the questions I have.

21 MR. RAMEY: Any other questions of the witness? He
22 may be excused.

23 (THEREUPON, the witness was excused.)

24 MR. HOUSTON: Tom Linebery.
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TOM LINEBERRY

called as a witness, having been first duly sworn, was examined
and testified as follows:

DIRECT EXAMINATION

BY MR. HOUSTON:

Q Your name is Tom Linebery and you live twelve miles
west of Kermit?

A That's right.

Q Do you have a ranch known as the Speed Ranch which is
in the vicinity of Mr. Sims' and Mr. Boyd's property?

A Mr. Sims and Mr. Boyd join me on my extreme west.

Q How close does your property lie to these gravel pits?

A Oh, five or six miles. I have several miles of
Monument Draw that goes through my ranch.

Q Monument Draw runs through your Speed Ranch that
joins Mr. Sims?

A Yes.

Q Does Monument Draw run through your ranch headquarters
down by Wink?

A Right.

Q It's the same draw --

A The same draw.

Q That these gravel pits lie on the east side of?

A East side of.

1 Q You have heard the testimony of all of the witnesses
2 here today, haven't you?

3 A Yes, sir.

4 Q Have you inspected those gravel pits?

5 A Less than a week ago.

6 Q On more than one occasion?

7 A I have been there before.

8 Q And did you go there during the past week, did you
9 go there on two occasions?

10 A One.

11 Q On one occasion?

12 A Right.

13 Q All right, what did you observe?

14 A I saw four pits with water in them that I considered
15 fresh water, it was clear water. It was obvious it wasn't
16 rainwater, it wasn't stagnant. One pit was a little murky,
17 three of them was clear as a crystal. I would have been glad
18 to have a drink of it but if I could have reached it. All of
19 the pits had some salt cedars. One or two of them, two of
20 them I believe, had a willow tree or two growing in it and
21 cattails and it was obvious that the water level in all of the
22 pits was constant, so that indicated there was a steady feed
23 into those pits to me.

24 Q Now, you know the great, big pit that they refer to
25 as their pit number one?

1 A. The big, flat-bottomed one we had out there with
2 the wagon drill in it?

3 Q. Yes.

4 A. Yes.

5 Q. All right, there was debris where there was not
6 activity in various points there?

7 A. Yes.

8 Q. Your testimony is that there are salt cedars in all
9 of the pits and on the edges of the pits and around the debris,
10 is that true?

11 A. No just salt cedars where the water was. I didn't
12 see salt cedars growing up there in what they call the spoils.

13 Q. But that did indicate to you that there is water there?

14 A. I saw the water.

15 Q. Did you observe the red clays in profusion or in
16 limited amounts?

17 A. Well, I was looking for red clay but frankly I saw
18 very little in the banks of those pits that I considered red
19 clay. I saw a sign of some red clay in one of the pits, the
20 big pit. It didn't look like it was good quality clay but it
21 had a pinkish color. I assume maybe there was some clay there
22 but you look straight up and down the banks and I didn't see
23 anything that I would call clay or Redbed or Triassic or
24 whatever you want to call it because I couldn't see how that
25 could be clay part way up the bank and had mined sand and gravel

1 out of it right down to the bottom. I didn't think it quit
2 altogether right there on the edge.

3 Q Now, were those pits generally irregular in the
4 bottoms or are they flat bottoms in general?

5 A One pit had a fairly flat bottom but take it as a
6 whole they were as irregular as you could get anything.

7 Q Now, you heard me ask Mr. Reed about the pit that
8 has the water standing in it that was excavated by Mr. Wallach,
9 Senior and he found water in it or found water but it was
10 just a seepy water. You heard me ask if he observed a well
11 there. He said that he did not recall one. Did you hear me
12 ask him that?

13 A Yes.

14 Q Is there a well there?

15 A Yeah, we got out and looked at it and it's cased with
16 it looked like ten-inch casing, eight or ten. It was an open
17 well, the casing was sticking up above ground level, I
18 guess, and there was an old pump jack there, the base of a
19 pump jack, it looked like it had had a pump jack on it. We
20 looked down this well, we could see the water down there. The
21 well was probably as close to that pit that had the water in
22 it as from me to the end of the table but the water level in
23 this cased well was lower than the level in the pit right
24 by it.

25 Q There is no runoff from rainwater in that pit, is there?

1 A. There is no runoff in that pit and no runoff in
2 that well.

3 Q. And both of them had water in them, fresh water,
4 but at different levels?

5 A. Yes.

6 Q. Did you observe cattails in some of those ponds did
7 you say?

8 A. Yes.

9 Q. Weeping willow trees?

10 A. Weeping willow and salt cedar only where there was
11 what I considered live water did I see such.

12 Q. Now then, have you drilled wells in that area and
13 observed other people drilling wells?

14 A. I drilled a lot of wells just to the southeast of
15 there which would be the east side of Monument Draw and we
16 have used all of that country east of there through the Texas
17 side through the years to run cattle on. I never drilled any
18 water well directly east of these pits but I have probably
19 drilled more deep wells deep into the Redbed than anybody
20 down there.

21 Q. All right, the question was asked awhile ago, how
22 deep the Redbed is or how thick the section is, have you
23 drilled through the Redbed anywhere?

24 A. I never got through the Redbed but I have drilled and
25 got water in the Redbed at about three hundred, three fifty or

1 four fifty and seven fifty.

2 Q In the Redbed?

3 A In the Redbed and when you get this water it is a
4 very thin vein of water, they are weak wells, they just
5 barely water cattle and when you go through that little vein
6 you go right back in the Redbed. I never did get completely
7 through the Redbed so I can't tell you -- the deepest well I
8 ever drilled was around eight hundred feet and I was still in
9 the Redbed so I don't know where it is.

10 Q You heard Mr. Reed testify that the top of the
11 Triassic Redbed represents the base of fresh water?

12 A I heard that but it is sure not true when you get
13 east of Monument Draw. That Redbed over there too is very
14 fractured. You will drill good solid Redbed awhile and then
15 you go into a strip of yellow sand or light colored sand, it
16 looks like a silt. You quit in the evening and maybe you got
17 two hundred feet of hole and you come back the next morning
18 and you haven't got but a seventy-five feet hole. It's very
19 fractured, I guess, porous. It will cave in on you awful bad.
20 I have had to get a well there say two, two fifty and had to
21 case it before I could get any deeper on account of the cave-in
22 problem. It indicates to me that that Redbed is very fractured.
23 I know it is fractured with different formations of sand and
24 silt and occasionally you see a speck of gravel.

25 Q I gather then that you would disagree with Mr. Reed's

1 conclusion that if water escapes it will not leak through the
2 Triassic Redbed?

3 A. If it escaped it could go a lot of places over
4 there from my experience in drilling.

5 Q. Even when you don't make a well does it usually have
6 a seep in it?

7 A. Well, drilling over there in that Redbed there is
8 no such thing as you might say a dry hole. You may not get
9 enough water to pay you to put up a windmill but I never drilled
10 a dry hole. You will get maybe from one to three seeps in it
11 but if you don't get enough to make a windmill it's still not
12 dry but you can't make a water well out of it but every well
13 will yield a little water out of something.

14 Q. Do you have anything else you would like to add? Do
15 you have an opinion as to the feasibility or the desirability
16 of these pits being salt water disposal?

17 A. Well, looking at the formation on the spot and the
18 location and knowing that any drainage from there mainly is
19 to Monument Draw which is the biggest supply of fresh water in
20 that whole area down there, if you put it there and the
21 water got away I think we would have pollution all up and down
22 Monument Draw and referring to this as Ogallala I think this is
23 completely wrong, Ogallala doesn't crop out on the top of the
24 ground anywhere down there that I know of and when you get in
25 Monument Draw, Monument Draw probably has the most porous fill

1 in it of anything in that country. It has lots of shallow
2 water in it but most of the shallow water there carries quick-
3 sand but in Monument Draw you can almost take a high-powered
4 air hose and blow you a well down to that first water. There
5 is nothing solid in the Monument Draw watershed that is on the
6 west side and the immediate bottom to stop anything and
7 if you go down to that first water which is a lot of time
8 quicksand, if you will case it along until you hit a strip of
9 Redbed, set your casings and case that upper water off, quick-
10 sand water off, you can go through about twenty feet of Redbed
11 and get real good water that doesn't have quicksand in it, a
12 bigger supply of water than your first shallow water.

13 When you are talking about this being up there in
14 Ogallala, I think you are wrong. Ogallala in all that country
15 is two fifty to deeper.

16 Q All right, do you have any salt water disposal wells
17 on your ranches?

18 A In Winkler County, Texas.

19 Q Do you have more than one?

20 A One.

21 Q Do you have any in New Mexico?

22 A No. My salt water disposal well is about fifty miles
23 from this one.

24 Q Do you feel that the present use of deep wells to
25 dispose of salt water is a desirable method of disposing of it?

1 A. At least it is the best we know about today and in
2 my opinion I would rather than use a pit as dangerous as this
3 I would rather go back to the old surface pits that you
4 closed several years ago because after all most of them were in
5 clay which is the same Redbed they are talking about. I think
6 really they are less dangerous than what you are talking about
7 here.

8 MR. HOUSTON: That's all I have.

9 MR. RAMEY: Any questions, Mr. Richards?

10
11 CROSS EXAMINATION

12 BY MR. RICHARDS:

13 Q I'm fascinated by that last statement, Mr. Linebery.
14 Are you suggesting that the caliche-type disposal pits that were
15 in use until the Rule 3221 went into effect are the same, are
16 Redbed Triassic clay?

17 A. No.

18 Q. Oh.

19 A. I do know that in most instances those pits were dug
20 in Redbed. Now, in certain areas they were dug in caliche
21 which I am well aware of because I had probably several hundred
22 of them on me at one time and I was instrumental in getting
23 them closed, at least I meant to be, maybe I wasn't.

24 Q Now, do you want to go back to the system that you
25 were against before? Which do you want, Mr. Linebery?

1 A. Well, the way we are doing it, putting it into deep
2 wells and on depleted oil zones I think is the best deal and
3 most of them are doing it.

4 Q. Tell this Commission, sir, how -- number one, do
5 you have any formal training in geology?

6 A. I believe you could answer your own question. No,
7 I don't.

8 Q. Thank you. I get to ask them, Mr. Linebery, I don't
9 have to answer them, sir.

10 Tell the Commission in your own words how this water,
11 and give them the facts upon which you based your conclusion or
12 gave your opinion, that any salt water disposed of in the pits
13 covered by this application is going to escape from property
14 owned by the two Wallach brothers and their sister?

15 A. Well, I base my opinion mostly on I just didn't see
16 any kind of Redbed outcroppings that I heard testimony about
17 here today.

18 Q. That's fine. Now, did you hear Mr. Reed describe
19 this as a swale or a draw?

20 A. Yes.

21 Q. Okay, has it been your experience as a rancher that
22 draws are perfectly vertical sided or do they have more of a
23 bowed effect?

24 A. Well, I never saw a swale that didn't have an outlet
25 so this one drains to someplace.

1 Q Now, Mr. Linebery, the question is, are they
2 vertical walled or are they bowed? Do they have sloping walls
3 or do the walls go straight up and down? What has been your
4 experience to make you an expert, I don't know that?

5 Mr. Linebery, I'm sorry, this Commission under its
6 rules permitted you to give an opinion as to whether there was
7 any Triassic clay material in the side walls of these pits and
8 you inspected and didn't --

9 A I can still give you an opinion that I did not see
10 that kind of Triassic material there.

11 Q Okay. Do the walls in a normal draw go straight up
12 and down or do they bow?

13 A They've usually got a little bit of bevel to them
14 but occasionally you will see one straight up and down.

15 Q Let me show you this. If as Mr. Reed testified the
16 walls slope in in this draw and you can't see the wall beyond
17 the edge of the base of it, how do you know whether there is
18 any Redbed behind that material?

19 A Well, sir, since I didn't see any here and I didn't
20 see the Redbed here and I didn't really think I saw any here
21 I begin to wonder if there is any here or here.

22 Q But you will agree with me, sir, that the pit rim,
23 if the Redbed slopes and the pit rim has material deposited
24 upon it down at the bottom that you have Ogallala material,
25 just stuff up here and you wouldn't be able to see that slope?

1 A. If you could prove to me that it slopes then I might
2 take a new look at it.

3 Q. What would it take to prove to you that it slopes,
4 Mr. Linebery, since you are giving us your opinion?

5 A. Not on the ground out there, we would just have to
6 dig down there to expose it.

7 Q. Do you suppose that drilling over a hundred holes out
8 there to find it and charting it on a map was a satisfactory
9 way to locate it?

10 A. Well, I tell you what I saw out there on the ground.

11 Q. Did you dig any holes in it?

12 A. No, I didn't.

13 Q. Did you hear Mr. Reed testify that he did, sir?

14 A. I heard him say he dug holes, yes, sir.

15 Q. You don't believe what he said he found in his holes?

16 A. I'm not ready to buy it a hundred percent, no.

17 Q. Why is he wrong about what his holes showed, Mr.

18 Linebery?

19 A. Well, I'm not buying it that they all showed Redbeds.

20 MR. RICHARDS: I'll pass the witness.

21 MR. RAMEY: In other words, if you weren't there and
22 saw it you wouldn't believe it?

23 MR. LINEBERY: I just know what I saw on top of the
24 ground and I've got reservations, yes.

25 MR. RAMEY: Any questions of the witness? Mr. Stamets?

CROSS EXAMINATION

BY MR. STAMETS:

Q You mentioned a well, I guess it's there on the grounds of the gravel pit. Now, where is that located? As you drive in you come in on a black-top road and this passes the first pit there that's quite deep and has quite a bit of water in it, it's got a pump and then just on north of that pit is the office and a lot of machinery. Now, where is it located with respect to --

A If you would place your map back up here I could locate it for you.

(THEREUPON, a discussion was held off the record.)

Q (Mr. Stamets continuing.) Now, Mr. Linebery, over there on the left-hand side there is kind of a circle.

A You are talking about a different kind of a map than I thought I had it spotted on.

Q This is good enough to locate it on if you could. If I remember rightly, the pit that was deep, that has the water in it and has the pump is the one right here and then the office and everything is just up here to the north. Now, with those two points would you locate about where that well might be?

A Well, this map doesn't look right. They had one awhile ago that showed that pit up here, I think, and I'd like to see

1 it.

2 (THEREUPON, a discussion was held off
3 the record.)

4 A. This was the pit here and it was probably all of
5 twenty or twenty-five feet straight down to the water in that
6 pit and just right there, ten or eleven feet, not over thirteen
7 feet from the edge of that pit was the cased water well.

8 MR. STAMETS: Mr. Wallach, where is your office at
9 your gravel pit in that location while we are on this?

10 MR. WALLACH: It's back --

11 MR. STAMETS: Could you point it out?

12 MR. WALLACH: Well, it's approximately in the same
13 spot you -- this particular pit is not on the map that you
14 are looking at, this pit that he is talking about.

15 MR. RICHARDS: Bob, he asked you where your office
16 was.

17 MR. WALLACH: All right, the office is right down in
18 this area right here.

19 MR. STAMETS: It is a considerable distance then
20 from the pit and the well that Mr. Linebery went out to see.

21 Q (Mr. Stamets continuing.) Okay, now, you talked
22 about water in four of these pits, now, are these the pits
23 that are right there at the office or are these pits off?

24 A. I'm talking about this pit up here that we just
25 talked about where the well is. Over by the office is another

1 and there were two others.

2 Q Were the other two right there by the office as well?

3 A No, and I'll tell you frankly I have been looking at
4 those maps trying to spot them.

5 Q So of the pits right there in the vicinity of the
6 office, where they are going to put their salt water, only one
7 of those pits contained water at that time?

8 A Yeah.

9 MR. STAMETS: That's all the questions I have.

10 MR. RAMEY: Any other questions of the witness. He
11 may be excused.

12 (THEREUPON, the witness was excused.)

13 MR. RAMEY: Do you have anything further, Mr. Houston?

14 MR. HOUSTON: That's all.

15 MR. RAMEY: Any statements?

16 MR. RICHARDS: May I have some rebuttal testimony,
17 about five minutes worth, sir?

18 MR. RAMEY: Yes, sir.

19 MR. RICHARDS: Thank you. Mr. Reed.

20 (THEREUPON, Mr. Reed was recalled.)

21

22 REDIRECT EXAMINATION OF MR. REED

23 BY MR. RICHARDS:

24 Q You heard ranchers Sims, Boyd and Linebery testify
25 about the Triassic Redbed having water below it and being near

1 the surface and inches to a few feet thick. Do you know what
2 they are describing as the Triassic Redbed and what is it as
3 a scientific fact?

4 A. It sounds very much to me like red zones that you
5 find in the Ogallala, generally well above the Triassic
6 Redbed. I have drilled a number of Ogallala wells and found
7 red, silty, clay zones in the Ogallala, underlain by Ogallala
8 gravel and then in turn underlain by Triassic Redbeds.

9 Q. What is the material that underlies the Triassic
10 Redbeds?

11 A. Under the Triassic are Permian age, quite a bit older
12 formations, again in the upper part red siltstones and clays
13 and down into the limestone and dolomites.

14 Q. To your knowledge, based on your experience, did the
15 red Triassic, red deposit, ever overlay the Ogallala sands?

16 A. No, sir.

17 Q. Can you say that without fear of contradiction?

18 A. Yes, sir.

19 Q. You heard some of these gentlemen testify as to the
20 kinds of water they found in Monument Draw and that it wasn't
21 Ogallala water. You heard them describe that you could almost
22 air drill to it. In your experience, and based upon your
23 training, what do you consider that water to be when you locate
24 it in that manner?

25 A. Well, the ground water in the Eunice area, Monument

1 Draw, is Ogallala water.

2 Q Is there any dispute among hydrologists about that
3 fact?

4 A Not to my knowledge.

5 Q There is obviously some dispute between hydrologists
6 and ranchers about that fact?

7 A Yes, sir.

8 Q Can you site this Commission to any evidence of
9 any sort, whether it be written or otherwise, where a hydrolo-
10 gist has said or a geologist has said that the water in the
11 Monument Draw in the Eunice area is not Ogallala water?

12 A Not to my knowledge.

13 MR. RICHARDS: That's all.

14

15 CROSS EXAMINATION

16 BY MR. HOUSTON:

17 Q Mr. Reed, how many wells have you drilled within
18 six miles of these pits?

19 A Aside from the test holes that I have drilled, I
20 have drilled no other wells in this immediate area.

21 Q How close have you drilled a water well to these
22 pits?

23 A I have drilled them in western Texas. The closest
24 one, an Ogallala well that I drilled, is probably a hundred
25 miles, seventy-five, perhaps, miles to the southeast.

1 Q How close have you drilled a well to the west of --
2 a water well to the west of these pits. You said you drilled
3 them in West Texas, I wonder how close to the west now in
4 New Mexico you have drilled these pits.

5 A I have not drilled any Ogallala wells in this portion
6 of New Mexico. The closest ones that I have watched the
7 drilling on are like I say, about probably seventy-five to a
8 hundred miles to the southeast that are again Ogallala wells
9 underlain by Triassic.

10 Q How deep did you drill down at the pits? What's
11 the deepest well that you drilled at the pits?

12 A I normally just drilled a few feet into the Triassic
13 on all of these holes, a few feet less than fifteen or something
14 like that.

15 Q You used that wagon drill that's out there, I suppose?

16 A For some of those I did, yes.

17 Q What other equipment did you use?

18 A For the core holes in the pits themselves I used a
19 Mayhew truck mounted core rig.

20 Q How deep did you go in those?

21 A The deepest one I went in the pits themselves, my
22 recollection is fifteen to eighteen feet.

23 Q Now, did I understand you to say that you know that
24 you recognize a Triassic Redbed by what underlies it?

25 A No, sir.

sid morrison reporting service
General Court Reporting Service
 825 Calle Mejia, No. 122, Santa Fe, New Mexico 87501
 Phone (505) 982-9212

1 Q How do you recognize a Triassic Redbed?

2 A I recognize a Triassic Redbed by having seen it in
 3 an outcrop in areas. I recognize the Triassic Redbed by its
 4 red clay nature. It is a heavy, red, dense, almost totally
 5 silt and sand free clay with a few siltstone stringers, thin
 6 siltstone stringers.

7 Q You heard Mr. Linebery dispute what your analysis of
 8 the clay was in the bottom of these pits, didn't you?

9 A Yes, I did.

10 Q And you heard him dispute the quality of that clay
 11 from his personal observations?

12 A Yes, sir.

13 Q Now, since the discussion about this cased water well
 14 you still don't remember seeing it?

15 A The cased water well?

16 Q Yes.

17 A Is this the one that is supposedly up by the cattails?

18 Q Yes.

19 A I have not seen that, no, sir.

20 MR. HOUSTON: I believe that's all.

21 MR. STAMETS: I have a question or two.

22 MR. RAMEY: Mr. Stamets.

23 CROSS EXAMINATION

24 BY MR. STAMETS:

25 Q Mr. Reed, have you read Groundwater Report Number Six

1 Geology and Groundwater Conditions of Southern Lea County by
2 Nicholson and Levich, I guess?

3 A. Oh, at one time I think I did but it has been awhile.

4 Q. Would you remember that in this publication there is
5 a section called, Aquifers in Rocks of Triassic Age?

6 A. Yes.

7 Q. And would you recall that it does mention water wells
8 which are completed in the Triassic in southern Lea County?

9 A. There are, as I said in my previous testimony, some
10 Triassic water and again the Triassic water that does occur
11 generally occurs in these silty to sandy zones and again
12 generally in the uppermost portions, to my knowledge.

13 MR. STAMETS: Perhaps the Commission should take
14 administrative note of this report and of that section of
15 the report.

16 I don't have any other questions.

17 MR. RAMEY: Mr. Lucero.

18

19 CROSS EXAMINATION

20 BY MR. LUCERO:

21 Q. Now, you conducted this study and presented certain
22 findings for the purpose of disposing of salt water in certain
23 gravel pits and you have concluded that this Triassic will hold
24 the water with the monitor wells and all that. Have you
25 conducted any other similar studies within, say, ten miles of

1 this area?

2 A. No, not in this immediate area I have not.

3 Q. Have you conducted any similar studies in southern
4 Lea County?

5 A. I have not personally, no.

6 Q. How many studies of this nature have you conducted?

7 A. I have looked at the feasibility of salt water
8 disposal and one salt playa lake in Ward County, Texas. I have
9 investigated the possibility of disposing of waste water from
10 an ammonia plant in the Panhandle which I found totally
11 unacceptable in that particular case. That's all I can
12 remember off the top of my head in the last few years or so.

13 Q. Any with respect to the existing gravel pits with this
14 Triassic formation as in this case?

15 A. No, I have not looked at this particular type of
16 case.

17 Q. So this would be your first one?

18 A. Yes, sir.

19 MR. LUCERO: I have no other questions.

20 MR. RAMEY: Any other questions?

21 MR. RICHARDS: No, not of this witness.

22 MR. RAMEY: The witness may be excused.

23 (THEREUPON, the witness was excused.)

24 (THEREUPON, Mr. Wallach was recalled.)

25

REDIRECT EXAMINATION OF MR. WALLACH

BY MR. RICHARDS:

Q. Let me ask you how many gravel pits there are in Lea County?

A. I'm aware of only two at this time.

Q. Thank you. To clear up for the Commission what the situation is on the pond or the dig-out or the pit that was dug a half to three-quarters of a mile north-northeast of your office facility, when it was done, what it was for and if there was a cased well out there.

A. Well, like I said before, that is where my dad tried to develop water at that time.

Q. Let me ask you, were you successful?

A. Not to the extent where we had enough to operate the plant.

Q. And how many years ago was that?

A. That was probably in 1954 or '55.

Q. Thank you.

A. Now, the well, the casing is right next to the sheer bluff where we dug and we put that strictly in there to pump the water out. There is no pump in the well and there hasn't been a pump in the well for the last -- the pump that is in there wasn't even used for the last eight or ten years.

Q. Was it to pump the water out of the pit or the well beside the pit?

1 A. Well, it was to pump the water out of the pit to the
2 plant and this is what I said about the drilling rig was the
3 last one to use that pit and we tried to furnish some water
4 to them and we didn't get enough and they had to run another
5 line to our plant to pick it up out of the pits there, out of
6 our settling pit where we put the water in from our gravel and
7 they used water from that to drill their well with at that
8 time.

9 MR. RICHARDS: I'll pass the witness.

10 MR. RAMEY: Any questions? Mr. Lucero?

11
12 CROSS EXAMINATION

13 BY MR. LUCERO:

14 Q. I'm just curious about that well. You said that
15 you didn't get enough water to operate the plant, how much
16 water would the plant use if the well would have furnished
17 it?

18 A. Well, I mean this was just for a supplement. It
19 uses a lot of water but we have what we call settling tanks
20 there and we recirculate this water. We get all of our water
21 from the two wells in the Monument Draw and they pump very
22 little water and we supplement with city water. We get most
23 of our water from the City of Eunice and the City of Eunice
24 does not have any wells around Eunice. They get all of their
25 water from the Ogallala formation in Hobbs. It is piped

1 twenty-two miles into the City of Eunice is where they get
2 their water and we purchase water from the City of Eunice to
3 furnish our plant with.

4 Q Was fresh water secured from this well?

5 A There was not enough to run the plant.

6 Q I understand that.

7 A There is water in it now, Commissioner, you know,
8 like we say there are cattails in there, there is a little
9 seepage on the bottom of that thing. This is the furthestest
10 north in that pit area.

11 MR. LUCERO: That's all.

12 MR. RAMEY: Any further questions of the witness?
13 He may be excused.

14 (THEREUPON, the witness was excused.)

15 MR. RICHARDS: The applicant is at rest.

16 MR. RAMEY: Do you have anything further to add,
17 Mr. Richards?

18 MR. RICHARDS: By way of testimony?

19 MR. RAMEY: Or statements?

20 MR. RICHARDS: Mr. Chairman, I would ask that the
21 Commission take judicial notice of its own trip to the site as
22 to whether or not there is a presence of springs or the filling
23 of water in those pits. I'm aware that the Commission made an
24 on-site inspection and I ask them to take administrative
25 notice of their own observations there.

1 MR. LUCERO: I would like to correct the record.
2 This is one Commissioner who did not make an on-site inspection

3 MR. RICHARDS: I'm sorry, I understood that this was
4 going to be a full dress show and --

5 MR. RAMEY: The Director of the Commission and
6 several staff members made the inspection.

7 MR. RICHARDS: I'm sorry, I understood that all
8 three of the Commissioners were going. May I ask the Director
9 to take administrative notice then and share his findings.

10 I think this is, you know, a novel situation, don't
11 make any bones about it. I don't think this Commission has
12 ever had a more detailed and open engineered study of a
13 disposal system as an exception to Rule 3221. I think you have
14 heard the testimony of Mr. Reed. He came in and told you that
15 to do it, to put the necessary safeguards on it, things he
16 would recommend be done.

17 I will not attempt to comment upon the difference
18 in the weight that this Commission should give to the evidence
19 of a well-trained hydrologist with an extensive geological
20 background who Sandia respects enough to hire to do their
21 probably most critical underground hydrological testing that
22 has ever been done in this world and especially in New Mexico
23 near Carlsbad and the ranchers -- I won't even comment on that.
24 They didn't bring any witnesses, they brought cowboy opinions.
25 I think they are welcome to their opinions and this Commission

1 is welcome to give it some weight but you honestly need and as a
2 matter of scientific and fact deserve. I respect these men
3 and like them and maybe the Commissioner asked the right
4 question of Mr. Linebery. If you didn't see it and feel it
5 and touch it and look at it and do it yourself it just didn't
6 happen.

7 I think this will work. These people are in an
8 unique position. Commissioner Lucero doesn't have any gravel
9 pits to compare this one with, it's the physical situation.
10 They have the ability to deepen these pits within the area that
11 is described and covered in the report, to level, to bank with
12 material that is on testing, not on anybody's opinion, this is
13 the test at Southwestern. This is beyond the standard set by
14 the Texas Water Quality Board for this sort of thing, it has
15 got more free board and it can contain it totally within that
16 area. I believe it will work and they are in an unique
17 position, they not only have the area but have the equipment to
18 do the dressing up that will make it work. I consider it to
19 be far superior to the typical playa disposal that we have
20 some around Lea County. There has never been the kind of test
21 done that's done here in a limited and controlled environment.
22 If there is ever another gravel pit, a Triassic trough type
23 application comes, I think this will set the standard of
24 excellence for the review and for the engineering that needs to
25 be done. They will do whatever reasonable restrictions this

1 Commission wants to put on it and if the restrictions this
2 Commission want to put on it are economically impossible to
3 meet then they obviously won't do it at all. I think this may
4 be a construction permit approach and they get a certification
5 of completion according to your requirements and bring it back.

6 That's all I have to say.

7 MR. RAMEY: Mr. Houston.

8 MR. HOUSTON: Mr. Chairman, with due deference to
9 Mr. Reed's scientific qualifications, I think that the
10 experience that these ranchers have brought here to the
11 Commission concerning the formations that they drill into in
12 their water wells is of genuine merit and should be weighed
13 carefully because regardless of what might be written in the
14 text about the nature of this Triassic Redbed, I think that in
15 drilling these wells we know what exists down there in that
16 region.

17 I think Mr. Sims' testimony concerning gravel pockets
18 and sands and other stratas there are without a doubt there.
19 The presence of water is undisputed, the presence of live
20 water.

21 Mr. Richards says that this is a far more desirable
22 method of the disposal of salt water than ponds. We are not
23 here to argue that. I don't think that there is any doubt
24 about it that the disposal of water in depleted oil producing
25 zones is far superior to any surface disposal. We have ample

1 wells in that region that have been depleted to dispose of in.
2 Mr. Linebery's comment that he would rather go back to the
3 small, individual surface pits rather than this gravel pit
4 didn't mean that he wanted to abandon the Commission's present
5 use of disposal wells, rather he was emphasizing the fact that
6 he considered this a great danger to our water supply and I
7 think all of the ranchers feel that way and frankly I think all
8 of the citizens of the area would feel that way if they were
9 apprised of this.

10 I think Mr. Linebery's on-the-site inspection and
11 observation of the base of the bed of the pits is probably
12 more accurate than Mr. Reed's evaluation on it. I'll admit
13 that I've never drilled a well but I went on the site with
14 Mr. Linebery and I did not observe what Mr. Reed testified to
15 here today.

16 MR. RICHARDS: May it please the Commission, if
17 Mr. Houston would like to testify we might as well have the
18 opportunity to cross examine because he is testifying, not closing.

19 MR. HOUSTON: The Commission Director went there and
20 observed it and I trust formed an opinion as to what he saw.

21 Lots of times we get all wrapped up in scientific
22 opinions but as was asked of Mr. Reed, this is his first time
23 to attempt something like this and although I'm willing to give
24 him the benefit of his statement that he thinks that it will
25 work, we certainly don't have any assurance that it will work

1 and I think we are entitled to look at the worst as far as our
2 water supply is concerned to safeguard it and one way of
3 safeguarding it is by the use of disposal wells. There are
4 numerous ones operating in the area and the water is being
5 disposed of and others could be opened up if necessary.

6 I don't think this is a reasonable use for these
7 pits, especially in the location right on the eastern edge of
8 Monument Draw.

9 MR. RAMEY: Thank you, Mr. Houston.

10 MR. RICHARDS: May I rebut? I ask the Commission to
11 take administrative notice of the problems, if any, they are
12 having with subsurface disposal in the Eunice, New Mexico area
13 by disposal wells.

14 MR. RAMEY: Thank you, Mr. Richards. I don't believe
15 you have to remind the Commission of that, they are aware of
16 the problems.

17 MR. RICHARDS: Well, this is in relation to
18 Mr. Houston's statement in this case.

19 MR. RAMEY: Thank you, Mr. Richards, we will take
20 administrative notice of the waterflow problems in the Eunice
21 area.

22 Anything further?

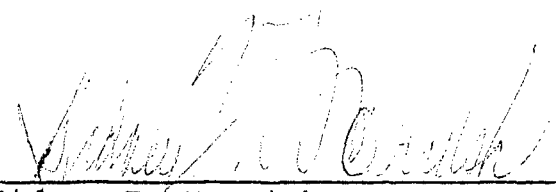
23 MR. RICHARDS: I thank you for your patience.

24 MR. RAMEY: The Commission will take the case under
25 advisement and the hearing is adjourned.

(THEREUPON, the hearing was adjourned.)

REPORTER'S CERTIFICATE

I, SIDNEY F. MORRISH, a Certified Shorthand Reporter,
do hereby certify that the foregoing and attached Transcript
of Hearing before the New Mexico Oil Conservation Commission
was reported by me, and the same is a true and correct record
of the said proceedings to the best of my knowledge, skill and
ability.



Sidney F. Morrish, C.S.R.

sid morrish reporting service

General Court Reporting Service
825 Calle Mejia, No. 122, Santa Fe, New Mexico 87501
Phone (505) 982-9212



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

April 30, 1999

CERTIFIED MAIL
RETURN RECEIPT NO. P-326-936-505

Ms. Donna Roach
Sundance Services, Inc.
P.O. Box 1737
Eunice, New Mexico 88231

RE: OCD Rule 711 Permit Approval NM-01-0003
Sundance Services, Inc.
Parabo Commercial Surface Waste Management Facility
SW/4, Section 29, Township 21 South, Range 38 East, NMPM,
Lea County, New Mexico

Dear Ms. Roach:

The permit application for the Sundance Services, Inc. (Sundance) Parabo commercial surface waste management facility located in the SW/4, Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico **is hereby approved** in accordance with New Mexico Oil Conservation Division (OCD) Rule 711 under the conditions contained in the enclosed attachment. **This permit approval is conditional upon the receipt and approval by the Director of financial assurance in the amount of \$250,000.** According to the schedule outlined in the financial assurance section of the enclosed attachment, 25% of the \$250,000 bond (\$62,500) is required within thirty (30) days of the date of this permit approval letter. The application consists of the permit application Form C-137 dated March 22, 1997, inspection report response letter dated September 5, 1997, supplemental materials dated August 21, 1998 and materials from the hearing files related to Order No. R-5516, August 30, 1977; Order No. R-5516-A, March 18, 1981; Order No. R-5516-B, December 16, 1983; and Order R-5516-C, July 23, 1985.

The construction, operation, monitoring and reporting shall be as specified in the enclosed attachment. All modifications and alternatives to the approved treatment, evaporation and landfill methods must receive prior OCD approval. Sundance is required to notify the Director of any facility expansion or process modification and to file the appropriate materials with the Division.

Ms. Donna Roach
April 30, 1999
Page 2

Please be advised approval of this facility permit does not relieve Sundance Services, Inc. of liability should your operation result in actual pollution of surface water, ground water, or the environment. In addition, OCD approval does not relieve Sundance Services, Inc. of responsibility for compliance with other federal, state or local laws and/or regulations.

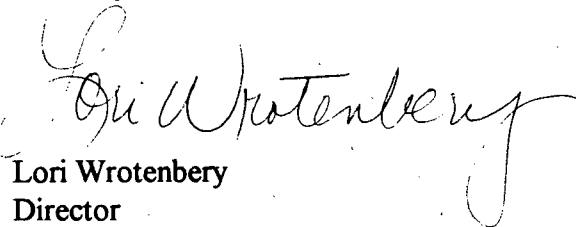
Please be advised that all tanks exceeding 16 feet in diameter and exposed pits, ponds or lagoons must be screened, netted or otherwise rendered non-hazardous to migratory birds. In addition, OCD Rule 310 prohibits oil from being stored or retained in earthen reservoirs or open receptacles.

The Sundance Parabo Commercial Surface Waste Management Facility Permit NM-01-0003 will be reviewed at least once every five (5) years from the date of this approval letter. The facility is subject to periodic inspections by the OCD.

Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the OCD Santa Fe Office within five working days of receipt of this letter.**

If you have any questions please do not hesitate to contact Martyne J. Kieling at (505) 827-7153.

Sincerely,



Lori Wrotenbery
Director

LW/mjk

xc with attachments:
Hobbs OCD Office

ATTACHMENT TO OCD 711 PERMIT APPROVAL
PERMIT NM-01-0003
SUNDANCE SERVICES, INC.,
PARABO WASTE MANAGEMENT FACILITY
SW/4 of Section 29, Township 21 South, Range 38 East, NMPM,
Lea County, New Mexico
(April 30, 1999)

RECEIVING AREA AND TREATING PLANT OPERATION

1. The facility must be fenced and have a sign at the entrance. The sign must be legible from at least fifty (50) feet and contain the following information: a) name of the facility; b) permit number; c) location by section, township and range; and d) emergency phone number.
2. Disposal may occur only when an attendant is on duty. The facility must be secured when no attendant is present.
3. The truck unloading area, jetout area, and solids area must be moved to the Pond Four (4) area by **September 1, 1999**. All material unloading must be either into above-ground tanks with secondary impermeable containment or into below-grade tanks with secondary impermeable liners and leak detection sumps.
4. The skimmer tank must at all times be kept free of appreciable oil buildup to prevent oil flow into the evaporation ponds. Evaporation ponds must be maintained oil free.
5. Existing below grade sumps and tanks must be cleaned and visually inspected annually. Results must be recorded and maintained for OCD review. If sump/tank integrity has failed the OCD must be notified within 48 hours of discovery and the sump/tank contents must be removed and contaminated soils must be removed and either landfarmed or disposed of at an OCD-approved facility. Soil remediation must follow OCD surface impoundment closure guidelines. The permittee must submit a report to the OCD Santa Fe and appropriate District offices that describes the investigation and remedial actions taken.
6. All new or replacement above-ground tanks containing materials other than fresh water must be placed on an impermeable pad and be bermed so that the containment area will hold one and one-third the volume of the largest tank or all interconnected tanks.
7. All above-ground tanks must be bermed to contain one and one-third the volume of the largest tank or all interconnected tanks. All tanks must be labeled as to contents and hazards.
8. All new or replacement below-grade sumps and tanks at the facility must have secondary

impermeable containment with a leak detection monitoring sump. Sumps must be inspected for fluids weekly. Results must be recorded and maintained for OCD review. If fluids are present they must be checked and the analyses must be furnished to the OCD.

9. The receiving and treatment area must be inspected daily for tank, piping and berm integrity.
10. To protect migratory birds, all tanks exceeding 16 feet in diameter and exposed pits, ponds or lagoons must be screened, netted, covered or otherwise rendered nonhazardous to migratory birds.
11. Oil may not be stored or retained in earthen reservoirs or in open receptacles (Rule 310). Sundance shall by **August 1, 1999** remove oil from Ponds One, Five, Six, Seven North and Seven South (1, 5, 6, 7N, and 7S) and maintain them oil free.

EVAPORATION POND OPERATION

1. Evaporation Ponds One, Five and Six (1, 5 and 6) shall have a maximum water height of 3447 feet above sea level with a minimum freeboard two feet below the spill point of the Triassic Red Beds or clay dikes. The installed survey marker must be maintained in the pond to accurately measure freeboard for each pond.
2. Ponds Two and Three (2 and 3) may not be used as evaporation ponds.
3. Pond Four (4) must not receive any additional liquid as of **May 1, 1999**. Pond Four (4) must be decanted and all free liquids must be removed by **May 1, 2002**. Sundance must submit by **December 1, 1999** a detailed plan for the management of the remaining solids within Pond Four (4) to the OCD Santa Fe office for review and approval.
4. Sundance will remove all free liquids from Ponds Seven North (7N) and Seven South (7S) by **October 1, 1999**. Any additional ponding of precipitation must be removed within twenty-four (24) hours of discovery. Sundance must submit a detailed closure plan including post closure care for Ponds 7N and 7S by **December 1, 1999** to the OCD Santa Fe office for review and approval. The Ponds must be closed pursuant to closure conditions to be outlined in the OCD closure plan approval.
5. Sundance must submit a detailed closure plan that will include post closure care by **December 1, 1999** for Pond Eight to the OCD Santa Fe office for review and approval. The pond must be closed pursuant to closure conditions to be outlined in the OCD closure plan approval.
6. No wastes and fluids managed at the facility including those on the surface and in the near surface and subsurface may be allowed to migrate outside of the facility boundary.

7. Facility inspections must be conducted on at least a weekly basis and immediately following each consequential rainstorm or windstorm. The OCD Santa Fe and appropriate District office must be notified **within 24 hours** if any defect is noted. Repairs must be made as soon as possible. If the defect will jeopardize the integrity of the facility additional wastes may not be placed into the facility until repairs have been completed.
8. Liquid reduction technologies that may be used to eliminate pond waters include evaporation.
9. Tests of ambient H₂S levels must be conducted on a weekly basis. Test results must be recorded and retained. The tests must be conducted at four (4) locations at the top of the berm around each of Ponds One, Four, Five and Six (1, 4, 5 and 6). The wind speed and direction must be recorded in conjunction with each test.
 - a. If an H₂S reading of 1.0 ppm or greater is obtained:
 - i. a second reading must be taken on the downwind berm within one hour;
 - ii. the dissolved oxygen and dissolved sulfide levels of the pond must be tested immediately and the need for immediate treatment determined; and
 - iii. tests for H₂S levels must be made at the fence line down wind from the problem pond.
 - b. If two (2) consecutive H₂S readings of 1.0 ppm or greater are obtained:
 - i. the operator must notify the Hobbs office of the OCD immediately;
 - ii. the operator must commence hourly monitoring on a 24-hour basis; and
 - iii. the operator must obtain daily analysis of dissolved sulfides in the pond.
 - c. If an H₂S reading of 10.0 ppm or greater at the facility fence line is obtained:
 - i. the operator must immediately notify the Hobbs office of the OCD and the following public safety agencies:

New Mexico State Police
Lea County Sheriff
Eunice Police Department
Lea County Fire Marshall
Eunice Fire Department; and

- ii. the operator must notify of all persons residing within one-half ($\frac{1}{2}$) mile of the fence line and assist public safety officials with evacuation as requested.

LANDFARM CONSTRUCTION

1. Landfarming must occur only within the area of the former Ponds Two and Three (2 and 3).
2. Contaminated soils may not be placed within twenty (20) feet of any pipelines crossing the landfarm facility. In addition, no equipment may be operated within ten (10) feet of a pipeline. All pipelines crossing the facility must have surface markers identifying the location of the pipelines.
3. The landfarm portion of the facility must be bermed to prevent runoff and runon. A berm no less than two (2) feet above grade must be constructed and maintained such that it is capable of containing precipitation from a one-hundred year flood for that specific region.

LANDFARM OPERATION

1. All contaminated soils received at the landfarm must be spread and disked within 72 hours of receipt.
2. Soils must be spread on the surface in six-inch lifts or less.
3. Soils must be disked a minimum of one time every two weeks (biweekly) to enhance biodegradation of contaminants.
4. Exempt contaminated soils must be placed in the landfarm so that they are physically separate (*i.e.*, *bermed*) from non-exempt contaminated soils. There will be no mixing of exempt and non-exempt soils.
5. Successive lifts of contaminated soils may not be spread until a laboratory measurement of total petroleum hydrocarbons (TPH) in the previous lift is less than 100 parts per million (ppm), the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm, and benzene is less than 10 ppm. Comprehensive records of the laboratory analyses and the sampling locations must be maintained at the facility. Authorization from the OCD must be obtained prior to application of successive lifts and/or removal of the remediated soils.
6. Moisture must be added as necessary to enhance bioremediation and to control blowing dust. There must be no ponding, pooling or run-off of water allowed. Any ponding of precipitation must be removed within twenty-four (24) hours of discovery.

7. Enhanced bio-remediation through the application of microbes (bugs) and/or fertilizers will only be permitted after prior approval from the OCD. Request for application of microbes must include the location of the area designated for the bio-remediation program, the composition of additives, and the method, amount and frequency of application.

GROUND WATER MONITORING

1. Ground water monitoring of the following monitoring wells must be performed quarterly and records of the date, inspector and status of the monitor well must be maintained. Annual reports must be furnished to the OCD Santa Fe office in database form and must include a graphical plot showing water level and chloride trends in each well for all preceding quarters.

2, 2A, 2B, 3, 3A, 3B, 3C, 3D, 3E, 4, 5, 6, 7, 8, 9,
10, 11, 12, 13, 18,
23, 24, 29,
30, 31, 33, 34, 35, 36, 37, 38, 39,
40, 41, 42, 44, 45, 46, 47, 48, 49,
51, 52,
61, 61B, 61C, 61D, 61E, 61F, 63, 68, 68A, 69,
70, 71, 71A, 71EE, 71F, 71FF, 71G, 71GG, 71H, 71HH, 71I, 71II, 71J, 71KK, 71L,
71LL, 71M, 71MM, 71N, 71NN, 71OO, 71P, 71Q, 71S, 71T, 71U, 71W, 71X, 72,
73, 74, 75, 76, 77, 78, 79,
80, 81, 82, 83, 84, 85, 85A, 85B, 85C, 85C1, 85D, 85E, 85H, 85-2, 85-3, 85-4, 85-5,
85-6, 85-7, -85-8, 85-9, 85-10, 85-11, 85-13, 85-14, 85-15, 85-16, 85-17, 85-18, 85-
19, 85-20, 85-21, 86, 87, 87A.
2. Ground water monitoring at Baker Spring located in Section 28, Township 21 South, Range 38 East NMPM, Lea County, New Mexico must be performed on the same quarterly schedule as at the monitoring wells. Records of the date, inspector, spring flow rate and chloride level must be maintained. Annual reports must be furnished to the OCD Santa Fe office in database form and must include a graphical plot showing flow rate and chloride trends at Baker Spring.

WASTE ACCEPTANCE CRITERIA

1. The facility is authorized to accept only:
 - a. Oilfield wastes that are exempt from RCRA Subtitle C regulations and that do not contain Naturally Occurring Radioactive Material (NORM) regulated pursuant to 20 NMAC 3.1 Subpart 1403. All loads of these wastes received at the facility must be

accompanied by a "Generator Certificate of Waste Status" signed by the generator.

- b. "Non-hazardous" non-exempt oilfield wastes on a case-by-case basis after conducting a hazardous waste characterization including corrosivity, reactivity, ignitability, and toxic constituents. The samples for these analyses must be obtained from the wastes prior to removal from the generator's facility and without dilution in accordance with EPA SW-846 sampling procedures. All "non-hazardous" non-exempt wastes received at the facility must be accompanied by:
 - i. An approved OCD Form C-138 "Request For Approval To Accept Solid Waste."
 - ii. A "Generator Certificate of Waste Status" signed by the generator.
 - iii. A verification of waste status issued by the appropriate agency for wastes generated outside OCD jurisdiction. The agency verification is based on specific information on the subject waste submitted by the generator and demonstrating the non-hazardous classification of the waste.
 - c. Non-oilfield wastes that are non-hazardous by testing if ordered by the Department of Public Safety in a public health emergency. OCD approval must be obtained prior to accepting the wastes.
2. At no time may any OCD-permitted surface waste management facility accept wastes that are determined to be RCRA Subtitle C hazardous wastes by either listing or characteristic testing.
 3. The transporter of any wastes to the facility must supply a certification that the wastes delivered are those wastes received from the generator and that no additional materials have been added.
 4. No free liquids or soils with free liquids must be accepted at the landfarm portion of the facility.
 5. No produced water must be received at the facility from motor vehicles unless the transporter has a valid Form C-133, "Authorization to Move Produced Water" on file with the Division.
 6. Comprehensive records of all material disposed of at the surface waste management facility must be maintained by Sundance Services, Inc. and must be available for OCD review.

REPORTING AND RECORD KEEPING

1. Results of the quarterly ground water monitoring must be recorded and annual reports must be furnished in database form to the OCD Santa Fe and Hobbs offices for review. The annual report must include a graphical plot showing water level and chloride trends in each well for all preceding quarters.
2. The Sundance Services, Inc., must notify the **OCD Hobbs District office within 24 hours** of any fire, break, leak, spill, blowout or any other circumstance that could constitute a hazard or contamination in accordance with OCD Rule 116.
3. Comprehensive records of all material disposed of at the facility must be maintained at the facility. The records for each load must include: 1) generator; 2) origin; 3) date received; 4) quantity; 5) certification of exempt status or analysis for hazardous constituents if non-exempt; 6) NORM status declaration; 7) transporter; 8) exact cell location; and 9) any addition of microbes, moisture, fertilizers, *etc.*
4. The OCD must be notified prior to the installation of any pipelines or wells or other construction within the boundaries of the facility.

FINANCIAL ASSURANCE

1. Financial assurance in the amount of **\$250,000** in the form of a surety or cash bond or a letter of credit, which is approved by the Division, is required from Sundance Services, Inc. for the commercial surface waste management facility.

By May 31, 1999 Sundance Services, Inc. must submit 25% of the financial assurance in the amount of **\$62,500**.

By May 31, 2000 Sundance Services, Inc. must submit 50% of the financial assurance in the amount of **\$125,000**.

By May 31, 2001 Sundance Services, Inc. must submit 75% of the financial assurance in the amount of **\$187,500**.

By May 31, 2002 Sundance Services, Inc. must submit 100% of the financial assurance in the amount of **\$250,000**.

2. The facility is subject to periodic inspections by the OCD. The conditions of this permit and the facility will be reviewed no later than five (5) years from the date of permit approval. In addition, the closure cost estimate will be reviewed according to prices and

remedial work estimates at the time of review. The financial assurance may be adjusted to incorporate any closure cost changes.

CLOSURE

1. The OCD Santa Fe and Hobbs District offices must be notified when operation of the facility is discontinued for a period in excess of six (6) months or when the facility is to be dismantled. Upon cessation of operations for six (6) consecutive months, the operator must complete cleanup of constructed facilities and restoration of the facility site within the following six (6) months, unless an extension of time is granted by the Director.
2. A closure plan to include the following procedures must be submitted to the OCD Santa Fe office for approval :
 - a. When the facility is to be closed no new material will be accepted.
 - b. All evaporation ponds will be allowed to evaporate. Any water not evaporated will be hauled to an OCD-approved facility. The ponds will be surveyed for NORM.
 - c. All solids pits will be closed according to an approved closure plan that includes a post closure care period.
 - d. All above and below grade tanks will be emptied and any waste will be hauled to an OCD-approved facility. The empty tanks will be removed.
 - e. Existing landfarm soils will be remediated until they meet the OCD standards in effect at the time of closure.
 - f. The area will be contoured, seeded with a native seed mix and allowed to return to its natural state. If the landowner desires to keep existing structures, berms, and fences for future alternative uses the structures may be left in place.
 - g. Closure will be pursuant to all OCD requirements in effect at the time of closure, and any other applicable local, state and/or federal regulations.

CERTIFICATION

Sundance Services, Inc., by the officer whose signature appears below, accepts this permit and agrees to comply with all terms and conditions contained herein. Sundance Services, Inc. further acknowledges that these conditions and requirements of this permit may be changed administratively by the Division for good cause shown as necessary to protect ground water, surface water, human health and the environment.

Accepted:

SUNDANCE SERVICES, INC.

Signature _____ Title _____ Date _____



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

May 9, 2001

Lori Wrotenbery
Director
Oil Conservation Division

CERTIFIED MAIL
RETURN RECEIPT NO. 7099-3220-0000-5051-2238

Ms. Donna Roach
Sundance Services, Inc.
P.O. Box 1737
Eunice, New Mexico 88231

RE: Sundance Services, Inc., Permit NM-01-0003
SW/4, Section 29, Township 21 South, Range 38 East, NMPM,
Lea County, New Mexico

Dear Ms. Roach:

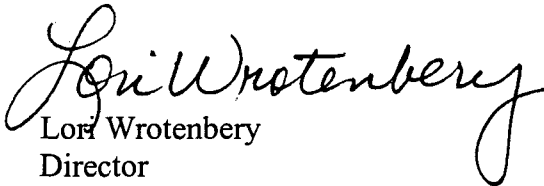
The New Mexico Oil Conservation Division (OCD) has determined that the following listed waste streams may be disposed of at Sundance Services, Inc., (Sundance) pursuant to Permit NM-01-0003 without the necessity of prior written authorization of the Division:

- (a) Barrels, drums, 5-gallon buckets, 1-gallon containers so long as empty and EPA-clean.
- (b) Uncontaminated brush and vegetation arising from clearing operations.
- (c) Uncontaminated concrete.
- (d) Uncontaminated construction debris.
- (e) Detergent buckets, so long as completely empty.
- (f) Fiberglass tanks so long as the tank is empty, cut up or shredded, and EPA clean.
- (g) Grease buckets, so long as empty and EPA clean.
- (h) Uncontaminated ferrous sulfate or elemental sulfur so long as recovery and sale as a raw material is not possible.
- (i) Metal plate and metal cable.
- (j) Paper and paper bags, so long as empty (paper bags).
- (k) Plastic pit liners, so long as cleaned well.
- (l) Soiled rags or gloves. If wet, must pass Paint Filter Test prior to disposal.
- (m) Uncontaminated wood pallets.

Please be advised that approval to accept these wastes does not relieve Sundance of liability should your operation result in pollution of surface water, ground water, or the environment. In addition, OCD approval does not relieve Sundance of responsibility for compliance with other federal, state or local laws and/or regulations.

If you have any questions please do not hesitate to contact Roger Anderson at (505) 476-3490.

Sincerely,



Lori Wrotenbery
Director

LW/mjk

xc with attachments:
Hobbs OCD Office

**ATTACHMENT TO OCD 711 PERMIT APPROVAL
PERMIT NM-01-0003
SUNDANCE SERVICES, INC.,
PARABO WASTE MANAGEMENT FACILITY
SW/4 of Section 29, Township 21 South, Range 38 East, NMPM,
Lea County, New Mexico
(April 30, 1999)**

RECEIVING AREA AND TREATING PLANT OPERATION

1. The facility must be fenced and have a sign at the entrance. The sign must be legible from at least fifty (50) feet and contain the following information: a) name of the facility; b) permit number; c) location by section, township and range; and d) emergency phone number.
2. Disposal may occur only when an attendant is on duty. The facility must be secured when no attendant is present.
3. The truck unloading area, jetout area, and solids area must be moved to the Pond Four (4) area by **September 1, 1999**. All material unloading must be either into above-ground tanks with secondary impermeable containment or into below-grade tanks with secondary impermeable liners and leak detection sumps.
4. The skimmer tank must at all times be kept free of appreciable oil buildup to prevent oil flow into the evaporation ponds. Evaporation ponds must be maintained oil free.
5. Existing below grade sumps and tanks must be cleaned and visually inspected annually. Results must be recorded and maintained for OCD review. If sump/tank integrity has failed the OCD must be notified within 48 hours of discovery and the sump/tank contents must be removed and contaminated soils must be removed and either landfarmed or disposed of at an OCD-approved facility. Soil remediation must follow OCD surface impoundment closure guidelines. The permittee must submit a report to the OCD Santa Fe and appropriate District offices that describes the investigation and remedial actions taken.
6. All new or replacement above-ground tanks containing materials other than fresh water must be placed on an impermeable pad and be bermed so that the containment area will hold one and one-third the volume of the largest tank or all interconnected tanks.
7. All above-ground tanks must be bermed to contain one and one-third the volume of the largest tank or all interconnected tanks. All tanks must be labeled as to contents and hazards.
8. All new or replacement below-grade sumps and tanks at the facility must have secondary

impermeable containment with a leak detection monitoring sump. Sumps must be inspected for fluids weekly. Results must be recorded and maintained for OCD review. If fluids are present they must be checked and the analyses must be furnished to the OCD.

9. The receiving and treatment area must be inspected daily for tank, piping and berm integrity.
10. To protect migratory birds, all tanks exceeding 16 feet in diameter and exposed pits, ponds or lagoons must be screened, netted, covered or otherwise rendered nonhazardous to migratory birds.
11. Oil may not be stored or retained in earthen reservoirs or in open receptacles (Rule 310). Sundance shall by **August 1, 1999** remove oil from Ponds One, Five, Six, Seven North and Seven South (1, 5, 6, 7N, and 7S) and maintain them oil free.

EVAPORATION POND OPERATION

1. Evaporation Ponds One, Five and Six (1, 5 and 6) shall have a maximum water height of 3447 feet above sea level with a minimum freeboard two feet below the spill point of the Triassic Red Beds or clay dikes. The installed survey marker must be maintained in the pond to accurately measure freeboard for each pond.
2. Ponds Two and Three (2 and 3) may not be used as evaporation ponds.
3. Pond Four (4) must not receive any additional liquid as of **May 1, 1999**. Pond Four (4) must be decanted and all free liquids must be removed by **May 1, 2002**. Sundance must submit by **December 1, 1999** a detailed plan for the management of the remaining solids within Pond Four (4) to the OCD Santa Fe office for review and approval.
4. Sundance will remove all free liquids from Ponds Seven North (7N) and Seven South (7S) by **October 1, 1999**. Any additional ponding of precipitation must be removed within twenty-four (24) hours of discovery. Sundance must submit a detailed closure plan including post closure care for Ponds 7N and 7S by **December 1, 1999** to the OCD Santa Fe office for review and approval. The Ponds must be closed pursuant to closure conditions to be outlined in the OCD closure plan approval.
5. Sundance must submit a detailed closure plan that will include post closure care by **December 1, 1999** for Pond Eight to the OCD Santa Fe office for review and approval. The pond must be closed pursuant to closure conditions to be outlined in the OCD closure plan approval.
6. No wastes and fluids managed at the facility including those on the surface and in the near surface and subsurface may be allowed to migrate outside of the facility boundary.

7. Facility inspections must be conducted on at least a weekly basis and immediately following each consequential rainstorm or windstorm. The OCD Santa Fe and appropriate District office must be notified **within 24 hours** if any defect is noted. Repairs must be made as soon as possible. If the defect will jeopardize the integrity of the facility additional wastes may not be placed into the facility until repairs have been completed.
8. Liquid reduction technologies that may be used to eliminate pond waters include evaporation.
9. Tests of ambient H₂S levels must be conducted on a weekly basis. Test results must be recorded and retained. The tests must be conducted at four (4) locations at the top of the berm around each of Ponds One, Four, Five and Six (1, 4, 5 and 6). The wind speed and direction must be recorded in conjunction with each test.
 - a. If an H₂S reading of 1.0 ppm or greater is obtained:
 - i. a second reading must be taken on the downwind berm within one hour;
 - ii. the dissolved oxygen and dissolved sulfide levels of the pond must be tested immediately and the need for immediate treatment determined; and
 - iii. tests for H₂S levels must be made at the fence line down wind from the problem pond.
 - b. If two (2) consecutive H₂S readings of 1.0 ppm or greater are obtained:
 - i. the operator must notify the Hobbs office of the OCD immediately;
 - ii. the operator must commence hourly monitoring on a 24-hour basis; and
 - iii. the operator must obtain daily analysis of dissolved sulfides in the pond.
 - c. If an H₂S reading of 10.0 ppm or greater at the facility fence line is obtained:
 - i. the operator must immediately notify the Hobbs office of the OCD and the following public safety agencies:

New Mexico State Police
Lea County Sheriff
Eunice Police Department
Lea County Fire Marshall
Eunice Fire Department; and

- ii. the operator must notify of all persons residing within one-half (½) mile of the fence line and assist public safety officials with evacuation as requested.

LANDFARM CONSTRUCTION

1. Landfarming must occur only within the area of the former Ponds Two and Three (2 and 3).
2. Contaminated soils may not be placed within twenty (20) feet of any pipelines crossing the landfarm facility. In addition, no equipment may be operated within ten (10) feet of a pipeline. All pipelines crossing the facility must have surface markers identifying the location of the pipelines.
3. The landfarm portion of the facility must be bermed to prevent runoff and runoff. A berm no less than two (2) feet above grade must be constructed and maintained such that it is capable of containing precipitation from a one-hundred year flood for that specific region.

LANDFARM OPERATION

1. All contaminated soils received at the landfarm must be spread and disked within 72 hours of receipt.
2. Soils must be spread on the surface in six-inch lifts or less.
3. Soils must be disked a minimum of one time every two weeks (biweekly) to enhance biodegradation of contaminants.
4. Exempt contaminated soils must be placed in the landfarm so that they are physically separate (*i.e.*, *bermed*) from non-exempt contaminated soils. There will be no mixing of exempt and non-exempt soils.
5. Successive lifts of contaminated soils may not be spread until a laboratory measurement of total petroleum hydrocarbons (TPH) in the previous lift is less than 100 parts per million (ppm), the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm, and benzene is less than 10 ppm. Comprehensive records of the laboratory analyses and the sampling locations must be maintained at the facility. Authorization from the OCD must be obtained prior to application of successive lifts and/or removal of the remediated soils.
6. Moisture must be added as necessary to enhance bioremediation and to control blowing dust. There must be no ponding, pooling or run-off of water allowed. Any ponding of precipitation must be removed within twenty-four (24) hours of discovery.

7. Enhanced bio-remediation through the application of microbes (bugs) and/or fertilizers will only be permitted after prior approval from the OCD. Request for application of microbes must include the location of the area designated for the bio-remediation program, the composition of additives, and the method, amount and frequency of application.

GROUND WATER MONITORING

1. Ground water monitoring of the following monitoring wells must be performed quarterly and records of the date, inspector and status of the monitor well must be maintained. Annual reports must be furnished to the OCD Santa Fe office in database form and must include a graphical plot showing water level and chloride trends in each well for all preceding quarters.

2, 2A, 2B, 3, 3A, 3B, 3C, 3D, 3E, 4, 5, 6, 7, 8, 9,
10, 11, 12, 13, 18,
23, 24, 29,
30, 31, 33, 34, 35, 36, 37, 38, 39,
40, 41, 42, 44, 45, 46, 47, 48, 49,
51, 52,
61, 61B, 61C, 61D, 61E, 61F, 63, 68, 68A, 69,
70, 71, 71A, 71EE, 71F, 71FF, 71G, 71GG, 71H, 71HH, 71I, 71II, 71J, 71KK, 71L,
71LL, 71M, 71MM, 71N, 71NN, 71OO, 71P, 71Q, 71S, 71T, 71U, 71W, 71X, 72,
73, 74, 75, 76, 77, 78, 79,
80, 81, 82, 83, 84, 85, 85A, 85B, 85C, 85C1, 85D, 85E, 85H, 85-2, 85-3, 85-4, 85-5,
85-6, 85-7, -85-8, 85-9, 85-10, 85-11, 85-13, 85-14, 85-15, 85-16, 85-17, 85-18, 85-
19, 85-20, 85-21, 86, 87, 87A.

2. Ground water monitoring at Baker Spring located in Section 28, Township 21 South, Range 38 East NMPM, Lea County, New Mexico must be performed on the same quarterly schedule as at the monitoring wells. Records of the date, inspector, spring flow rate and chloride level must be maintained. Annual reports must be furnished to the OCD Santa Fe office in database form and must include a graphical plot showing flow rate and chloride trends at Baker Spring.

WASTE ACCEPTANCE CRITERIA

1. The facility is authorized to accept only:
 - a. Oilfield wastes that are exempt from RCRA Subtitle C regulations and that do not contain Naturally Occurring Radioactive Material (NORM) regulated pursuant to 20 NMAC 3.1 Subpart 1403. All loads of these wastes received at the facility must be

accompanied by a "Generator Certificate of Waste Status" signed by the generator.

- b. "Non-hazardous" non-exempt oilfield wastes on a case-by-case basis after conducting a hazardous waste characterization including corrosivity, reactivity, ignitability, and toxic constituents. The samples for these analyses must be obtained from the wastes prior to removal from the generator's facility and without dilution in accordance with EPA SW-846 sampling procedures. All "non-hazardous" non-exempt wastes received at the facility must be accompanied by:
 - i. An approved OCD Form C-138 "Request For Approval To Accept Solid Waste."
 - ii. A "Generator Certificate of Waste Status" signed by the generator.
 - iii. A verification of waste status issued by the appropriate agency for wastes generated outside OCD jurisdiction. The agency verification is based on specific information on the subject waste submitted by the generator and demonstrating the non-hazardous classification of the waste.
 - c. Non-oilfield wastes that are non-hazardous by testing if ordered by the Department of Public Safety in a public health emergency. OCD approval must be obtained prior to accepting the wastes.
2. At no time may any OCD-permitted surface waste management facility accept wastes that are determined to be RCRA Subtitle C hazardous wastes by either listing or characteristic testing.
 3. The transporter of any wastes to the facility must supply a certification that the wastes delivered are those wastes received from the generator and that no additional materials have been added.
 4. No free liquids or soils with free liquids must be accepted at the landfarm portion of the facility.
 5. No produced water must be received at the facility from motor vehicles unless the transporter has a valid Form C-133, "Authorization to Move Produced Water" on file with the Division.
 6. Comprehensive records of all material disposed of at the surface waste management facility must be maintained by Sundance Services, Inc. and must be available for OCD review.

REPORTING AND RECORD KEEPING

1. Results of the quarterly ground water monitoring must be recorded and annual reports must be furnished in database form to the OCD Santa Fe and Hobbs offices for review. The annual report must include a graphical plot showing water level and chloride trends in each well for all preceding quarters.
2. The Sundance Services, Inc., must notify the **OCD Hobbs District office within 24 hours** of any fire, break, leak, spill, blowout or any other circumstance that could constitute a hazard or contamination in accordance with OCD Rule 116.
3. Comprehensive records of all material disposed of at the facility must be maintained at the facility. The records for each load must include: 1) generator; 2) origin; 3) date received; 4) quantity; 5) certification of exempt status or analysis for hazardous constituents if non-exempt; 6) NORM status declaration; 7) transporter; 8) exact cell location; and 9) any addition of microbes, moisture, fertilizers, *etc.*
4. The OCD must be notified prior to the installation of any pipelines or wells or other construction within the boundaries of the facility.

FINANCIAL ASSURANCE

1. Financial assurance in the amount of **\$250,000** in the form of a surety or cash bond or a letter of credit, which is approved by the Division, is required from Sundance Services, Inc. for the commercial surface waste management facility.

By May 31, 1999 Sundance Services, Inc. must submit 25% of the financial assurance in the amount of **\$62,500**.

By May 31, 2000 Sundance Services, Inc. must submit 50% of the financial assurance in the amount of **\$125,000**.

By May 31, 2001 Sundance Services, Inc. must submit 75% of the financial assurance in the amount of **\$187,500**.

By May 31, 2002 Sundance Services, Inc. must submit 100% of the financial assurance in the amount of **\$250,000**.

2. The facility is subject to periodic inspections by the OCD. The conditions of this permit and the facility will be reviewed no later than five (5) years from the date of permit approval. In addition, the closure cost estimate will be reviewed according to prices and

remedial work estimates at the time of review. The financial assurance may be adjusted to incorporate any closure cost changes.

CLOSURE

1. The OCD Santa Fe and Hobbs District offices must be notified when operation of the facility is discontinued for a period in excess of six (6) months or when the facility is to be dismantled. Upon cessation of operations for six (6) consecutive months, the operator must complete cleanup of constructed facilities and restoration of the facility site within the following six (6) months, unless an extension of time is granted by the Director.
2. A closure plan to include the following procedures must be submitted to the OCD Santa Fe office for approval :
 - a. When the facility is to be closed no new material will be accepted.
 - b. All evaporation ponds will be allowed to evaporate. Any water not evaporated will be hauled to an OCD-approved facility. The ponds will be surveyed for NORM.
 - c. All solids pits will be closed according to an approved closure plan that includes a post closure care period.
 - d. All above and below grade tanks will be emptied and any waste will be hauled to an OCD-approved facility. The empty tanks will be removed.
 - e. Existing landfarm soils will be remediated until they meet the OCD standards in effect at the time of closure.
 - f. The area will be contoured, seeded with a native seed mix and allowed to return to its natural state. If the landowner desires to keep existing structures, berms, and fences for future alternative uses the structures may be left in place.
 - g. Closure will be pursuant to all OCD requirements in effect at the time of closure, and any other applicable local, state and/or federal regulations.

Sundance Services, Inc.
711 Permit NM-01-0003
April 30, 1999
Page 9

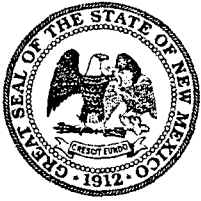
CERTIFICATION

Sundance Services, Inc., by the officer whose signature appears below, accepts this permit and agrees to comply with all terms and conditions contained herein. Sundance Services, Inc. further acknowledges that these conditions and requirements of this permit may be changed administratively by the Division for good cause shown as necessary to protect ground water, surface water, human health and the environment.

Accepted:

SUNDANCE SERVICES, INC.

Signature Donna Roach Title President Date 6-17-99



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON

Governor

Betty Rivera

Acting Cabinet Secretary

February 18, 2002

Lori Wrotenbery

Director

Oil Conservation Division

CERTIFIED MAIL

RETURN RECEIPT NO. 7099-3220-0000-5051-2771

Ms. Donna Roach
Sundance Services, Inc.
P.O. Box 1737
Eunice, New Mexico 88231

**RE: OCD Rule 711 Permit Modification Approval NM-01-0003
Sundance Services, Inc. Commercial Surface Waste Management Facility
SW/4, Section 29, Township 21 South, Range 38 East, NMPM,
Lea County, New Mexico**

Dear Ms. Roach:

The permit application for the Sundance Services, Inc. (Sundance) commercial surface waste management facility located in the SW/4, Section 29, Township 21 South, Range 38 East, NMPM, Lea County, New Mexico is hereby approved in accordance with New Mexico Oil Conservation Division (OCD) Rule 711 under the conditions contained in the enclosed attachment. This permit approval is conditional upon the receipt and approval by the Director of financial assurance in the amount of \$250,000. A cash bond for \$187,500 is already on file and according to the schedule outlined in the financial assurance section of the enclosed attachment the full \$250,000 will be due November 30, 2002. The application consists of the permit application Form C-137 dated October 22, 2001, supplemental materials dated March 9, 2001, the original permit application dated March 22, 1997 and materials from the hearing files related to Order No. R-5516, issued on August 30, 1977; Order No. R-5516-A, issued on March 18, 1981; Order No. R-5516-B, issued on December 16, 1983; and Order R-5516-C, issued on July 23, 1985.

The construction, operation, monitoring and reporting shall be as specified in the enclosed attachment. All modifications and alternatives to the approved treatment, evaporation and landfill methods must receive prior OCD approval. Sundance is required to notify the Director of any facility expansion or process modification and to file the appropriate materials with the Division.

Please be advised approval of this facility permit does not relieve Sundance Services, Inc. of liability should your operation result in actual pollution of surface water, ground water, or the environment. In addition, OCD approval does not relieve Sundance Services, Inc. of responsibility for compliance with other federal, state or local laws and/or regulations.

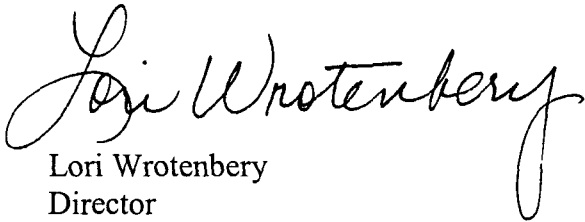
Please be advised that all tanks exceeding 16 feet in diameter and exposed pits, ponds or lagoons must be screened, netted or otherwise rendered non-hazardous to migratory birds. In addition, OCD Rule 310 prohibits oil from being stored or retained in earthen reservoirs or open receptacles.

The facility is subject to periodic inspections by the OCD. The conditions of this permit will be reviewed by the OCD no later than five (5) years from the date of this approval and the facility will be inspected at least once a year. In addition, the closure cost estimate will be reviewed according to prices and remedial work estimates at the time of the five (5) year review. The financial assurance may be adjusted to incorporate any closure cost changes.

Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the OCD Santa Fe Office within five working days of receipt of this letter.**

If you have any questions please do not hesitate to contact Martyne J. Kieling at (505) 476-3488.

Sincerely,

A handwritten signature in black ink, reading "Lori Wrotenbery". The signature is fluid and cursive, with the first name "Lori" being more prominent and the last name "Wrotenbery" written in a continuous script.

Lori Wrotenbery
Director

LW/mjk

xc with attachments:
Hobbs OCD Office

ATTACHMENT TO OCD 711 PERMIT MODIFICATOIN APPROVAL
PERMIT NM-01-0003
SUNDANCE SERVICES, INC.,
COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY
SW/4 of Section 29, Township 21 South, Range 38 East, NMPM,
Lea County, New Mexico
(February 18, 2002)

OVERALL FACILITY OPERATION

1. The facility must be fenced and have a sign at the entrance. The sign must be legible from at least fifty (50) feet and contain the following information: a) name of the facility; b) permit number; c) location by section, township and range; and d) emergency phone number.
2. Disposal may occur only when an attendant is on duty. The facility must be secured when no attendant is present.
3. All liquid/fluid material unloading must be either into above-ground tanks with secondary impermeable containment or into below-grade tanks with secondary liners.
4. Pond Four (4) must not receive any additional liquid. Pond Four (4) must be decanted and all free liquids must be actively and continuously removed.
5. The jet-out tank must at all times be kept free of appreciable oil buildup to prevent oil flow into the evaporation ponds. Evaporation ponds must be maintained oil free.
7. Oil must be removed daily from the concrete settling, separation and mixing impoundment (Solids Bin 4).
8. Below-grade sumps and below-grade tanks must be cleaned and visually inspected annually. Results must be recorded and maintained at the facility for OCD review. If sump/tank integrity has failed the OCD must be notified within 48 hours of discovery and the sump/tank must be replaced.
9. All new or replacement above-ground tanks containing materials other than fresh water must be placed on an impermeable pad and be bermed so that the containment area will hold one and one-third the volume of the largest tank or all interconnected tanks.
10. All above-ground tanks must be bermed to contain one and one-third the volume of the largest tank or all interconnected tanks. All tanks must be labeled as to contents and hazards.

11. The receiving and treatment area must be inspected daily for tank, piping and berm integrity.
12. To protect migratory birds, all tanks exceeding 16 feet in diameter and exposed pits, ponds or lagoons must be screened, netted, covered or otherwise rendered nonhazardous to migratory birds.
13. Within 24 hours of receiving notification from the OCD that an objectionable odor has been detected or reported, the facility must implement the following response procedure:
 - a. log date and approximate time of notice that an odor exists;
 - b. log investigative steps taken, including date and time, and conclusions reached; and
 - c. log actions taken to alleviate the odor, which may include adjusting chemical treatment, air sparging, solidification, landfarming, or other similar responses.

A copy of the log, signed and dated by the facility manager, must be maintained for OCD review.

EVAPORATION POND OPERATION

1. Evaporation Ponds One, Two, Three, Five and Six (1, 2, 3, 5 and 6) shall have maximum water levels as follows:
 - Pond 1, 3447 feet above sea level;
 - Pond 2, 3459 feet above sea level;
 - Pond 3, 3459 feet above seal level;
 - Pond 5, 3447 feet above sea level; and
 - Pond 6, 3447 feet above sea level.

The installed survey marker must be maintained in the pond to accurately measure the fluid level for each pond. In addition, the Triassic red beds or clay dikes surrounding each pond must be monitored so that a minimum two (2) foot free board between the surveyed maximum water level of that pond and the top of the dike is maintained.

2. The monitor wells 61, 61D, 61E, and 61F must be plugged with cement from bottom to top prior to the expansion of Pond Six (6). The exact method of placement and volume of material used to plug the wells must be submitted to the OCD Santa Fe and Hobbs offices for approval before the work is done.

3. The existing dike surrounding Pond Six (6) may be expanded to enclose the area proposed in the application. The dike expansion must be constructed such that the clay is toed and compacted into the existing clay dike and Triassic red beds along the base and both ends. Upon completion of construction, "as built" diagrams of the pond with new dike shall be submitted to the OCD Santa Fe and Hobbs offices. The "as built" diagrams must include the surveyed height of the dike.
4. The monitor wells 61B, 61C, 74, 75 and 76 outside of the new dike area must be monitored in accordance with the groundwater monitoring requirements of this permit. If any fluid is detected, Sundance must immediately notify the OCD. Within 15 days of the notification, Sundance must submit a written proposal to determine the source. If the source is determined to be Pond Six (6), then Sundance must discontinue discharges to the pond and submit a proposal for repairing or closing the pond.

H₂S PREVENTION & CONTINGENCY PLAN

1. Tests of ambient H₂S levels must be conducted on a weekly basis. Test results must be recorded and retained. The tests must be conducted at four (4) locations at the top of the berm around each of Ponds One, Two, Three, Four, Five and Six (1, 2, 3, 4, 5 and 6). The wind speed and direction must be recorded in conjunction with each test.
 - a. If an H₂S reading of 1.0 ppm or greater is obtained:
 - i. a second reading must be taken on the downwind berm within one hour;
 - ii. the dissolved oxygen and dissolved sulfide levels of the pond must be tested immediately and the need for immediate treatment determined; and
 - iii. tests for H₂S levels must be made at the fence line down wind from the problem pond.
 - b. If two (2) consecutive H₂S readings of 1.0 ppm or greater are obtained:
 - i. the operator must notify the Hobbs office of the OCD immediately;
 - ii. the operator must commence hourly monitoring on a 24-hour basis; and
 - iii. the operator must obtain daily analysis of dissolved sulfides in the pond.

- c. If an H₂S reading of 10.0 ppm or greater at the facility fence line is obtained:
 - i. the operator must immediately notify the Hobbs office of the OCD and the following public safety agencies:

New Mexico State Police
Lea County Sheriff
Eunice Police Department
Lea County Fire Marshall
Eunice Fire Department; and
 - ii. the operator must notify all persons residing within one-half (½) mile of the fence line and assist public safety officials with evacuation as requested.

LANDFILL OPERATION

1. Pits Seven North (7N), Seven South (7S) and Eight (8) may be used as a solid waste landfill.
2. The landfill may not contain any free liquid. Any ponding or pooling of precipitation must be removed within 24 hours of discovery. Any current sludge contained within pits 7N, 7S, and 8 must be squeezed and solidified so that the landfill can be compacted, capped and closed as proposed in the application.
3. No free liquids or waste with free liquids may be accepted into the landfill. Materials that may be accepted into the landfill portion of the facility must pass a paint filter test by EPA Method 9095A prior to disposal.
4. Landfill inspection and maintenance must be conducted on at least a daily basis and immediately following each consequential rainstorm or windstorm. If any defect is noted, repairs must be made as soon as possible. If the defect will jeopardize the integrity of the landfill, the OCD Hobbs office must be notified within 24 hours and the landfill may not be operated until repairs have been completed. Records of such inspections must be made available to the OCD upon request.
5. Any trash accepted into the facility containing paper, paper bags or other trash that has the potential for blowing away or being transported by other vectors must be covered with soil upon the day of delivery and disposal into the solid waste pit.
6. The facility must be inspected on a regular basis for litter that may have blown out of the landfill. Stray litter, including trapped litter in vegetation or fencing, must be picked up

and returned to the landfill cell.

7. No wastes or fluids managed at the facility including those on the surface and in the near surface and subsurface may be allowed to migrate outside of the facility boundary.

BELOW GRADE SOLIDS RECEIVING PIT CONSTRUCTION

1. The Solids Bin 4, a concrete settling, separation, and mixing impoundment, must be constructed of reinforced concrete with a minimum 30 mm plastic secondary liner. The seams on the concrete impoundment must be sealed. The new construction must be completed in accordance with the designs submitted as part of the application.
2. Upon completion of construction, "as built" diagrams of the concrete mixing impoundment shall be submitted to the OCD Santa Fe and Hobbs District offices.
3. Construction must commence on the concrete mixing impoundment within one (1) year of the permit approval date.

LANDFARM CONSTRUCTION

1. Construction must commence on the landfarm area within one (1) year of the permit approval date. If construction does not commence within one (1) year of the permit approval date, the landfarm provisions of this permit will be of no effect.
2. Contaminated soils may not be placed within one hundred (100) feet of adjacent property.
3. Contaminated soils may not be placed within twenty (20) feet of any pipeline crossing the landfarm. In addition, no equipment may be operated within ten (10) feet of a pipeline. All pipelines crossing the facility must have surface markers identifying the location of the pipelines.
4. The portion of the facility containing contaminated soils must be bermed to prevent runoff and runoff. A perimeter berm no less than two (2) feet above grade with a base of at least three (3) feet must be constructed and maintained such that it is capable of containing precipitation from a one-hundred year flood for the specific region. Individual cells must be contained with a berm no less than two (2) feet above grade with a base of at least three (3) feet.

LANDFARM OPERATION

1. All contaminated soils received at the facility must be spread and disked within 72 hours of receipt.
2. Soils must be spread on the surface in lifts of six inches or less.
3. Soils must be disked a minimum of one time every two weeks (biweekly) to enhance biodegradation of contaminants.
4. Exempt contaminated soils must be placed in the landfarm so that they are physically separate (*i.e.*, bermed) from non-exempt contaminated soils. There may be no mixing of exempt and non-exempt soils.
5. Successive lifts of contaminated soils may not be spread until a laboratory measurement of total petroleum hydrocarbons (TPH) in the previous lift is less than 100 parts per million (ppm), the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm, and benzene is less than 10 ppm. Comprehensive records of the laboratory analyses and the sampling locations must be maintained at the facility. Authorization from the OCD must be obtained prior to application of successive lifts and/or removal of the remediated soils.
6. Moisture may be added as necessary to enhance bio-remediation and to control blowing dust. There may be no ponding, pooling or run-off of water allowed. Any ponding of precipitation must be removed within twenty-four (24) hours of discovery.
7. Enhanced bio-remediation through the application of microbes (bugs) and/or fertilizers requires prior approval from the OCD. Requests for application of microbes or fertilizers must include the location of the area designated for the program, the composition of additives, and the method, amount and frequency of application.
8. Landfarm inspection and maintenance must be conducted on at least a biweekly basis and immediately following each consequential rainstorm or windstorm. If any defect is noted, repairs must be made as soon as possible. If the defect will jeopardize the integrity of the landfarm the OCD Santa Fe and Hobbs offices must be notified within 24 hours and additional wastes may not be placed into the landfarm until repairs have been completed.

TREATMENT ZONE MONITORING

1. Prior to waste acceptance, one (1) background soil sample must be taken from the center portion of the landfarm two (2) feet below the native ground surface. The sample must be analyzed for total petroleum hydrocarbons (TPH), volatile aromatic organics (BTEX), major cations/anions and Water Quality Control Commission (WQCC) metals.

2. A treatment zone not to exceed three (3) feet beneath the landfarm native ground surface must be monitored. A minimum of one random soil sample must be taken from each individual cell, with no cell being larger than five (5) acres, six (6) months after the first contaminated soils are received in the cell and then quarterly thereafter. The sample must be taken at two (2) to three (3) feet below the native ground surface.
3. The soil samples must be analyzed using EPA-approved methods for total petroleum hydrocarbons (TPH) and volatile aromatic organics (BTEX) quarterly and for major cations/anions and Water Quality Control Commission (WQCC) metals annually.
4. After soil samples are obtained, the boreholes must be filled with an impermeable material such as cement or bentonite.

GROUND WATER MONITORING

1. Ground water monitoring of the following monitoring wells must be performed quarterly and records of the date, inspector and status of the monitor well must be maintained. Annual reports must be furnished to the OCD Santa Fe and Hobbs offices in database form and must include a graphical plot showing water level and chloride trends in each well for all preceding quarters.

2, 2A, 2B, 3, 3A, 3B, 3C, 3D, 3E, 4, 5, 6, 7, 8, 9,
10, 11, 12, 13, 18,
23, 24, 29,
30, 31, 33, 34, 35, 36, 37, 38, 39,
40, 41, 42, 44, 45, 46, 47, 48, 49,
51, 52,
61B, 61C, 63, 68, 68A, 69,
70, 71, 71A, 71EE, 71F, 71FF, 71G, 71GG, 71H, 71HH, 71I, 71II, 71J, 71KK,
71L, 71LL, 71M, 71MM, 71N, 71NN, 71OO, 71P, 71Q, 71S, 71T, 71U, 71W,
71X, 72, 73, 74, 75, 76, 77, 78, 79,
80, 81, 82, 83, 84, 85, 85A, 85B, 85C, 85C1, 85D, 85E, 85H, 85-2, 85-3, 85-4,
85-5, 85-6, 85-7, -85-8, 85-9, 85-10, 85-11, 85-13, 85-14, 85-15, 85-16, 85-17,
85-18, 85-19, 85-20, 85-21, 86, 87, 87A.
2. Ground water monitoring at Baker Spring located in Section 28, Township 21 South, Range 38 East NMPM, Lea County, New Mexico must be performed on the same quarterly schedule as at the monitoring wells. Records of the date, inspector, spring flow rate and chloride level must be maintained. Annual reports must be furnished to the OCD Santa Fe and Hobbs offices in database form and must include a graphical plot showing flow rate and chloride trends at Baker Spring.

WASTE ACCEPTANCE CRITERIA

1. The facility is authorized to accept only:
 - a. Oilfield wastes that are exempt from RCRA Subtitle C regulations and that do not contain Naturally Occurring Radioactive Material (NORM) regulated pursuant to 20 NMAC 3.1 Subpart 1403. All loads of these wastes received at the facility must be accompanied by a "Generator Certificate of Waste Status" signed by the generator.
 - b. "Non-hazardous" non-exempt oilfield wastes on a case-by-case basis after conducting a hazardous waste characterization including corrosivity, reactivity, ignitability, and toxic constituents. The samples for these analyses must be obtained from the wastes prior to removal from the generator's facility and without dilution in accordance with EPA SW-846 sampling procedures. All "non-hazardous" non-exempt wastes received at the facility must be accompanied by:
 - i. An approved OCD Form C-138 "Request For Approval To Accept Solid Waste."
 - ii. A "Generator Certificate of Waste Status" signed by the generator.
 - iii. A verification of waste status issued by the appropriate agency for wastes generated outside OCD jurisdiction. The agency verification is based on specific information on the subject waste submitted by the generator and demonstrating the non-hazardous classification of the waste.
 - c. Non-oilfield wastes that are non-hazardous by testing if ordered by the Department of Public Safety in a public health emergency. OCD approval must be obtained prior to accepting the wastes.
2. At no time may any OCD-permitted surface waste management facility accept wastes that are determined to be RCRA Subtitle C hazardous wastes by either listing or characteristic testing.
3. The transporter of any wastes to the facility must supply a certification that the wastes delivered are those wastes received from the generator and that no additional materials have been added.
4. No free liquids or soils with free liquids must be accepted at the landfarm or landfill portion of the facility.

5. No produced water must be received at the facility from motor vehicles unless the transporter has a valid Form C-133, "Authorization to Move Produced Water" on file with the Division.
6. Comprehensive records of all material disposed of at the surface waste management facility must be maintained by Sundance Services, Inc. and must be available for OCD review.

REPORTING AND RECORD KEEPING

1. Quarterly ground water monitoring results must be furnished annually to the OCD Santa Fe and Hobbs offices in accordance with the groundwater monitoring provisions of this permit.
2. Background sample analytical results must be submitted to the OCD Santa Fe office **within thirty (30) days** of receipt from the laboratory.
3. Analytical results from the treatment zone monitoring must be submitted to the OCD Santa Fe office **within thirty (30) days** of receipt from the laboratory.
4. Records of facility inspections and maintenance must be kept and maintained for OCD review.
5. Sundance Services, Inc. must notify the **OCD Hobbs District office within 24 hours** of any fire, break, leak, spill, blowout or any other circumstance that could constitute a hazard or contamination in accordance with OCD Rule 116.
6. Comprehensive records of all material disposed of at the facility must be maintained at the facility. The records for each load must include: 1) generator; 2) origin; 3) date received; 4) quantity; 5) certification of exempt status or analysis for hazardous constituents if non-exempt; 6) NORM status declaration; 7) transporter; 8) exact cell or pit location; and 9) any addition of microbes, moisture, fertilizers, *etc.*
7. The OCD must be notified prior to the installation of any pipelines or wells or other construction within the boundaries of the facility.

FINANCIAL ASSURANCE

1. Financial assurance in the amount of **\$250,000** in the form of a surety or cash bond or a letter of credit, which is approved by the Division, is required from Sundance Services, Inc. for the commercial surface waste management facility by November 30, 2002.

2. The facility is subject to periodic inspections by the OCD. The conditions of this permit and the facility will be reviewed no later than five (5) years from the date of permit approval. In addition, the closure cost estimate will be reviewed according to prices and remedial work estimates at the time of review. The financial assurance may be adjusted to incorporate any closure cost changes.

CLOSURE

1. The OCD Santa Fe and Hobbs offices must be notified when operation of the facility is to be discontinued for a period in excess of six (6) months or when the facility is to be dismantled. Within six (6) months after discontinuing use or within 30 days of deciding to dismantle the facility a closure plan must be submitted to the OCD Santa Fe office for approval. The operator must complete cleanup of constructed facilities and restoration of the facility site within six (6) months of receiving the closure plan approval, unless an extension of time is granted by the Director.
2. A closure plan to include the following procedures must be submitted to the OCD Santa Fe office for approval :
 - a. When the facility is to be closed no new material will be accepted.
 - b. All evaporation ponds will be allowed to evaporate. Any water not evaporated will be hauled to an OCD-approved facility. The ponds will be surveyed for NORM.
 - c. All solids pits will be closed according to an approved closure plan that includes a post closure care period.
 - d. All above and below grade tanks will be emptied and any waste will be hauled to an OCD-approved facility. The empty tanks must be removed.
 - e. Existing landfarm soils will be remediated until they meet the OCD standards in effect at the time of closure.
 - f. The area will be contoured, seeded with a native seed mix and allowed to return to its natural state. If the landowner desires to keep existing structures, berms, and fences for future alternative uses the structures may be left in place.
 - g. Closure will be pursuant to all OCD requirements in effect at the time of closure.

CERTIFICATION

Sundance Services, Inc., by the officer whose signature appears below, accepts this permit and agrees to comply with all terms and conditions contained herein. Sundance Services, Inc. further acknowledges that these conditions and requirements of this permit may be changed administratively by the Division for good cause shown as necessary to protect ground water, surface water, human health and the environment.

Accepted:

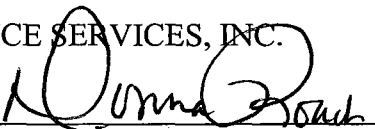
SUNDANCE SERVICES, INC.

Signature _____ Title _____ Date _____

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Sundance Services, Inc., by the officer whose signature appears below, accepts this permit and agrees to comply with all terms and conditions contained herein. Sundance Services, Inc. further acknowledges that these conditions and requirements of this permit may be changed administratively by the Division for good cause shown as necessary to protect ground water, surface water, human health and the environment.

Accepted:

SUNDANCE SERVICES, INC.
Signature  Title President Date 2-26-02

ATTACHMENT TO OCD 711 PERMIT MODIFICATOIN APPROVAL
PERMIT NM-01-0003
SUNDANCE SERVICES, INC.,
COMMERCIAL SURFACE WASTE MANAGEMENT FACILITY
SW/4 of Section 29, Township 21 South, Range 38 East, NMPM,
Lea County, New Mexico
(February 18, 2002)

OVERALL FACILITY OPERATION

1. The facility must be fenced and have a sign at the entrance. The sign must be legible from at least fifty (50) feet and contain the following information: a) name of the facility; b) permit number; c) location by section, township and range; and d) emergency phone number.
2. Disposal may occur only when an attendant is on duty. The facility must be secured when no attendant is present.
3. All liquid/fluid material unloading must be either into above-ground tanks with secondary impermeable containment or into below-grade tanks with secondary liners.
4. Pond Four (4) must not receive any additional liquid. Pond Four (4) must be decanted and all free liquids must be actively and continuously removed.
5. The jet-out tank must at all times be kept free of appreciable oil buildup to prevent oil flow into the evaporation ponds. Evaporation ponds must be maintained oil free.
7. Oil must be removed daily from the concrete settling, separation and mixing impoundment (Solids Bin 4).
8. Below-grade sumps and below-grade tanks must be cleaned and visually inspected annually. Results must be recorded and maintained at the facility for OCD review. If sump/tank integrity has failed the OCD must be notified within 48 hours of discovery and the sump/tank must be replaced.
9. All new or replacement above-ground tanks containing materials other than fresh water must be placed on an impermeable pad and be bermed so that the containment area will hold one and one-third the volume of the largest tank or all interconnected tanks.
10. All above-ground tanks must be bermed to contain one and one-third the volume of the largest tank or all interconnected tanks. All tanks must be labeled as to contents and hazards.

11. The receiving and treatment area must be inspected daily for tank, piping and berm integrity.
12. To protect migratory birds, all tanks exceeding 16 feet in diameter and exposed pits, ponds or lagoons must be screened, netted, covered or otherwise rendered nonhazardous to migratory birds.
13. Within 24 hours of receiving notification from the OCD that an objectionable odor has been detected or reported, the facility must implement the following response procedure:
 - a. log date and approximate time of notice that an odor exists;
 - b. log investigative steps taken, including date and time, and conclusions reached; and
 - c. log actions taken to alleviate the odor, which may include adjusting chemical treatment, air sparging, solidification, landfarming, or other similar responses.

A copy of the log, signed and dated by the facility manager, must be maintained for OCD review.

EVAPORATION POND OPERATION

1. Evaporation Ponds One, Two, Three, Five and Six (1, 2, 3, 5 and 6) shall have maximum water levels as follows:
 - Pond 1, 3447 feet above sea level;
 - Pond 2, 3459 feet above sea level;
 - Pond 3, 3459 feet above seal level;
 - Pond 5, 3447 feet above sea level; and
 - Pond 6, 3447 feet above sea level.

The installed survey marker must be maintained in the pond to accurately measure the fluid level for each pond. In addition, the Triassic red beds or clay dikes surrounding each pond must be monitored so that a minimum two (2) foot free board between the surveyed maximum water level of that pond and the top of the dike is maintained.

2. The monitor wells 61, 61D, 61E, and 61F must be plugged with cement from bottom to top prior to the expansion of Pond Six (6). The exact method of placement and volume of material used to plug the wells must be submitted to the OCD Santa Fe and Hobbs offices for approval before the work is done.

3. The existing dike surrounding Pond Six (6) may be expanded to enclose the area proposed in the application. The dike expansion must be constructed such that the clay is toed and compacted into the existing clay dike and Triassic red beds along the base and both ends. Upon completion of construction, "as built" diagrams of the pond with new dike shall be submitted to the OCD Santa Fe and Hobbs offices. The "as built" diagrams must include the surveyed height of the dike.
4. The monitor wells 61B, 61C, 74, 75 and 76 outside of the new dike area must be monitored in accordance with the groundwater monitoring requirements of this permit. If any fluid is detected, Sundance must immediately notify the OCD. Within 15 days of the notification, Sundance must submit a written proposal to determine the source. If the source is determined to be Pond Six (6), then Sundance must discontinue discharges to the pond and submit a proposal for repairing or closing the pond.

H₂S PREVENTION & CONTINGENCY PLAN

1. Tests of ambient H₂S levels must be conducted on a weekly basis. Test results must be recorded and retained. The tests must be conducted at four (4) locations at the top of the berm around each of Ponds One, Two, Three, Four, Five and Six (1, 2, 3, 4, 5 and 6). The wind speed and direction must be recorded in conjunction with each test.
 - a. If an H₂S reading of 1.0 ppm or greater is obtained:
 - i. a second reading must be taken on the downwind berm within one hour;
 - ii. the dissolved oxygen and dissolved sulfide levels of the pond must be tested immediately and the need for immediate treatment determined; and
 - iii. tests for H₂S levels must be made at the fence line down wind from the problem pond.
 - b. If two (2) consecutive H₂S readings of 1.0 ppm or greater are obtained:
 - i. the operator must notify the Hobbs office of the OCD immediately;
 - ii. the operator must commence hourly monitoring on a 24-hour basis; and
 - iii. the operator must obtain daily analysis of dissolved sulfides in the pond.

- c. If an H₂S reading of 10.0 ppm or greater at the facility fence line is obtained:
 - i. the operator must immediately notify the Hobbs office of the OCD and the following public safety agencies:

New Mexico State Police
Lea County Sheriff
Eunice Police Department
Lea County Fire Marshall
Eunice Fire Department; and
 - ii. the operator must notify all persons residing within one-half (½) mile of the fence line and assist public safety officials with evacuation as requested.

LANDFILL OPERATION

1. Pits Seven North (7N), Seven South (7S) and Eight (8) may be used as a solid waste landfill.
2. The landfill may not contain any free liquid. Any ponding or pooling of precipitation must be removed within 24 hours of discovery. Any current sludge contained within pits 7N, 7S, and 8 must be squeezed and solidified so that the landfill can be compacted, capped and closed as proposed in the application.
3. No free liquids or waste with free liquids may be accepted into the landfill. Materials that may be accepted into the landfill portion of the facility must pass a paint filter test by EPA Method 9095A prior to disposal.
4. Landfill inspection and maintenance must be conducted on at least a daily basis and immediately following each consequential rainstorm or windstorm. If any defect is noted, repairs must be made as soon as possible. If the defect will jeopardize the integrity of the landfill, the OCD Hobbs office must be notified within 24 hours and the landfill may not be operated until repairs have been completed. Records of such inspections must be made available to the OCD upon request.
5. Any trash accepted into the facility containing paper, paper bags or other trash that has the potential for blowing away or being transported by other vectors must be covered with soil upon the day of delivery and disposal into the solid waste pit.
6. The facility must be inspected on a regular basis for litter that may have blown out of the landfill. Stray litter, including trapped litter in vegetation or fencing, must be picked up

and returned to the landfill cell.

7. No wastes or fluids managed at the facility including those on the surface and in the near surface and subsurface may be allowed to migrate outside of the facility boundary.

BELOW GRADE SOLIDS RECEIVING PIT CONSTRUCTION

1. The Solids Bin 4, a concrete settling, separation, and mixing impoundment, must be constructed of reinforced concrete with a minimum 30 mm plastic secondary liner. The seams on the concrete impoundment must be sealed. The new construction must be completed in accordance with the designs submitted as part of the application.
2. Upon completion of construction, "as built" diagrams of the concrete mixing impoundment shall be submitted to the OCD Santa Fe and Hobbs District offices.
3. Construction must commence on the concrete mixing impoundment within one (1) year of the permit approval date.

LANDFARM CONSTRUCTION

1. Construction must commence on the landfarm area within one (1) year of the permit approval date. If construction does not commence within one (1) year of the permit approval date, the landfarm provisions of this permit will be of no effect.
2. Contaminated soils may not be placed within one hundred (100) feet of adjacent property.
3. Contaminated soils may not be placed within twenty (20) feet of any pipeline crossing the landfarm. In addition, no equipment may be operated within ten (10) feet of a pipeline. All pipelines crossing the facility must have surface markers identifying the location of the pipelines.
4. The portion of the facility containing contaminated soils must be bermed to prevent runoff and runoff. A perimeter berm no less than two (2) feet above grade with a base of at least three (3) feet must be constructed and maintained such that it is capable of containing precipitation from a one-hundred year flood for the specific region. Individual cells must be contained with a berm no less than two (2) feet above grade with a base of at least three (3) feet.

LANDFARM OPERATION

1. All contaminated soils received at the facility must be spread and disked within 72 hours of receipt.
2. Soils must be spread on the surface in lifts of six inches or less.
3. Soils must be disked a minimum of one time every two weeks (biweekly) to enhance biodegradation of contaminants.
4. Exempt contaminated soils must be placed in the landfarm so that they are physically separate (*i.e.*, bermed) from non-exempt contaminated soils. There may be no mixing of exempt and non-exempt soils.
5. Successive lifts of contaminated soils may not be spread until a laboratory measurement of total petroleum hydrocarbons (TPH) in the previous lift is less than 100 parts per million (ppm), the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm, and benzene is less than 10 ppm. Comprehensive records of the laboratory analyses and the sampling locations must be maintained at the facility. Authorization from the OCD must be obtained prior to application of successive lifts and/or removal of the remediated soils.
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1. Prior to waste acceptance, one (1) background soil sample must be taken from the center portion of the landfarm two (2) feet below the native ground surface. The sample must be analyzed for total petroleum hydrocarbons (TPH), volatile aromatic organics (BTEX), major cations/anions and Water Quality Control Commission (WQCC) metals.

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GROUND WATER MONITORING

1. Ground water monitoring of the following monitoring wells must be performed quarterly and records of the date, inspector and status of the monitor well must be maintained. Annual reports must be furnished to the OCD Santa Fe and Hobbs offices in database form and must include a graphical plot showing water level and chloride trends in each well for all preceding quarters.

2, 2A, 2B, 3, 3A, 3B, 3C, 3D, 3E, 4, 5, 6, 7, 8, 9,
10, 11, 12, 13, 18,
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61B, 61C, 63, 68, 68A, 69,
70, 71, 71A, 71EE, 71F, 71FF, 71G, 71GG, 71H, 71HH, 71I, 71II, 71J, 71KK,
71L, 71LL, 71M, 71MM, 71N, 71NN, 71OO, 71P, 71Q, 71S, 71T, 71U, 71W,
71X, 72, 73, 74, 75, 76, 77, 78, 79,
80, 81, 82, 83, 84, 85, 85A, 85B, 85C, 85C1, 85D, 85E, 85H, 85-2, 85-3, 85-4,
85-5, 85-6, 85-7, -85-8, 85-9, 85-10, 85-11, 85-13, 85-14, 85-15, 85-16, 85-17,
85-18, 85-19, 85-20, 85-21, 86, 87, 87A.
2. Ground water monitoring at Baker Spring located in Section 28, Township 21 South, Range 38 East NMPM, Lea County, New Mexico must be performed on the same quarterly schedule as at the monitoring wells. Records of the date, inspector, spring flow rate and chloride level must be maintained. Annual reports must be furnished to the OCD Santa Fe and Hobbs offices in database form and must include a graphical plot showing flow rate and chloride trends at Baker Spring.

WASTE ACCEPTANCE CRITERIA

1. The facility is authorized to accept only:
 - a. Oilfield wastes that are exempt from RCRA Subtitle C regulations and that do not contain Naturally Occurring Radioactive Material (NORM) regulated pursuant to 20 NMAC 3.1 Subpart 1403. All loads of these wastes received at the facility must be accompanied by a "Generator Certificate of Waste Status" signed by the generator.
 - b. "Non-hazardous" non-exempt oilfield wastes on a case-by-case basis after conducting a hazardous waste characterization including corrosivity, reactivity, ignitability, and toxic constituents. The samples for these analyses must be obtained from the wastes prior to removal from the generator's facility and without dilution in accordance with EPA SW-846 sampling procedures. All "non-hazardous" non-exempt wastes received at the facility must be accompanied by:
 - i. An approved OCD Form C-138 "Request For Approval To Accept Solid Waste."
 - ii. A "Generator Certificate of Waste Status" signed by the generator.
 - iii. A verification of waste status issued by the appropriate agency for wastes generated outside OCD jurisdiction. The agency verification is based on specific information on the subject waste submitted by the generator and demonstrating the non-hazardous classification of the waste.
 - c. Non-oilfield wastes that are non-hazardous by testing if ordered by the Department of Public Safety in a public health emergency. OCD approval must be obtained prior to accepting the wastes.
2. At no time may any OCD-permitted surface waste management facility accept wastes that are determined to be RCRA Subtitle C hazardous wastes by either listing or characteristic testing.
3. The transporter of any wastes to the facility must supply a certification that the wastes delivered are those wastes received from the generator and that no additional materials have been added.
4. No free liquids or soils with free liquids must be accepted at the landfarm or landfill portion of the facility.

5. No produced water must be received at the facility from motor vehicles unless the transporter has a valid Form C-133, "Authorization to Move Produced Water" on file with the Division.
6. Comprehensive records of all material disposed of at the surface waste management facility must be maintained by Sundance Services, Inc. and must be available for OCD review.

REPORTING AND RECORD KEEPING

1. Quarterly ground water monitoring results must be furnished annually to the OCD Santa Fe and Hobbs offices in accordance with the groundwater monitoring provisions of this permit.
2. Background sample analytical results must be submitted to the OCD Santa Fe office **within thirty (30) days** of receipt from the laboratory.
3. Analytical results from the treatment zone monitoring must be submitted to the OCD Santa Fe office **within thirty (30) days** of receipt from the laboratory.
4. Records of facility inspections and maintenance must be kept and maintained for OCD review.
5. Sundance Services, Inc. must notify the **OCD Hobbs District office within 24 hours** of any fire, break, leak, spill, blowout or any other circumstance that could constitute a hazard or contamination in accordance with OCD Rule 116.
6. Comprehensive records of all material disposed of at the facility must be maintained at the facility. The records for each load must include: 1) generator; 2) origin; 3) date received; 4) quantity; 5) certification of exempt status or analysis for hazardous constituents if non-exempt; 6) NORM status declaration; 7) transporter; 8) exact cell or pit location; and 9) any addition of microbes, moisture, fertilizers, *etc.*
7. The OCD must be notified prior to the installation of any pipelines or wells or other construction within the boundaries of the facility.

FINANCIAL ASSURANCE

1. Financial assurance in the amount of **\$250,000** in the form of a surety or cash bond or a letter of credit, which is approved by the Division, is required from Sundance Services, Inc. for the commercial surface waste management facility by November 30, 2002.

2. The facility is subject to periodic inspections by the OCD. The conditions of this permit and the facility will be reviewed no later than five (5) years from the date of permit approval. In addition, the closure cost estimate will be reviewed according to prices and remedial work estimates at the time of review. The financial assurance may be adjusted to incorporate any closure cost changes.

CLOSURE

1. The OCD Santa Fe and Hobbs offices must be notified when operation of the facility is to be discontinued for a period in excess of six (6) months or when the facility is to be dismantled. Within six (6) months after discontinuing use or within 30 days of deciding to dismantle the facility a closure plan must be submitted to the OCD Santa Fe office for approval. The operator must complete cleanup of constructed facilities and restoration of the facility site within six (6) months of receiving the closure plan approval, unless an extension of time is granted by the Director.
2. A closure plan to include the following procedures must be submitted to the OCD Santa Fe office for approval :
 - a. When the facility is to be closed no new material will be accepted.
 - b. All evaporation ponds will be allowed to evaporate. Any water not evaporated will be hauled to an OCD-approved facility. The ponds will be surveyed for NORM.
 - c. All solids pits will be closed according to an approved closure plan that includes a post closure care period.
 - d. All above and below grade tanks will be emptied and any waste will be hauled to an OCD-approved facility. The empty tanks must be removed.
 - e. Existing landfarm soils will be remediated until they meet the OCD standards in effect at the time of closure.
 - f. The area will be contoured, seeded with a native seed mix and allowed to return to its natural state. If the landowner desires to keep existing structures, berms, and fences for future alternative uses the structures may be left in place.
 - g. Closure will be pursuant to all OCD requirements in effect at the time of closure.

CERTIFICATION

Sundance Services, Inc., by the officer whose signature appears below, accepts this permit and agrees to comply with all terms and conditions contained herein. Sundance Services, Inc. further acknowledges that these conditions and requirements of this permit may be changed administratively by the Division for good cause shown as necessary to protect ground water, surface water, human health and the environment.

Accepted:

SUNDANCE SERVICES, INC.

Signature  Title President Date 2-26-02