NM2 - 22

GENERAL CORRESPONDENCE YEAR(S):

2006

R. T. HICKS CONSULTANTS, LTD.

P. O. Box 7624 ▲ Midland, TX 79708 ▲ 432.638.8740 ▲ Fax: 413.403.9968

April 28, 2006

Ed Martin
NMOCD
1220 South St Francis Drive
Santa Fe, New Mexico 87505

2006 MAY 1 PM 1 17

RE: Marbob Loco Hills 711 Permit Application

Dear Mr. Martin:

This letter provides a schedule for submission of documents and performance of work elements that are consistent with our meeting of April 25, 2006. . We ask that NMOCD consider this letter as part of the permit application. We anticipate that NMOCD can conditionally approve the 711 Permit Application with the mandate that full-scale operation will not occur until NMOCD reviews and approves the documents identified in this submission and Marbob completes the work elements identified below.

1. Marbob successfully acquires the property from the U.S. Government (BLM).
2. After property transfer: NMOCD conditionally approves the 711 Permit.
3. Ten days after property transfer: Marbob submits a pilot-scale operation plan that is designed to collect the data necessary for the development of Engineering Plans and Specifications for the landfill. We plan to use the contents of an entire reserve pit and some caliche gravel from an existing road or drill pad to test the landfill process described in the Permit Application in Section 7.B A Professional Engineer will observe the proposed process, take samples as appropriate and use the information to create the required plans and specifications.
4. Ten days after property transfer: Marbob begins installation of fencing, gates and signage as described in the Permit Application.
5. After NMOCD approval of the pilot-test protocol: Marbob conducts pilot-scale operation in conformance with the pilot-scale plan.
6. At the time of the pilot testing program: Marbob will install a second monitoring well cluster north of the facility (See attached map) using the same design and same well completions techniques as the existing well cluster (excluding the use "soap" in the drilling fluid). Because of the lithology of the underlying formations (Santa Rosa, Dewey Lake and Rustler), we fully expect to find the same conditions as observed in the existing monitor well cluster. We expect the Santa Rosa Sandstone to be dry, the Dewey Lake will be dominated by clay-rich material, and the Rustler will contain dry solution cavities that will cause lost circulation and termination of the boring about 250 feet below land surface. We understand the need for additional certainty of the subsurface conditions in light of the proposed landfill design that does not call for under-liners, vadose zone monitoring, ground water monitoring or other protocols to protect ground water quality.
7. After evaluation of the results of the pilot-scale test and result of the second monitoring well installation: Marbob submits a survey of the site, the results of the pilot test, and a set of engineering plans and specifications (certified by a Professional Engineer) which include protocols to protect against a 25-year storm event, as described in the permit application.

8. After NMOCD approval of the engineering plans and specifications: Marbob commences full-scale operation of the landfill.
9. Ten days after property transfer: Marbob will submit a detailed landfarm operation and maintenance plan that calls for two types of landfarm operation. The majority of the oil field waste treated in the landfarm will be employed as a fine-grained layer of earth that composes the upper layer of the capillary barrier evapotranspiration landfill cover (between the caliche gravel and final topsoil). For this material, we plan to allow natural moisture, tilling and time to remove the mobile constituents from this waste. Some of the oil field waste treated in the landfarm may be employed as topsoil for the landfill cover. This material will be subject to landfarming protocols that include regular moisture and nutrient addition, augmentation with organic matter as needed, and other best management practices.
10. Ninety days prior to any disposal of tank bottoms at the site: Marbob will submit a detailed tank bottoms management plan that includes a provision for reclamation of economic quantities of residual hydrocarbons.
11. After six months of full-scale operation and finalization of NMOCD proposed Rules 51, 52 and 53, Marbob will begin to submit any necessary revisions to the permit to comply with appropriate provisions of the new Rules (e.g. a training program for site staff).

The engineering plans and specifications for the landfill will include the results and discussion data collected during the drilling of the second monitoring well cluster. We are confident that the data collected will support our conclusion that protectable subsurface water does not exist at the site and provisions for the protection of such water (e.g. vadose zone monitoring, ground water monitoring) are not necessary. The plans and specifications will show that the waste scheduled for landfill disposal will not be saturated with fluids and will include engineered provisions for the low potential of material to generate gas or leachate, given the small cell size planned for the landfill. The plans and specifications will provide the design for a capillary barrier evapotranspiration cover that is consistent with designs tested by EPA, Sandia National Laboratories, municipal solid waste landfills, and other organizations and proved to be very effective in the arid environment of New Mexico. Finally, the engineering plans and specifications will provide a detailed plan for re-establishing a vegetative cover over the landfill, which is the most important goal of this project – habitat restoration.

I am certain that NMOCD appreciates the need to move forward with this permit process as soon as possible. The lack of protectable water at the site and the proposed habitat restoration program described by the permit application is the type of facility we believe NMOCD would want to support. We would appreciate your acknowledgement or comments on the proposed schedule as described herein. Thank you for your consideration.

Sincerely,
R.T. Hicks Consultants, Ltd.

Gilbert J. Van Deventer, PG, REM

cc: Rand French – Marbob Energy Corp., Artesia
Randy Hicks – R. T. Hicks Consultants, Ltd., Albuquerque

STATE OF NEW MEXICO
County of Bernalillo SS

Bill Tafoya, being duly sworn, declares and says that he is Classified Advertising Manager of **The Albuquerque Journal**, and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Session Laws of 1937, and that payment therefore has been made of assessed as court cost; that the notice, copy of which is hereto attached, was published in said paper in the regular daily edition, for 1 times, the first publication being on the 7 day of April, 2006 and the subsequent consecutive publications on _____, 20___.

Bill Tafoya

Sworn and subscribed to before me, a Notary Public, in and for the County of Bernalillo and State of New Mexico this 7 day of April of 2006

PRICE $44.24

Statement to come at end of month.

ACCOUNT NUMBER C82519

CLA-22-A (R-1/93)

OFFICIAL SEAL
Elyn Sloane
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 4-5-09

State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division

Notice is hereby given that pursuant to New Mexico Oil Conservation Division Regulations, the following Application for a Centralized Surface Waste Management Facility has been submitted to the Director of the Oil Conservation Division, 1220 S. St. Francis Dr., Santa Fe, New Mexico 87504, Telephone (505) 476-3440:

Marbob Energy Corporation, Rand French, Telephone (505) 748-3303, 2208 W Main, Artesia, New Mexico 88210, has submitted a Application for a Centralized Surface Waste Management Facility, located 2 miles west of Loco Hills, Eddy County, NM, as described below:

Township 17 South, Range 30 East, Section 19 Lot 4 & 8 and W/2 E/2 SW/4 and
Township 17 South, Range 30 East, Section 30 Lot 1 and W/2 NE/4 NW/4

The primary purpose for the Centralized Surface Waste Management Facility is to restore the habitat of an existing caliche pit by infilling with drilling pit material, recycled caliche roadbed or drill pad material, remediated hydrocarbon-impacted soils, and topsoil. The intended result is the to return the land to a condition approximating or equal to that which existed prior to the formation of the caliche pit without threat to human health or the environment.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The Application for a Centralized Surface Waste Management Facility may be viewed at the above address or at the Oil Conservation Division District Office, 1625 N. French Drive, Hobbs, New Mexico 88240, Telephone (505) 393-6161 between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any Application for a Centralized Surface Waste Management Facility, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which written comments may be submitted to him.
Journal: April 7, 2006

Affidavit of Publication

NO. 19221

STATE OF NEW MEXICO

County of Eddy:

Gary D. Scott being duly

sworn,says: That he is the **Publisher** of The

Artesia Daily Press, a daily newspaper of general

circulation, published in English at Artesia, said county

and county and state, and that the here to attached

Legal Notice

was published in a regular and entire issue of the said

Artesia Daily Press,a daily newspaper duly qualified

for that purpose within the meaning of Chapter 167 of

the 1937 Session Laws of the state of New Mexico for

1 Consecutiv week/days on the same

day as follows:

First Publication April 6 2006

Second Publication

Third Publication

Fourth Publication

Gary D. Scott

Subscribed and sworn to before me this

11TH Day April 2006

Barbara Ann Baar

Notary Public, Eddy County, New Mexico

My Commission expires September 23, 2007

Copy of Publication:

NOTICE OF PUBLICATION
State of New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division

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Prior to ruling on any Application for a Centralized Surface Waste Management Facility, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which written comments may be submitted to him.

Published in the Artesia Daily Press, Artesia, N.M. April 6, 2006.

Legal 19221

LEGAL NOTICE

LEGAL NOTICE

Martin, Ed, EMNRD

From: Randall Hicks [r@rthicksconsult.com]
Sent: Tuesday, April 04, 2006 5:52 PM
To: legals@artesianews.com
Cc: wildlife@marbob.com; gil@rthicksconsult.com; Martin, Ed, EMNRD
Subject: Legal Advertisement
Attachments: App_C-711_Public_Notice.pdf; 711_Public_Notice.doc

Sir or Madam

I have attached a public notice for publication in the legal section of your newspaper in WORD and pdf format – I did not know which format you preferred.

Please publish this at your earliest time and send the invoice to me at the address below:

Randy Hicks
R.T. Hicks Consultants, Ltd.
901 Rio Grande NW
Suite F-142
Albuquerque, NM 87104

505-266-5004
cell: 505-238-9515

Thank you for your attention to this matter.

NOTICE OF PUBLICATION

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Energy, Minerals and Natural Resources Department
Oil Conservation Division

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Martin, Ed, EMNRD

From: Randall Hicks [r@rthicksconsult.com]
Sent: Tuesday, April 04, 2006 5:57 PM
To: classads@abqpubco.com
Cc: wildlife@marbob.com; gil@rthicksconsult.com; Martin, Ed, EMNRD
Subject: FW: Legal Advertisement
Attachments: App_C-711_Public_Notice.pdf; 711_Public_Notice.doc

Sir or Madam

I have attached a public notice for publication in the legal section of your newspaper in WORD and pdf format – I did not know which format you preferred.

Please publish this at your earliest time and send the invoice to me at the address below:

Randy Hicks
R.T. Hicks Consultants, Ltd.
901 Rio Grande NW
Suite F-142
Albuquerque, NM 87104

505-266-5004
cell: 505-238-9515

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Energy, Minerals and Natural Resources Department
Oil Conservation Division

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NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

March 27, 2006

Mr. Gilbert Van Deventer
R.T. Hicks Consultants, Ltd.
1909 Brunson Avenue
Midland, TX 79701

NM-2-22

RE: Loco Hills Habitat Restoration Program
Application for a Centralized Waste Management Facility
Prepared for Marbob Energy Corporation by R.T. Hicks Consultants, Ltd.
Proposed Location: NW/4 NW/4 of Section 30, Township 17 South, Range 30 East

Dear Mr. Van Deventer:

The New Mexico Oil Conservation Division (NMOCD) has reviewed the above-referenced application and hereby deems it administratively complete. R.T. Hicks Consultants, Ltd. (Hicks) may proceed with public notice in a newspaper of general circulation in the county in which the project is proposed to be located, and in a newspaper of general circulation in the state of New Mexico. The format to be followed for the public notice is shown on the attached.

After publication specified above, send to this office proof of such publication. After publication, a thirty- (30) day period will ensue during which the public may make written comments to the OCD and request a hearing. If sufficient public interest is expressed, the Director will schedule a public hearing. If no public hearing is held, the OCD will approve or disapprove your permit application based upon the information provided after the thirty days has passed.

A copy of both the application and the public notice will be available on the NMOCD website at www.emnrd.state.nm.us/ocd.

If you have any questions, contact me at (505) 476-3492 or emartin@state.nm.us

NEW MEXICO OIL CONSERVATION DIVISION

Ed Martin

Edwin E. Martin
Environmental Bureau

Copy: NMOCD, Artesia
Clinton J. Peebles, R.T. Hicks Consultants, Ltd.

NOTICE OF PUBLICATION

State of New Mexico
Energy, Minerals and Natural Resources Department
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Martin, Ed, EMNRD

From: Clinton Peebles [clinton@rthicksconsult.com]
Sent: Monday, March 20, 2006 2:45 PM
To: Martin, Ed, EMNRD
Subject: RE: Marbob 711 Permit
Attachments: Notice to landowners.pdf

It should be on the CD, Appendix C page 82 of the document. Also I have enclosed an electronic copy of the letter.

Clinton Peebles
R.T. Hicks Consultants, Ltd
(505) 266-5004

-----Original Message-----
From: Martin, Ed, EMNRD [mailto:ed.martin@state.nm.us]
Sent: Monday, March 20, 2006 2:31 PM
To: Clinton Peebles
Subject: RE: Marbob 711 Permit

I didn't see that in the hard copy. Is it on the CD?

From: Clinton Peebles [mailto:clinton@rthicksconsult.com]
Sent: Monday, March 20, 2006 2:28 PM
To: Martin, Ed, EMNRD
Cc: 'Randall Hicks'
Subject: Marbob 711 Permit

Mr. Ed Martin,
This email is to inform you that I recently spoke with nearby land owner, Larry Taylor, on March 20, 2006 to confirm that he has received the notification letter. Also the BLM has been notified and is actively engaged in the process. The letter was attached under Appendix C of the application. If you have any questions please email me or call me at the number below.

Regards,
Clinton Peebles
R.T. Hicks Consultants, Ltd
(505) 266-5004

Martin, Ed, EMNRD

From: Gil Van Deventer [gil@rthicksconsult.com]
Sent: Monday, March 20, 2006 5:09 PM
To: Martin, Ed, EMNRD
Subject: Fwd: FW: Marbob 711 Permit
Attachments: 709789811-Notice_to_surface_owners.pdf

Attached is a copy of that letter in question as well as the public notice.

Randall Hicks <r@rthicksconsult.com> wrote:

> From: "Randall Hicks" <r@rthicksconsult.com>
> To: <wildlife@marbob.com>, <gil@rthicksconsult.com>
> Subject: FW: Marbob 711 Permit
> Date: Mon, 20 Mar 2006 14:32:24 -0700
>
> Gentlemen
>
> We should have the approval from NMOCD to move forward with the public notice very shortly.
>
> Randy
>
> -----Original Message-----
> **From:** Clinton Peebles [mailto:clinton@rthicksconsult.com]
> **Sent:** Monday, March 20, 2006 2:28 PM
> **To:** ed.martin@state.nm.us
> **Cc:** 'Randall Hicks'
> **Subject:** Marbob 711 Permit
>
> Mr. Ed Martin,
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> Regards,
> Clinton Peebles
> R.T. Hicks Consultants, Ltd
> (505) 266-5004

Gilbert J. Van Deventer

R. T. Hicks Consultants, Ltd.

1909 Brunson Ave, Midland TX 79701-6924

432-638-8740 (Office/Mobile) - 413-403-9968 (Fax) - 432-682-0727 (Home)

R. T. HICKS CONSULTANTS, LTD.

1909 Brunson Ave. ▲ Midland, TX 79701-6924 ▲ 432.638.8740 ▲ Fax: 413.403.9969

R.T. Hicks Consultants, LTD.
1909 Brunson Ave.
Midland TX 79701-6924

RE: Notice of Proposed Permit Application
February 14, 2006

Dear Sir or Madam:

Marbob Energy Corporation has retained R.T. Hicks Consultants, Ltd. to prepare and submit a permit application for a centralized surface waste management facility. The attached proposed public notice provides a general summary of the permit. NMOCD Rules specify that:

> Prior to public notice, the applicant shall give written notice of application to the surface owners of record within one (1) mile of the facility, the county commission where the facility is located or is proposed to be located, and the appropriate city official(s) if the facility is located or proposed to be located within city limits or within one (1) mile of the city limits.

This letter and the attachment serve as this initial public notice. The NMOCD Rules go on to say:

> The applicant will issue public notice in a form approved by the Division in a newspaper of general circulation in the county in which the facility is to be located.

Please expect publication of a notice in a format similar to the attached in the Artesia News and Albuquerque Journal within the next few weeks.

Sincerely,

Clinton J. Peebles for
Gilbert J. Van Deventer

Distribution:

Larry Taylor
Highway 83
Loco Hills, New Mexico 88255
(505) 677-2271

Eddy County Commission
101 West Greene Street
Suite 110
Carlsbad, New Mexico 88220

United States Department of the Interior
Bureau of Land Management
Carlsbad Field Office
620 E. Greene St.
Carlsbad, New Mexico 88220
(505) 628-3471

NOTICE OF PUBLICATION

State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division

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R. T. HICKS CONSULTANTS, LTD.

1909 Brunson Avenue ▲ Midland, Texas 79701 ▲ 432-638-8740▲ Fax: 413-403-9968

February 14, 2006

Mr. Ed Martin
New Mexico Oil Conservation Division
1220 South St Francis
Santa Fe, New Mexico 87505
Via email: emartin@state.nm.us

RE: Marbob Energy Corporation Rule 711 Permit Application
Section 19 &30, T17S, R30E

Dear Mr. Martin:

On behalf of Marbob Energy Corporation, R.T. Hicks Consultants, Ltd. is pleased to submit the above referenced application. In a June meeting in Carlsbad, we discussed the attached 711 Permit application with the current landowner, the Department of Interior. The proposed centralized surface waste management facility provides for habitat restoration of the former caliche pits by filling the pits with drilling pit material and other non-hazardous waste, covering the compacted material with an infiltration barrier, then restoring the site with native vegetation.

We look forward to working with you to expedite approval of this program. We have changed the approach presented in this application several times in an attempt to comply with salient provisions of the most recent draft of the proposed Surface Waste Regulations. We hope that NMOCD finds this permit application administratively complete under Rule 711, allowing us to move forward with public notice. We have sent notification letters to adjacent landowners in advance of publication in newspapers (see Appendix C of the Permit Application).

Sincerely,
R.T. Hicks Consultants, Ltd.

Clinton J. Peebles for
Gilbert Van Deventer
Project Manager

Copy: Rand French, Marbob
Randall Hicks, Hicks Consultants
NMOCDNMOCD Artesia District Office

February, 2006

Loco Hills Habitat Restoration Program

Application for a Centralized Waste Management Facility

MARBOB ENERGY CORPORATION
ARTESIA, NEW MEXICO

Prepared for:

Marbob Energy Corporation
2208 West Main
Artesia, NM 88211

R.T. HICKS CONSULTANTS, LTD.
1909 BRUNSON AVENUE, MIDLAND, TEXAS 79701

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-137
Revised June 10, 2003

Submit Original Plus 1
Copy to Santa Fe
1 Copy Appropriate
District Office

APPLICATION FOR WASTE MANAGEMENT FACILITY

(Refer to the OCD Guidelines for assistance in completing the application)

☐ Commercial ☒ Centralized

1. Type: ☐ Evaporation ☐ Injection ☐ Other
   ☒ Solids/Landfarm ☐ Treating Plant
2. Operator: Marbob Energy Corporation
   Address: P. O. Box 227 (2208 W Main) Artesia, New Mexico 88211-0227
   Contact Person: Dean Chumbley Phone: 505-748-3303
3. Location: NW/4 NW/4 Section 30 Township 17 South Range 30 East
   Submit large scale topographic map showing exact location
4. Is this a modification of an existing facility? ☐ Yes ☒ No
5. Attach the name and address of the landowner of the facility site and landowners of record within one mile of the site.
6. Attach description of the facility with a diagram indicating location of fences, pits, dikes, and tanks on the facility.
7. Attach designs prepared in accordance with Division guidelines for the construction/installation of the following: pits or ponds, leak-detection systems, aerations systems, enhanced evaporation (spray) systems, waste treating systems, security systems, and landfarm facilities.
8. Attach a contingency plan for reporting and clean-up for spills or releases.
9. Attach a routine inspection and maintenance plan to ensure permit compliance.
10. Attach a closure plan.
11. Attach geological/hydrological evidence demonstrating that disposal of oil field wastes will not adversely impact groundwater. Depth to and quality of ground water must be included.
12. Attach proof that the notice requirements of OCD Rule 711 have been met.
13. Attach a contingency plan in the event of a release of H_2S.
14. Attach such other information as necessary to demonstrate compliance with any other OCD rules, regulations and orders.
15. CERTIFICATION
    I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Johnny C. Gray Title: President

Signature: Date: 2/9/06

E-mail Address: marbob@marbob.com

LOCO HILLS HABITAT RESTORATION FACILITY

Application for Centralized Surface Waste Management Facility

TABLE OF CONTENTS

5. NAME AND ADDRESS OF FACILITY/LANDOWNERS WITHIN ONE-MILE

Current Landowner:	United States Department of the Interior Bureau of Land Management Carlsbad Field Office 620 E. Greene St. Carlsbad, New Mexico 88220 (505) 628-3471
Landowner at time of permit approval:	Marbob Energy Corporation P. O. Box 227 2208 W Main Street Artesia, New Mexico 88211-0227 (505) 748-3303
Landowners within 1 Mile:	Larry Taylor Highway 83 Loco Hills, New Mexico 88255 (505) 677-2271
	United States Department of the Interior Bureau of Land Management Carlsbad Field Office 620 E. Greene St. Carlsbad, New Mexico 88220 (505) 628-3471

6. DESCRIPTION OF FACILITY

After Marbob Energy Corporation completes the acquisition of the property from the current owner, the Bureau of Land Management, the proposed centralized Surface Waste Management Facility will restore the natural habitat of one former caliche pit. The habitat restoration program (i.e. the Surface Waste Management Facility) will initially consist of two cells and will expand to additional cells according to the needs of the operator. In general:

1. Separate landfarm cells will accept hydrocarbon stained soil and other RCRA exempt oil field waste for biologic treatment and
2. Separate landfill cells each will include an area where reserve pit material will dry before placement and compaction to restore the natural grade of the former caliche pit
3. Landfill cells may accept other oilfield exempt waste, such as tank bottoms and reserve pit material, as well as non-hazardous solid waste generated by the operator.

Each landfarm or landfill cell will each occupy approximately 2-3-acres located in the SW/4 SW/4 Section 19 and NW/4 NW/4 Section 30, of Township 17 South, Range 30 East, Eddy County, New Mexico. Plate 1 is a 1:24000 scale topographic map showing the location of the facility and a portion of the surrounding environs. Plate 2 is a 2004 aerial photograph of the same area as Plate 1. Plate 3 reproduces Plate 2 on a larger scale to show the proposed landfarm cells (Cells 1 and 2) and landfill cells (Cells A and B) that are required for the habitat restoration program. This application seeks approval of all four cells, however cells A and 1 will be activated first and cells B and 2 will be activated in the future. NMOCD will be notified 30-days in advance of activation of Cells B and 2.

PERMIT CONFINED TO AREA INSIDE BLUE LINE ON PLATE 3.

Proposed use of the facility:
The facility is designed to recycle oilfield waste and non-hazardous solid waste generated by the operator in a manner that will facilitate habitat restoration of the former caliche pit. Specifically:

- The landfill cells will accept reserve pit material exported from drilling locations where on site burial is not permitted or preferred. First the material will be spread in the bottom of the pit within a specific landfill cell to dry until it can be worked and compacted. Then the material will be placed into the cell, graded then compacted to reduce permeability.
- Landfill cells may accept other oilfield waste or non-hazardous solid waste generated by the operator.
- Reclaimed caliche roadbed and drill pad gravel will be imported to the landfill cells and employed as the first layer of an infiltration barrier,

WHERE IS THIS "DRYING" AREA?

creating a cap over the compacted material to prevent the upward migration of soluble salts and attendant soil sterilization.

- The landfarm cells, which are 2-3 acres, will treat 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. This treated waste, which becomes fine-grained organic-rich soil, is the second layer of the barrier over the compacted reserve pit material.
- As the first landfill cells reach capacity, we plan to convert a landfarm cell to a landfill cell. The landfill cells will not reach capacity for several years, perhaps a decade.
- Surplus native soil currently stored at the site, will be placed over the treated soil/waste to facilitate restoration of the site with native plant species.
- Native vegetation planted on the sloped restored wildlife habitat creates the final and most important element of the site restoration.

WHEN will this be used in a landfill cell?

The intent is to eliminate the adverse visual impact of the former caliche pit and provide habitat for native plants and wildlife.

As suggested above, waste streams imported to the site will be dominated by drilling reserve pit solids, hydrocarbon and/or chloride-impacted soils resulting from leaks or spills and tank bottom solids and water (BS&W). Free liquids (e.g. BS&W) will be brought into the facility at a rate no greater than 50 barrels per day as allowed by rule in subsection A, paragraph (3)(b) of Section 9.15.9.711 NMAC. At no time will the facility accept wastes that are determined to be RCRA Subtitle C hazardous wastes by either listing or by characteristic testing.

Will this be spread and allowed to dry?

The facility will accept only waste generated in New Mexico. The landfarm and the landfill cells will not receive compensation for waste management and will be used exclusively by Marbob Energy Corporation (Marbob), but may be used by more than one generator subject to New Mexico's "Oil and Gas Conservation Tax Act" Section 7-30-1 NM SA-1978 as amended under an operating agreement and may receive wastes that are generated from two or more production units or areas or from a set of jointly owned or operated leases.

This permit seeks approval for the first landfill and landfarm cells as soon as possible. Currently, our calculations suggest that Marbob will not generate a sufficient volume of reserve pit material within a reasonable period to effectively restore the habitat at the proposed facility. Therefore, we seek approval to employ the remaining cells on an as-needed basis and we will notify NMOCD 30 days prior to accepting any waste into the remaining cells.

Directions to the facility:
From Artesia, NM proceed 18 miles east on Highway 83. Turn right near mile marker 130 and proceed south on County Road 216. Continue 0.6 miles south and turn left onto caliche lease road. Proceed east 0.1 mile, and bear left heading northeast another 0.1 miles to south entrance of facility.

7A. LANDFARM AND LANDFILL CONSTRUCTION

Upon completion of the land sale from the BLM to Marbob Energy Corporation and conditional approval of the 711 permit, the perimeters of the landfarm and landfill cells will be fenced as shown in Plate 4. Locked gates will prevent unauthorized access to the facilities. As active cells area added, earthen berms will separate each active landfarm and landfill cells from non-active areas of each facility. The landfarm and landfill facilities will each have a sign at the north entrance which is legible from at least fifty feet and contain the following information:

> **Loco Hills Habitat Restoration Facility**
> SW/4 Section 19, T17S, R30E
> NW/4 Section 30, T17S, R30E
> Emergency Contact: (505) 748-3303

Existing access roads will be used for access to the facility. No berms are necessary to prevent runoff or run-on of precipitation outside of the caliche pit since the land farmed and landfill material will be contained within the caliche pit, which is 6-10 feet below the natural ground surface.

The next section of this submittal describes the operation of the landfarm and landfill.

Plate 4 is a diagram showing the layout and construction of each facility Cells A and B designate the areas where hydrocarbon-impacted soils will be landfarmed. Cells 1 and 2 designate the general area where the drill cuttings and caliche layers will be landfilled.

7.B LANDFARM AND LANDFILL OPERATION

General Operation

Appendix A presents the results of samples obtained to define ambient, pre-operation conditions for the landfarm cells. The location of the sampling points is shown on Plate 4. The samples were analyzed for the following constituents:

APPENDIX A NOT INCLUDED. NEED BACKGROUND SAMPLE ANALYSES.

- Benzene, toluene, ethylbenzene, and xylenes (BTEX),
- Major cations/anions including boron, nitrogen species,
- The 17 Water Quality Control Commission (WQCC) metals: and
- Radium 226 & Radium 228

The general operation of the facility is outlined below

- Contaminated soils will not be placed within 100 feet of the property line of the facility, or within 20 feet of any pipeline crossing the facility.
- No equipment will be employed for landfill or landfarm activity within 10 feet of a pipeline. All pipelines crossing the facility will have surface markers identifying their location.
- Oilfield waste will only be accepted at the facility while an attendant is on duty. The facility will be secured with a locked gate(s) when no attendant is present.
- Design of the facility will prevent runoff or run-on of precipitation to accumulate in pools or travel past 20 feet from the treatment or landfill areas.
- Any excessive precipitation forming ponds and pools within the treatment or landfill cells will be removed within 24 hours of discovery. However, allowance for precipitation to remain within the cell is encouraged to enhance the aerobic biodegradation of hydrocarbon-impacted soils.
- Records of all laboratory analyses and sampling locations will be available at all times at the Marbob office in Artesia, NM.

It is possible but not probable that the landfill cells identified in this submission will fill before Marbob's needs for the landfill ends. If this occurs, we will convert a landfarm cell for use as a landfill. We will notify NMOCD of our intent to implement this 30-days prior to this proposed conversion.

Landfarm Operation
The operation of the landfarm portion of the facility is outlined below.

- Within 72 hours of placement within a cell, hydrocarbon-impacted soils will be disked and spread on the surface in lifts 6-inches thick or less.
- Hydrocarbon-impacted soils will be disked a minimum of once every 2 weeks or more - as often as necessary to improve the biodegradation rate.
- Nitrogen, phosphorous and other nutrients may be added as necessary.
- Precipitation captured within the facility may be added to the hydrocarbon-impacted soils as necessary for dust suppression and to enhance biodegradation processes, and minimize odors.

NEED APPROVAL FOR APPLICATION OF SUCCESSIVE LIFT.

- Successive lifts of hydrocarbon-impacted soils will not be spread until laboratory analyses of TPH (DRO) in the previous lift have reached a concentration endpoint (i.e. no incremental decrease in TPH (DRO) values) or the hydrocarbon constituents meet the risk-based soil screening levels established by the New Mexico Environment Department
- On an annual basis, analytical results of the treatment zone will be submitted to the NMOCD Santa Fe office, with a copy to the Artesia District office,
- On an as-needed basis, treated soil will be mixed with a small volume of fine-grained native material and placed as a layer of the infiltration barrier of the landfill, as described in the next section
- As described in the next section, a thin layer of stockpiled native soil will be placed over the soil/treated waste mixture at the landfill. We will "patch-seed" this top layer with native species, creating micro-habitats that will spread to form the final vegetative cap for the landfill and an active biologic layer (root zone) that will continue to biodegrade any remaining hydrocarbons in the soil.
- Records of all materials landfarmed at the facility will be maintained and documentation will include the following: (a) generator, (b) origin, (c) date received, (d) quantity, (e) certification of exempt status, (f) transporter, and (g) cell location

NEED TO STOP ACCEPTING WASTES INTO THIS CELL PRIOR TO BEGINNING OF ENDPOINT DETERMINATION.

NEED TPH LEVELS WHEN ENDPOINT REACHED. < 10,000 PPM

HOW THIN?

Landfill Operation

The operation of the landfill portion of the facility is outlined in general terms below. We intend to perform several tests of this landfill protocol with reserve pit material that is currently at a drilling site waiting excavation and disposal. This protocol will be observed and evaluated by a Professional Engineer who will then develop site-specific engineering drawings and specifications that provide more detail of not only the day-to-day protocol, but the proposed final grade of the fully-restored landfill facility. The drawings will show that the berms and other measures are capable of protecting the facility against damage due to a 25-year storm event.

- Drilling pit material will be placed in rows approximately 2-3 feet tall and 4-6 feet wide in a drying area adjacent to the active landfill cell to allow seepage of residual drilling fluid liquids into the underlying fine-grained native material and evaporation to the atmosphere. Other configurations may be employed such that pooling of liquids draining from the drilling pit material is minimized.

- When the imported material is sufficiently dry to allow placement and compaction, equipment will place the dried material and the uppermost 2-6 inches of the underlying Dockum Group material (to capture the infiltrated brine) into the active portion of the landfill. The material will be placed in 6-inch to 2-foot lifts and compacted with the equipment on a slope as shown in Figure 1.
- The process outlined above will be repeated until the height of the fill is essentially the same as the height of the natural land surface. Then at least 1-foot of caliche gravel from reclaimed well pads and roads will be placed over the compacted fill as the first layer of the infiltration barrier, with reclaimed soil placed on the caliche layer (Figure 2). Because ground water is not present at the site, this process is designed to prevent upward infiltration of saline pore fluid from the drill cuttings to the soil horizon.
- Placing the coarse-grained caliche gravel with open pore spaces over the fine-grained reserve pit material is the key design feature that will prevent upward wicking of saline pore water. To reduce the fines entrained in the reclaimed caliche road gravel, we intend to wash the caliche gravel with clear produced water as it is laid down over the compacted reserve pit material.

WHAT QUALITY PRODUCED WATER?

- To minimize intrusion of finer-grained material into the open-pore space of the coarse-grained caliche layer, we may need to install a geotextile material over the caliche before placing a 1-foot layer of mixed reclaimed and native soil.
- Eventually, the cell will fill and the compacted drilling pit material can be fully encapsulated with a final layer of native soil and a vegetative cap as shown in Figure 3.
- As stated above, a detailed set of engineering plans and specifications for the landfill operation will be submitted to NMOCD after several full-scale tests of this proposed protocol.

8. CONTINGENCY PLAN FOR REPORTING & CLEANUP FOR SPILLS OR RELEASES

The facility will be closely monitored by staff as it is within 500 feet of the Marbob pipe yard and warehouse facilities, where Marbob will maintain an office and field laboratory for this operation.

Only minor leaks or spills will occur as only very small volumes (less than 50 barrels/day) of liquids will be transported to the site for dust suppression and maintenance of optimal moisture content in the landfarm treatment zone.

The operator of the site will notify the NMOCD Santa Fe and Artesia offices within 24 hours of any fire, break, leak, spill, blow out or any other circumstance from the facility or nearby operations of others that could constitute a hazard or contamination in accordance with OCD Rule 116.

The site operator will ensure that all conditions to the proper operation of the facility and requirements are met.

Because there is no regulated ground water at the site, any limited migration of constituents from the landfill cells into the underlying native material will not create a threat to human health or the environment.

As stated, the infiltration barrier described in the previous section will effectively prevent any contaminants from wicking upward into the soil horizon at the landfill.

No constituents of concern will remain at the closed portions of the landfarm because we plan to remove the reclaimed soil for use as part of the proposed landfill infiltration barrier.

The landfarm will accept only soil and soil-like material plus small volumes of BS&W and other liquids to maintain optimal moisture content in the treatment zone. The landfill will accept only exempt solid waste or non-exempt, non-hazardous solid waste generated by Marbob Energy Corporation. Therefore, we do not believe a contingency plan to address hydrogen sulfide, fires or explosions is necessary for this facility.

9. ROUTINE INSPECTION AND MAINTENANCE PLAN

Landfarm inspection and maintenance will be conducted on at least a monthly basis and immediately following each consequential rainstorm or windstorm. If any defect is noted, we will make repairs as soon as possible. If the defect will jeopardize the integrity of the landfarm or landfill, the NMOCD Santa Fe and Artesia offices will be notified within 24 hours and additional wastes will not be placed into landfarm or landfill cells until repairs have been completed.

At the landfarm, we will sample the treatment zone, which will not exceed three feet beneath the landfarm ground surface, on an annual or more frequent basis. We will obtain samples at 6-inch intervals below the placed material at four locations within each active cell. We will evaluate the samples for total organic vapors using the heated headspace method. All samples will be submitted to a laboratory for analysis of TPH and GRO to monitor the efficacy of biodegradation.

After soil samples are obtained, the boreholes will be filled with local fine-grained material.

10. CLOSURE PLAN

The NMOCD will be notified when operation of the facility is to be discontinued for a period in excess of six months or when the facility is to be permanently closed. Within six months after discontinuing use or within 30 days of proposed closure, Marbob will submit a final closure plan to NMOCD Santa Fe office for approval. The operator will dismantle constructed facilities and complete restoration of the facility within six months of receiving approval of the closure plan, unless the NMOCD Director grants an extension of time.

The closure plan will include the following procedures:

- No new material will be accepted after the facility is closed.
- Existing landfarm soils will be remediated until they meet the NMED soil screening standards for industrial use in effect at time of closure.
- The treatment zone soils within each landfarm cell will be sampled at two to three feet below the native ground surface and analyzed for constituents of concern.
- Soils exceeding NMED soil screening standards for industrial use in effect at the time of closure will be removed or further remediated.
- Any areas not contoured and seeded with native grasses will be restored and allowed to return to its natural state. Perimeter fences will be left in place to prevent grazing by stock.
- If possible, drainage from the former caliche pit will be designed to direct runoff into the existing stock pond, which is located outside of the proposed fences discussed above.
- Closure will be pursuant to all NMOCD requirements in effect at the time of closure, and any other applicable local, state, and/or federal regulations.
- Because no regulated ground water exists at the site and because site restoration is the goal of this program, no post-closure plan is necessary.

Estimated Closure Costs

Habitat restoration is the desired outcome of the facility and is constantly ongoing. Therefore, the estimated costs for final closure (e.g. fence removal, etc.) are not expected to exceed the required financial assurance for a centralized facility ($25,000).

11. SITE GEOLOGICAL AND HYDROLOGIC ASSESSMENT

An initial subsurface investigation was conducted the week of July 5, 2005, for a more site-specific assessment of the subsurface hydrogeology and soil conditions. One soil boring was advanced to 255 feet below ground surface (bgs) using an air/mud rotary drilling rig operated by Eades Drilling Services (Hobbs NM). The boring was located near the southwestern edge of the caliche pit as shown in Plate 4. The caving dry sand of the Santa Rosa Sandstone unit prevented completion of the borehole and construction of a monitoring well.

Numerous samples were collected with a split spoon and from drill cuttings at five-foot intervals for analysis of chloride concentration, moisture content, and grain size analysis.

On August 16, 2005, we mobilized to the site to complete a monitoring well using mud/water rotary techniques. Depth to ground water approximately 260 feet below land surface within the area of the proposed action based on a measurement obtained from a monitoring well that was completed on August 18, 2005, near the southwest corner of the caliche pit. The monitoring well was developed several times by jetting it dry with the drilling rig.

Prior to collecting groundwater samples the well was bailed dry three times over a 3 day period. On September 28, 2005 (11:30 am) we evacuated 5 gallons of standing water in the well, then allowed the well to recover overnight. At 3:15 pm the following day, we removed all of the water in the well, which consisted of 10 gallons. On September 30, 2005 (3:08 pm), we again bailed the well dry (7 gallons) and obtained a sample. Based upon these bailing tests, we believe the ground water zone at the site is capable of yielding only 5-10 gallons per day into this four-inch well.

The definition of ground water in the NMOCD Rulebook is clear:

> "Ground water shall mean interstitial water which occurs in saturated earth material and which is capable of entering a well in sufficient amounts to be utilized as a water supply."

Because 5-10 gallons per day cannot be considered a water supply, ground water at this site does not exist in sufficient quantities for beneficial use.

The ground water quality is poor based on the laboratory analysis of a water sample collected from the on site deep monitoring well on September 30, 2005. A well sample data form detailing the sampling procedures and results is included in Appendix B. The total dissolved solids (TDS) of the ground water sample was 5240 milligrams per liter (mg/l) which exceeds the New Mexico Water Quality Control Commission (WQCC) standard of 1000 mg/l. The

same laboratory analysis recorded sulfate (2030 mg/l) and chloride (1550 mg/l) concentrations that exceeded the WQCC standards for these constituents of 600 mg/l and 250 mg/l, respectively. The anomalously high sulfate concentration can be attributed to the high gypsum and anhydrite minerals common to the Rustler Formation. Well yields for a single family household of less than 150 gallons per day are not deemed of sufficient quantity for beneficial use. Activities associated with the proposed action will not affect the beneficial use of ground water.

Table 1 – Summary of Ground Water Quality Results (MW-1)

Depth to Groundwater	Cl	F	SO4	HCO3	CO3	Ca	Na	Mg	K	TDS
264.45	1550	1.44	2030	122	<2	708	584	216	29.9	5240

Because drilling the monitor well employed potable water as a drilling fluid, the chemistry of this sample could be affected by the introduction of potable water into the water-bearing zone. In 2006, we plan to obtain a final sample of water from this well and we will report the results of this sampling event to NMOCD.

HAS THIS BEEN DONE?

Site Soils

The surface soils surrounding the caliche pit consist of Simona gravelly fine sandy loam and Tonuco loamy fine sand with 0 to 3 percent slopes (USDA-NRCS, 2005). A soils map with more detailed description of these soil profiles is provided in Plate 5. A map showing the local and regional geology is presented in Plates 6 and 7, respectively. A stratigraphic column of the geologic formations is provided on Plate 8.

Beneath the surface soils identified above is an approximately 2 to 3-foot thick layer of Mescalero Caliche. The Mesacalero Caliche is a well-lithified calcareous soil of Pleistocene age. The caliche consists of a white, sandy weathered and fractured limestone with a porous to chalky texture.

Site Geology

Underlying the Mescalero caliche at a depth of approximately 6 feet below ground surface is the Santa Rosa Formation of late Triassic age. The Santa Rosa Formation is the lower member of the Dockum Group and consists principally of interbedded shale, sand, sandstone, and a basal conglomerate (Richey et al, 1985). The rock is somewhat silty and ranges in color from light gray and yellowish gray through light brown to reddish brown. Its thickness amounts to approximately 150 feet at the site. The lithologic log from the failed attempt to install a monitor well at the site (Plate 9) shows the lithology of this unit.

Beneath the Santa Rosa Sandstone is the Dewey Lake (Red Bed) Formation of upper Permian age. The Dewey Lake consists of reddish-brown siltstone and mudstone with thin interbeds of fine- to medium-grained sandstone. Much of the reddish- brown rock is irregularly bleached greenish-gray in spotty and lenticular masses. Platy fragments of fibrous white selenite, presumably derived from selenite veinlets, are common in the lower portion of the unit. Their presence attests to the absence of circulating ground water since the introduction of selenite by vein-forming processes (Hendrickson and Jones, 1952). Plate 9 shows that the thickness of the Dewey Lake Formation lies between 155 to 245 feet below ground surface at the site.

Beneath the Dewey Lake Formation is the Rustler Formation of lower Permian age, which is estimated to be approximately 245 feet below ground surface at the site. The Rustler consists of anhydrite (or gypsum) and siltstone with interbeds of dolomite and clayey silt. The bulk of the gypsum occurs immediately above and below beds of dolomite and clayey silt where it forms a thick rind along the upper and lower sides of anhydrite beds. The clayey silt is structureless, essentially unconsolidated, and free of cement; it is considered to be dissolution residue derived from clayey and silty halite. Formation thinness in conjunction with the absence of halite and the presence of gypsum is related to the removal by dissolution of soluble constituents [NaCl, $CaSO_4$, and possibly $CaMg(C0_3)_2$] by circulating ground water. Maximum thickness of the Rustler Formation is about 500 feet.

A review of several geophysical logs (natural gamma) from various oil wells in the near vicinity further support the estimated depths and thicknesses of the formations identified above.

Ground water Characteristics

The Dockum aquifer comprises all water-yielding units within the Dockum Group. The Santa Rosa Formation, which is the most productive part of the Dockum aquifer, is present in eastern third (10-20 miles) of Eddy County, however the site borings demonstrate that the Santa Rosa Sandstone is not saturated at the site.

The Rustler aquifer consists of water-yielding rocks from the Culebra and Magenta dolomite members of the Rustler Formation. The Rustler aquifer is confined by the overlying Permian Dewey Lake Formation. The dissolved solids concentration of the water is extremely variable and ranges from 2,000 to over 300,000 mg/L, with the principal ions being calcium and sulfate. The water is not suitable for human consumption, but is sometimes used for irrigation, livestock watering, and oilfield water-flooding operations.

We measured a depth to ground water at a cathodic protection well located about 2,500 feet west of the proposed facility. This well is 260 feet deep and completed in the Rustler Formation. The depth to ground water is 205 feet below land surface. Depth to ground water is approximately 260 feet below land surface within the area of the proposed action based on a measurement obtained from a monitoring well that was completed on August 18, 2005, near the southwest corner of the caliche pit. A second monitoring well was nested within the same boring and completed at a depth of 160 feet bgs. This depth represents the base of the Santa Rosa Formation. Copies of the well completion diagrams are included in Appendix B.

Water Well Inventory

Based on database information obtained from the New Mexico State Engineer Office (NMSEO) and USGS websites, there are no water supply wells located within one mile from the site. Several ground water monitoring wells are located approximately 2.5 miles east –northeast of the site at the Loco Hills Water Disposal (LHWD) facility. According to NMOCD permitting records obtained for this commercial surface waste management facility the wells are completed in the upper Santa Rosa and Rustler Formations at depths of 60 feet and 320 feet bgs, respectively. The well records for each of these wells reports that no ground water was observed after the initial borings were jetted dry. Furthermore, the annual reports for the completed monitoring wells indicate they were dry on a quarterly basis since there installation in the 1980s and as recently as 2002 (the most recent data available from the NMOCD files in Santa Fe). Monitoring of the deeper Rustler Formation monitoring wells was no longer required after the permit renewal in 1999.

Potable water supply for the area is supplied by Caprock Water Company, an investor owner water utility, which obtains its water from wells located several miles east and north near Maljamar in Lea County.

Waste Disposal Facility Inventory

The locations of the several waste disposal facilities are listed below because they are situated in a very similar hydrogeological environment as the proposed facility:

- *Loco Hills Water Disposal (LHWD)* facility - 2.5 miles northeast of the site in T17S-R30E-Section 16. This facility has been permitted by the NMOCD since 1981 to accept produced water generated from oil and gas operations. Produced water is disposed in unlined surface impoundments for evaporation and leaching of brine.

- *Old Loco Treating Plant* - 6 miles east of the site in T17S-R31E-Section 19. This facility was permitted by the NMOCD in 1985 as a waste oil treating plant. This facility is no longer in operation.
- *Artesia Aeration Landfarm*- 12 miles east –northeast of the site in T17S-R32E-Section 7. This facility has been permitted by the NMOCD since 1999 to remediate hydrocarbon-impacted soils generated from oil and gas activities and is still in operation.
- *Controlled Recovery Inc. (CRI)* – 24 miles southeast the site in T20S-R32E-Section 27. This facility has been permitted by the NMOCD since 1990 to accept produced water, solids, and drilling muds generated from oil and gas operations for disposal in unlined surface cells (landfill).
- *Lea Lands Landfill* - 24 miles southeast the site in T20S-R32E-Section 27. This facility has been permitted by the New Mexico Environment Department for disposal of non-hazardous Industrial Waste since 1996. Amendments to the permit allow for landfarming of hydrocarbon-contaminated soils.
- *Waste Isolation Pilot Plant (WIPP)* - 35 miles south-southeast of the site T20S-R31E-Section 21. This facility accepts transuranic waste generated from USDOE weapons programs for deep burial (2,150 feet) in a subsurface salt formation (Salado Formation of Permian age).

12. PUBLIC NOTICE REQUIREMENTS

Marbob Energy Corporation has given written notice of our intent to submit this application to the surface owners of record within one mile of the facility (Appendix C).

The operator will issue public notice in the form approved by the NMOCD in a newspaper of general circulation in the county the facility is to be located Artesia, Eddy County, New Mexico). Proof of public notification will be forwarded to the NMOCD upon conditional approval of the permit.

13. H2S CONTINGENCY PLAN

An H2S Contingency Plan is not applicable to this application since the facility is not designed to generate H2S.

14. COMPLIANCE WITH DRAFT SURFACE WASTE MANAGEMENT RULES

We have made every attempt to comply with appropriate sections of the NMOCD Draft Surface Waste Management Rules (November 2005) and the amendments proposed by NMOGA and industry groups. In addition to these data in the permit application, Marbob Energy Corporation agrees to the following applicable mandates expressed in the DRAFT Rule and the industry-proposed amendments to 19.15.2.53.C(5)(a):

Upon notification by the division that it has approved a permit but prior to the division issuing the permit, Marbob Energy Corporation shall submit acceptable financial assurance in the amount of $25,000, or a statewide "blanket" financial assurance in the amount of $50,000 to cover all of that applicant's centralized facilities.

Marbob agrees to the following applicable provisions as outlined in the DRAFT Rule and industry-proposed amendments to 19.15.2.53.E

(4) No liquid wastes transported by commercial motor vehicle shall be accepted at the facility unless the commercial transporter has a form C-133, authorization to move liquid waste, approved by the division.

(5) Marbob shall accept only oil field related wastes generated by Marbob and its affiliates, except as provided in Subparagraph (c) of Paragraph (5) of Subsection E of 19.15.2.53 NMAC. No non-exempt wastes, which are RCRA subtitle C hazardous wastes by either listing or characteristic testing shall be accepted.

(5) (c) Emergency non-oil field wastes. Non-hazardous, non-oil field wastes may be accepted in an emergency if ordered by the department of pubic safety. The operator shall complete a form C-138, request to accept solid wastes, and maintain the same, accompanied by the department of public safety order, subject to division inspection.

(11) Marbob shall comply with the provisions of 19.15.3.116 NMAC.

After completion of the engineering drawings for the facility:

(12) Marbob shall submit an inspection and maintenance plan that includes the following:
(c) Inspections and maintenance of berms in such a manner as to prevent excessive erosion;

(13) Marbob shall submit a plan to control run-on water onto the site and run-off water from the site, such that:
(a) The run-on control system shall prevent flow onto the facility's active portion during the peak discharge from a 25-year storm;
(b) The run-off control system from the facility's active portion collects and controls at least the water volume resulting from a 24-hour, 25-year storm; and

(c) run-off from the facility's active portion shall not be allowed to discharge any pollutant to the waters of the state or United States that violates any state water quality standards.

(14) The permit application demonstrates that a failure of the operations plan should not reasonably cause a fire, explosion, or sudden release of contaminants.

Marbob agrees to the following applicable provisions as outlined in the November DRAFT Rule and industry-proposed amendments to 19.15.2.53.F

(2) Marbob's permit application demonstrates that fresh water will not be adversely impacted by the proposed landfill design.
(3) Marbob shall confine the landfill's working face to the smallest practical area and compact the solid waste to the smallest practical volume.
(4) Marbob shall prevent unauthorized access by the public and entry by large animals to the landfill's active portion through the use of fences, gates, locks or other means that attain equal protection.
(5) Marbob shall provide adequate means to prevent and extinguish fires.
(6) Marbob shall control litter and odors.
(7) Marbob shall not excavate a closed cell or allow others to excavate a closed cell except as approved by the division.
(10) Once a landfill cell has been filled it shall be closed pursuant to the conditions contained in the surface waste management facility permit and the requirements of Subparagraph (i) of Subparagraph (b) of Paragraph (3) of Subsection I of 19.15.2.53 NMAC. Marbob shall notify the division's environmental bureau 72 hours prior to closure of a landfill cell.

Marbob agrees to the following applicable provisions as outlined in the DRAFT Rule and industry-proposed amendments to 19.15.2.53.G

(1) The application contains a general landfarm operations plan. The plan is based on the environmental setting and landfarm design, and addresses waste acceptance procedures, representative waste sampling and analysis, cell operations, salt management program, waste placement plan, storm water management, bioremediation program (depth placement, moisture management, tilling schedule, bioremediation end-point [e.g., using TPH DRO], treatment zone sampling and analysis program, and annual reporting and certification.
(2) Only soils and soil like material such as drill cuttings or tank bottoms shall be placed in landfarm.
(3) No contaminated soils shall be placed within 100 feet of a boundary of the facility.
(4) Because ground water is not present at the site, the base of the treatment zone in each landfarm cell shall not be monitored.
(7) The operator shall maintain records of the facility's treatment activity schedule in a form readily accessible for division inspection.

(10) Exempt and non-exempt contaminated soils shall be physically separated so that the division can visually identify whether the waste is exempt or non-exempt prior to placement in the landfill or landfarm.
(11) Moisture shall be added, as necessary, to control blowing dust.
(12) The application of microbes for the purposes of enhancing bioremediation requires prior division approval.
(13) No free liquids in excess of 50 barrels per day shall be placed in the landfarm cells.
(15) Pooling of liquids in the landfarm is prohibited. Freestanding water shall be removed.

Marbob agrees to the following applicable provisions as outlined in the November DRAFT Rule and industry-proposed amendments to 19.15.2.53.I

(1) Facility closure by operator. The operator shall notify the division's environmental bureau at least 90 days prior to cessation of operations at the facility and provide a proposed schedule for closure. Upon receipt of such notice and proposed schedule, the division shall inspect the facility and review the current closure plan for adequacy within 30 days. The division shall notify the operator when it has completed its review and inspection and shall specify in such notice any modifications of the closure plan and proposed schedule or additional requirements that it determines are necessary for the protection of fresh water, public health or the environment. The operator shall be entitled to a hearing concerning any modification or additional requirement the division seeks to impose if it files an application for a hearing within 10 days after receipt of written notice of the proposed modifications or additional requirements. Closure shall proceed in accordance with the approved closure plan and schedule and any modifications or additional requirements imposed by the division. During closure operations the operator shall maintain the facility to protect fresh water, public health and the environment. If it is determined that closure is complete the division shall release the financial assurance, except for the amount needed to maintain and sample a proposed post-closure monitoring system according to the post-closure period identified in the closure plan, and to re-vegetate the site. Prior to the partial release of the financial assurance covering the facility, the division will inspect the site to determine that closure is complete. After the closure period has expired, the division shall release the remainder of the financial assurance if the monitoring system shows that fresh water is protected and the re-vegetation is successful

(b) Landfill cell closure. The operator shall ensure that:
(i) all landfill cells are properly closed, covering the cell with a division-approved evapotranspiration cap, or other final cover design approved by the division, and at least two feet of soil contoured to promote drainage of precipitation; side slopes shall not exceed a 33 percent grade (three feet horizontal to one foot vertical), such that the final cover of the landfill's top portion has a minimum gradient of two percent to five percent, and the slopes are sufficient to prevent the ponding of water and erosion of the cover material; and
(ii) the area is re-vegetated or otherwise restored in a manner that is capable of sustaining native plant growth.

(d) Landfarm closure. The operator shall ensure that
(i) disking and addition of bioremediation enhancing materials continues until soils within the cells are remediated to a TPH-DRO endpoint and risk based cleanup standards established by the New Mexico Environment Department
(ii) soil remediated to the foregoing standards are re-vegetated;
(iii) landfarmed soils that have not been or cannot be remediated to the above standards are amended, or removed and the cell filled in with soil and re-vegetated;
(iv) all berms on the compost facility are removed; and
(vi) annual reports of treatment zone sampling are submitted to the division's Santa Fe office until the division has approved final closure of the facility.

(4) Alternatives to re-vegetation. If the operator or owner of the land contemplates use of the land where a cell or facility is located for purposes inconsistent with re-vegetation, the operator may, with division approval, implement an alternative surface treatment appropriate for the contemplated use, provided that the alternative treatment will effectively prevent erosion.

15. REFERENCES

Groat, C. G., 1976, *Geologic Atlas of Texas: Hobbs Sheet*, Bureau of Economic Geology, The University of Texas at Austin, 1 map

Hendrickson, G. E., and Jones, R. J., 1952, *Geology and Ground-Water Resources of Eddy County, New Mexico*: New Mexico Bureau of Mines and Mineral Resources, Ground-Water Report 3, 169 p.

Kelley, V. C., 1971, *Geology of the Pecos country, southeastern New Mexico*: New Mexico Bureau of Mines and Mineral Resources Memoir 24, 78 p.

Richey, S. F., Wells, J. G., and Stephens, K. T., 1985, *Geohydrology of the Delaware Basin and Vicinity, Texas and New Mexico*: U. S. Geological Survey, Water-Resources Investigations Report 84-4077, 99 p.

U. S. Department of Agriculture, Natural Resources Conservation Service, 2005, *Eddy County Soil Survey, Tabular Data Version 2*, Map Unit Text and Chemical and Physical Soil Properties

FIGURES

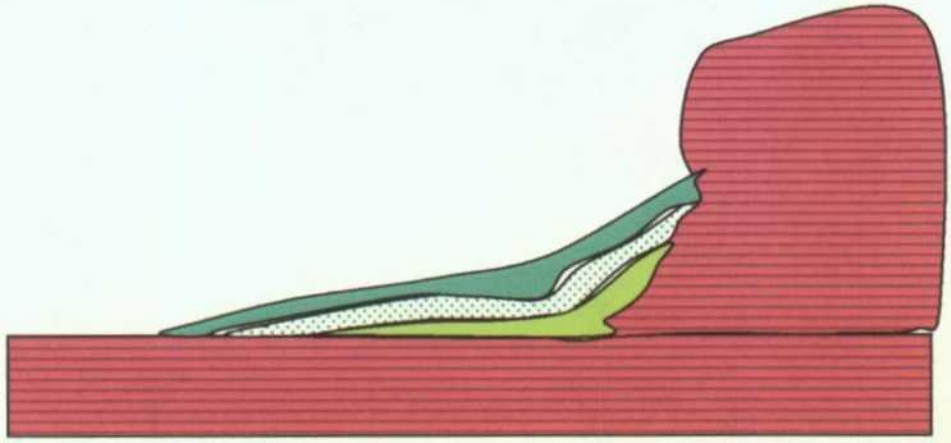


Figure 1. Illustration of how material will be placed in 6-inch to 1-foot lifts and compacted on a slope.

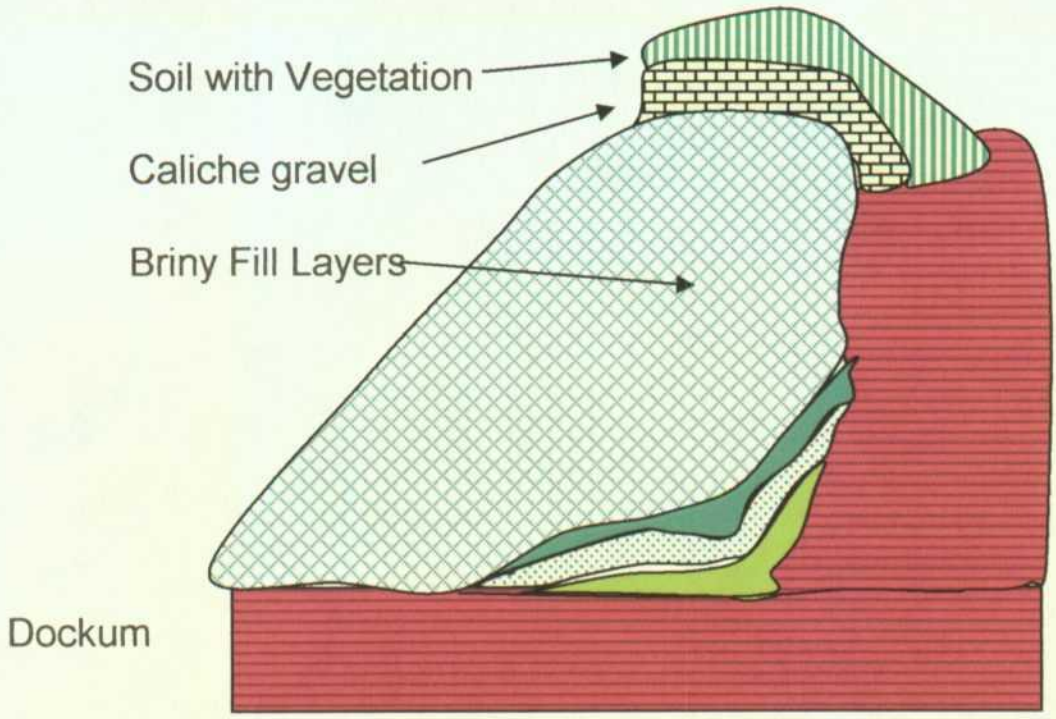


Figure 2. Illustration of at least 1-foot of caliche gravel from reclaimed well pads. Roads will be placed over the compacted fill as the first layer of the infiltration barrier, with reclaimed soil placed on the caliche layer.

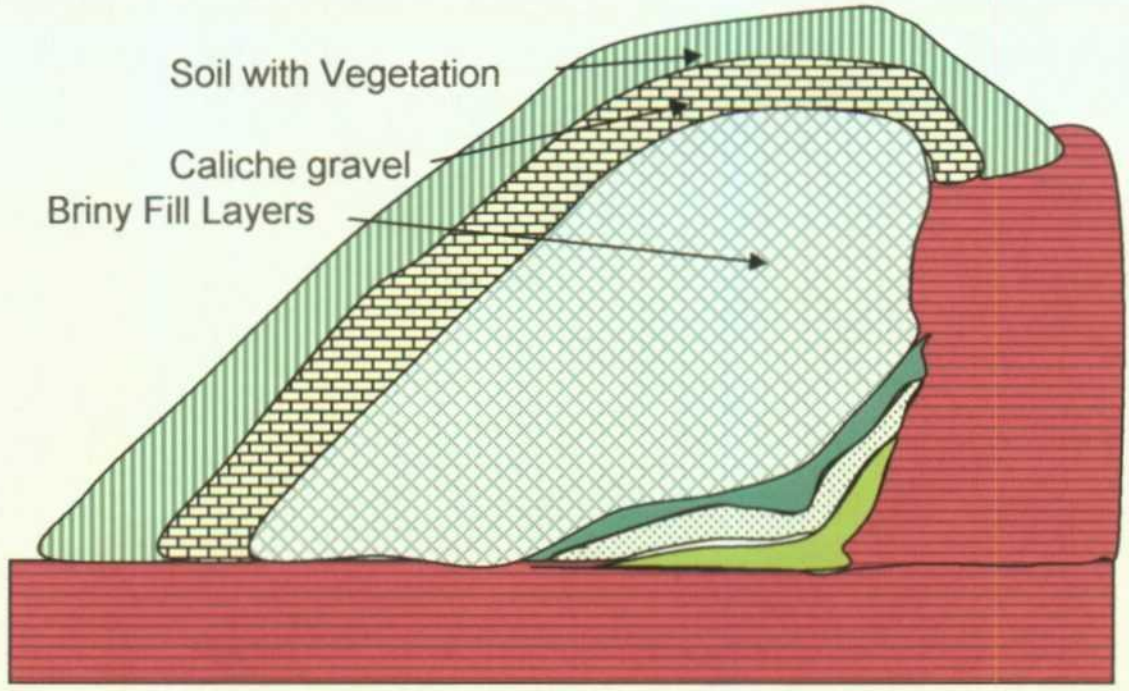
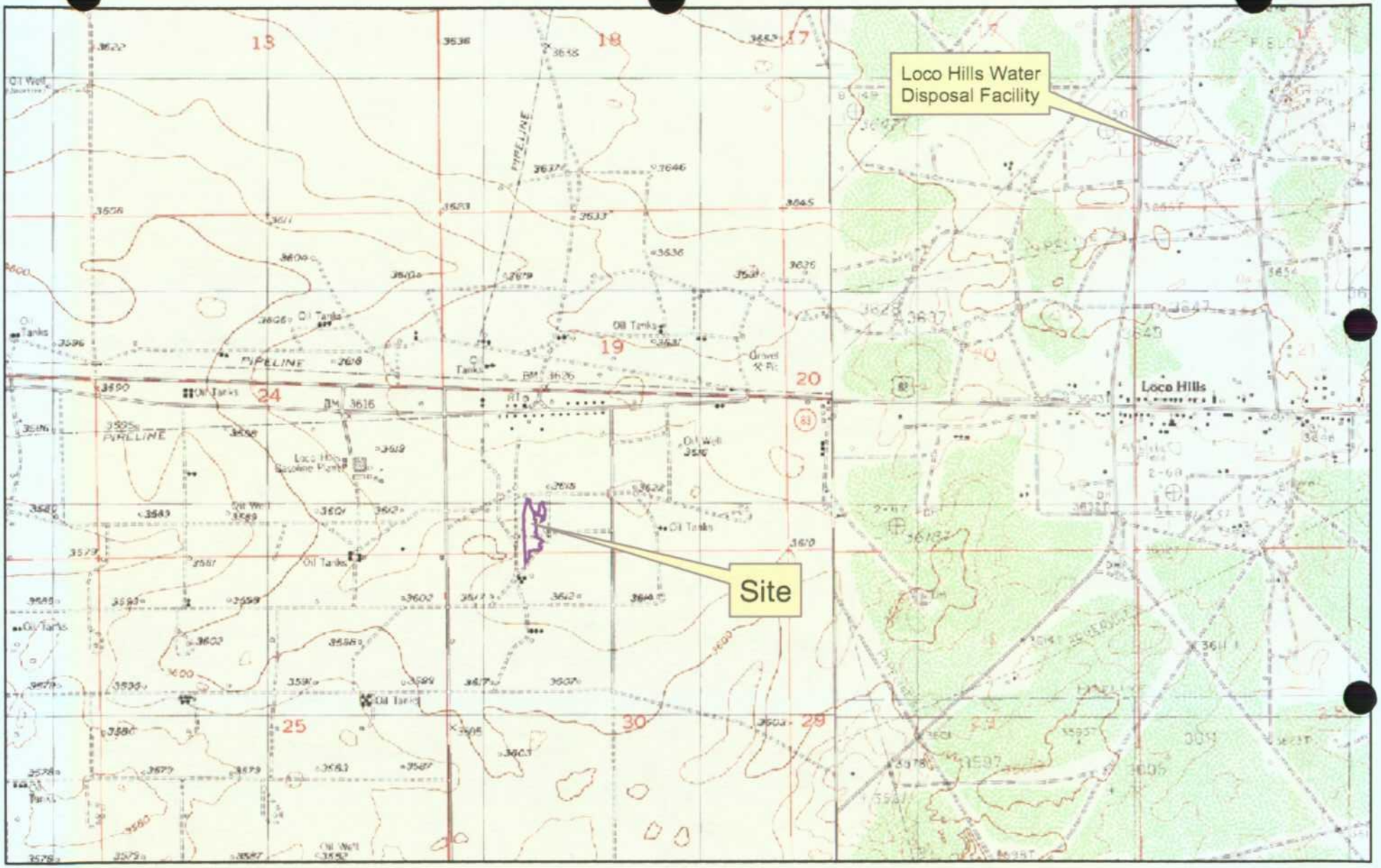


Figure 3. Illustration of how the compacted drilling pit material will be fully encapsulated with a final layer of native soil and a vegetative cap.

PLATES

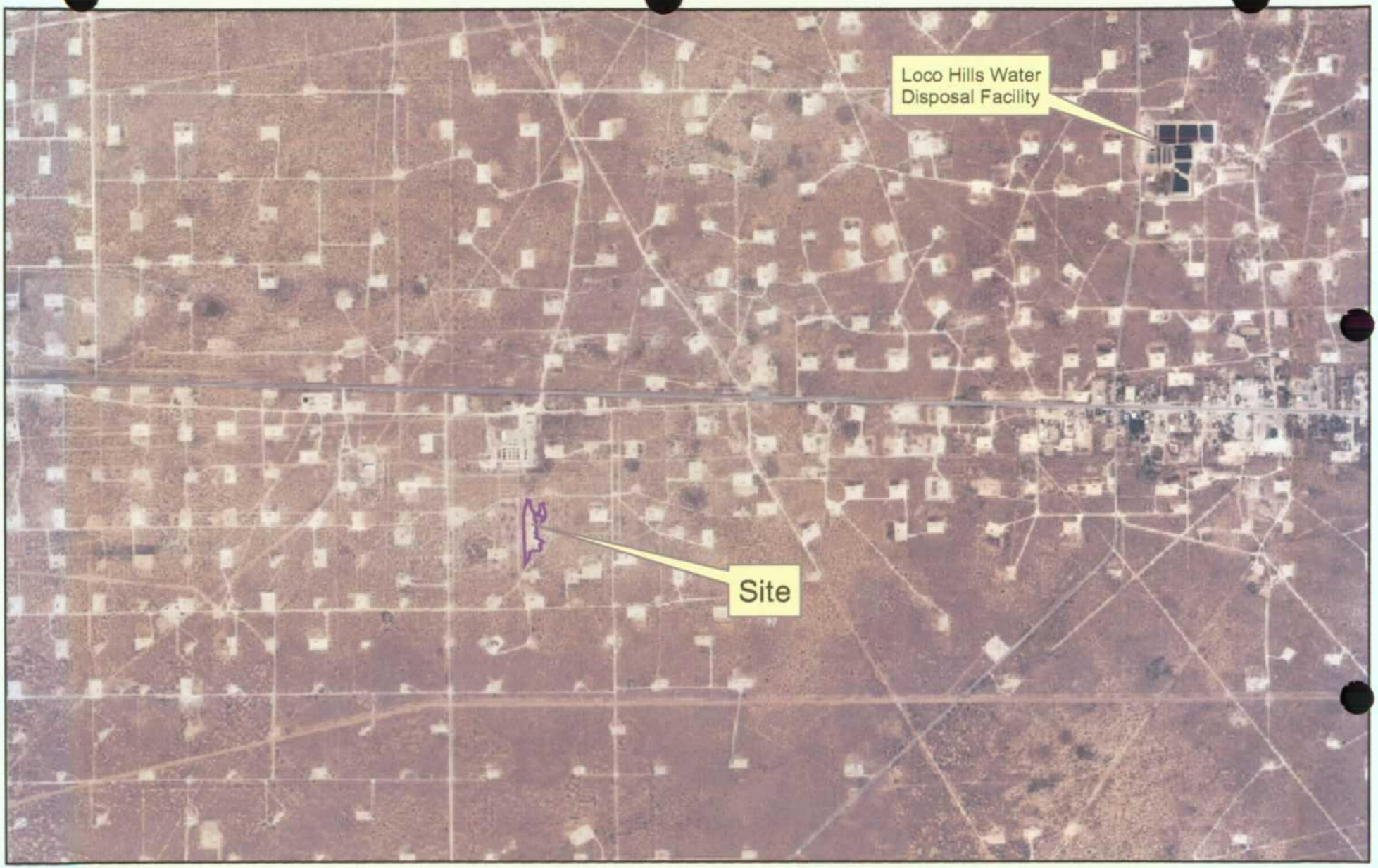


Source: USGS 7.5' Topo (Red Lake SE; Loco Hills)

0 1,000 2,000 4,000 6,000 Feet

N
W E
S

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Loco Hills Habitat Restoration Facility	Plate 1
	Marbob Energy Corporation	January 2006



Source: http://rgis.unm.edu

0 1,000 2,000 4,000 6,000 Feet

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Albuquerque, NM 87104
Ph: 505.266.5004

2004 Aerial Photograph: Loco Hills Habitat Restoration Facility

Plate 2

Marbob Energy Corporation

January 2006

N W E S

Landfill Fence

Proposed North Gate

1

A

B

2

Future Access Road

Proposed South Gate

Legend

Landfarm

Landfill

0 100 200 400 600 Feet

N

W E

S

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	2004 Aerial Photograph Showing Proposed Location of Cells	Plate 3
	Marbob Energy Corporation	January 2005

Landfill Fence

Cell 1-3

BKU # 231

Cell 1-2

1

Proposed North Gate

Cell 1-1

A

Cell 2-3

Cell 2-2

2

B

Cell 2-1

Legend

- Landfarm
- Landfill
- 3-Point Composite
- Monitoring Well
- Oil Well

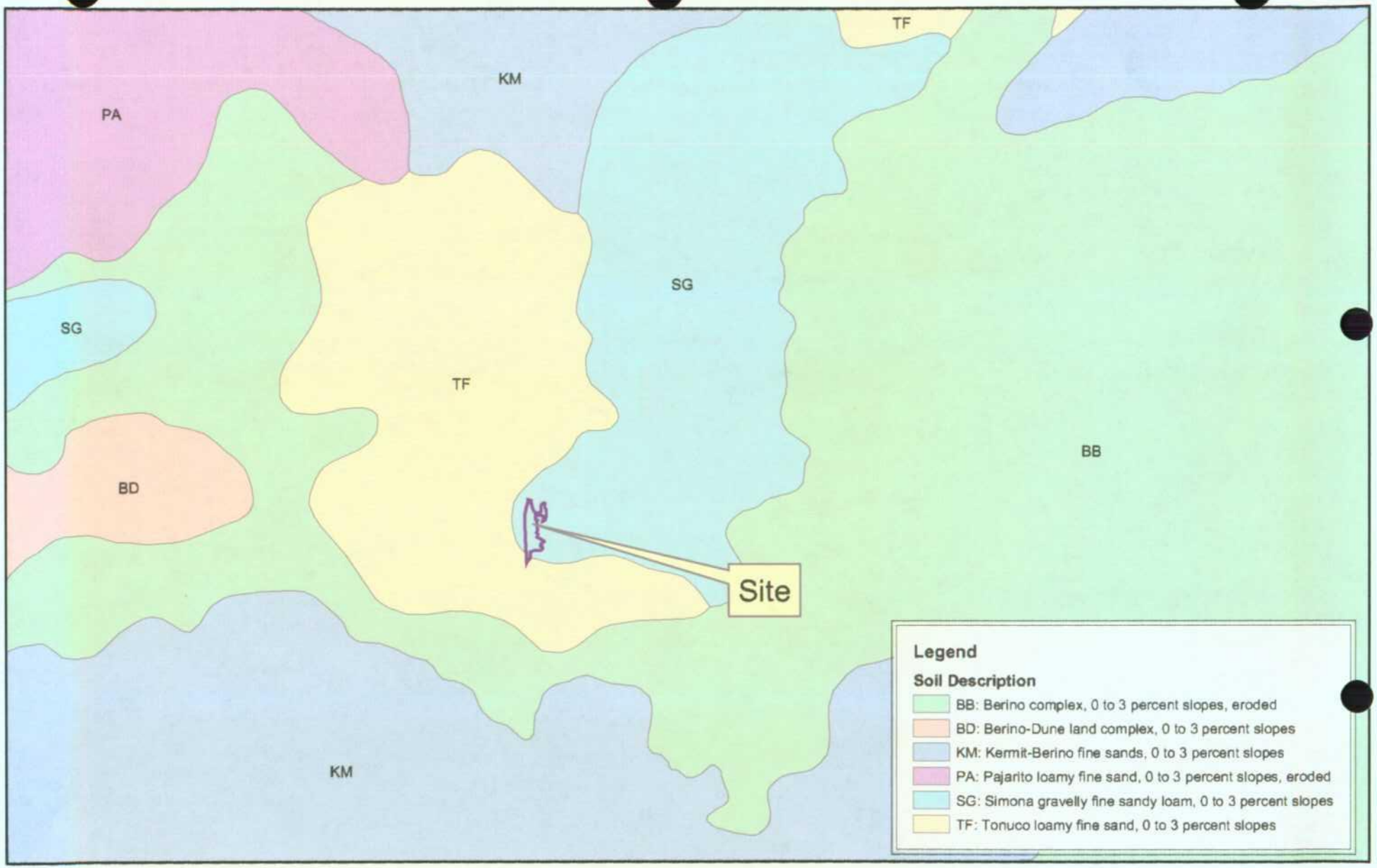
MW-1

Proposed South Gate

0 100 200 400 600 Feet

N W E S

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Plan of Proposed Landfill and Landfarm	Plate 4
	Marbob Energy Corporation	January 2006

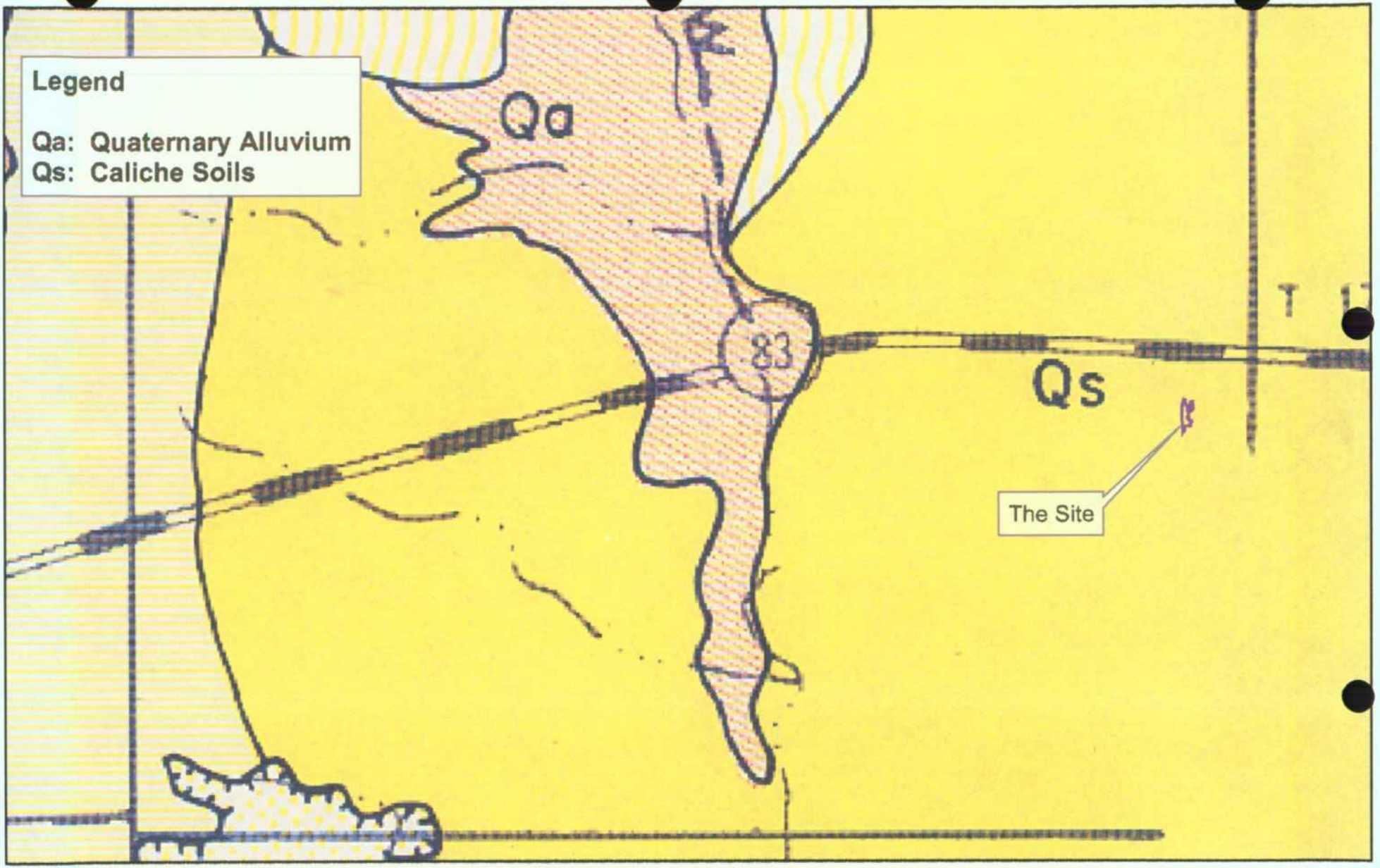


Source: United States Department of Agriculture

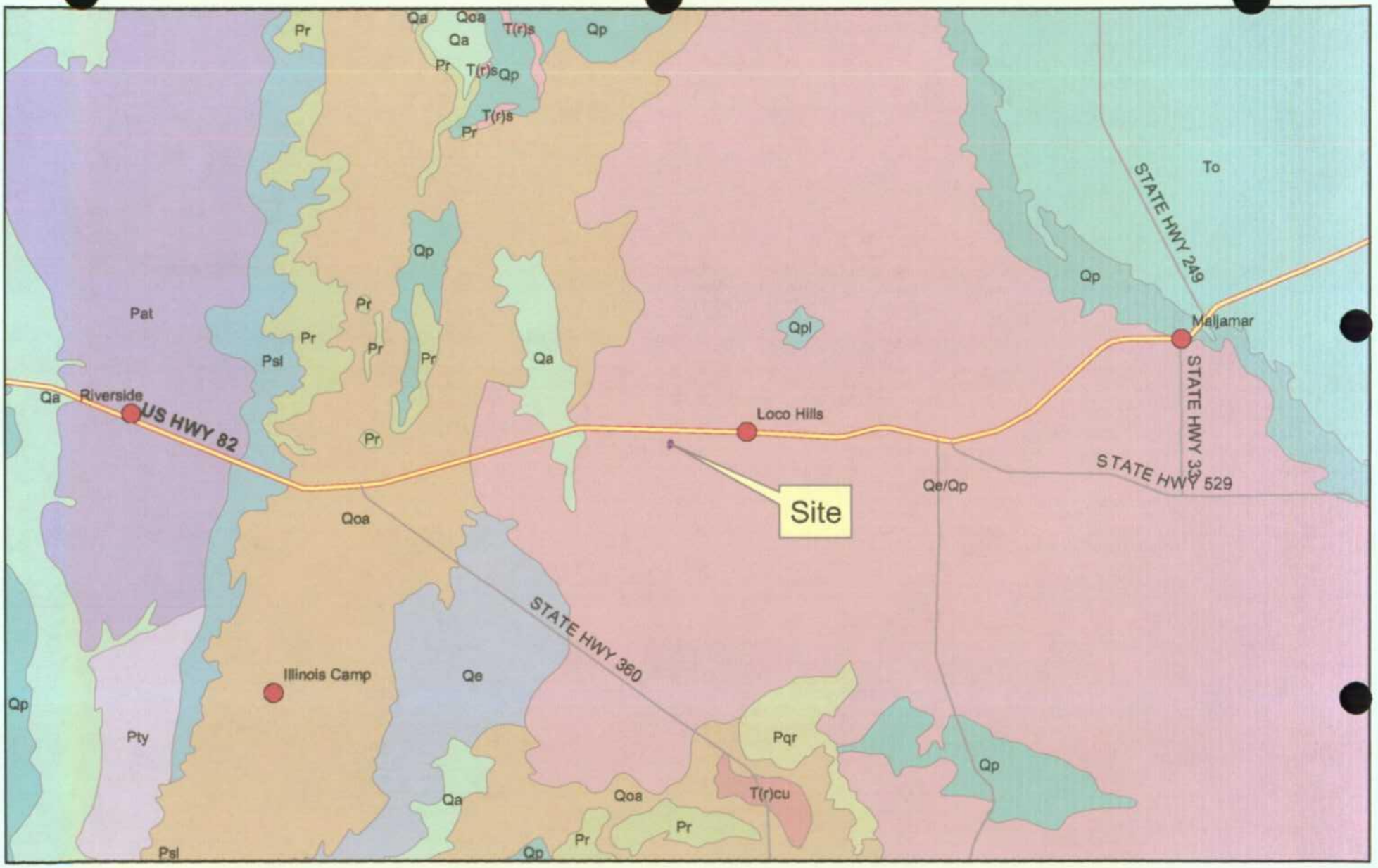
0 1,000 2,000 4,000 6,000 Feet

N
W E
S

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Soils Map	Plate 5
	Marbob Energy Corporation	January 2006



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Local Geology Map	Plate 6
	Marbob Energy Corporation	January 2006



Source: Green and Jones, 1997; NMBMNR)

0 5 10 20 Miles

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Regional Geology	Plate 7
Marbob Energy Corporation	January 2006

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PLATE 8

STRATIGRAPHIC COLUMN OF GEOLOGIC FORMATIONS IN LOCO HILLS AREA

Age	Formation	Thickness (Feet)	Lithology Description	Waterbearing characteristics
Quaternary	Soil	2	Unconsolidated dune sand; fine to medium grained and brown	Does not produce water.
	Mescalero Caliche	2-4	Well-lithified calcareous soil; white, sandy limestone with a porous to chalky texture	Does not produce water.
Triassic	Santa Rosa Fm (Lower Dockum)	50-100	Interbedded shale, sand, fine- to medium-grained sandstone sandstone, and conglomerate; ranges in color from light gray and yellowish gray through light brown to reddish brown	Present in eastern third (10-20 miles) of Eddy County. Depth to water generally less than 400 ft. Direction of flow generally to south and southwest.Water quality generally sufficient for stock or domestic use. TDS range: 201-3,590 mg/L, Chloride range: 1
Permian	Dewey Lake Red Beds	50-100	Chiefly reddish-brown siltstone and mudstone with thin interbeds of fine- to medium-grained sandstone; much of the reddish-brown rock is irregularly bleached greenish-gray in spotty and lenticular masses. Platy fragments of fibrous white selenite are comm	Not known to produce water; upper confining unit to underlying Rustler formation.
	Rustler Fm	200-500	Chiefly anhydrite (or gypsum) and siltstone with interbeds of dolomite and clayey silt	Present in eastern two-thirds of Eddy County (east of the Pecos River). Depth to water generally less than 500 ft. Direction of flow generally to southwest where it discharges into the Pecos River. Water not suitable for domestic use and quality ranges fr
	Salado Fm	1200-1600	Predominantly rock salt with minor interbeds of anhydrite, polyhalite, siltstone, and sparse potash deposits	Does not produce water.

References:

Hendrickson, G. E., 1952, *Geology and Ground-Water Resources of Eddy County, New Mexico,* New Mexico Bureau of Mines and Mineral Resources, Ground-Water Report 3.

Jones, C. L.1981, *Geologic Data for Borehole ERDA-6, Eddy County, New Mexico,* U. S. Geological Survey Open-File Report 81-468

Kelley, Vincent C., 1971, *Geology of the Pecos country, southeastern, New Mexico,* New Mexico Bureau of Mines and Mineral Resources, Memoir 24.

Richey, Steven F., 1985, *Geohydrology of the Delaware Basin and Vicinity, Texas and New Mexico* , U. S. Geological Survey Water-Resources Investigations Report 84-4077

Geologist: Gil Van Deventer
Driller: Eades Drilling
Drilling Method: Air/Mud Rotary
Start Date: 7/5/2005
End Date: 7/8/2005

Client: Marbob Energy Corporation
Project Name: Caliche Pit
Project Location: T17S, R30E, Section 30, Unit D
Boring ID: B-1 (255 ft)
Boring Location: SWC of caliche pit ~160 ft northwest of Burch Keely Unit #143

Depth (feet)	Description	Lithology	USCS Symbol	Sample			Chloride mg/kg	Moisture Content (%)	Grain size distibution (%)					
				Interval	Time	Type			Gravel	Coarse sand	Med Sand	Fine Sand	Silt	Clay
0	Sandy loam from 0' - 1' ; weathered, fractured caliche		SM	0' - 1'	0945	Surface								
5	(95%) with fine sand (5%) in matrix from 1' - 6'		CAL	5' - 7'	0950	SplitSpoon			0%	3%	17%	12%	21%	47%
10	Reddish-brown silty fine to medium sand, subangular to			10'-12'	0955		64	6.1	15%	11%	14%	23%	20%	17%
15	subrounded, some clay (<5%), some MnO_2 (<1-2%)		SM	15'-17'	1005	SplitSpoon								
20	from 6' - 22'			20'-22'	1015		64	11.8	0.0%	0%	5%	21%	41%	33%
25	Reddish-brown fine sand, loose, rounded frosted quartz		SW	25'-27'	1040	SplitSpoon	64	3.7	4%	1%	0%	36%	42%	17%
30	grains from 22' - 28'			30'-32'	1055		96	11.4	2%	8%	10%	5%	6%	69%
35	Reddish-brown and brownish-red clayey fine sand,			35'-37'	1115		112	19.9	0%	1%	7%	11%	16%	65%
40	subangular to subrounded, some calcite nodules near top,		SC	40'-42'	1145	SplitSpoon	144	14.8	0%	0%	1%	9%	25%	65%
45	some 1/2"-2" thick stringers of fine sand; from 28' - 50'			45'-47'	1200		96	6.5	0%	1%	0%	10%	32%	57%
50				50'-52'	1315									
55	Reddish-brown uniform fine sand, loose, subrounded,		SW	55'-57'	1345	SplitSpoon	64	5.3	0%	0%	0%	19%	48%	33%
60	rounded frosted quartz grains; from 50' - 65'			60'-62'	1405									
65	Reddish-brown and brownish-red clayey fine sand,			65'	1430	Cuttings								
70	subangular to subrounded, some calcite nodules near top,		SC	70'-72'	1440	SplitSpoon	64	6.9	0%	0%	0%	14%	43%	43%
75	some 1/2"-2" thick stringers of fine sand; from 65' - 80'			75'	1500	Cuttings								
80														
85				85'	1550									
90				90'	1600									
95	Reddish-brown uniform fine sand, loose, subrounded,			95'	1615									
100	rounded frosted quartz grains; from 80' - 138'			100'	1635									
105				105'	1640									
110			SW	110'	1645	Cuttings	64		0%	0%	1%	22%	44%	33%
115				115'	1650									
120	Due to borehole instability of loose sands above drilling			120'	1651									
125	resumed using freshwater at 125 ft on 07/06/05			125'	1720									
130				130'	1400									
135	Reddish-brown uniform fine sand, loose, subrounded,			135'	1420									
140	rounded frosted quartz grains; from 80' - 138'			140'	1440									
145	Gravelly fine sand		SP	145'	1500	Cuttings								
150	Gravelly red clay (Base of Santa Rosa?)		GC	150'	1530	Cuttings								
155				155'	1600									
160	Red clay (Top of Dewey Lake Red Bed Formation?)			160'	0940									
165	Red clay (driller noted formation denser at this point)			165'	0945									
170	Red clay with minor fine to coarse sand (<1-2%)			170'	1000									
175				175'	1005									
180				180'	1020									
185				185'	1040									
190				190'	1050									
195				195'	1100									
200			CH	200'	1120	Cuttings	64		0%	3%	16%	10%	7%	64%
205				205'	1140									
210	Red clay with			210'	1200									
215	minor fragments of fine to med-grained sandstone			215'	1205									
220				220'	1210									
225				225'	1215									
230				230'	1225									
235				235'	1235									
240				240'	1245									
245				245'	1255									
250	Red clay with medium-grained sandstone stringers		SC	250'	1300	Cuttings	96		0%	3%	44%	7%	10%	37%
255				255'	1305									

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Marbob Energy Corp.
Lithologic Log of Boring B-1

Plate 9
July 2005