



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR
LARRY KEHOE
SECRETARY

November 7, 1979

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Parabo, Inc.
Post Office Box 1123
Hobbs, New Mexico 88240

Gentlemen:

As requested in your letter of October 22, 1979, permission is hereby granted to abandon monitor holes 14, 15, 16, 17, and 21. These holes are to be plugged with a cement slurry.

It is my understanding that these holes will be replaced by other monitor holes more aptly located to fit the recently approved expansion utilizing pit No. 4.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

October 16, 1979

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

Mr. Joe D. Ramey
Director
Oil Conservation Division
Box 2088
Santa Fe, New Mexico 87501

Dear Joe:

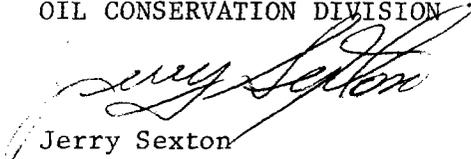
I inspected the Parabo pits on October 16, 1979, with the Wallachs and Steve Reed. All the existing pits look good and the deep pit on the north end of the area looks okay.

Eddie Seay inspected the dikes when the redbeds were exposed and I looked at the compaction tests which were excellent.

Steve is going to send you or myself pictures of the dikes which show all the redbeds exposed, thus assuring us that the dikes do tie into the redbeds.

Very truly yours,

OIL CONSERVATION DIVISION


Jerry Sexton
Supervisor, District I

JS/ed

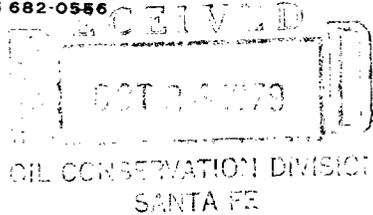
Ed L. Reed and Associates, Inc.

Consulting Hydrologists

1109 N. BIG SPRING
MIDLAND, TEXAS 79701
915 682-0556

ED L. REED, P.E.
PRESIDENT
A. JOSEPH REED
EXECUTIVE VICE PRESIDENT
CHESTER F. SKRABACZ
VICE PRESIDENT FIELD OPERATIONS

V. STEVE REED
VICE PRESIDENT GEOLOGY
1900 SHERWOOD WAY
SAN ANGELO, TEXAS 76901
915 944-2120



October 22, 1979

Mr. Joe D. Ramey, Director
New Mexico Energy and Minerals Department
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

Parabo, Inc. has completed the dike and monitor hole construction for pit 4 as described in my letter to you dated September 20, 1979. Both of the dikes were constructed as follows: A trench was cut with a bulldozer through the overburden and at least two feet into the underlying Triassic redbed. Red clay was excavated from near the west end of pit 1 and trucked to the dike location. The clay was laid into the trench with the dozer in 6" to 8" lifts. Water was sprayed on each lift and the lift was compacted with a self-propelled compactor. This procedure was repeated until the top of the dike exceeded the design elevation of 3439 feet. The top of Dike D (across the west end of the pit) is at an elevation of 3439.6 or higher, and the top of Dike E is at an elevation of 3441.7 or higher. Compaction tests were performed on Dike D and a copy of these results are enclosed. These tests show that the red clay has a Proctor density of 103.6 lbs/ft³. The three samples from the dike have densities exceeding 111 lbs/ft³ or 107% of Proctor density. These tests indicate excellent compaction of the dike material.

Near the bottom of the trench for Dike D, a small seep was noticed coming through a gravel lense on the east wall. This water is seepage from the runoff water that has accumulated in the bottom of the pit for many years. A sample of this water was collected and the analysis is enclosed. The gravel lense is now cut off by the dike.

Monitor holes 41 through 51, which are designed to monitor pit 4 were examined for fluids. All of the holes were dry with the exception of hole 48. Hole 48 was unavoidably drilled in a low area where surface runoff accumulates and infiltrates the overburden. The water level in this hole is at the top of the redbed which indicates only a small amount of water has accumulated in the overburden. A sample of the water in Hole 48 was collected and analyzed for major minerals. This analysis is enclosed.

A vertical pipe was driven into the floor of pit 4 near one side and the maximum water level elevation (3435) was marked on the pipe.

Mr. Joe D. Ramey, Director
New Mexico Energy and Minerals Department

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October 22, 1979

The red clay used for the dike construction was excavated from the northwest side of pit 1 about 200 feet east of monitor hole 17. Parabo, Inc. proposes to lower the surface between the barrow pit and pit 1 such that when the water level in pit 1 is near its maximum elevation, the water will flow into the barrow pit. The water will then be pumped from the barrow pit via a plastic pipeline into pit 4. The pipeline discharge will be at an elevation of 3435 or lower. This design will allow pumpage of water from pit 4 back into pit 1 during periods of high evaporation.

Upon approval from the Oil Conservation Division, Parabo will abandon monitor holes 14, 15, 16, 17 and 21 by plugging them with a cement slurry. Following this task, it is our opinion that pit 4 will be ready to receive salt water.

Work on pit 3 is continuing. Presently, sand and gravel are being excavated along the proposed dike route.

Should you have any questions, please call.

Very truly yours,

ED L. REED & ASSOCIATES, INC.



V. Steve Reed

VSR:vjr

cc: Robert Richards
Parabo, Inc.

SOUTHWESTERN LABORATORIES
FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA
CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 10-12-79 File No. _____

Report of tests on **Material for embankment**

To **Ed L. Reed & Assoc.**

Date Rec'd. **10-10-79**

Received from **Parabo, Inc.**

Identification Marks **Dike for pit No. 4, Salt Water Disposal Facility**

Soil Description: **Red Clay**

PROCTOR DENSITY

AASHO T-99

Maximum Density, lb. per cu. ft., dry-----103.6

Optimum Moisture, Percent-----21.3

3cc Ed L. Reed & Assoc.

SOUTHWESTERN LABORATORIES

Lab. No. 3815

Henry H. Bump

SOUTHWESTERN LABORATORIES
 FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA
 CONSULTING, ANALYTICAL CHEMISTS
 AND TESTING ENGINEERS

Midland Texas 10-12-79 File No.

Report of tests on **Embankment**

To **Ed L. Reed & Assoc.**

Date Rec'd. **10-10-79**

Received from **Parabo, Inc.**

Identification Marks **Dike for pit No. 4 - Salt water disposal facility**

FIELD DENSITY TESTS:

Location	Field Moisture (%)	Field Density (Lbs/Cu. Ft)	Optimum Moisture (%)	Proctor Density (Lbs/Cu. Ft)	Percent Density
North end at bank of gully	17.6	111.1	21.3	103.6	107.2
Center	16.4	114.3	21.3	103.6	110.3
South end at bank of gully	13.9	114.3	21.3	103.6	110.3

3cc Ed L. Reed & Assoc.

SOUTHWESTERN LABORATORIES

Lab. No. 3816

Henry H. Brooks

SOUTHWESTERN LABORATORIES
FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA
CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 10-10-79 File No. C-1902-W

Report of tests on **Water**

To **Ed L. Reed & Assoc.**

Date Rec'd. **10-8-79**

Received from

Identification Marks **Lea Co., New Mexico, Parabo Wallach, Trench Seep Water,
Sampled "D", Sampled by C. Skrabacz 10-5-79**

	<u>mg/L</u>
Calcium-----	306
Magnesium-----	80
Sodium (Calc)-----	399
Carbonate-----	None
Bicarbonate-----	151
Sulfate-----	561
Chloride-----	886
Total Dissolved Solids (At 180° C.)-----	2498
Total Hardness (As CaCO ₃)-----	1091
pH-----	7.26

3cc Ed L. Reed & Assoc.
3cc Steve Reed

SOUTHWESTERN LABORATORIES

Jack H. Barton

Lab. No. 31196

SOUTHWESTERN LABORATORIES
FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA
CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 10-10-79 File No. C-1902-W

Report of tests on **Water**

To **Ed L. Reed & Assoc,**

Date Rec'd. **10-8-79**

Received from

Identification Marks **Lea Co., New Mexico, Parago Wallach, MH-48**
Sampled by C. Skrabacz

	<u>mg/L</u>
Calcium-----	206
Magnesium-----	91
Sodium (Calc.)-----	452
Carbonate-----	None
Bicarbonate-----	400
Sulfate-----	1016
Chloride-----	347
Total Dissolved Solids (@ 180° C.)-----	2462
Total Hardness (As CaCO ₃)-----	892
pH-----	7.33

3cc Ed L. Reed & Assoc.
3cc Steve Reed

Lab. No. 31195

SOUTHWESTERN LABORATORIES
Jack H. Barton



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR
LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

October 19, 1979

Case 5899

Parabo, Inc.
Post Office Box 1123
Hobbs, New Mexico 88240

Gentlemen:

I am in receipt of your letter of September 20, 1979, concerning the expansion of your operations to utilize pits three and four.

Your proposal has been examined and it appears to meet all requirements for expansion that were authorized in Order No. R-5516.

By the authority granted me under Order No. R-5516, Parabo, Inc. is hereby authorized to expand operations into pits three and four. Water levels must be maintained as stated and monitoring must be similar to that required in Order No. R-5516. The pits must also be free of any oils which might impair evaporation.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

cc: Steve Reed
R. E. Richards

Ed L. Reed and Associates, Inc.

Consulting Hydrologists

1109 N. BIG SPRING
MIDLAND, TEXAS 79701
915 682-0556

ED L. REED, P.E.
PRESIDENT

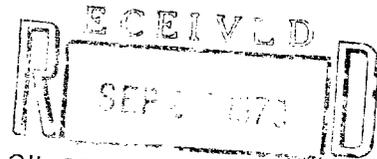
A. JOSEPH REED
EXECUTIVE VICE PRESIDENT

CHESTER F. SKRABACZ
VICE PRESIDENT FIELD OPERATIONS

V. STEVE REED
VICE PRESIDENT GEOLOGY

1900 SHERWOOD WAY
SAN ANGELO, TEXAS 76901
915 944-2120

September 20, 1979



Mr. Joe D. Ramey
New Mexico Energy and Minerals Department
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

OIL CONSERVATION DIVISION
SANTA FE

Case 5899

Dear Mr. Ramey:

Please note an error in my letter submitted September 20, 1979 regarding Parabo, Inc. proposed expansion of its salt water disposal facilities. In the second paragraph the sentence "If this is the case, temporary dikes will be constructed between dikes C and D to separate the salt water from the remaining sand and gravel", should read If this is the case, temporary dikes will be constructed between dikes C and F to separate the salt water from the remaining sand and gravel.

Very truly yours,

A handwritten signature in cursive script that reads "V. Steve Reed".

V. Steve Reed

VSR:lb

cc: Mr. Robert Richards
Parabo, Inc.

Ed L. Reed and Associates, Inc.

Consulting Hydrologists

1109 N. BIG SPRING
MIDLAND, TEXAS 79701
915 682-0556

ED L. REED, P.E.
PRESIDENT

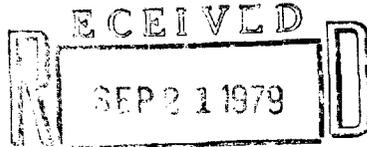
A. JOSEPH REED
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VICE PRESIDENT FIELD OPERATIONS

V. STEVE REED
VICE PRESIDENT GEOLOGY

1900 SHERWOOD WAY
SAN ANGELO, TEXAS 76901
915 944-2120

September 20, 1979



OIL CONSERVATION DIVISION
SANTA FE

Case 5899

Mr. Joe D. Ramey
New Mexico Energy and Minerals Department
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

Parabo, Inc., Lea County, New Mexico, proposes to expand its salt water disposal facility near Eunice. The proposed expansion involves opening two new pits (pits 3 and 4 on the enclosed map).

Pit 3. Pit 3 encompasses an area from which the sand and gravel had not been removed at the time Pit 2 was opened. The southern part of the Pit 3 area has now been mined out to the redbed. Parabo, Inc. proposes to remove the sand and gravel along the route of the proposed dike (labeled F on the enclosed map) and construct the dike in its entirety. Depending on the timing of the sand and gravel operation, there may still be sand and gravel in the northern part of Pit 3 when the dike is completed and the pit is ready to put into service. If this is the case, temporary dikes will be constructed between dikes C and D to separate the salt water from the remaining sand and gravel. Once all of the sand and gravel is removed, the entire pit would then be flooded. The dike around Pit 2 will be left intact.

The dike will be constructed to a sea level elevation of 3461, the same height as the Pit 2 dike. The fluid level will be maintained at an elevation of 3457 or less.

An outer ring of monitor holes have been constructed (Monitor Holes 33 through 40). These holes are drilled to a sea level elevation of 3436 and are cased with 3" PVC which is perforated from total depth to an elevation of 3462. Prior to opening Pit 3, monitor holes 26, 27 and 28 will be abandoned by plugging them with cement.

Pit 4. The top of the redbed around most of Pit 4 is at an elevation of 3440 or higher. The redbed is low, however, along the west side and along a narrow channel which enters the pit from the southwest. Parabo, Inc. proposes to construct dikes across these redbed lows. Both dikes will be constructed to a sea level elevation of 3439. The dikes will be constructed in trenches about 10 feet wide that are cut into the redbed. The ends of the dikes will be tied to

Mr. Joe D. Ramey
New Mexico Energy and Minerals Department
Oil Conservation Division

September 20, 1979

the redbed where it reaches an elevation of 3439 or higher, as exposed in the trenches. The fluid level in Pit 4 will be maintained at an elevation of 3435 or less.

Ten monitor holes have been drilled around Pit 4. These holes are drilled to an elevation of 3390, which we estimate is at least 15 feet below the deepest part of the pit. They are cased with 3" PVC which is perforated from total depth to an elevation of 3440. During drilling of the monitor holes, the redbed was observed to be uniform and virtually silt free. It appears similar to that encountered in and around the other pits. Prior to opening Pit 4 to disposal, monitor holes 14, 21, 15, 16, and 17, which essentially lie in the major east-west channel, will be abandoned by plugging with cement.

Depending on which is deemed most practical from an operational standpoint, Parabo, Inc. intends to either construct a skimmer pit to receive salt water from the tank battery or construct a pipeline from Pit 1 to Pit 4. Along the area from core hole #11 through monitor hole 17 and test hole 135 (see enclosed map) the redbed is exposed at the surface. If the skimmer pit is utilized, it will be constructed in the vicinity of monitor hole 17 and will be built in the red clay. Salt water will enter the pit from the tank battery under gravity and then discharge from the skimmer pit under gravity into Pit 4. Operationally, it may be desirable to discharge the salt water from Pit 1 into Pit 4. This will be accomplished by laying a pipeline from Pit 1 to Pit 4 which will allow gravity feed between the two pits. The pipeline will be laid in a narrow trench constructed in the redbed. After the pipe has been laid in the trench, most of the length of the trench will be backfilled with compacted clay. In the vicinity of location 117, however, a short segment of the trench will be filled with cement to ensure a good bond between the trench and the pipe such that salt water does not migrate down the trench. The intake in pit 1 will be at an elevation of 3447 or less and the pipeline will be valved.

The three dikes discussed above will be constructed in a manner similar to the existing dikes. Trenches will be dug at least two feet into the redbed and the dikes will be constructed by laying down 6 inch lifts of moistened red clay which will be compacted with a sheepsfoot roller. This procedure will continue until the dikes have reached their design elevation.

Prior to discharging any fluids into Pits 3 or 4, the monitor holes will be examined for fluids. Should any of the monitor holes contain water, a sample will be collected and analyzed for major minerals and total dissolved solids.

A permanent staff gauge will be constructed in both pits.

Mr. Joe D. Ramey
New Mexico Energy and Minerals Department
Oil Conservation Division

September 20, 1979

We will be happy to answer any questions you might have regarding this matter. I will be out of my office until October 8, but the Midland office will be able to reach me.

Very truly yours,

ED L. REED & ASSOCIATES, INC.

V. Steve Reed

V. Steve Reed

VSR;vjr

cc: Mr. Robert Richards
Parabo, Inc.