STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

APPLICATION OF MARBOB ENERGY CORPORATION FOR AN ORDER AUTHORIZING A CENTRALIZED SURFACE WASTE MANAGEMENT FACILITY, EDDY COUNTY, NEW MEXICO.

CASE NO. 14102

RESPONDENT'S MOTION TO DISMISS

The Oil Conservation Division (OCD) moves to dismiss Case No. 14102 because the relief sought by the applicant is unavailable as a matter of law.

Background

In its application for hearing, Marbob Energy Corporation (Marbob) states that it is seeking an order authorizing it "to construct and operate a centralized surface waste management facility pursuant to the provisions of Rule 711 [19.15.9.711 NMAC]. Application for Hearing, p. 3.[1] A copy of Rule 711 is attached to this motion as Exhibit A. Rule 711 requires centralized facilities to be permitted, and sets out the requirements for obtaining a permit: applicants must submit an application on the prescribed form that contains the information required by the rule and OCD guidelines and must comply with the notice, financial assurance and operational requirements of the rule.

The permit application for a centralized facility must include a description of the facility with detailed construction/installation diagrams of any pits, liners, dikes, piping, sprayers and tanks on the facility (Rule 711.B(1)(d)); a plan for management of approved wastes (Rule 711.B(1)(e)); a contingency plan for reporting and cleanup of spills or releases (Rule 711.B(1)(f)); a routine inspection and maintenance plan to ensure permit compliance (Rule 711.B(1)(g)); a closure plan including a cost estimate ((Rule 711.B(1)(i)); and "such other information as is necessary to demonstrate that the operation of the facility will not adversely impact public health or the environment and that the facility will be in compliance with OCD rules and orders" (Rule 711.B(1)(m)). Detailed descriptions of these requirements are found in the OCD guidelines. A copy of the guidelines is attached to this motion as Exhibit B.

Marbob filed its application for a centralized surface waste management facility on February 14, 2006. The cover letter to the application summarizes the proposal as follows:

[1] Rule 711 was repealed February 14, 2007 and replaced by Part 36 [19.15.36 NMAC]. For purposes of this.motion only, the OCD will assume that Rule 711 applies.

> The proposed centralized surface waste management facility provides for habitat restoration f 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.

A copy of the cover letter is attached to this motion as Exhibit C.[2] Marbob's permit application describes the proposed facility as consisting of two landfarm cells and two landfill cells. Permit Application (Permit App.) at p. 6. A copy of the permit application is attached to this motion as Exhibit D. According to the application, the landfarm cells "will accept hydrocarbon stained soil and other RCRA exempt oil field waste for biologic treatment," while the 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." Permit App. p. 6. Marbob will use the treated waste from the landfarm cells as part of the infiltration barrier over the compacted reserve pit material in the landfill cells. Permit App. pp. 7, 11 and 13. As the first landfill cells reach capacity, Marbob intends to convert a landfarm cell into a landfill cell. Permit App. pp. 7 and 10.

The permit application acknowledges that it outlines the operation of the landfill portion of the facility only "in general terms." Permit App. p. 11. Instead of providing the detailed information required by Rule 711 and the guidelines, Marbob asks for approval to operate the facility according to these "general terms" and provide the required information later:

> 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.

Permit App. p. 11. After describing its general protocol, Marbob reiterates that the information required by Rule 711 will not be supplied until after the tests:

> 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.

Permit App. p. 12. According to its permit application, Marbob does not intend to submit the required inspection and maintenance plan or a plan to control run-off and run-on until after the "pilot tests" and submission of the engineering plans and specifications:

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[2] The hearing examiner may take administrative notice of the application and correspondence related to the application. These documents are kept in the ordinary course of OCD business, and are available on OCD's imaging system under "Administrative and Environmental Orders," NM2-22.

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.

Permit App. pp. 23-24.

Marbob itself characterizes its permit application as seeking approval of a "pilot scale testing program," and states that "one of the conditions of NMOCD approval will be a satisfactory review of the plans and specifications generated after the pilot testing program." Letter from Randall Hicks to Ed Martin dated April 12, 2007, attached to this motion as Exhibit E. Mr. Hick's letter also puts the OCD on notice that "[a]fter completion of the pilot testing program, we will submit the plans and specifications discussed above and a revision to Section 14 that ties the commitments and submissions to Part 36 of the NMOCD Rules." Section 14 of Marbob's original permit application devotes three and one-half single-spaced pages to how it intends to meet the requirements of the new surface waste management rules of Part 36, addressing such issues as the types of waste to be accepted, operational plans, and closure requirements. Permit App. pp. 23-25. All of that, according to Mr. Hick's letter, is subject to revision after the "pilot tests."

By letter dated May 7, 2007, the OCD denied Marbob's permit application, characterizing it as a request "to allow the operation of a surface waste management facility without a permit." Letter from Wayne Price to Rand French dated May 7, 2007, attached to this motion as Ex. F.

ARGUMENT

The OCD's statutory mandate includes the requirement "to regulate the disposition of nondomestic wastes resulting from the exploration, development, production or storage of crude oil or natural gas to protect public health and the environment." NMSA 1978, Section 70-2-12(B)(21). The OCD's regulatory approach to carrying out the mandate to protect public health and the environment is to require permit applicants "to demonstrate that the operation of the facility will not adversely impact

public health or the environment and that the facility will be in compliance with OCD rules and orders" before a permit is granted and operations begin. See Rule 711.B(1)(m). Rule 711 sets out what an application must contain to make that demonstration. Marbob seeks approval under Rule 711, but has declined to make the showing that Rule 711 requires. Its application must be denied as a matter of law.

By its own admission, Marbob has declined to provide the information required by Rule 711 for the landfill portion of its application. Yet the landfill is central to the application: two of the four proposed cells will begin as landfill cells; the treated waste from the landfarm cells will be used in the infiltration barrier for the landfill cells; landfarm cells will eventually be converted to landfill cells; and by converting the old caliche pit into landfill cells and then closing those cells, Marbob proposes to restore the habitat at the site. Under Rule 711 and OCD guidelines, Marbob was required to provide, among other things, detailed information on the design, construction and operation of the facility, routine maintenance and inspection plans, contingency plans, and closure plans. Instead, Marbob provided only sketchy information on how the landfill would be operated, which it says is subject to change after the "pilot tests." Marbob states it will not provide engineering designs and specifications, an inspection and maintenance plan, or plans for run-off or run-on, until it completes its "pilot tests." Marbob has also put the OCD on notice that what little information it provided on the types of waste that will be accepted and its plans for closure of the facility is subject to change after the "pilot tests."

As a result, Marbob is asking the OCD to approve a facility without knowing what wastes will be accepted at the facility, how the facility will be designed and constructed, how the waste will be treated, what contingency plans are in place, how the facility will be inspected and maintained, or how the facility will be closed. Marbob has not met the requirements of Rule 711, which require the applicant to demonstrate – before the facility is constructed – that it will not adversely impact public health or the environment. Instead, Marbob turns the regulatory process on its head and asks the OCD to allow it to construct and operate the facility without making the required showings and then approve the permit unless harm to public health or the environment results.

CONCLUSION

Marbob's application for hearing seeks approval of its proposed waste management facility under Rule 711. Rule 711 requires the applicant to provide specific information designed to allow the OCD to evaluate whether the proposed facility will adversely impact public health or the environment. Marbob has not provided the information required by Rule 711, and instead asks the OCD to give "conditional approval" for operation of an ill-defined "pilot project," and allow it to submit the information required by Rule 711 at a later date. Rule 711 contains no provision for approving "pilot projects." As a matter of law, Marbob's application must be denied.

Respectfully submitted
this ____ day of April 2008 by

Gail MacQuesten
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Energy, Minerals and Natural
Resources Department
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Attorney for the Oil Conservation Division

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing pleading was hand-delivered to Ms. Munds-Dry this 14th day of April 2008.

Gail MacQuesten

19.15.9.711 APPLICABLE TO SURFACE WASTE MANAGEMENT FACILITIES ONLY:

A. A surface waste management facility is defined as any facility that receives for collection, disposal, evaporation, remediation, reclamation, treatment or storage any produced water, drilling fluids, drill cuttings, completion fluids, contaminated soils, bottom sediment and water (BS&W), tank bottoms, waste oil or, upon written approval by the division, other oilfield related waste. Provided, however, if (a) a facility performing these functions utilizes underground injection wells subject to regulation by the division pursuant to the federal Safe Drinking Water Act, and does not manage oilfield wastes on the ground in pits, ponds, below grade tanks or land application units, (b) if a facility, such as a tank only facility, does not manage oilfield wastes on the ground in pits, ponds below grade tanks or land application units or (c) if a facility performing these functions is subject to Water Quality Control Commission Regulations, then the facility shall not be subject to this rule.

(1) A commercial facility is defined as any surface waste management facility that does not meet the definition of centralized facility.

(2) A centralized facility is defined as a surface waste management facility that accepts only waste generated in New Mexico and that:

(a) does not receive compensation for waste management;

(b) is used exclusively by one generator subject to New Mexico's "Oil and Gas Conservation Tax Act" Section 7-30-1 NMSA-1978 as amended; or

(c) is used by more than one generator subject to New Mexico's "Oil and Gas Conservation Tax Act" Section 7-30-1 NMSA-1978 as amended under an operating agreement and which receives wastes that are generated from two or more production units or areas or from a set of jointly owned or operated leases.

(3) Centralized facilities exempt from permitting requirements are:

(a) facilities that receive wastes from a single well;

(b) facilities that receive less than 50 barrels of RCRA exempt liquid waste per day and have a capacity to hold 500 barrels of liquids or less or 1400 cubic yards of solids or less and when a showing can be made to the satisfaction of the division that the facility will not harm fresh water, public health or the environment;

(c) emergency pits that are designed to capture fluids during an emergency upset period only and provided such fluids will be removed from the pit within twenty-four (24) hours from introduction;

(d) facilities that do not meet the requirements of the foregoing exemptions in Subsection A, Paragraph (3) of 19.15.9.711 NMAC, but that are shown by the facility operator to the satisfaction of the division to not present a risk to public health and the environment.

B. Unless exempt from Section 19.15.9.711 NMAC, all commercial and centralized facilities including facilities in operation on the effective date of Section 19.15.9.711 NMAC, new facilities prior to construction and all existing facilities prior to major modification or major expansion shall be permitted by the division in accordance with the following requirements:

(1) Application Requirements - An application, Form C-137, for a permit for a new facility or to modify an existing facility shall be filed in DUPLICATE with the Santa Fe office of the division and ONE COPY with the appropriate division district office. The application shall comply with division guidelines and shall include:

(a) The names and addresses of the applicant and all principal officers of the business if different from the applicant;

(b) A plat and topographic map showing the location of the facility in relation to governmental surveys (1/4 1/4 section, township, and range), highways or roads giving access to the facility site, watercourses, water sources, and dwellings within one (1) mile of the site;

(c) The names and addresses of the surface owners of the real property on which the management facility is sited and surface owners of the real property of record within one (1) mile of the

Case 14102
OCD Motion to Dismiss
Exhibit No. A

site;

(d) A description of the facility with a diagram indicating location of fences and cattle guards, and detailed construction/installation diagrams of any pits, liners, dikes, piping, sprayers, and tanks on the facility;

(e) A plan for management of approved wastes.

(f) A contingency plan for reporting and cleanup of spills or releases;

(g) A routine inspection and maintenance plan to ensure permit compliance;

(h) A Hydrogen Sulfide Prevention and Contingency Plan to protect public health;

(i) A closure plan including a cost estimate sufficient to close the facility to protect public health and the environment; said estimate to be based upon the use of equipment normally available to a third party contractor;

(j) Geological/hydrological evidence, including depth to and quality of groundwater beneath the site, demonstrating that disposal of oilfield wastes will not adversely impact fresh water;

(k) Proof that the notice requirements of Section 19.15.9.711 NMAC have been met;

(l) Certification by an authorized representative of the applicant that information submitted in the application is true, accurate, and complete to the best of the applicant's knowledge.

(m) Such other information as is necessary to demonstrate that the operation of the facility will not adversely impact public health or the environment and that the facility will be in compliance with OCD rules and orders.

(2) Notice Requirements:

(a) 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. The distance requirements for notice may be extended by the director if the director determines the proposed facility has the potential to adversely impact public health or the environment at a distance greater than one (1) mile. The director may require additional notice as needed. A copy and proof of such notice will be furnished to the division.

(b) 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. For permit modifications, the division may require the applicant to issue public notice and give written notice as above.

(c) Any person seeking to comment or request a public hearing on such application must file comments or hearing requests with the division within 30 days of the date of public notice. Requests for a public hearing must be in writing to the director and shall set forth the reasons why a hearing should be held. A public hearing shall be held if the director determines there is significant public interest.

(d) The division will distribute notice of the filing of an application for a new facility or major modifications with the next OCD and OCC hearing docket following receipt of the application.

(3) Financial Assurance Requirements:

(a) Centralized Facilities: Upon determination by the director that the permit can be approved, any applicant of a centralized facility shall submit acceptable financial assurance in the amount of $25,000 per facility or a statewide "blanket" financial assurance in the amount of $50,000 to cover all of that applicant's facilities in a form approved by the director.

(b) New Commercial Facilities or major expansions or major modification of Existing Facilities: Upon determination by the director that a permit for a commercial facility to commence operation after the effective date of this rule can be approved, or upon determination by the director that a major modification or major expansion of an existing facility can be approved, any applicant of such a commercial facility shall submit acceptable financial assurance in the amount of the

closure cost estimated in Subsection B, Paragraph (1), Subparagraph (i) above of 19.15.9.711 NMAC in a form approved by the director according to the following schedule:

(i) within one (1) year of commencing operations or when the facility is filled to 25% of the permitted capacity, whichever comes first, the financial assurance must be increased to 25% of the estimated closure cost;

(ii) within two (2) years of commencing operations or when the facility is filled to 50% of the permitted capacity, whichever comes first, the financial assurance must be increased to 50% of the estimated closure cost;

(iii) within three (3) years of commencing operations or when the facility is filled to 75% of the permitted capacity, whichever comes first, the financial assurance must be increased to 75% of the estimated closure cost;

(iv) within four (4) years of commencing operations or when the facility is filled to 100% of the permitted capacity, whichever comes first, the financial assurance must be increased to the estimated closure cost.

(c) Existing Commercial Facilities: All permittees of commercial facilities approved for operation at the time this rule becomes effective shall have submitted financial assurance in the amount of the closure cost estimated pursuant to Subsection B, Paragraph (1), Subparagraph (i) above of 19.15.9.711 NMAC but not less than $25,000 nor more than $250,000 per facility in a form approved by the director.

(i) within one (1) year of the effective date of Section 19.15.9.711 NMAC the financial assurance amount must be increased to 25% of the estimated closure costs or $62,500.00, whichever is less;

(ii) within two (2) years of the effective date of Section 19.15.9.711 NMAC the financial assurance amounts must be increased to 50% of the estimated closure costs or $125,000.00, whichever is less;

(iii) within three (3) years of the effective date of Section 19.15.9.711 NMAC the financial assurance amounts must be increased to 75% of the estimated closure costs or $187,000.00, whichever is less;

(iv) within four (4) years of the effective date of Section 19.15.9.711 NMAC the financial assurance amounts must be increased to the estimated closure cost or $250,000.00, whichever is less.

(d) The financial assurance required in subparagraphs (a), (b), or (c), above shall be payable to the State of New Mexico and conditioned upon compliance with statutes of the State of New Mexico and rules of the division, and acceptable closure of the site upon cessation of operation, in accordance with Subsection B, Paragraph (1), Subparagraph (i) of 19.15.9.711 NMAC. If adequate financial assurance is posted by the applicant with a federal or state agency and the financial assurance otherwise fulfills the requirements of this rule, the division may consider the financial assurance as satisfying the requirement of Section 19.15.9.711 NMAC. The applicant must notify the division of any material change affecting the financial assurance within 30 days of discovery of such change.

(4) The director may accept the following forms of financial assurance:

(a) Surety Bonds

(i) A surety bond shall be executed by the permittee and a corporate surety licensed to do business in the State.

(ii) Surety bonds shall be noncancellable during their terms.

(b) Letter of Credit - Letter of credit shall be subject to the following conditions:

(i) The letter may be issued only by a bank organized or authorized to do business in the United States;

(ii) Letters of credit shall be irrevocable for a term of not less than five (5) years. A letter of credit used as security in areas requiring continuous financial assurance coverage shall be forfeited and shall be collected by the State of New Mexico if not replaced by other suitable financial

assurance or letter of credit at least 90 days before its expiration date;

(iii) The letter of credit shall be payable to the State of New Mexico upon demand, in part or in full, upon receipt from the director of a notice of forfeiture.

(c) Cash Accounts - Cash accounts shall be subject to the following conditions:

(i) The director may authorize the permittee to supplement the financial assurance through the establishment of a cash account in one or more federally insured or equivalently protected accounts made payable upon demand to, or deposited directly with, the State of New Mexico.

(ii) Any interest paid on a cash account shall not be retained in the account and applied to the account unless the director has required such action as a permit requirement.

(iii) Certificates of deposit may be substituted for a cash account with the approval of the Director.

(d) Replacement of Financial Assurances

(i) The director may allow a permittee to replace existing financial assurances with other financial assurances that provide equivalent coverage.

(ii) The director shall not release existing financial assurances until the permittee has submitted, and the director has approved, acceptable replacements.

(5) A permit may be denied, revoked or additional requirements imposed by a written finding by the director that a permittee has a history of failure to comply with division rules and orders and state or federal environmental laws.

(6) The director may, for protection of public health and the environment, impose additional requirements such as setbacks from an existing occupied structure.

(7) The director may issue a permit upon a finding that an acceptable application has been filed and that the conditions of paragraphs 2 and 3 above have been met. All permits are revocable upon showing of good cause after notice and, if requested, hearing. Permits shall be reviewed a minimum of once every five (5) years for compliance with state statutes, Division rules and permit requirements and conditions.

C. Operational Requirements

(1) All surface waste management facility permittees shall file forms C-117-A, C-118, and C-120-A as required by OCD rules.

(2) Facilities permitted as treating plants will not accept sediment oil, tank bottoms and other miscellaneous hydrocarbons for processing unless accompanied by an approved Form C-117A or C-138.

(3) all facilities Facilities will only accept oilfield related wastes except as provided in Subsection C, Paragraph (4), Subparagraph (c) of 19.15.9.711 NMAC below. Wastes which are determined to be RCRA Subtitle C hazardous wastes by either listing or characteristic testing will not be accepted at a permitted facility.

(4) The permittee shall require the following documentation for accepting wastes, other than wastes returned from the wellbore in the normal course of well operations such as produced water and spent treating fluids, at commercial waste management facilities:

(a) ~~Exempt Oilfield Wastes: As a condition to acceptance~~ of the materials shipped, a generator, or his authorized agent, shall sign a certificate which represents and warrants that the wastes are: generated from oil and gas exploration and production operations; exempt from Resource Conservation and Recovery Act (RCRA) Subtitle C regulations; and not mixed with non-exempt wastes. The permittee shall have the option to accept on a monthly, weekly, or per load basis a load certificate in a form of its choice. While the acceptance of such exempt oilfield waste materials does not require the prior approval of the division, both the generator and permittee shall maintain and shall make said certificates available for inspection by the division for compliance and enforcement purposes.

(b) Non-exempt, Non-hazardous Oilfield Wastes: Prior to acceptance, a "Request For Approval To Accept Solid Waste", OCD Form C-138, accompanied by acceptable documentation to determine that the waste is non-hazardous shall be submitted to the appropriate district office. Acceptance

will be on a case-by-case basis after approval from the division's Santa Fe office.

(c) Non-oilfield Wastes: Non-hazardous, non-oilfield wastes may be accepted in an emergency if ordered by the Department of Public Safety. Prior to acceptance, a "Request To Accept Solid Waste", OCD Form C-138 accompanied by the Department of Public Safety order will be submitted to the appropriate district office and the division's Santa Fe office. With prior approval from the division, other non-hazardous, non-oilfield waste may be accepted into a permitted surface waste management facility if the waste is similar in physical and chemical composition to the oilfield wastes authorized for disposal at that facility and is either: (1) exempt from the "hazardous waste" provisions of Subtitle C of the federal Resource Conservation and Recovery Act; or (2) has tested non-hazardous and is not listed as hazardous. Prior to acceptance, a "Request For Approval to Accept Solid Waste," OCD Form C-138, accompanied by acceptable documentation to characterize the waste, shall be submitted to and approved by the division's Santa Fe office.

(5) The permittee of a commercial facility shall maintain for inspection the records for each calendar month on the generator, location, volume and type of waste, date of disposal, and hauling company that disposes of fluids or material in the facility. Records shall be maintained in appropriate books and records for a period of not less than five years, covering their operations in New Mexico.

(6) Disposal at a facility shall occur only when an attendant is on duty unless loads can be monitored or otherwise isolated for inspection before disposal . The facility shall be secured to prevent unauthorized disposal when no attendant is present.

(7) No produced water shall be received at the facility from motor vehicles unless the transporter has a valid Form C-133, Authorization to Move Produced Water, on file with the division.

(8) To protect migratory birds, all tanks exceeding 16 feet in diameter, and exposed pits and ponds shall be screened, netted or covered. Upon written application by the permittee, an exception to screening, netting or covering of a facility may be granted by the district supervisor upon a showing that an alternative method will protect migratory birds or that the facility is not hazardous to migratory birds.

(9) All facilities will be fenced in a manner approved by the director.

(10) A permit may not be transferred without the prior written approval of the director. Until such transfer is approved by the director and the required financial assurance is in place, the transferor's financial assurance will not be released.

D. Facility Closure

(1) The permittee shall notify the division thirty (30) days prior to its intent to cease accepting wastes and close the facility. The permittee shall then begin closure operations unless an extension of time is granted by the director. If disposal operations have ceased and there has been no significant activity at the facility for six (6) months and the permittee has not responded to written notice as defined in Subsection D, Paragraph (2), Subparagraph (a) of 19.15.9.711 NMAC, then the facility shall be considered abandoned and shall be closed utilizing the financial assurance pledged to the facility. Closure shall be in accordance with the approved closure plan and any modifications or additional requirements imposed by the director to protect public health and the environment. At all times the permittee must maintain the facility to protect public health and the environment. Prior to release of the financial assurance covering the facility, the division will inspect the site to determine that closure is complete.

(2) If a permittee refuses or is unable to conduct operations at the facility in a manner that protects public health or the environment or refuses or is unable to conduct or complete the closure plan, the terms of the permit are not met, or the permittee defaults on the conditions under which the financial assurance was accepted, the director shall take the following actions to forfeit all or part of the financial assurance:

(a) Send written notice by certified mail, return receipt requested, to the permittee and the surety informing them of the decision to close the facility and to forfeit all or part of the financial assurance, including the reasons for the forfeiture and the amount to be forfeited and notifying the

permittee and surety that a hearing request must be made within ten (10) days of receipt of the notice.

(b) Advise the permittee and surety of the conditions under which the forfeiture may be avoided. Such conditions may include but are not limited to:

(i) An agreement by the permittee or another party to perform closure operations in accordance with the conditions of the permit, the closure plan and these Rules, and that such party has the ability to satisfy the conditions.

(ii) The director may allow a surety to complete closure if the surety can demonstrate an ability to complete the closure in accordance with the approved plan. No surety liability shall be released until successful completion of closure.

(c) In the event forfeiture of the financial assurance is required by this rule, the director shall proceed to collect the forfeited amount and use the funds collected from the forfeiture to complete the closure. In the event the amount forfeited is insufficient for closure, the permittee shall be liable for the deficiency. The director may complete or authorize completion of closure and may recover from the permittee all reasonably incurred costs of closure and forfeiture in excess of the amount forfeited. In the event the amount forfeited was more than the amount necessary to complete closure and all costs of forfeiture, the excess shall be returned to the party from whom it was collected.

(d) Upon showing of good cause, the director may order immediate cessation of operations of the facility when it appears that such cessation is necessary to protect public health or the environment, or to assure compliance with division rules and orders.

(e) In the event the permittee cannot fulfill the conditions and obligations of the permit, the State of New Mexico, its agencies, officers, employees, agents, contractors and other entities designated by the State shall have all rights of entry into, over and upon the facility property, including all necessary and convenient rights of ingress and egress with all materials and equipment to conduct operation, termination and closure of the facility, including but not limited to the temporary storage of equipment and materials, the right to borrow or dispose of materials, and all other rights necessary for operation, termination and closure of the facility in accordance with the permit.

E. Waste management facilities in operation at the time Section 19.15.9.711 NMAC becomes effective shall:

(1) within one (1) year after the effective date permitted facilities submit the information required in Subsection B, Paragraph (1), Subparagraphs (a, h, i and l) of 19.15.9.711 NMAC not already on file with the Division;

(2) within one (1) year after the effective date unpermitted facilities submit the information required in Subsection B, Paragraph (1), Subparagraphs (a) through (j) and Subsection B, Paragraph (1), Subparagraph (l) of 19.15.9.711 NMAC;

(3) comply with Subsections C and D of 19.15.9.711 NMAC unless the director grants an exemption from a requirement in these sections based upon a demonstration by the operator that such requirement is not necessary to protect public health and the environment.

[6-6-88...2-1-96; 19.15.9.711 NMAC - Rn, 19 NMAC 15.I.711, 11-30-00; A, 4-15-03]

19.15.9.712 DISPOSAL OF CERTAIN NON-DOMESTIC WASTE AT SOLID WASTE FACILITIES:

A. General - Certain non-domestic waste arising from the exploration, development, production or storage of crude oil or natural gas, certain nondomestic waste arising from the oil field service industry, and certain non-domestic waste arising from the transportation, treatment or refinement of crude oil or natural gas, may be disposed of at a solid waste facility.

B. Definitions - The following words and phrases have particular meanings for purposes of this section:

(1) "BTEX." The acronym "BTEX" in this section refers to benzene, toluene, ethelbenzene and xylene.

(2) "Discharge Plan." A "discharge plan" is a plan submitted and approved by the division

GUIDELINES FOR PERMIT APPLICATION, DESIGN, AND CONSTRUCTION OF SURFACE WASTE MANAGEMENT FACILITIES

(Revised 7-97)

NEW MEXICO OIL CONSERVATION DIVISION
2040 SOUTH PACHECO STREET
SANTA FE, NEW MEXICO 87505

Case 14102
OCD Motion to Dismiss
Exhibit No. B

PREFACE

The following specifications shall be used as a guide to the preparation of a permit application for commercial or centralized surface waste management facilities to be used to treat oilfield wastes classified as 1) nonexempt from Federal Resource Conservation and Recovery Act (RCRA) Subtitle C Regulations, or 2) nonhazardous by characteristic testing. Surface waste management facility permits are reviewed and approved pursuant to the New Mexico Oil Conservation Division (OCD) Rule 711.

The applicant shall submit an "Application for Surface Waste Management Facility" accompanied by the information necessary to evaluate the application. All plans and specifications shall be submitted to and approved by the Oil Conservation Division prior to construction. Designs for construction and operation may deviate from the following specifications if it can be shown that the design integrity and operation of the facility will not effect any present or foreseeable beneficial uses of protectable ground water, and the facility is protective of public health and the environment.

The following landfarm procedures shall also be used as a guide for the treatment of contaminated solids at locations where a permit is not required such as a production site or leak/spill location where the contaminated materials are solely from that individual site. OCD approval from the appropriate district office must be obtained prior to conducting onsite landfarm operations at individual well site locations.

An OCD Rule 711 permit does not relieve the applicant of liability should the operation result in pollution of surface or ground waters or the environment actionable under other laws and/or regulations. In addition, an OCD Rule 711 permit does not relieve the applicant of liability to comply with all other federal, state or rules and/or regulations.

If any levee to be constructed is more than ten feet (10') in height from ground level, or if a pit volume is more than 10 acre-feet, the State Engineer Office must also review and issue a permit for construction of the pit.

GUIDELINES FOR APPLICATION FOR SURFACE WASTE MANAGEMENT FACILITY PERMITS

1. Type of Operation

Indicate the major purpose(s) of the facility (e.g., produced water evaporation pit, remediation of oil field solids, etc.) and briefly describe the processes occurring at the facility.

2. Operator

Name of owner or legally responsible party, include address and telephone number.

3. Location of Disposal Pit

Give a legal description of the location (i.e., 1/4 1/4 Section, Township, Range, and County). Use state coordinates or latitude/longitude on unsurveyed land. Submit a large scale topographic map, site plan, or detailed aerial photograph for use in conjunction with the written material. It should depict highways or roads giving access to the facility site.

4. Expansion Request

If the application is for an expansion of an existing facility, include the original OCD order or approval authorization for the facility.

5. Land Ownership

Include a topographic map, plot map or aerial photograph delineating land ownership boundaries. Include the name and address of the landowner of the facility site and landowners of record within one mile of the site.

6. Facilities Description

A. Describe what types of liquids, solids, and/or soils are proposed to be accepted for management (e.g. produced water, drilling muds, completion fluids, tank bottoms, hydrocarbon contaminated solids, etc.)

B. Describe proposed on-site facilities to be used for effluent management of process/produced water, drilling mud, sludges, waste oils, etc., including surface impoundments, disposal pits, below grade tanks, landfarm cells etc. Locate the various management areas on the facility site plan or topographic map. If materials or effluent other than produced water are proposed to be discharged at the site, describe in detail and provide expected volumes.

C. Attach a description of the facility with a diagram indicating the location of the following:

1. Roads, fences, gates, berms, ditches, and proposed cells.

2. All pipelines crossing the facility, including owner, contents, depth and size of the pipeline(s).

3. Actual or proposed offices and/or storage buildings.

4. Chemical storage areas indicating the type of storage containers (ie. drums, sacks, tanks, etc.).

5. All tanks indicating whether they are above ground or below ground and saddle or vertical.

6. Any on-site storage/disposal facilities for wastes other than contaminated soils to be landfarmed (ie. waste oil, washbay sumps, etc.).

7. Engineering Design

A. Provide technical data on the design elements of each disposal method. Engineering designs must be submitted to OCD for approval prior to construction.

1. Surface impoundments - Type and volume of effluent stored, area, volume, depth, slope of pond sides, sub-grade description, liner type and thickness, compatibility of liner and effluent, installation methods, leak detection methods, freeboard, runoff/runon protection.

2. Solids and semi-solids treatment and disposal - Describe in detail how petroleum waste solids, semi-solids or sludges will be handled including proposals for recycling, reclaiming and/or disposal. Provide disposal pit(s) location, size, volume, liner, and type of solids. Facilities reclaiming oil are subject to OCD Rule 711.

3. Landfarming - Describe how contaminated solids (including soils and/or tank bottoms) will be landfarmed. Include information on proposed spreading rates, lift thickness, discing frequency, use of nutrients or chemicals to enhance degradation and proposed testing to monitor effectiveness.

B. General Pit/Pond Construction Requirements

1. Location

Liquid and solids disposal pits and ponds shall not be located in any watercourse, lakebed, sink-hole, or other depression. Pits and ponds adjacent to any such watercourse or depression shall be located safely above the high-water level of such watercourse or depression.

2. Design and Construction

a. Evaporation ponds shall be designed and constructed to provide the minimum evaporative surface area needed for the maximum yearly volume of liquid to be discharged to the pond. This design parameter shall be based upon local climatological data. Such data and calculations used for the pond design shall be submitted with any proposed plans and specifications. Special care should be taken when calculating the pond volume to account for the decrease in the evaporation rate during the winter months.

b. The design freeboard allowance shall take wave action into account to prevent overtopping due to wave action. A determination of the wave type (breaking or non-breaking) shall be made to determine the forces acting upon the levee. Such calculations shall be submitted with the details for pond construction. Liner markings or some other device shall be installed to accurately measure freeboard.

c. The pond is to be constructed so that the inside grade of the levee is no steeper than 2:1. Levees shall have an outside grade no steeper than 3:1 (see Figure 1).

d. The top of the levees shall be level and shall be at least eighteen inches (18") wide.

e. An aeration system may be required to be constructed to prevent anaerobic conditions from forming in a pond. The necessity for this

requirement will be determined individually based on pond design specifications submitted.

f. Upon completion of construction "as-built" completion diagrams certified by a registered professional engineer shall be submitted including locations and top-of-pipe elevation of monitor wells, if required.

3. Synthetically Lined Evaporation Ponds

a. Materials

(1) Synthetic materials used for lining evaporation ponds shall be impermeable and may be rigid, semi-rigid, or flexible.

(2) If rigid or semi-rigid materials are used, leak proof expansion joints shall be provided, or the material shall be of sufficient thickness and strength to withstand (without cracking) expansion, contraction, and settling movements in the underlying earth.

(3) If flexible membrane materials are used, they shall be of at least 30 mil thickness and shall have good resistance to tears or punctures.

(4) All materials used for lining evaporation ponds shall be resistant to hydrocarbons, salts, and acidic and alkaline solutions. The liners shall also be resistant to ultraviolet light or provision made to protect the material from the sun, as specified in Section c.(6).

(5) Synthetically lined pits shall incorporate a double liner system with a leak detection system installed between the primary (top) and secondary (bottom) liner.

b. Leak Detection System

(1) A leak detection system of an approved design shall be installed between the primary and secondary liner. The appropriate OCD district office should be notified at least 24 hours in advance of the scheduled installation of the primary liner to afford the opportunity for a Division representative to inspect the leak detection system.

(2) Leak detection systems may consist of, but are not necessarily limited to, approved fail-safe electric detection system or drainage and sump systems.

(3) If an electric grid detection system is used, provision must be made for adequately testing all components to ensure the system remains functional.

(4) If the drainage and sump system is to be used, a network of slotted or perforated drainage pipes shall be installed between the primary and secondary liners. The network shall be of sufficient density so that no point in the pond bed is more than twenty feet (20') from such drainage pipe or lateral thereof. The material placed between the pipes and laterals shall be sufficiently permeable to allow transport of the fluids to the drainage pipe. The slope for all drainage lines and laterals shall be at least six inches (6") per fifty feet (50'). The slope of the pond bed shall also conform to these values to assure fluid flow towards the leak detection system. The drainage pipe shall convey any fluids to a corrosion-proof sump located outside the perimeter of the pond (see Figure 2).

c. Preparation of Pond Bed for Installation of Liners

(1) The bed of the pond and inside grade of the levee shall be smooth and compacted, free of holes, rocks, stumps, clods, or any other debris which may rupture the liner. In extremely rocky areas, it will probably be necessary to cover the pond bed with a compacted layer of sand or other suitable materials.

(2) A trench shall be excavated on the top of the levee the entire perimeter of the pond for the purpose of anchoring flexible liners. This trench shall be located a minimum of nine inches (9") from the slope break and shall be a minimum of twelve inches (12") deep. (See Figure 3).

(3) The liner shall rest smoothly on the pond bed and the inner face of the levees, and shall be of sufficient size to extend down to the bottom of the anchor trench and come back out a minimum of two inches (2") from the trench on the side furthest from the pond. (See Figure 3). In locations where

temperature variations are significant, wrinkles or folds shall be placed at each corner of the pond to allow for the contraction and expansion of the membrane due to temperature variations. The membrane manufacturer should be consulted on this matter.

(4) Certain conditions require the venting of gas that may accumulate beneath a liner. If organic matter exists in the soils under the liner, or if natural gas is present in the region, gas production is likely. When a fluctuating water table is present immediately below the pond bottom, pockets of are may also accumulate below the liner. The net result of gas or air accumulation below the liner may be the "floating" of the liner to the pond surface. Two possible vent designs are illustrated in Figure 4. The need to vent this accumulated gas can be accomplished by providing a uniform layer of sand (which less than 5% will pass the 200 sieve) or a geotextile beneath the liners. To achieve the best results from either of these media, the slope from the lowest point of the pond to the toe of the dike must be at least 2%. The venting medium is carried across the entire bottom and up the side slopes. Vents should be located approximately one foot (1') down from the crown of the dike. (See Figure 3)

(5) An anchor of used pipe or other similar material shall be placed over the liner in the anchor trench and the trench back-filled. The anchor trench shall extend the entire perimeter of the pond.

(6) If the lining material used for the primary liner is not sun-resistant, at least one inch (1") of sand or other suitable material shall be spread uniformly to cover the liner over the floor of the pit. Gravel or other wave-resistant material with sufficient angle of repose to remain in place shall be used to cover the sloping inner wall of the levee. A geotextile liner shall be placed beneath any gravel layer to provide protection for the membranae liner. Any gravel or sand layers used to protect the membranae liner from the sun shall extend to the anchor trench.

(7) Any sand or gravel layers placed on top of a membranae liner shall be done in such a manner that the risk of tearing

the liner is minimized.

(8) At any point of discharge into the pond, no fluid force shall be directed toward the liner.

5. Unlined Evaporation Ponds

a. Unlined disposal ponds will not be approved in areas where fresh water (as defined by OCD rules) underlies the site unless the constituent quality of the produced water is better than then underlying ground water.

b. Sufficient geologic and hydrologic information will be required to be provided to demonstrate that water disposal in unlined evaporation ponds will not migrate to areas of protectable fresh water.

6. Spray Evaporation Systems

a. Sprayer systems may be approved to enhance natural evaporation.

b. Engineering designs for the sprayer system must be submitted for approval prior to installation.

c. Spray systems shall be operated such that spray-borne salt does not leave the bermed area.

7. Skimmer Ponds/Tanks

a. Required Use

A skimmer pond or tank shall be used to separate any oil from the water prior to allowing the water to discharge into the evaporation pond, except for the following cases:

(1) It can be shown that the water being discharged into the pond contains no oil or grease.

(2) The discharge into the pond is from an oil or natural gas processing facility where the discharge has already clarifier passed through a skimmer basin, skimmer tank, decanter, or API Separator.

b. Design Criteria

The skimmer pond shall be designed to allow or oil/water separation only; oil shall be removed in a timely manner and stored in tanks. Per OCD Rule 310, oil shall not be stored or retained in earthen reservoirs or in open receptacles.

(1) If a skimmer pond is to be used, the pond shall conform to the same design criteria as the evaporation pond.

(2) If a skimmer tank is to be used, the material of construction and/or design shall provide for corrosion resistance.

(3) If a skimmer pond is to be used, siphons or other suitable means shall be employed to draw water from oil/water interface for transfer to the evaporation pond. The siphon shall be located as far as possible from the inlet to the skimmer pond.

(4) The skimmer pond/tank shall at all times be kept free of appreciable oil buildup to prevent oil flow into the evaporation pond.

(5) Figures 5 - a and b illustrate general design criteria for skimmer ponds and tanks, respectively. All skimmer pond shall be lined unless specifically exempted.

8. Fences, Signs and Netting

a. Unless otherwise permitted by the OCD, a fence shall be constructed and maintained in good condition around the facility perimeter. Adequate space will be provided between the fence and levees for passage of maintenance vehicles. The fences shall be constructed so as to prevent livestock from entering the facility area. Fences shall not be constructed on levees.

b. A sign not less than 12" x 24" with lettering of not less than two inches (2") shall be posted in a conspicuous place on the fence surrounding the facility. The sign shall be maintained in legible condition and shall identify the operator of the disposal system, the location of the facility by quarter-quarter section, township, and range; and emergency telephone numbers.

c. To protect migratory birds, all tanks exceeding 16 feet in diameter, and exposed pits and ponds shall be screened, netted or covered. Upon written application by the operator, an exception to screening, netting or covering of a facility may be granted by the district supervisor upon a showing that an alternative method will protect migratory birds or that the facility is not hazardous to migratory birds.

C. General Landfarm Construction Requirements

1. Location: A landfarm facility shall not be located in any watercourse, lakebed, sink-hole, or other depression. Facilities located adjacent to any such watercourses or depression shall be located safely above the high water level of such watercourse or depression. In addition, facilities located adjacent to any watercourses shall include a storm water runoff plan.

2. Fences & Signs: The facility shall be fenced and have a sign at the entrance. The sign shall be legible from at least fifty (50) feet and contain the following information: a) name of the facility, b) location by section, township and range, and c) emergency phone number.

3. Facility Buffer Zone: No contaminated soils should be placed within one hundred (100) feet of the boundary of the facility unless it can be demonstrated that a smaller buffer zone will not adversely impact the adjacent properties.

4. Pipeline Buffer Zone: No contaminated soils should be placed within twenty (20) feet of any pipelines crossing the landfarm. In addition, no equipment should be operated within ten (10) feet of a pipeline. All pipelines crossing the facility should have surface markers identifying the location of the pipelines.

5. Facility Berming: The portion of the facility containing contaminated soils shall be bermed to prevent runoff and runon. A berm should be constructed and maintained such that it capable of containing precipitation from a one-hundred year flood for that specific region.

6. Treatment Zone Monitoring: Because a landfarm is designed to remediate contaminated soils and not transfer contaminants into the underlying native soil and/or groundwater, the applicant shall submit a plan to detect leaching of contaminants. If the native ground surface has a minimum of three feet of uncemented material (ie. soil) then a treatment zone monitoring program may be incorporated into the facility design to ensure contaminants are not leaching into the native soil/groundwater. The following procedures should

be used to monitor a treatment zone not to exceed three (3) feet beneath the landfarm:

a. One (1) background soil sample should be taken from the center portion of the landfarm two (2) feet below the native ground surface prior to operation. The sample should be analyzed for total petroleum hydrocarbons (TPH), major cations/anions, volatile aromatic organics (BTEX), and heavy metals using approved EPA methods.

b. A treatment zone not to exceed three (3) feet beneath the land farm should be monitored. A minimum of one random soil sample should be taken from each individual cell, with no cell being larger than five (5) acres, six (6) months after the first contaminated soils are received in the cell and then quarterly thereafter. The sample should be taken at two to three (2-3) feet below the native ground surface.

c. The soil samples should be analyzed using approved EPA methods for TPH and BTEX quarterly, and for major cations/anions and heavy metals annually.

d. After obtaining the soil samples the boreholes should be filled with an impermeable material such as cement.

e. Analytical results from the treatment zone monitoring should be submitted to the OCD Santa Fe Office for review on a regular schedule to be proposed by the applicant.

7. Double-Lined System: If the native ground surface is composed of resistant cemented materials which make it infeasible to sample a treatment zone then another method shall be proposed to guarantee that contaminants do not leach into the underlying soils and/or groundwater. This may be accomplished by installing a double-lined system with leak detection in accordance with the OCD "Engineering Design Guidelines for Construction of Waste Storage/Disposal Ponds (10/90). In addition, the facility shall be constructed so that the primary liner will not be ripped or punctured when the contaminated soils are disked.

C. Landfarm Facility Operation - The Director shall consider, but is not limited to, the following operating procedures for commercial and centralized landfarms. The purpose of specific operating requirements is so that operation of a landfarm will not adversely impact ground water, surface water, public health or the environment.

1. Disposal shall only occur when an attendant is on duty. The facility shall be

secured when no attendant is present.

2. All contaminated soils received at the facility should be spread and disked within 72 hours of receipt.

3. Soils should be spread on the surface in six inch lifts or less unless the applicant can demonstrate that the equipment will adequately disk a thicker lift.

4. Soils should be disked a minimum of one time every two weeks (biweekly) to enhance biodegradation of contaminants.

5. Exempt contaminated soils should be placed in the landfarm so that they are physically separate (ie. bermed) from nonexempt contaminated soils. There should be no mixing of exempt and nonexempt soils.

6. Successive lifts of contaminated soils should not be spread until a laboratory measurement of Total Petroleum Hydrocarbons (TPH) in the previous lift is less than 100 parts per million (ppm), and the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm, and the benzene is less than 10 ppm. Comprehensive records of the laboratory analyses and the sampling locations shall be maintained at the facility. Authorization from the OCD shall be obtained prior to application of successive lifts.

7. Moisture should be added as necessary to enhance bioremediation and to control blowing dust. There shall be no ponding, pooling or run-off of water allowed. Any ponding of precipitation should be removed within seventy-two (72) hours of discovery.

8. Enhanced bio-remediation through the application of microbes (bugs) and/or fertilizers shall only be permitted after prior approval from the OCD. Request for application of microbes should include the location of the area designated for the bio-remediation program, composition of additives, and the method, amount and frequency of application.

9. No free liquids or soils with free liquids shall be accepted at the facility.

10. Comprehensive records of all material disposed of at the facility shall be maintained at the facility. The records for each load will include: 1) the generator, 2) the origin, 3) date received, 4) quantity, 5) Certification of exempt status or analysis for hazardous constituents if non-exempt, 6) transporter, and 7) exact cell location and any addition of microbes, moisture, fertilizers, etc.

D. Characterization & Tracking of Wastes - The operator of a landfarm must be able to distinguish between those oilfield contaminated solids which are exempt from RCRA Subtitle C (hazardous waste) regulations and those which are subject to the RCRA Subtitle C regulations. To aid the landfarm applicant in making those determinations and therefore prohibiting hazardous waste from entering the facility, all OCD permitted landfarms should operate under the following conditions:

1. The facility should be authorized to accept only:

   a. Oilfield contaminated solids which are exempt from RCRA Subtitle C regulations. These wastes should be accompanied by a "Certification of Waste Status" from the generator.

   b. "Non-hazardous" non-exempt oilfield contaminated solids from OCD permitted facilities on a case-by-case basis after conducting an analysis for hazardous characteristics and receiving OCD approval. The test for hazardous characteristics for a particular waste may be effective for one year from the date of analysis, if, the subsequent wastes from the same waste stream are accompanied by a statement from the generator that there has been no change in the processes employed or the chemicals stored/used at the facility generating the waste.

   c. Other non-oilfield contaminated solids which are RCRA Subtitle C exempt or non-hazardous by characteristic testing, if ordered by the Department of Public Safety on an emergency basis as the waste poses an eminent danger to public health. The wastes should be accompanied by a "Verification of Waste Status" demonstrating the exempt or non-hazardous classification of the solids and signed by the appropriate regulatory agency. OCD approval shall be obtained prior to accepting the wastes.

2. At no time will any OCD permitted landfarms accept wastes which are hazardous by either testing or listing.

3. All loads received at the facility will be accompanied by the following:

   a. A "Certification of Waste Status" signed by the waste generator or "Verification of Waste Status" issued by the New Mexico Environment Department (NMED) or the appropriate agency from another state tor wastes regulated by that agency. The state agency verification is based on specific information on the subject waste submitted by the generator and demonstrating the exempt or non-hazardous classification of the waste.

b. The analytical results of Hazardous Waste Characterization for non-exempt waste including corrosivity, reactivity, ignitability, and toxic constituents and a certification that no listed hazardous wastes are contained within the wastes. The samples for these analyses and results will be obtained from the wastes prior to removal from the generator's facility and without dilution in accordance with EPA SW-846 sampling procedures.

4. The transporter of all wastes to the facility will supply a certification that wastes delivered are those wastes received from the generator and that no additional materials have been added.

8. Spill/Leak Prevention and Reporting Procedures (Contingency Plans)

It is necessary to include in the discharge plan submittal a contingency plan that anticipates where any leaks or spills might occur. It must describe how the discharger proposes to guard against such accidents and detect them when they have occurred. The contingency plan also must describe the steps proposed to contain and remove the spilled substance or mitigate the damage caused by the discharge such that ground water is protected, or movement into surface waters is prevented. The applicant shall commit to notify the OCD of any break, spill, blow out, or fire or any other circumstance that could constitute a hazard or contamination in accordance with OCD Rule 116. This commitment and proposed notification threshold levels must be included in the contingency plan.

A. Describe measures to be taken in the event of pond or pit failure as determined by the leak detection sumps or by ground water monitoring. Outline a procedure for analyses of fluids found, proposed schedule for OCD notification, removal of fluids from the leak detection system, repairs to the pond, and cleanup of contaminated water.

B. Describe proposed procedures addressing containment, cleanup and reporting in case of major and minor spills at the facility. Include information as to whether areas are curbed, paved and drained to sumps; final disposition of spill material; proposed schedule for OCD notification of spills; etc.

C. If an injection well is used for on-site effluent disposal, describe the procedures to be followed to prevent unauthorized discharges to the surface or subsurface in the event the disposal well or disposal line is shut-in for workover or repairs (e.g. extra storage tanks, emergency pond, shipment offsite, etc.). Address actions to be taken in the event of disposal pipeline failure, extended disposal well downtime, etc.

D. The application shall contain a contingency plan that anticipates where any leaks/spill might occur. It should describe how the applicant proposes to guard against such accidents and detect them when they have occurred.

E. The contingency plan shall describe the steps proposed to contain and remove the spilled substance or mitigate the damage caused by the discharge such that ground water is protected, or movement into surface waters is prevented.

F. The application shall describe how any ponding, pooling or runon of precipitation will be removed from the landfarm and where its final disposition will be.

G. The application shall contain a contingency plan that describes what procedures will be taken to contain and mitigate any contaminants which are leached beneath the native surface of the landfarm. The precise method will depend upon the engineering design of the facility and the method used to detect leaching of contaminants (ie. monitoring a two foot treatment zone, installing a double-lined system with leak detection, etc.)

H. The applicant shall commit to notify the OCD of any break, spill, blow out, or fire or any other circumstance that could constitute a hazard or contamination in accordance with OCD Rule 116.

9. Operation and Maintenance

A. Leak detection sumps shall be inspected for fluids at least weekly; monitor wells, if required, shall be checked at least monthly and sampled if fluids are present. Analyses will be furnished to the OCD. Records of dates, inspector and status of the leak detection system or ground water monitoring wells shall be maintained.

B. Landfarm facilities should be maintained to keep soils from blowing and to minimize odors from leaving the facility boundary. Discuss how this will be accomplished. Berms should be maintained in such a manner to prevent erosion. Inspections of the berms should be made after any rainfall or wind storms of consequence.

C. Outside walls of all levees shall be maintained in such a manner to prevent erosion. Inspections of the outside walls of the levees shall be made after any rainfall of consequence.

D. Pond freeboard levels shall not be less than approved by OCD.

E. All surface waste disposal facility operators shall file forms C-117-A, C-118, and C-120-A as required by OCD rules.

F. No produced water shall be received at the facility from motor vehicles unless the transporter has a valid Form C-133 (Authorization to Move Produced Water) on file with the Division.

G. Only liquids and solids that are non-hazardous by RCRA Subtitle C exemption or by characteristic testing will be accepted at the facility. Liquids and solids from operations not currently exempt under RCRA Subtitle C will be tested for appropriate hazardous constituents prior to disposal.

H. Each operator of a commercial surface waste management facility shall keep and make available for inspection records for each calendar month on the source, location, volume and type of waste (produced water, acids, completion fluids, drilling mud, etc.), analysis for hazardous constituents (if required), date of disposal, and hauling company that disposes of fluids or material in their facility. Such records shall be maintained for a period of two (2) years from the date of disposal.

I. Disposal at a surface facility shall occur only when an attendant is on duty. The facility shall be secured when no attendant is present. When loads can be monitored or otherwise isolated for inspection before disposal, no attendant is required.

J. The applicant should commit to submitting all required analytical results, OCD forms and other specified reports referenced in the guidelines.

10. Closure Plan

A. OCD shall be notified when operation of the facility is discontinued for a period in excess of six months or when the facility is to be dismantled. A closure plan for the facility will be provided including the following OCD closure procedures:

1. When the facility is to be closed no new material should be accepted.

2. Existing landfarm soils should be remediated until they meet the OCD standards in effect at the time of closure;

3. Provide a facility closure plan detailing plans as necessary for removal of all fluids and/or wastes, back-filling, grading and mounding of pits, cleanup of contaminated soils, and if necessary, aquifer restoration

4. The area should be reseeded with natural grasses and allowed to return to its natural state;

5. Closure shall be pursuant to all OCD requirements in effect at the time of closure, and any other applicable local, state and/or federal regulations.

B. A closure plan shall contain a commitment from the applicant that he shall notify the Division of cessation of operations. Upon cessation of disposal operations for six (6) consecutive months, the operator shall complete cleanup of constructed facilities and restoration of the facility site within the following six (6) months, unless an extension of time is granted by the Director.

11. Site Characteristics - Fresh Water Protection Demonstration

A. The following hydrologic/geologic information is required to be submitted with all applications. Some information already may be on file with OCD and can be provided to the applicant on request.

1. Hydrologic Features

a. Provide the name, description, and location of any bodies of water, streams (indicate perennial or intermittent), or other watercourses (arroyos, canals, drains, etc.); and ground water discharge sites (water wells, seeps, springs, marshes, swamps) within one (1) mile of the outside perimeter of the facility. For water wells, specify use of water (e.g., public supply, domestic, stock, etc.)

b. Provide the total dissolved (TDS) concentration (in mg/l) of the ground water most likely to be affected by any discharge. Include the source of the information and how it was determined.

c. Provide the flow direction of the ground water most likely to be affected by any leaks. Include the source of the information and how it was determined.

d. It is suggested that you provide a recent water quality analysis of the ground water, if available, including the name of the analyzing laboratory, sample location, and data the sample was taken. This suggestion is made so that background information is available in case of leaks or charges of neighboring groundwater contamination.

2. Geologic Description of Facility Site

Provide the following information and attach or reference source information, as available, (e.g., driller's logs):

a. Soil type(s) -sand, clay caliche, bedrock. Include a lithologic description of all soil and rock members from ground surface down to the shallowest fresh water aquifer;

b. Depth to, name of, and thickness of the shallowest fresh water aquifer(s);

c. Composition of aquifer material - alluvium, sandstone, basalt, etc.;

d. Depth to bedrock at base of alluvium.

3. Flood Protection

Provide information on:

a. The flooding potential at the facility with respect to major precipitation and/or runoff events; and

b. Flood protection measures (berms, drainage channels, etc.), if applicable, for at least a 100-year flood.

c. Proposed schedule for OCD notification in case of flooding or washout.

B. Provide any additional information necessary to demonstrate that approval of the application will not result adversely affect fresh water protected for present or reasonably foreseeable future use. Depending on the method and location of discharge, detailed technical information on site hydrologic and geologic conditions may be required to be submitted for discharge plan evaluation. This material is most likely to be required for unlined surface impoundments and pits, and leach fields. Check with OCD before providing this information. However, if required it could include but not be limited to:

1. Stratigraphic information including formation and member names, thickness, lithologies, lateral extent, etc.

2. Generalized maps and cross-sections;

3. Potentiometric maps for aquifers potentially affected;

4. Porosity, hydraulic conductivity, storativity and other hydrologic parameters of the aquifer;

5. Specific information on the water quality of the receiving aquifer; and

6. Information on expected alteration of contaminants due to sorption, precipitation or chemical reaction in the unsaturated zone, and expected reactions and/or dilution in the aquifer.

7. Porosity, permeability, conductivity, cation exchange rates, compaction ratios and swelling characteristics for the sediments on which the contaminated soils will be directly placed upon.

12. Proof of Notice

Attach proof that the notice requirements of OCD Rule 711 have been met. For commercial and centralized waste management facilities the applicant must give written notice of application to the owners of surface lands and occupants within one (1) mile of the proposed facility boundary. For permit modifications, the Division may require the applicant to give written notice as above.

13. H_2S Contingency Plan

A contingency plan in the event of a release of H_2S shall be submitted for approval along with the details for pit construction. The contingency plan will outline a procedure for monitoring for H_2S, notifying the OCD, aeration or treatment of pit fluids for H_2S generation, H_2S monitoring and notification of appropriate authorities. H_2S contingency plans are not applicable for land farm facilities unless the landfarm is designed to generate H2S.

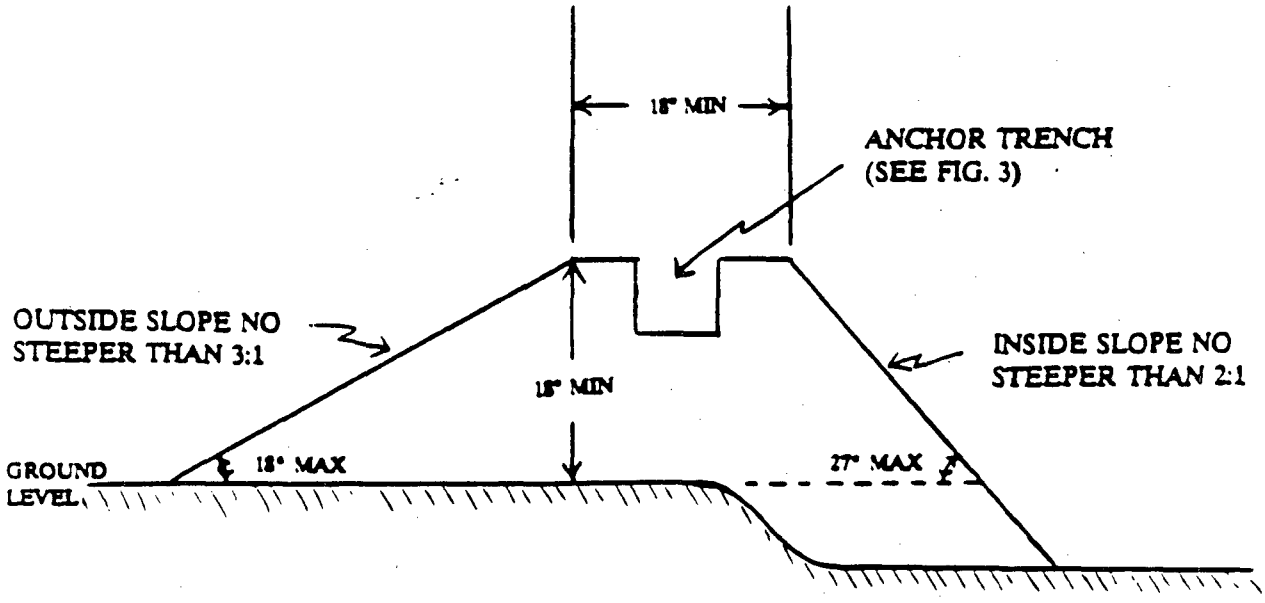
14. Additional Information

Provide any additional information necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.

15. Certification

Include the signature information required on the application form. The form must be signed by an authorized representative of the applicant.

FIGURE 1: PIT CONSTRUCTION



NOTE: LEVEE TO BE CONSTRUCTED IN A MANNER SUCH THAT DESIGN COMPACTION AND DIMENSIONS PROVIDE FOR A MINIMUM SAFETY FACTOR OF TWO FOR FORCES ACTING AGAINST THE LEVEE.

FIGURE 3 - ANCHOR TRENCH

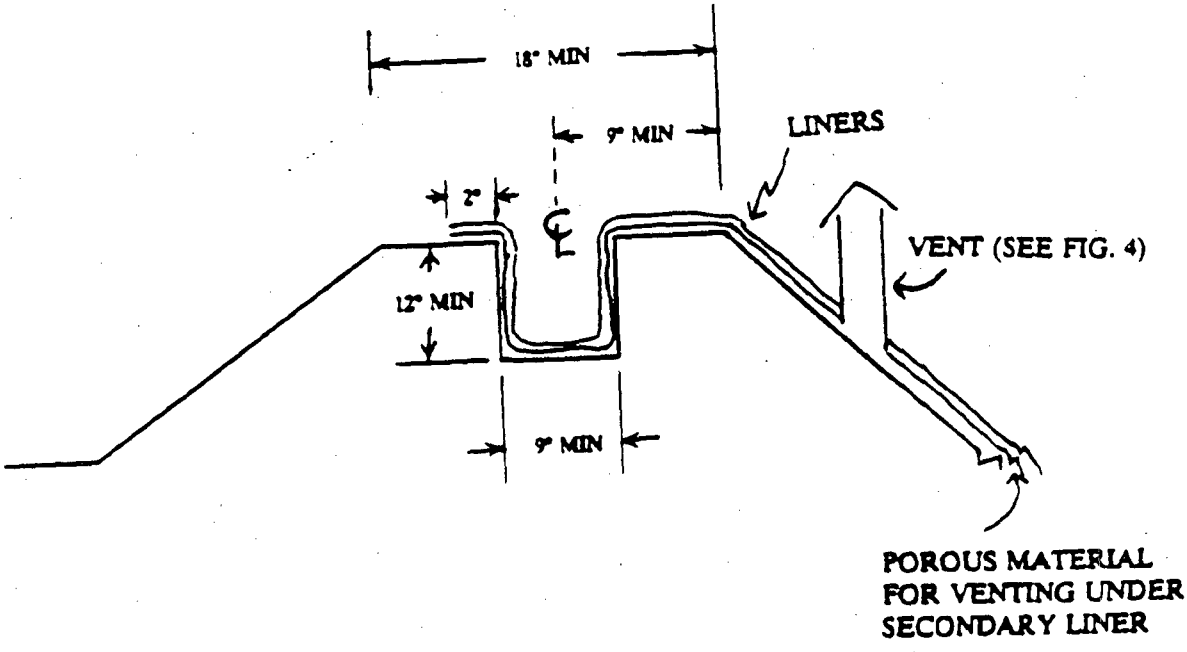
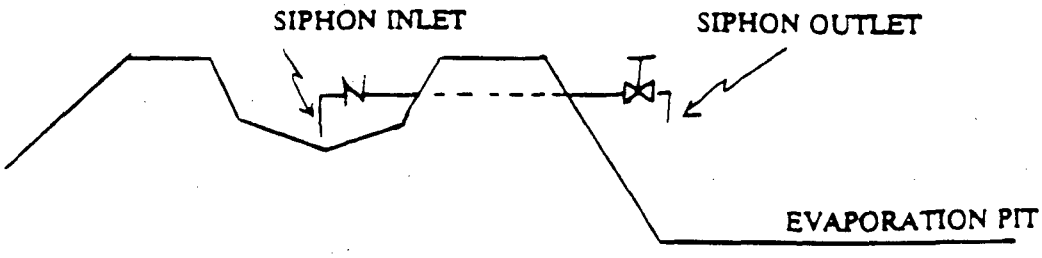
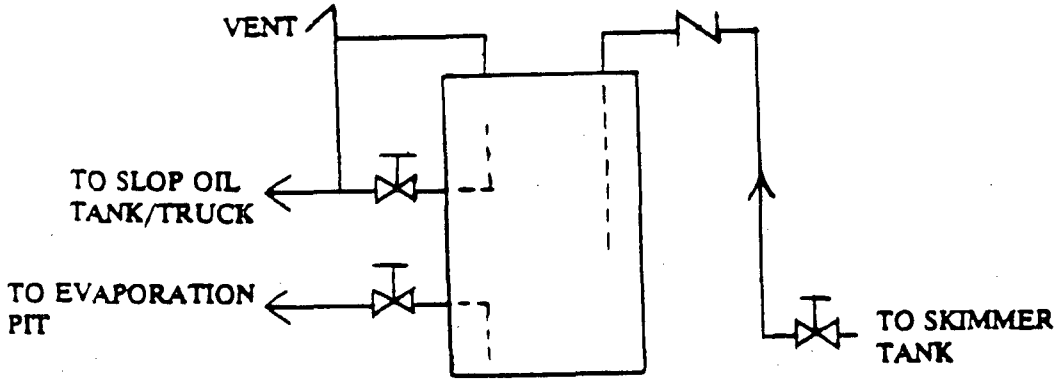


FIGURE 5: SKIMMER POND/TANK

(A) SKIMMER POND



(B) SKIMMER TANK



NOTE: BEFORE BEGINNING DISCHARGES TO SKIMMER POND/TANK, FILL WITH FRESH WATER TO SIPHON INLET.

State of New Mexico
Energy, Minerals and Natural Resources Department
OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87501

APPLICATION FOR SURFACE WASTE DISPOSAL FACILITY

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

☐ Commercial ☐ Centralized

I. Type: ☐ Produced Water ☐ Drilling Muds ☐ Other _____
☐ Solids ☐ Treating Fluids

II. OPERATOR: _____

ADDRESS: _____

CONTACT PERSON: _____ PHONE: _____

III. LOCATION: _____/4 _____/4 Section _____ Township _____ Range _____
Submit large scale topographic map showing exact location.

IV. IS THIS AN EXPANSION OF AN EXISTING FACILITY? ☐ Yes ☐ No

V. Attach the name and address of the landowner of the disposal facility site and landowners of record within one-half mile o the site.

VI. Attach discription of the facility with a diagram indicating location of fences, pits, dikes, and tanks on the facility.

VII. Attach detailed engineering designs with diagrams prepared in accordance with Division guidelines for the construction/installation of the following: pits or ponds, leak-detection systems, aerations sytems, enhanced evaporation (spray) systems, waste treating systems, and security systems.

VIII. Attach a contingency plan for reporting and clean-up of spills or releases.

IX. Attach a routine inspection and maintenance plan to ensure permit compliance.

X. Attach a closure plan.

XI. Attach geological/hydrological evidence demonstrating that disposal of oil field wastes will not adversely impact fresh water. Depth to and quantity of ground water must be included.

XII. Attach proof that the notice requirements of OCD Rule 711 have been met (Commercial facilities only).

XIII. Attach a contingency plan in the event of a release of H_2S.

XIV. Attach such other information as necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.

XV. CERTIFICATION

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: _____ Title: _____

Signature: _____ Date: _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to appropriate Division District Office.

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

Irrevocable Letter of Credit For Waste Management Facilities
(File with Oil Conservation Division, 2040 South Pacheco Street, Santa Fe, New Mexico 87505)

LETTER OF CREDIT NO._____

_____ [Name of Bank or Surety] (Surety), a corporation organized and existing under the laws of the State of_____, and authorized to do business in the State of New Mexico with a duly appointed resident agent in the State of New Mexico authorized to execute this Letter of Credit on behalf of the Surety, hereby establishes this Irrevocable Letter of Credit for the use and benefit of the Oil Conservation Division of the Energy, Minerals and Natural Resources Department (the "Division") pursuant to Section 70-2-12 NMSA 1978, as amended for an aggregate amount not to exceed $_____($_____.00) [closure cost estimate] in United States dollars ("Face Amount") effective immediately. This Letter of Credit is established for_____ _____, (an individual, partnership, or a corporation organized in the State of _____ , with its principal office in the City of_____, State of_____ _____, and authorized to do business in the State of New Mexico), as PRINCIPAL.

The conditions of this obligation are such that:

1. The Principal has or may enter into the collection, disposal, evaporation, remediation, reclamation, treatment or storage of produced water, drilling fluids, drill cuttings, completion fluids, contaminated soils, BS&W, tank bottoms, waste oil and/or other oil field related waste in Section____, Township _____, Range_____, NMPM,_ _____ County, New Mexico (the Facility).

2. This Letter of Credit is irrevocable for a term of not less than five (5) years and is conditioned upon substantial compliance by the Principal with all applicable statutes of the State of New Mexico and all rules and orders of the Oil Conservation Commission and Division, and upon clean-up of the facility site by the Principal to the standards set by the Division.

3. This Letter of Credit will expire on (a) _____ [not less than five (5) years from the effective date of the Letter of Credit] or (b) the "expiration date and the date upon which sufficient documents are executed by the Division to release _____ from further liability for closure of the Facility with notice to Surety by the Division accompanied by the original Letter of Credit with directions for cancellation. This Letter of Credit shall be forfeited and collected by the State of New Mexico if not replaced by other suitable financial assurance or Letter if Credit at least 90 days before the expiration date.

4. This Letter of Credit will remain effective until the (a) expiration date or (b) the operator (principal) replaces this Letter of Credit with another acceptable form of financial assurance or (c) the Division releases the Letter of Credit pursuant to Paragraph 3. above.

5. Funds under this Letter of Credit are available against the Division's sight draft, in the form of Exhibit A, specifying Letter of Credit No._____ delivered to the office of the Surety at _____ _____[address]. At the Division's sole election, the Division may present sight drafts for less than the Face Amount of this Letter of Credit so long as the aggregate amount of all sight drafts does not exceed the Face Amount. Each draft must be accompanied by a certificate in the form of Exhibit B, signed by a duly authorized representative of the Division.

6. If the Surety receives the Division's sight draft(s) and certificate(s) as provided in Paragraph 5. above on or before the expiration or termination of this Letter of Credit, the Surety will make such amount as the Division

may specify, up to an aggregate amount not to exceed the Face Amount of this Letter of Credit available to the Division no later than the close of business, Santa Fe time, on the second business day following the Surety's receipt of the sight draft and certificate and in such a manner as the Division may specify.

7. The Surety will give prompt notice to the Principal and to the Division Director of any notice received or action filed alleging the insolvency or bankruptcy of the Surety, or alleging any violations of regulatory requirements which could result in suspension or revocation of the Surety's charter or license to do business.

8. This Letter of Credit will be governed by the laws of the State of New Mexico and shall be subject to the Uniform Customs and Practice for Documentary Credit, 1983 revision, International Chamber of Commerce Publication No. 500, as the same may be amended and in effect from time to time ("UCP").

9. All communications regarding this Letter of Credit will be addressed to the Surety at_____ _____[address], referencing Letter of Credit No._____.

Very truly yours,

_____
Surety

By:_____
(Name typed or printed)

_____
(Authorized Signature)

Title:_____

EXHIBIT A - SIGHT DRAFT

to

Letter of Credit No._____

_____	_____	_____
Date	City, County	Letter of Credit No.

_____

PAY TO THE ORDER OF: _____ New Mexico Oil Conservation Division _____

($_____) _____DOLLARS

TO: (Name of Bank or Surety)
and
(Address)

New Mexico Energy Minerals and Natural Resources Dept.
Oil Conservation Division
2040 South Pacheco St.
Santa Fe, New Mexico 87505

By:_____ Authorized Signature

Date:_____

EXHIBIT B
to
Letter of Credit No. _____

I,_____ a duly authorized representative of the New Mexico Oil Conservation Division, hereby certify that: (1) the drawing in the amount of ($ _____) _____Dollars, by sight draft accompanying this certificate, under Letter of Credit No. _____dated_____ issued by you is permitted under the provisions of the Letter of Credit, (2) the Letter of Credit has neither expired nor terminated pursuant to its terms, (3) the amount of the sight draft, together with any amounts previously drawn under the Letter of Credit, does not exceed the Face Amount of the Letter of Credit, and (4) the New Mexico Oil Conservation Division has ordered the forfeiture of the Letter of Credit. Proceeds of this drawing will be utilized in full to pay expenses relating to the closure liability for the facility described in Paragraph 1 of the Letter of Credit.

New Mexico Oil Conservation Division

By:_____
Authorized Signature

Date_____

Preface:

This document shall be used as a guide for the preparation of plans and specifications for the discharge of water used for hydrostatic testing of new or existing pipelines that have or will transport hydrocarbon products under the jurisdiction of the Oil Conservation Division (OCD). These include crude oil pipelines and all natural gas pipelines. Hydrostatic testing of these pipelines may lead to the production of water which is contaminated with organic compounds which, if not discharged properly, may contaminate fresh water supplies.

General:

1. No water used in the hydrostatic testing of a petroleum pipeline shall be discharged in unauthorized pits, in any watercourse or in any other place or manner which may constitute a hazard to fresh water supplies.

2. In order for hydrostatic test wastewater to be discharged in an area where it may reach fresh water supplies, it must be demonstrated that the wastewater discharges will meet or be better than the quality of the receiving waters and/or not cause the ground water to exceed standards as set forth in Section 3-103 A, B, and C of the New Mexico Water Quality Control Commission Regulations.

3. All analyses of samples will include, but are not limited to, major anions and cations (Ca, Mg, Na, K, HCO3, CO3, Cl, SO4), heavy metals (As, Ba, Cd, Pb, Hg, Se, Fe, Zn), aromatic and halogenated hydrocarbons screens, TDS, Fe, Mn, ph and conductivity. Analyses for selected other heavy metals may be required depending on the source of the water used and the discharge location. PAH (Polynuclear Aromatic Hydrocarbons) analyses for used pipelines may be needed.

New Pipelines:

1. Hydrostatic tests of less than 100,000 gallons per test do not require individual permit applications. A renewable five (5) year, discharge permit may be issued, upon application, when the following conditions are applicable:

   a) The volume per test does not exceed 100,000 gallons.

   b) Fresh water from a water supply system or other potable source is used for the test.

   c) The discharge does not enter any lake, perennial stream, river or their respective tributaries that may be seasonal.

Old Pipelines:

1. Old pipelines contain numerous contaminants that can pose potentially severe environmental problems. Since it is unlikely the constituents of the wastewater stream can be determined prior to dewatering, containment of the fluid in lined pits or tanks may be required.

2. A discharge permit is required regardless of the volume of test water. The permit application will include:

   a) Map showing location of the pipelines to be tested;

   b) Description of the proposed test including, if applicable, pigging and washing of the line prior to the hydrotest and disposition of these fluids and solids;

   c) Source, and analysis of test water (unless it is from a public water supply);

   d) Point of discharge of the test water;

   e) Method and location for collection and retention of fluids and solids;

   f) A monitoring program which includes sampling approximately every 100,000 gallons with a minimum of two samples, the last being from the last 1/4 mile of the pipeline;

   g) Available information on the depth and quality of ground water at the proposed discharge site;

   h) Geological characteristics of the subsurface at the proposed discharge site;

   i) A plan for the disposal of the test water and solids at the completion of the test including closure of any pits;

   j) Identification of landowners at and adjacent to the discharge and collection site;

   k) Written permission from the landowner of the collection/retention site.

   Unless prior approval of a disposal location has been given, disposition of the test water and solids will be determined after test results have been analyzed.

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

Case 14102
OCD Motion to Dismiss
Exhibit No. C

February 2006

Rule 711 Permit Application

Loco Hills Habitat Restoration Facility

Marbob Energy Corporation
2208 West Main Street
Artesia, New Mexico

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

Case 14102
OCD Motion to Dismiss
Exhibit No. D

January 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

2.

LOCO HILLS HABITAT RESTORATION FACILITY

Application for Centralized Surface Waste Management Facility

TABLE OF CONTENTS

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

4.

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.

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,

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.

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.

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:

- 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.

- 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

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.
- 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.

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

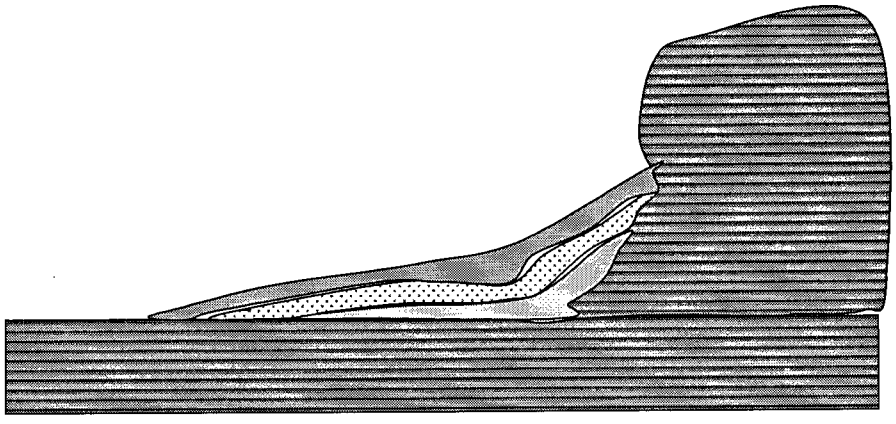


Figure 1. Illustration of how material will be placed in 6-inch to 1-foot lifts and compacted on a slope.

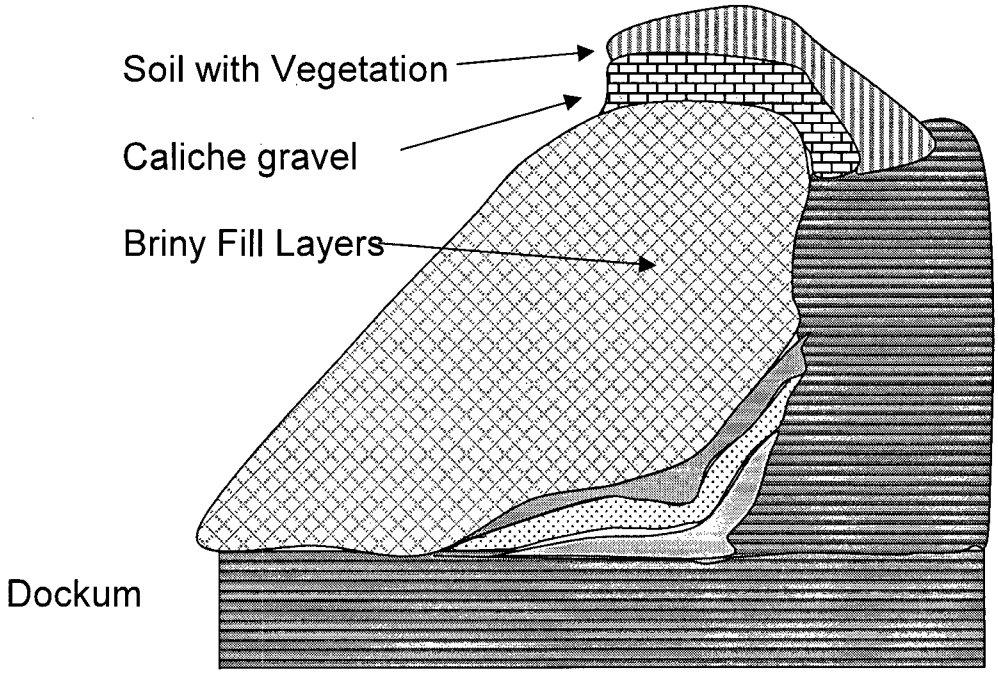


Figure 2. Illustration of at least 1-foot of caliche gravel from reclaimed well pads. Roads will be placed over the compacted fill as the first layer of the infiltration barrier, with reclaimed soil placed on the caliche layer.

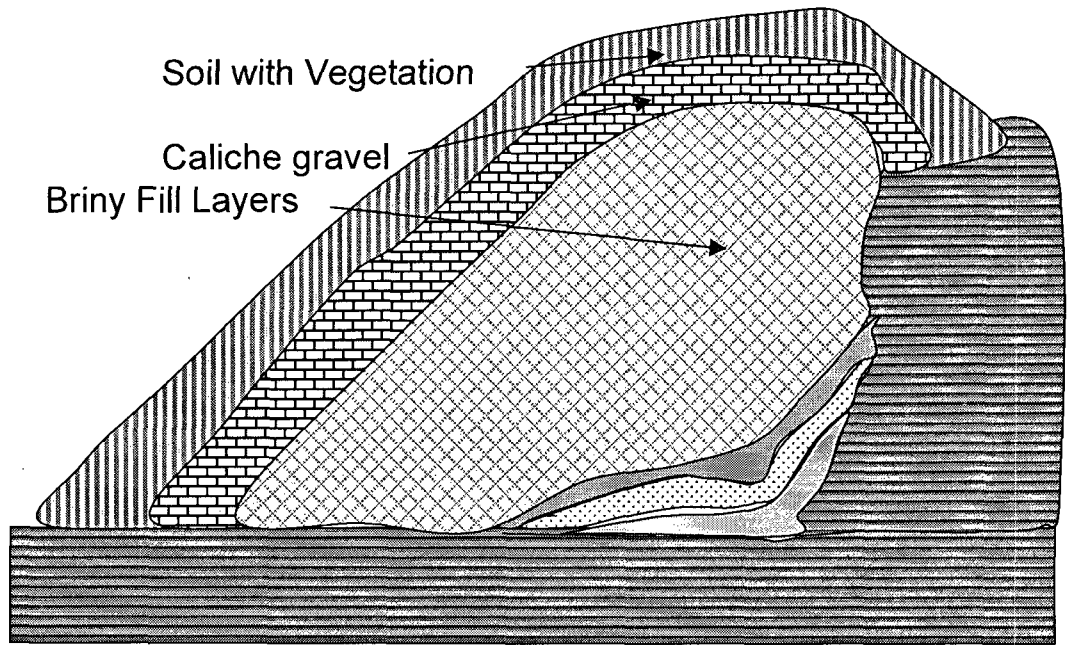
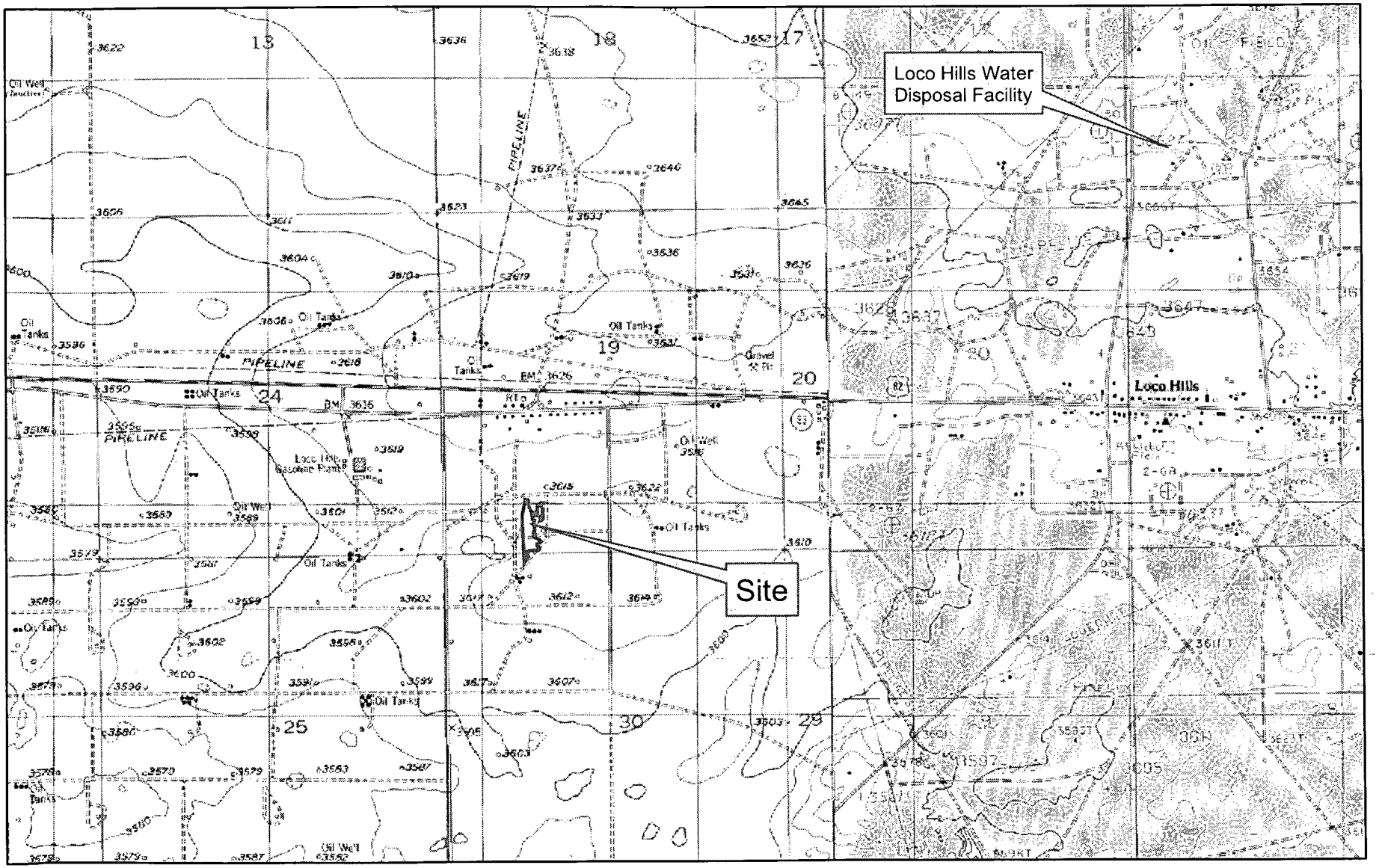


Figure 3. Illustration of how the compacted drilling pit material will be fully encapsulated with a final layer of native soil and a vegetative cap.

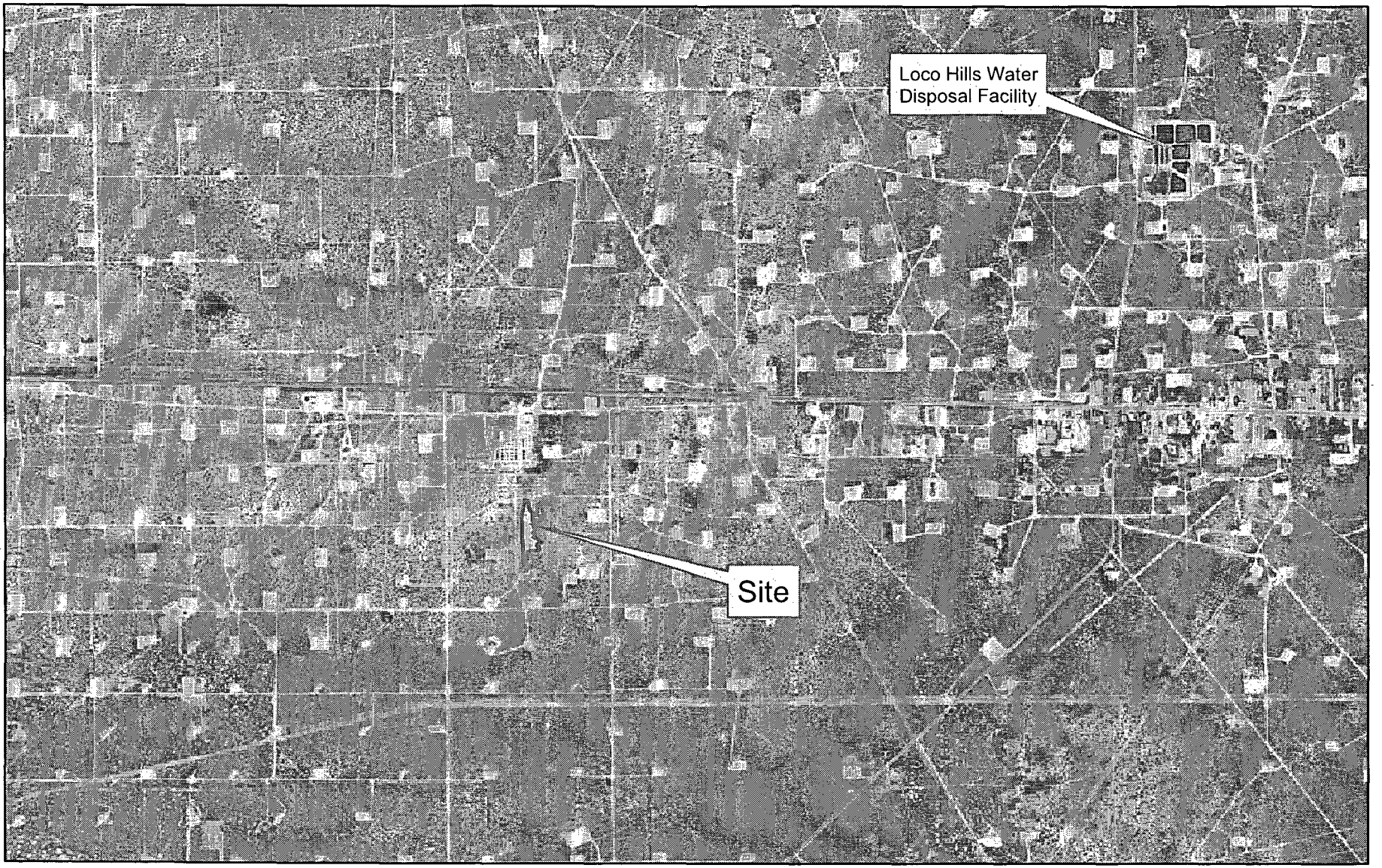
PLATES



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

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

34.



Source: http://rgis.unm.edu

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R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	2004 Aerial Photograph: Loco Hills Habitat Restoration Facility	Plate 2
	Marbob Energy Corporation	January 2006

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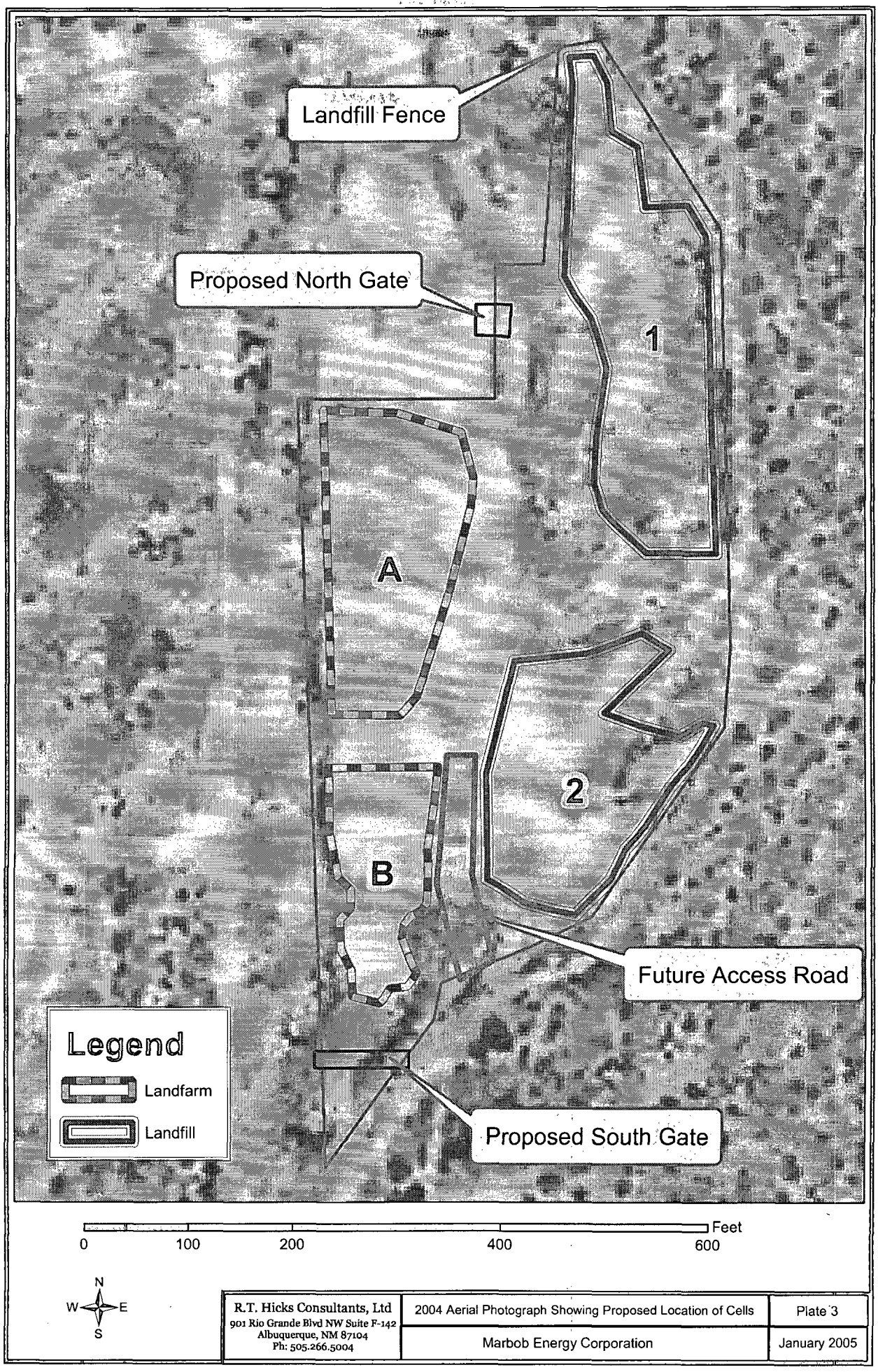
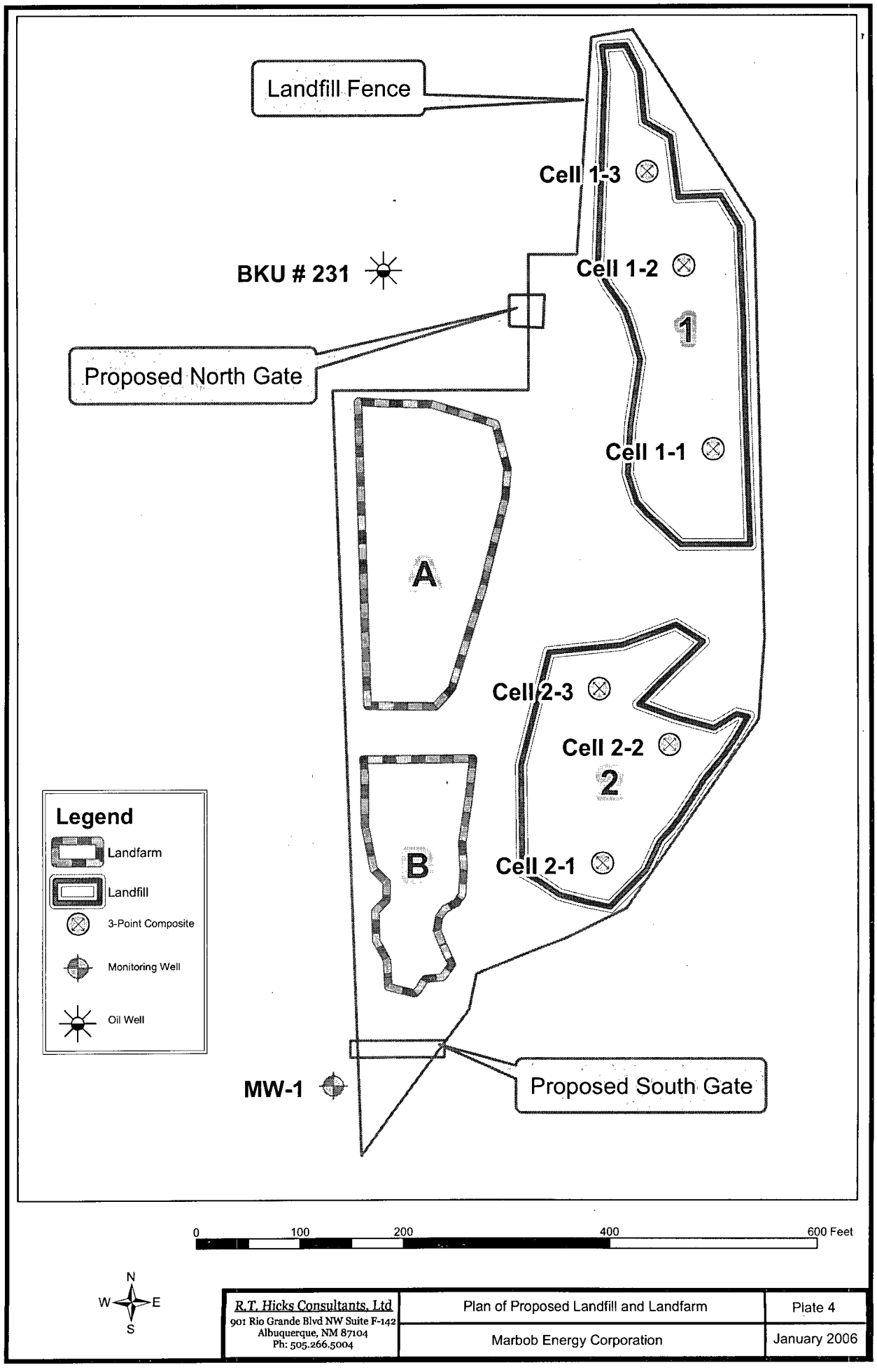
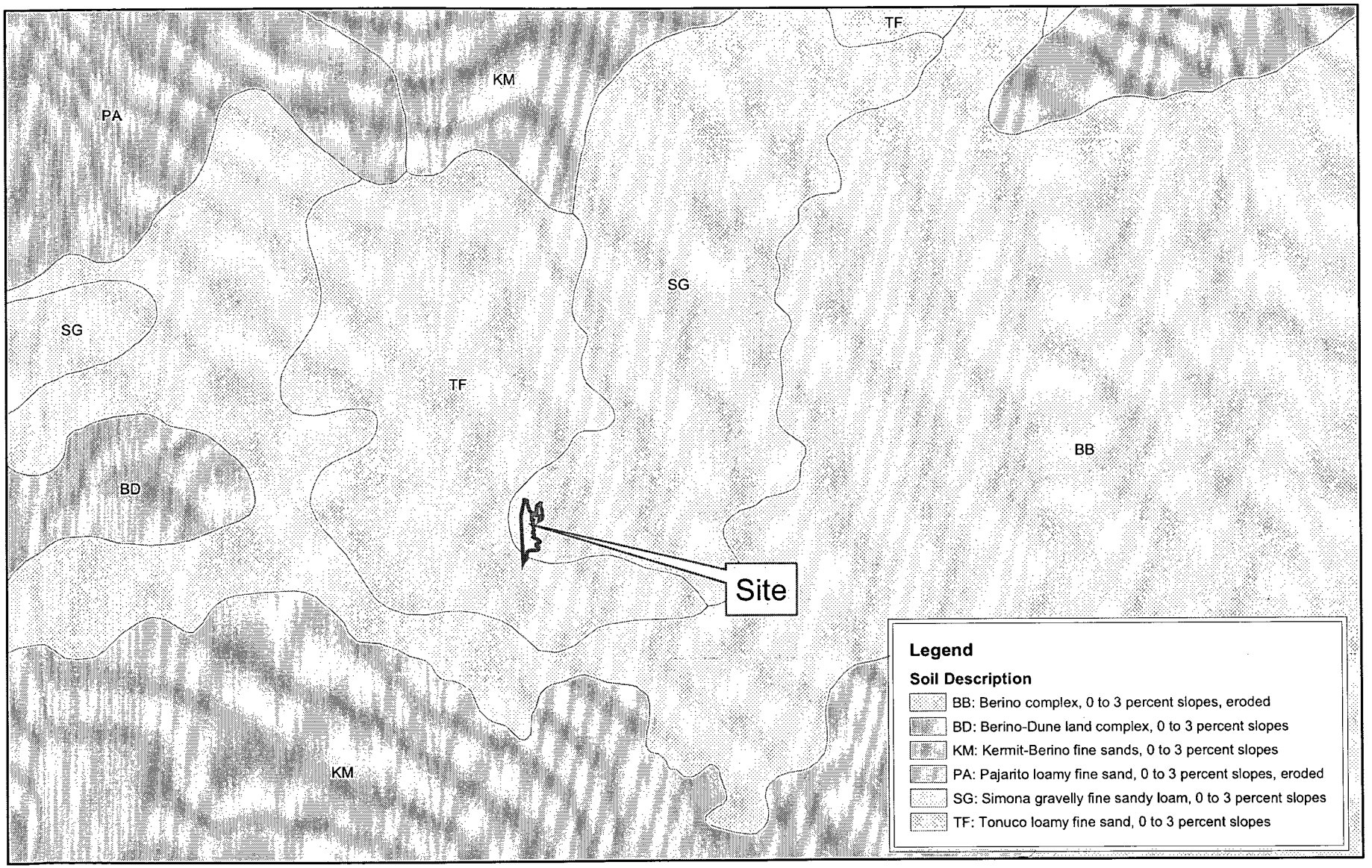


R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	2004 Aerial Photograph Showing Proposed Location of Cells	Plate 3
	Marbob Energy Corporation	January 2005



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

36.



Source: United States Department of Agriculture

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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

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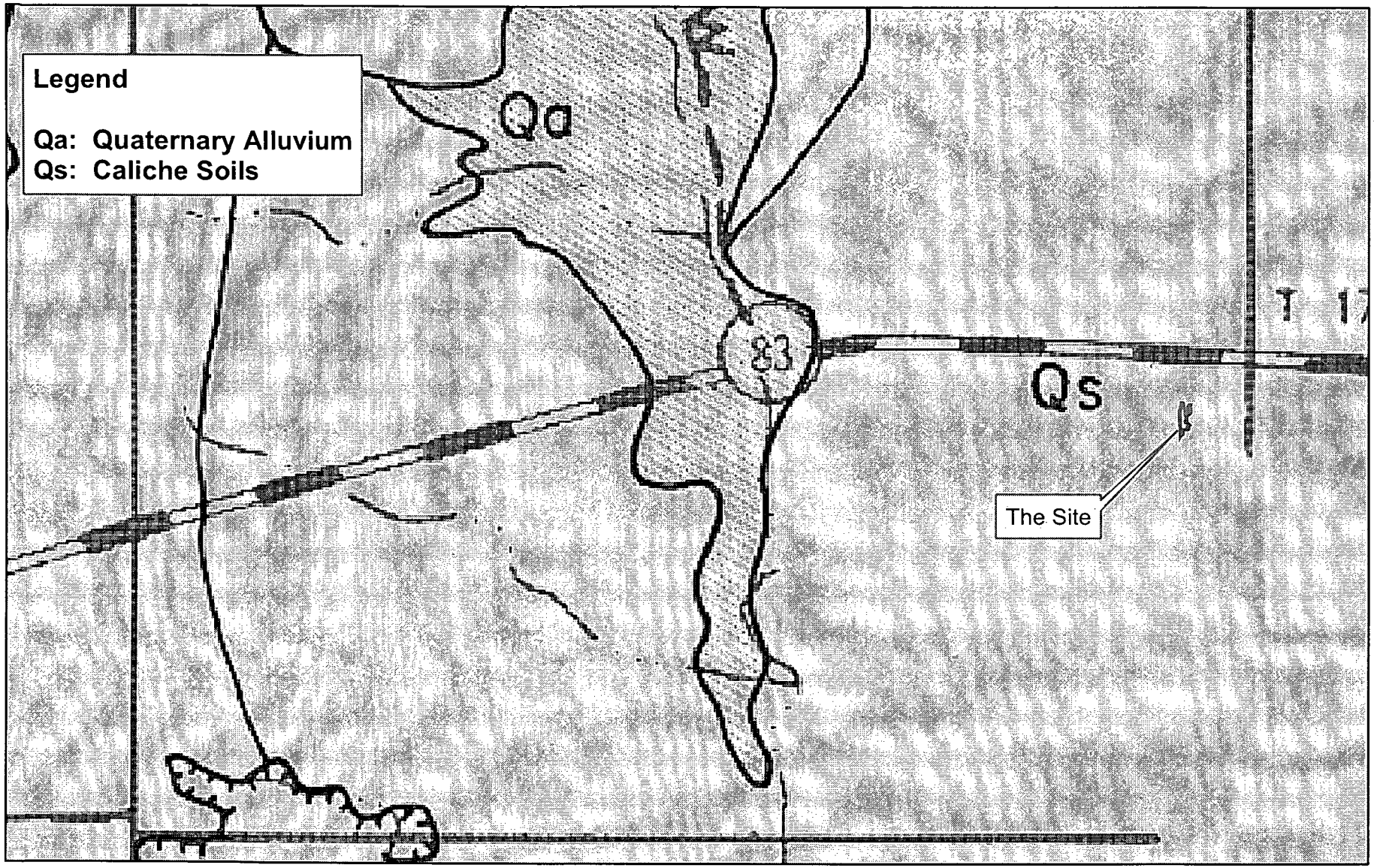

Source: Geology of the Pecos Country

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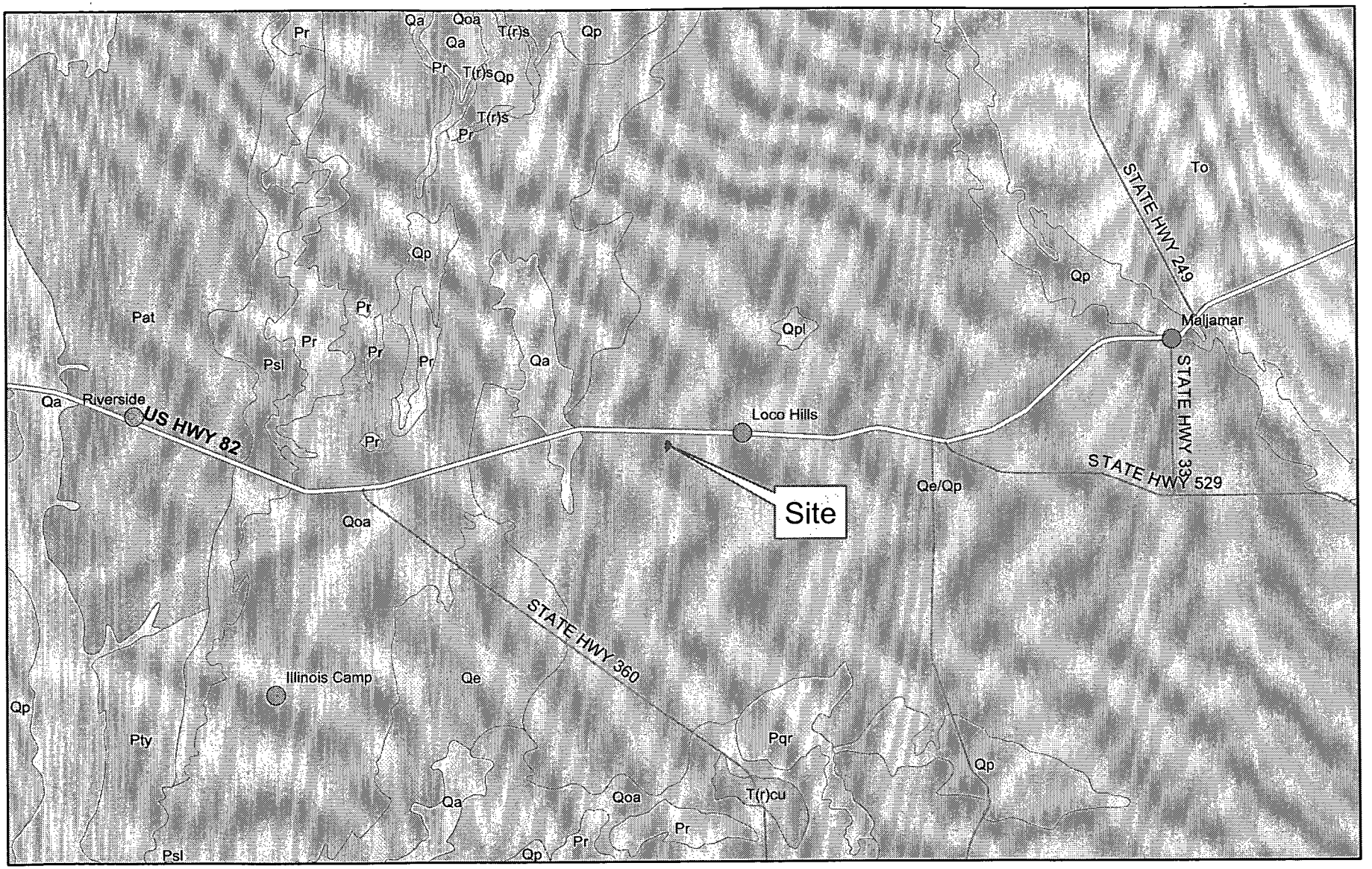
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Local Geology Map	Plate 6
	Marbob Energy Corporation	January 2006



Source: Green and Jones, 1997; NMBMNR)

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Albuquerque, NM 87104
Ph: 505.266.5004

Regional Geology	Plate 7
Marbob Energy Corporation	January 2006

N W E S

40

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			25'-27'	1040		64	3.7	4%	1%	0%	36%	42%	17%
30	grains from 22' - 28'		SW	30'-32'	1055	SplitSpoon	96	11.4	2%	8%	10%	5%	6%	69%
35				35'-37'	1115		112	19.9	0%	1%	7%	11%	16%	65%
40	Reddish-brown and brownish-red clayey fine sand,			40'-42'	1145		144	14.8	0%	0%	1%	9%	25%	65%
45	subangular to subrounded, some calcite nodules near top,		SC	45'-47'	1200	SplitSpoon	96	6.5	0%	1%	0%	10%	32%	57%
50	some 1/2"-2" thick stringers of fine sand; from 28' - 50'			50'-52'	1315									
55	Reddish-brown uniform fine sand, loose, subrounded,			55'-57'	1345	SplitSpoon								
60	rounded frosted quartz grains; from 50' - 65'		SW	60'-62'	1405		64	5.3	0%	0%	0%	19%	48%	33%
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	Red clay with			205'	1140									
210	minor fragments of fine to med-grained sandstone			210'	1200									
215				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									

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, New Mexico 87104
505.266.5004

Marbob Energy Corp.
Lithologic Log of Boring B-1

Plate 9
July 2005

APPENDIX A

ARS
AMERICAN RADIATION SERVICES, INC.

2609 North River Road Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

American Radiation Services, Inc.

Laboratory Analysis Report

Prepared For :

Trace Analysis, Inc.
Nell Green
6701 Aberdeen Avenue, Ste. 9
Lubbock, TX 79424

Phone: 806-794-1296
FAX: 806-794-1298

Quality Assurance Review

Technical Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

Contact Person: **Questions regarding this analytical report should be addressed to American Radiation Services, Inc. at 2609 North River Road, Port Allen, Louisiana. Phone: 225.381.2991 Fax: 225.381.2996**

LELAP Cert# 30658

NELAP Cert# E87558

AMERICAN RADIATION SERVICES, INC.

2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-05-00443
Client Sample ID: Cell 2 71582
Sample Collection Date: 08/19/05 10:00
Sample Matrix: Soil/Solid

Request or PO Number: NA
ARS Sample ID: ARS1-05-00443-002
Date Received: 08/23/05 00:00
Report Date: 09/08/05 11:39

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
RA-226	2.5722	1.3581	0.6510	NA	NA	pCi/g	EPA 901.1M	9/7/05 15:45	JMB	
RA-228	0.5309	0.3161	0.1250	NA	NA	pCi/g	EPA 901.1M	9/7/05 15:45	JMB	

Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Certificate# 30658 NELAP Certificate # E87558

AMERICAN RADIATION SERVICES, INC.

2609 North River Road, Port Allen, Louisiana 70767

1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-05-00443
Client Sample ID: Cell 1 71581
Sample Collection Date: 08/19/05 10:00
Sample Matrix: Soil/Solid

Request or PO Number: NA
ARS Sample ID: ARS1-05-00443-001
Date Received: 08/23/05 00:00
Report Date: 09/08/05 11:39

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
RA-226	1.4000	1.3900	2.3000	NA	NA	pCi/g	EPA 901.1M	9/7/05 15:38	JMB	
RA-228	1.1400	0.4970	0.8370	NA	NA	pCi/g	EPA 901.1M	9/7/05 15:38	JMB	

Quality Assurance Review

LELAP Certificate# 30658 NELAP Certificate # E87558

AMERICAN RADIATION SERVICES, INC.

2609 North River Road Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

Notes:

Comments:

1.0) Soil and Sludge analysis are reported on a wet basis or an as received basis unless otherwise indicated.
2.0) The data in this report are within the limits of uncertainty specified in the reference method unless specfied.
3.0) Modified analysis procedures are procedures that are modified to meet the certain specifications. An example may be the use of a water method to analyze a solid matrix due to the lack of an officially recognized procedure for the analysis of the solid matix.
4.0) Derived Air Concentrations and Effluent Release Concentrations are obtained from 10 CFR 20 Appendix B.
5.0) Total activity is actually total gamma activity and is determined utilizing the prominent gamma emitters from the naturally occurring radioactive decay chains and other prominent radioactive nuclides. Total activity may be lower than the actual total activity due to the extent of secular equilibrium achieved in the various decay chains at the time of analysis. The total activity is not representative of nuclides that emit solely alpha or beta particles.
6.0) Ra-228 is determined via secular equilibrium with its daughter, Actinium 228. (Gamma Spectroscopy only).
7.0) U-238 is determined via secular equilibrium with its daughter, Thorium 234. (Gamma Spectroscopy only).
8.0) All gamma spectroscopy was performed utilizing high purity germanium detectors (HPGe).

Method References:

1.0) EPA 600/4-80-032, Prescribed Procedures for the Measurements of Radioactivity in Drinking Water, August 1980.
2.0) Standard Methods for Examination of Water and Waste Water, 18th, 1992.
3.0) EPA SW-846, Test Methods for Evaluating Solid Waste, Third Edition, (9/86). (Updated through 1995).
4.0) EPA 600/4/79-020, Methods for Chemical Analysis of Water and Waste, March 1983.
5.0) HASL 300

Definitions:

1.0)	BDL	Analyte not detected because the value was below the detection limit.
2.0)	ND	Not detected above the detection limit.
3.0)	Detection Limit	The minimum amount of the analyte that ARS can detect utilizing the specific analysis.
4.0)	B	Method Blank
5.0)	D	Method Duplicate
6.0)	MS	Matrix Spike
7.0)	S	Spike
8.0)	RS	Reference Spike
9.0)	*SC	Subcontracted out to another qualified laboratory
10.0)	NR	Not Referenced
11.0)	N/A	Not Applicable

LELAP Cert# 30658 NELAP Cert# E87558

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296
email: lab@traceanalysis.com

TraceAnalysis, Inc.

155 McCutcheon,Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID #_____

Company Name: Phone #:

Address: (Street, City, Zip) Fax #:
e-mail:

Contact Person: Nell Green

Invoice to:
(If different from above)

Project #: Project Name:

Project Location: Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	TX 1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Radium 226 + 228			Turn Around Time if different from standard	Hold
	71581	1			✓									8-19-05																		✓				
	71582	1			✓									8-19-05																		✓				

Relinquished by: Date: Time:
Vicki Hu 8-22-05

Received by: Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

Relinquished by: Date: Time:

Received at Laboratory by: Date: Time:
Jonad Brown 8-23-05 1030

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

LAB USE ONLY

Intact Y / N

Headspace Y / N

Temp °

Log-in Review

REMARKS:

☐ Dry Weight Basis Required

☐ TRRP Report Required

☐ Check If Special Reporting Limits Are Needed

Carrier #_____

Summary Report

Gil Van Deventer
R. T. Hicks Consultants,Ltd.
901 Rio Grande Blvd. NW Suite F-142
Albuquerque,, NM 87104

Report Date: August 23, 2005

Work Order: 5082226

Project Name: Loco Hills,NM
Project Number: Marbob Energy Corp.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
71581	Cell 1	soil	2005-08-22	10:00	2005-08-22
71582	Cell 2	soil	2005-08-22	08:50	2005-08-22

	BTEX by 8260					MTBE by 8260
Sample - Field Code	Benzene (µg/Kg)	Toluene (µg/Kg)	Ethylbenzene (µg/Kg)	m,p-Xylene (µg/Kg)	o-Xylene (µg/Kg)	MTBE (µg/Kg)
71581 - Cell 1	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
71582 - Cell 2	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0

Sample: 71581 - Cell 1

Param	Flag	Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/Kg as CaCo3	1.00
Carbonate Alkalinity		5.00	mg/Kg as CaCo3	1.00
Bicarbonate Alkalinity		113	mg/Kg as CaCo3	4.00
Total Alkalinity		118	mg/Kg as CaCo3	4.00
Chloride		9.40	mg/Kg	1.00
Total Aluminum		17400	mg/Kg	10.0
Total Arsenic		<1.00	mg/Kg	1.00
Total Barium		424	mg/Kg	1.00
Total Boron		50.4	mg/Kg	10.0
Total Cadmium		<0.500	mg/Kg	0.500
Total Calcium		82800	mg/Kg	50.0
Total Chromium		9.94	mg/Kg	1.00
Total Cobalt		<10.0	mg/Kg	10.0
Total Copper		4.53	mg/Kg	0.500
Total Iron		12900	mg/Kg	10.0
Total Mercury		0.0450	mg/Kg	0.0400
Total Lead		29.9	mg/Kg	1.00
Total Magnesium		7060	mg/Kg	50.0
Total Manganese		220	mg/Kg	1.00
Total Molybdenum		<2.00	mg/Kg	2.00
Total Nickel		<10.0	mg/Kg	10.0
Total Potassium		2660	mg/Kg	50.0
Total Selenium		<1.00	mg/Kg	1.00

continued ...

sample 71581 continued ...

Param	Flag	Result	Units	RL
Total Silica		722	mg/Kg	10.0
Total Silver		<0.200	mg/Kg	0.200
Total Sodium		308	mg/Kg	50.0
Total Zinc		18.1	mg/Kg	1.00
Sulfate		30.6	mg/Kg	2.00

Sample: 71582 - Cell 2

Param	Flag	Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/Kg as CaCo3	1.00
Carbonate Alkalinity		8.00	mg/Kg as CaCo3	1.00
Bicarbonate Alkalinity		52.0	mg/Kg as CaCo3	4.00
Total Alkalinity		60.0	mg/Kg as CaCo3	4.00
Chloride		10.8	mg/Kg	1.00
Total Aluminum		10400	mg/Kg	10.0
Total Arsenic		<1.00	mg/Kg	1.00
Total Barium		28.2	mg/Kg	1.00
Total Boron		34.6	mg/Kg	10.0
Total Cadmium		<0.500	mg/Kg	0.500
Total Calcium		16900	mg/Kg	50.0
Total Chromium		6.95	mg/Kg	1.00
Total Cobalt		<10.0	mg/Kg	10.0
Total Copper		3.36	mg/Kg	0.500
Total Iron		9330	mg/Kg	10.0
Total Mercury		<0.0400	mg/Kg	0.0400
Total Lead		19.5	mg/Kg	1.00
Total Magnesium		4030	mg/Kg	50.0
Total Manganese		149	mg/Kg	1.00
Total Molybdenum		<2.00	mg/Kg	2.00
Total Nickel		<10.0	mg/Kg	10.0
Total Potassium		1810	mg/Kg	50.0
Total Selenium		<1.00	mg/Kg	1.00
Total Silica		620	mg/Kg	10.0
Total Silver		<0.200	mg/Kg	0.200
Total Sodium		240	mg/Kg	50.0
Total Zinc		13.4	mg/Kg	1.00
Sulfate		87.5	mg/Kg	2.00

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Gil Van Deventer
R. T. Hicks Consultants,Ltd.
901 Rio Grande Blvd. NW Suite F-142
Albuquerque,, NM 87104

Report Date: August 23, 2005

Work Order: 5082226

Project Name: Loco Hills,NM
Project Number: Marbob Energy Corp.

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
71581	Cell 1	soil	2005-08-22	10:00	2005-08-22
71582	Cell 2	soil	2005-08-22	08:50	2005-08-22

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 14 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

50.

Analytical Report

Sample: 71581 - Cell 1

Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	20819	Date Analyzed:	2005-08-26	Analyzed By:	RS
Prep Batch:	18274	Sample Preparation:	2005-08-26	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/Kg as CaCo3	1	1.00
Carbonate Alkalinity		**5.00**	mg/Kg as CaCo3	1	1.00
Bicarbonate Alkalinity		**113**	mg/Kg as CaCo3	1	4.00
Total Alkalinity		**118**	mg/Kg as CaCo3	1	4.00

Sample: 71581 - Cell 1

Analysis:	BTEX by 8260	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	20874	Date Analyzed:	2005-08-29	Analyzed By:	JG
Prep Batch:	18329	Sample Preparation:	2005-08-29	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<10.0	µg/Kg	10	1.00
Toluene		<10.0	µg/Kg	10	1.00
Ethylbenzene		<10.0	µg/Kg	10	1.00
m,p-Xylene		<10.0	µg/Kg	10	1.00
o-Xylene		<10.0	µg/Kg	10	1.00
MTBE		<10.0	µg/Kg	10	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		507	µg/Kg	10	50.0	101	70 - 130
Toluene-d8		494	µg/Kg	10	50.0	99	70 - 130
4-Bromofluorobenzene (4-BFB)		500	µg/Kg	10	50.0	100	70 - 130

Sample: 71581 - Cell 1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	20750	Date Analyzed:	2005-08-24	Analyzed By:	WB
Prep Batch:	18218	Sample Preparation:	2005-08-24	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**9.40**	mg/Kg	5	1.00

Sample: 71581 - Cell 1

Analysis:	OCD Metals	Analytical Method:	S 7471A	Prep Method:	N/A
QC Batch:	20768	Date Analyzed:	2005-08-25	Analyzed By:	TP
Prep Batch:	18207	Sample Preparation:	2005-08-24	Prepared By:	TP
Analysis:	OCD Metals	Analytical Method:	S 6010B	Prep Method:	S 3050B
QC Batch:	20784	Date Analyzed:	2005-08-26	Analyzed By:	RR
Prep Batch:	18183	Sample Preparation:	2005-08-23	Prepared By:	DS
QC Batch:	20803	Date Analyzed:	2005-08-25	Analyzed By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Aluminum		**17400**		mg/Kg	100	10.0
Total Arsenic		<1.00		mg/Kg	1	1.00
Total Barium		**424**		mg/Kg	1	1.00
Total Boron		**50.4**		mg/Kg	1	10.0
Total Cadmium		<0.500		mg/Kg	1	0.500
Total Calcium		**82800**		mg/Kg	10	50.0
Total Chromium		**9.94**		mg/Kg	1	1.00
Total Cobalt		<10.0		mg/Kg	1	10.0
Total Copper		**4.53**		mg/Kg	1	0.500
Total Iron		**12900**		mg/Kg	100	10.0
Total Mercury		**0.0450**		mg/Kg	1	0.0400
Total Lead		**29.9**		mg/Kg	1	1.00
Total Magnesium		**7060**		mg/Kg	1	50.0
Total Manganese		**220**		mg/Kg	1	1.00
Total Molybdenum		<2.00		mg/Kg	1	2.00
Total Nickel		<10.0		mg/Kg	1	10.0
Total Potassium		**2660**		mg/Kg	1	50.0
Total Selenium		<1.00		mg/Kg	1	1.00
Total Silica		**722**		mg/Kg	1	10.0
Total Silver		<0.200		mg/Kg	1	0.200
Total Sodium		**308**		mg/Kg	1	50.0
Total Zinc		**18.1**		mg/Kg	1	1.00

Sample: 71581 - Cell 1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	20750	Date Analyzed:	2005-08-24	Analyzed By:	WB
Prep Batch:	18218	Sample Preparation:	2005-08-24	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		**30.6**		mg/Kg	5	2.00

Sample: 71582 - Cell 2

Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	20819	Date Analyzed:	2005-08-26	Analyzed By:	RS
Prep Batch:	18274	Sample Preparation:	2005-08-26	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/Kg as CaCo3	1	1.00
Carbonate Alkalinity		**8.00**	mg/Kg as CaCo3	1	1.00
Bicarbonate Alkalinity		**52.0**	mg/Kg as CaCo3	1	4.00
Total Alkalinity		**60.0**	mg/Kg as CaCo3	1	4.00

Sample: 71582 - Cell 2

Analysis:	BTEX by 8260	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	20874	Date Analyzed:	2005-08-29	Analyzed By:	JG
Prep Batch:	18329	Sample Preparation:	2005-08-29	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<10.0	µg/Kg	10	1.00
Toluene		<10.0	µg/Kg	10	1.00
Ethylbenzene		<10.0	µg/Kg	10	1.00
m,p-Xylene		<10.0	µg/Kg	10	1.00
o-Xylene		<10.0	µg/Kg	10	1.00
MTBE		<10.0	µg/Kg	10	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		506	µg/Kg	10	50.0	101	70 - 130
Toluene-d8		494	µg/Kg	10	50.0	99	70 - 130
4-Bromofluorobenzene (4-BFB)		507	µg/Kg	10	50.0	101	70 - 130

Sample: 71582 - Cell 2

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	20750	Date Analyzed:	2005-08-24	Analyzed By:	WB
Prep Batch:	18218	Sample Preparation:	2005-08-24	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**10.8**	mg/Kg	5	1.00

Sample: 71582 - Cell 2

Analysis:	OCD Metals	Analytical Method:	S 7471A	Prep Method:	N/A
QC Batch:	20768	Date Analyzed:	2005-08-25	Analyzed By:	TP
Prep Batch:	18207	Sample Preparation:	2005-08-24	Prepared By:	TP
Analysis:	OCD Metals	Analytical Method:	S 6010B	Prep Method:	S 3050B
QC Batch:	20784	Date Analyzed:	2005-08-26	Analyzed By:	RR
Prep Batch:	18183	Sample Preparation:	2005-08-23	Prepared By:	DS
QC Batch:	20803	Date Analyzed:	2005-08-25	Analyzed By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Aluminum		10400	mg/Kg	100	10.0
Total Arsenic		<1.00	mg/Kg	1	1.00
Total Barium		28.2	mg/Kg	1	1.00
Total Boron		34.6	mg/Kg	1	10.0
Total Cadmium		<0.500	mg/Kg	1	0.500
Total Calcium		16900	mg/Kg	10	50.0
Total Chromium		6.95	mg/Kg	1	1.00
Total Cobalt		<10.0	mg/Kg	1	10.0
Total Copper		3.36	mg/Kg	1	0.500
Total Iron		9330	mg/Kg	100	10.0
Total Mercury		<0.0400	mg/Kg	1	0.0400
Total Lead		19.5	mg/Kg	1	1.00
Total Magnesium		4030	mg/Kg	1	50.0
Total Manganese		149	mg/Kg	1	1.00
Total Molybdenum		<2.00	mg/Kg	1	2.00
Total Nickel		<10.0	mg/Kg	1	10.0
Total Potassium		1810	mg/Kg	1	50.0
Total Selenium		<1.00	mg/Kg	1	1.00
Total Silica		620	mg/Kg	1	10.0
Total Silver		<0.200	mg/Kg	1	0.200
Total Sodium		240	mg/Kg	1	50.0
Total Zinc		13.4	mg/Kg	1	1.00

Sample: 71582 - Cell 2

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	20750	Date Analyzed:	2005-08-24	Analyzed By:	WB
Prep Batch:	18218	Sample Preparation:	2005-08-24	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		87.5	mg/Kg	5	2.00

Matrix Blank (1) QC Batch: 20750

Parameter	Flag	MDL Result	Units	RL
Chloride		1.64	mg/Kg	1

Matrix Blank (1) QC Batch: 20750

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.0581	mg/Kg	2

Method Blank (1) QC Batch: 20768

Parameter	Flag	MDL Result	Units	RL
Total Mercury		<0.00880	mg/Kg	0.04

Method Blank (1) QC Batch: 20784

Parameter	Flag	MDL Result	Units	RL
Total Aluminum		<0.270	mg/Kg	10
Total Arsenic		<0.228	mg/Kg	1
Total Barium		<0.601	mg/Kg	1
Total Boron		<0.206	mg/Kg	10
Total Cadmium		<0.0795	mg/Kg	0.5
Total Chromium		<0.125	mg/Kg	1
Total Cobalt		<0.164	mg/Kg	10
Total Copper		<0.268	mg/Kg	0.5
Total Iron		<0.208	mg/Kg	10
Total Lead		<0.650	mg/Kg	1
Total Manganese		<0.295	mg/Kg	1
Total Molybdenum		<0.241	mg/Kg	2
Total Nickel		<0.222	mg/Kg	10
Total Selenium		<0.767	mg/Kg	1
Total Silica		<0.549	mg/Kg	10
Total Silver		<0.0444	mg/Kg	0.2
Total Zinc		<0.124	mg/Kg	1

Method Blank (1) QC Batch: 20803

Parameter	Flag	MDL Result	Units	RL
Total Calcium		<0.642	mg/Kg	50
Total Magnesium		<6.42	mg/Kg	50
Total Potassium		<1.66	mg/Kg	50
Total Sodium		<1.74	mg/Kg	50

Method Blank (1) QC Batch: 20819

Parameter	Flag	MDL Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/Kg as CaCo3	1
Carbonate Alkalinity		<1.00	mg/Kg as CaCo3	1
Bicarbonate Alkalinity		<4.00	mg/Kg as CaCo3	4
Total Alkalinity		<4.00	mg/Kg as CaCo3	4

Method Blank (1) QC Batch: 20874

Parameter	Flag	MDL Result	Units	RL
1,1-Dichloroethene		<2.44	µg/Kg	1
Benzene		<1.84	µg/Kg	1
Trichloroethene (TCE)		<7.08	µg/Kg	1
Toluene		<1.50	µg/Kg	1
Chlorobenzene		<1.45	µg/Kg	1
Ethylbenzene		<2.03	µg/Kg	1
m,p-Xylene		<5.03	µg/Kg	1
o-Xylene		<2.03	µg/Kg	1
MTBE		<3.35	µg/Kg	1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		514	µg/Kg	10	50.0	103	70 - 130
Toluene-d8		497	µg/Kg	10	50.0	99	70 - 130
4-Bromofluorobenzene (4-BFB)		492	µg/Kg	10	50.0	98	70 - 130

Duplicate (1) QC Batch: 20819

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	<1.00	<1.00	mg/Kg as CaCo3	1	0	20
Carbonate Alkalinity	8.00	8.00	mg/Kg as CaCo3	1	0	20
Bicarbonate Alkalinity	52.0	52.0	mg/Kg as CaCo3	1	0	20
Total Alkalinity	60.0	60.0	mg/Kg as CaCo3	1	0	20

Laboratory Control Spike (LCS-1) QC Batch: 20750

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	13.1	13.2	mg/Kg	1	12.5	1.64	92	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 20750

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	13.6	13.8	mg/Kg	1	12.5	<0.0581	109	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 20768

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Mercury	0.487	0.479	mg/Kg	1	0.500	<0.00880	97	2	81.8 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 20784

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Aluminum	106	106	mg/Kg	1	100	<0.270	106	0	85 - 115	20
Total Arsenic	44.0	44.9	mg/Kg	1	50.0	<0.228	88	2	85 - 108	20
Total Barium	94.6	95.7	mg/Kg	1	100	<0.601	95	1	85 - 107	20
Total Boron	4.47	4.87	mg/Kg	1	5.00	<0.206	89	9	85 - 115	20
Total Cadmium	23.8	23.0	mg/Kg	1	25.0	<0.0795	95	3	85 - 103	20
Total Chromium	10.9	10.3	mg/Kg	1	10.0	<0.125	109	6	85 - 113	20
Total Cobalt	26.7	25.8	mg/Kg	1	25.0	<0.164	107	3	85 - 115	20
Total Copper	12.2	12.9	mg/Kg	1	12.5	<0.268	98	6	85 - 115	20
Total Iron	55.6	56.1	mg/Kg	1	50.0	<0.208	111	1	85 - 115	20
Total Lead	44.2	45.5	mg/Kg	1	50.0	<0.650	88	3	85 - 110	20
Total Manganese	24.3	25.7	mg/Kg	1	25.0	<0.295	97	6	85 - 115	20
Total Molybdenum	55.7	53.3	mg/Kg	1	50.0	<0.241	111	4	85 - 115	20
Total Nickel	23.3	23.5	mg/Kg	1	25.0	<0.222	93	1	85 - 115	20
Total Selenium	45.9	45.0	mg/Kg	1	50.0	<0.767	92	2	85 - 100	20
Total Silica	106	103	mg/Kg	1	100	<0.549	106	3	85 - 115	20
Total Silver	12.0	12.0	mg/Kg	1	12.5	<0.0444	96	0	85 - 101	20
Total Zinc	25.1	24.9	mg/Kg	1	25.0	<0.124	100	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 20803

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Calcium	4670	4670	mg/Kg	100	50.0	<64.2	93	0	75 - 125	20
Total Magnesium	4540	4430	mg/Kg	100	50.0	<642	91	2	75 - 125	20
Total Potassium	4630	4740	mg/Kg	100	50.0	<166	93	2	75 - 125	20
Total Sodium	4860	4970	mg/Kg	100	50.0	<174	97	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 20874

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	476	474	µg/Kg	10	50.0	<2.44	95	0	70 - 130	20
Benzene	445	456	µg/Kg	10	50.0	<1.84	89	2	70 - 130	20
Trichloroethene (TCE)	527	533	µg/Kg	10	50.0	<7.08	105	1	70 - 130	20
Toluene	473	482	µg/Kg	10	50.0	<1.50	95	2	70 - 130	20
Chlorobenzene	507	515	µg/Kg	10	50.0	<1.45	101	2	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	527	532	µg/Kg	10	50.0	105	106	70 - 130
Toluene-d8	490	491	µg/Kg	10	50.0	98	98	70 - 130
4-Bromofluorobenzene (4-BFB)	476	478	µg/Kg	10	50.0	95	96	70 - 130

Matrix Spike (MS-1) QC Batch: 20750 Spiked Sample: 71582

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	68.1	68.4	mg/Kg	5	12.5	9.4	94	0	60.9 - 143	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 20750 Spiked Sample: 71582

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate [2]	150	152	mg/Kg	5	12.5	30.6	191	1	89.8 - 112	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 20768 Spiked Sample: 71582

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Mercury	0.516	0.545	mg/Kg	1	0.500	<0.00880	103	6	77.7 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 20784 Spiked Sample: 71581

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Arsenic	44.4	44.0	mg/Kg	1	50.0	<0.228	89	1	75 - 108	20
Total Barium	499	500	mg/Kg	1	100	424	75	0	75 - 125	20
Total Cadmium	19.2	19.5	mg/Kg	1	25.0	<0.0795	77	2	75 - 100	20
Total Chromium	20.4	20.6	mg/Kg	1	10.0	9.94	105	1	75 - 125	20
Total Copper	16.2	16.3	mg/Kg	1	12.5	4.53	93	1	75 - 125	20
Total Lead	73.6	74.6	mg/Kg	1	50.0	29.9	87	1	75 - 109	20
Total Nickel	28.7	29.0	mg/Kg	1	25.0	<0.222	115	1	75 - 125	20
Total Selenium	39.6	40.1	mg/Kg	1	50.0	<0.767	79	1	75 - 100	20
Total Silver	11.1	11.2	mg/Kg	1	12.5	<0.0444	89	1	76.3 - 105	20
Total Zinc	37.8	38.0	mg/Kg	1	25.0	18.1	79	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 20803 Spiked Sample: 71581

[1] Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.
[2] Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Calcium [3]	87600	89700	mg/Kg	100	50.0	82800	96	2	75 - 125	20
Total Magnesium	10900	11300	mg/Kg	100	50.0	7060	77	4	75 - 125	20
Total Potassium	7240	7560	mg/Kg	100	50.0	2660	92	4	75 - 125	20
Total Sodium	5080	5250	mg/Kg	100	50.0	308	95	3	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 20750

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	12.3	98	90 - 110	2005-08-24

Standard (ICV-1) QC Batch: 20750

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/Kg	12.5	12.6	101	90 - 110	2005-08-24

Standard (CCV-1) QC Batch: 20750

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	12.4	99	90 - 110	2005-08-24

Standard (CCV-1) QC Batch: 20750

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/Kg	12.5	12.6	101	90 - 110	2005-08-24

Standard (ICV-1) QC Batch: 20768

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.00500	0.00491	98	90 - 110	2005-08-25

Standard (CCV-1) QC Batch: 20768

[3] Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.00500	0.00552	110	80 - 120	2005-08-25

Standard (ICV-1) QC Batch: 20784

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Arsenic		mg/Kg	1.00	1.00	100	90 - 110	2005-08-26
Total Barium		mg/Kg	1.00	0.994	99	90 - 110	2005-08-26
Total Cadmium		mg/Kg	1.00	0.995	100	90 - 110	2005-08-26
Total Chromium		mg/Kg	1.00	0.993	99	90 - 110	2005-08-26
Total Copper		mg/Kg	1.00	0.988	99	90 - 110	2005-08-26
Total Lead		mg/Kg	1.00	0.986	99	90 - 110	2005-08-26
Total Nickel		mg/Kg	1.00	0.993	99	90 - 110	2005-08-26
Total Selenium		mg/Kg	1.00	1.01	101	90 - 110	2005-08-26
Total Silver		mg/Kg	0.125	0.124	99	90 - 110	2005-08-26
Total Zinc		mg/Kg	1.00	0.992	99	90 - 110	2005-08-26

Standard (CCV-1) QC Batch: 20784

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/Kg	1.00	1.00	100	90 - 110	2005-08-26
Total Arsenic		mg/Kg	1.00	0.965	96	90 - 110	2005-08-26
Total Barium		mg/Kg	1.00	0.973	97	90 - 110	2005-08-26
Total Boron		mg/Kg	1.00	0.967	97	90 - 110	2005-08-26
Total Cadmium		mg/Kg	1.00	0.969	97	90 - 110	2005-08-26
Total Chromium		mg/Kg	1.00	0.972	97	90 - 110	2005-08-26
Total Cobalt		mg/Kg	1.00	1.04	104	90 - 110	2005-08-26
Total Copper		mg/Kg	1.00	0.962	96	90 - 110	2005-08-26
Total Iron		mg/Kg	1.00	1.05	105	90 - 110	2005-08-26
Total Lead		mg/Kg	1.00	0.989	99	90 - 110	2005-08-26
Total Manganese		mg/Kg	1.00	1.04	104	90 - 110	2005-08-26
Total Molybdenum		mg/Kg	1.00	1.03	103	90 - 110	2005-08-26
Total Nickel		mg/Kg	1.00	0.969	97	90 - 110	2005-08-26
Total Selenium		mg/Kg	1.00	0.965	96	90 - 110	2005-08-26
Total Silica		mg/Kg	5.00	5.15	103	90 - 110	2005-08-26
Total Silver		mg/Kg	0.125	0.121	97	90 - 110	2005-08-26
Total Zinc		mg/Kg	1.00	0.970	97	90 - 110	2005-08-26

Standard (CCV-2) QC Batch: 20784

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/Kg	1.00	1.00	100	90 - 110	2005-08-26
Total Boron		mg/Kg	1.00	0.967	97	90 - 110	2005-08-26

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Cobalt		mg/Kg	1.00	1.04	104	90 - 110	2005-08-26
Total Iron		mg/Kg	1.00	1.05	105	90 - 110	2005-08-26
Total Manganese		mg/Kg	1.00	1.04	104	90 - 110	2005-08-26
Total Molybdenum		mg/Kg	1.00	1.03	103	90 - 110	2005-08-26
Total Silica		mg/Kg	5.00	5.15	103	90 - 110	2005-08-26

Standard (ICV-1) QC Batch: 20803

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/Kg	50.0	48.7	97	90 - 110	2005-08-25
Total Magnesium		mg/Kg	50.0	49.8	100	90 - 110	2005-08-25
Total Potassium		mg/Kg	50.0	52.9	106	90 - 110	2005-08-25
Total Sodium		mg/Kg	50.0	53.1	106	90 - 110	2005-08-25

Standard (CCV-1) QC Batch: 20803

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/Kg	50.0	46.7	93	90 - 110	2005-08-25
Total Magnesium		mg/Kg	50.0	47.5	95	90 - 110	2005-08-25
Total Potassium		mg/Kg	50.0	48.2	96	90 - 110	2005-08-25
Total Sodium		mg/Kg	50.0	50.2	100	90 - 110	2005-08-25

Standard (ICV-1) QC Batch: 20819

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/Kg as CaCo3	250	240	96	90 - 110	2005-08-26

Standard (CCV-1) QC Batch: 20819

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/Kg as CaCo3	250	244	98	90 - 110	2005-08-26

Standard (CCV-1) QC Batch: 20874

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/Kg	50.0	41.5	83	80 - 120	2005-08-29
1,1-Dichloroethene		µg/Kg	50.0	48.8	98	80 - 120	2005-08-29
Chloroform		µg/Kg	50.0	41.1	82	80 - 120	2005-08-29
1,2-Dichloropropane		µg/Kg	50.0	42.1	84	80 - 120	2005-08-29
Toluene		µg/Kg	50.0	47.0	94	80 - 120	2005-08-29
Chlorobenzene		µg/Kg	50.0	49.4	99	80 - 120	2005-08-29
Ethylbenzene		µg/Kg	50.0	47.0	94	80 - 120	2005-08-29

Report Date: August 23, 2005
Marbob Energy Corp.

Work Order: 5082226
Loco Hills,NM

Page Number: 14 of 14

5082226

R. T. Hicks Consultants, Ltd.

901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, New Mexico 87104
Phone: (505) 266-5004
Fax: (505) 266-0745

M050802

Chain of Custody

Date 8/22/05 Page 1 of 1

Lab Name: Trace Analysis
Address: 6701 Aberdeen Avenue, Suite 9
Lubbock, Texas 79424
Telephone: 800-378-1296

Samplers (SIGNATURES)

Sample Identification	Matrix	Date	Time	Sample Type: G - Grab, C- Composite	BTEX (EPA 8021B) 8260	MTBE (EPA 8021B)	SVOC (EPA 8270)	PAH (EPA 8270)	VOC (EPA 8260)	TPH (EPA 418.1)	TPH (TX-1005)	TPH (TX-1005)	GRO (EPA 8015G)	DRO (EPA 8015D)	TDS (EPA 160.1)	Anions: SO_4, Cl & HCO_3	Cations: Ca, Mg, K & Na	TDS	17 WQCC Metals	Ra 226 & Ra 228					Number of Containers
Cell 1 71581	Soil	8/19/05	1000	C	✓											✓	✓		✓	✓					4
Cell 2 71582	Soil	8/19/05	0850	C	✓											✓	✓		✓	✓					4

Project Information		Sample Receipt
Project Name:	Marbob Energy Corp.	Total Containers:
Project Location:	Loco Hills, NM	COC Seals:
Project Manager:	Gil Van Deventer	Rec'd Good Cond/Cold:
Cost Center No.:		Conforms to Records:
Shipping ID No.:		Lab No.:
Bill to (see below):	R. T. Hicks Consultants, Ltd.	
Special Instructions:	Fax results to: (413) 403-9968 email to gilgrthickscons ults. com	

Relinquished By: (1) (Company)	Relinquished By: (2) (Company)	Relinquished By: (3) (Company)
R. T. Hicks Consultants, Ltd.		
(Printed Name) Gil Van Deventer	(Printed Name)	(Printed Name)
(Signature)	(Signature)	(Signature)
(Date) (Time)	(Date) (Time)	(Date) (Time)
Received By: (1) (Company)	**Received By: (2) (Company)**	**Received By: (3) (Company)**
Nell Green		
(Printed Name) Nell Green	(Printed Name)	(Printed Name)
(Signature) Trace Analysis	(Signature)	(Signature)
(Date) 8-22-05 (Time) 1:50pm	(Date) (Time)	(Date) (Time)

Copy signed original form for Trident Environmental records

63.

2609 North River
1 (800) 40

ARS Sample Delivery Group: ARS1-05-00443
Client Sample ID: Cell 1 71581
Sample Collection Date: 08/19/05 10:00
Sample Matrix: Soil/Solid

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units
RA-226	1.4000	1.3900	2.3000	NA	NA	pCi/g
RA-228	1.1400	0.4970	0.8370	NA	NA	pCi/g

Quality Assurance Review

LELAP Certificate# 30658 NELAP Certificate

AMERICAN RADIATION SERVICES, INC.

QC Results Report

Analysis Batch	QC Type	Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC

13 #NAME?

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

Request or PO Number:
ARS Sample Delivery Group: ARS1-05-00443
Date Received: 08/23/05 00:00
Report Date: 09/08/05 11:39

Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery

· Road, Port Allen, Louisiana 70767
1-4277 FAX (225) 381-2996

Request or PO Number: NA
ARS Sample ID: ARS1-05-00443-001
Date Received: 08/23/05 00:00
Report Date: 09/08/05 11:39

Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
EPA 901.1M	9/7/05 15:38	JMB	
EPA 901.1M	9/7/05 15:38	JMB	

other than the cost of the analysis itself. Reproduction of this report in

E87558

2609 North River
1 (800) 40

ARS Sample Delivery Group: ARS1-05-00443
Client Sample ID: Cell 2 71582
Sample Collection Date: 08/19/05 10:00
Sample Matrix: Soil/Solid

Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC	Qual	Analysis Units
RA-226	2.5722	1.3581	0.6510	NA	NA	pCi/g
RA-228	0.5309	0.3161	0.1250	NA	NA	pCi/g

Quality Assurance Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided (less than full requires the written consent of the client.

LELAP Certificate# 30658 NELAP Certificate

68.

AMERICAN RADIATION SERVICES, INC.

QC Results Report

Analysis Batch	QC Type	Analysis Description	Analysis Results	Analysis Error +/- 2 s	MDC	DLC

· Road, Port Allen, Louisiana 70767
1-4277 FAX (225) 381-2996

Request or PO Number: NA
ARS Sample ID: ARS1-05-00443-002
Date Received: 08/23/05 00:00
Report Date: 09/08/05 11:39

Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
EPA 901.1M	9/7/05 15:45	JMB	
EPA 901.1M	9/7/05 15:45	JMB	

other than the cost of the analysis itself. Reproduction of this report in

E87558

70.

13 #NAME?

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

Request or PO Number:
ARS Sample Delivery Group: ARS1-05-00443
Date Received: 08/23/05 00:00
Report Date: 09/08/05 11:39

Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery

71581-82

5082226

R. T. Hicks Consultants, Ltd.

901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, New Mexico 87104
Phone: (505) 266-5004
Fax: (505) 266-0745

M050802

Chain of Custody

Date 8/22/05 Page 1 of 1

Lab Name: Trace Analysis
Address: 6701 Aberdeen Avenue, Suite 9
Lubbock, Texas 79424
Telephone: 800-378-1296

Samplers (SIGNATURES)

Sample Identification	Matrix	Date	Time	Sample Type: G - Grab, C - Composite	BTEX (EPA 8021B) BTEX + MTBE 8260	MTBE (EPA 8021B)	SVOC (EPA 8270)	PAH (EPA 8270)	VOC (EPA 8260)	TPH (EPA 418.1)	TPH (TX-1005)	TPH (TX-1006)	GRO (EPA 8015G)	DRO (EPA 8015D)	TDS (EPA 160.1)	Anions: SO_4, Cl & HCO_3	Cations: Ca, Mg, K & Na	TDS	17 WQCC Metals	Ra 226 & Ra 228	Ag				Number of Containers
Cell 1 71581	Soil	8/19/05	1000	C	✓											✓	✓		✓	✓					4
Cell 2 71582	Soil	8/19/05	0850	C	✓											✓	✓		✓	✓					4

Project Information		Sample Receipt	
Project Name:	Marbob Energy Corp.	Total Containers:	
Project Location:	Loco Hills, NM	COC Seals:	
Project Manager:	Gil Van Deventer	Rec'd Good Cond/Cold:	
Cost Center No.:		Conforms to Records:	
Shipping ID No.:		Lab No.:	
Bill to (see below):	R. T. Hicks Consultants, Ltd.		
Special Instructions:	Fax results to: (413) 403-9968 email to gilerthicksconsults.com		

Relinquished By: (1) (Company)	Relinquished By: (2) (Company)	Relinquished By: (3) (Company)
R. T. Hicks Consultants, Ltd.		
(Printed Name) Gil Van Deventer	(Printed Name)	(Printed Name)
(Signature)	(Signature)	(Signature)
(Date) (Time)	(Date) (Time)	(Date) (Time)
Received By: (1) (Company)	**Received By: (2) (Company)**	**Received By: (3) (Company)**
Nell Green		
(Printed Name) Nell Green	(Printed Name)	(Printed Name)
(Signature) Trace Analysis	(Signature)	(Signature)
(Date) 8-22-05 (Time) 1:50pm	(Date) (Time)	(Date) (Time)

Copy signed original form for Trident Environmental records

9/13/05 - Faxed Radium Results 9/13F

Report Date: August 23, 2005 | Work Order: 5082226 | Page Number: 1 of 2
Marbob Energy Corp. | Loco Hills,NM

Summary Report

Gil Van Deventer
R. T. Hicks Consultants,Ltd.
901 Rio Grande Blvd. NW Suite F-142
Albuquerque,, NM 87104

Report Date: August 23, 2005
Work Order: 5082226

Project Name: Loco Hills,NM
Project Number: Marbob Energy Corp.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
71581	Cell 1	soil	2005-08-22	10:00	2005-08-22
71582	Cell 2	soil	2005-08-22	08:50	2005-08-22

	BTEX by 8260					MTBE by 8260
Sample - Field Code	Benzene (µg/Kg)	Toluene (µg/Kg)	Ethylbenzene (µg/Kg)	m,p-Xylene (µg/Kg)	o-Xylene (µg/Kg)	MTBE (µg/Kg)
71581 - Cell 1	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
71582 - Cell 2	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0

Sample: 71581 - Cell 1

Param	Flag	Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/Kg as CaCo3	1.00
Carbonate Alkalinity		5.00	mg/Kg as CaCo3	1.00
Bicarbonate Alkalinity		113	mg/Kg as CaCo3	4.00
Total Alkalinity		118	mg/Kg as CaCo3	4.00
Chloride		9.40	mg/Kg	1.00
Total Aluminum		17400	mg/Kg	10.0
Total Arsenic		<1.00	mg/Kg	1.00
Total Barium		424	mg/Kg	1.00
Total Boron		50.4	mg/Kg	10.0
Total Cadmium		<0.500	mg/Kg	0.500
Total Calcium		82800	mg/Kg	50.0
Total Chromium		9.94	mg/Kg	1.00
Total Cobalt		<10.0	mg/Kg	10.0
Total Copper		4.53	mg/Kg	0.500
Total Iron		12900	mg/Kg	10.0
Total Mercury		0.0450	mg/Kg	0.0400
Total Lead		29.9	mg/Kg	1.00
Total Magnesium		7060	mg/Kg	50.0
Total Manganese		220	mg/Kg	1.00
Total Molybdenum		<2.00	mg/Kg	2.00
Total Nickel		<10.0	mg/Kg	10.0
Total Potassium		2660	mg/Kg	50.0
Total Selenium		<1.00	mg/Kg	1.00

continued ...

Report Date: August 23, 2005 Work Order: 5082226 Page Number: 2 of 2
Marbob Energy Corp. Loco Hills,NM

sample 71581 continued ...

Param	Flag	Result	Units	RL
Total Silica		722	mg/Kg	10.0
Total Silver		<0.200	mg/Kg	0.200
Total Sodium		308	mg/Kg	50.0
Total Zinc		18.1	mg/Kg	1.00
Sulfate		30.6	mg/Kg	2.00

Sample: 71582 - Cell 2

Param	Flag	Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/Kg as CaCo3	1.00
Carbonate Alkalinity		8.00	mg/Kg as CaCo3	1.00
Bicarbonate Alkalinity		52.0	mg/Kg as CaCo3	4.00
Total Alkalinity		60.0	mg/Kg as CaCo3	4.00
Chloride		10.8	mg/Kg	1.00
Total Aluminum		10400	mg/Kg	10.0
Total Arsenic		<1.00	mg/Kg	1.00
Total Barium		28.2	mg/Kg	1.00
Total Boron		34.6	mg/Kg	10.0
Total Cadmium		<0.500	mg/Kg	0.500
Total Calcium		16900	mg/Kg	50.0
Total Chromium		6.95	mg/Kg	1.00
Total Cobalt		<10.0	mg/Kg	10.0
Total Copper		3.36	mg/Kg	0.500
Total Iron		9330	mg/Kg	10.0
Total Mercury		<0.0400	mg/Kg	0.0400
Total Lead		19.5	mg/Kg	1.00
Total Magnesium		4030	mg/Kg	50.0
Total Manganese		149	mg/Kg	1.00
Total Molybdenum		<2.00	mg/Kg	2.00
Total Nickel		<10.0	mg/Kg	10.0
Total Potassium		1810	mg/Kg	50.0
Total Selenium		<1.00	mg/Kg	1.00
Total Silica		620	mg/Kg	10.0
Total Silver		<0.200	mg/Kg	0.200
Total Sodium		240	mg/Kg	50.0
Total Zinc		13.4	mg/Kg	1.00
Sulfate		87.5	mg/Kg	2.00

71581-82

3082226

R. T. Hicks Consultants, Ltd.

901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, New Mexico 87104
Phone: (505) 266-5004
Fax: (505) 266-0745

M050802

Chain of Custody

Date 8/22/05 Page 1 of 1

Lab Name: Trace Analysis
Address: 6701 Aberdeen Avenue, Suite 9
Lubbock, Texas 79424
Telephone: 800-378-1296

Samplers (SIGNATURE): Gilbert Van Deventer

Sample Identification	Matrix	Date	Time	Sample Type: G - Grab, C- Composite	Analysis Request: BTEX (EPA 8021B)	MTBE (EPA 8021B)	SVOC (EPA 8270)	PAH (EPA 8270)	VOC (EPA 8260)	TPH (EPA 418.1)	TPH (TX-1005)	TPH (TX-1006)	GRO (EPA 8015D)	DRO (EPA 8015D)	TDS (EPA 160.1)	Anions: SO_4, Cl & HCO_3	Cations: Ca, Mg, K & Na	TDS	17 WQCC Metals	Ra 226 & Ra 228				Number of Containers
Cell 1 71581	Soil	8/19/05	1000	C	✓											✓	✓		✓	✓			✓	4
Cell 2 71582	Soil	8/19/05	0850	C	✓											✓	✓		✓	✓			✓	4

Project Information		Sample Receipt	Relinquished By: (1) (Company)	Relinquished By: (2) (Company)	Relinquished By: (3) (Company)
Project Name:	Marbob Energy Corp.	Total Containers:	R. T. Hicks Consultants, Ltd.		
Project Location:	Loco Hills, NM	COC Seals:	(Printed Name) Gil Van Deventer	(Printed Name)	(Printed Name)
Project Manager:	Gil Van Deventer	Rec'd Good Cond/Cold:	(Signature)	(Signature)	(Signature)
Cost Center No.:		Conforms to Records:	(Date) (Time)	(Date) (Time)	(Date) (Time)
Shipping ID No.:		Lab No.:	Received By: (1) (Company)	Received By: (2) (Company)	Received By: (3) (Company)
Bill to (see below):	R. T. Hicks Consultants, Ltd.		Nell Green		
Special Instructions:	Fax results to: (413) 403-9968		(Printed Name) Nell Green	(Printed Name)	(Printed Name)
	email to gilert@rthicksconsults.com		(Signature) TraceAnalysis	(Signature)	(Signature)
			(Date) 8-22-05 (Time) 1:50pm	(Date) (Time)	(Date) (Time)

Copy signed original form for Trident Environmental records

09/13/2005 10:47 8067941298 TRACEANALYSIS PAGE 03

15.

APPENDIX B

WELL SAMPLING DATA FORM

CLIENT: Marbob Energy Corp. WELL ID: MW-1

LEASE Burch Keely Unit DATE: September 30, 2005

SITE NAME: Marbob Land Sale SAMPLER: Elvin Chavez

SITE LOCATION: T17S-R30E-SEC 30

PURGING METHOD: ☑ Hand Bailed ☐ Pump* If Pump, Type: _____

SAMPLING METHOD: ☑ Disposable Bailer ☐ Direct from Discharge Hose ☐

DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:

☑ Gloves ☑ Alconox ☑ Distilled Water Rinse ☐ Other: _____

DISPOSAL METHOD OF PURGE WATER: ☑ Surface Discharge ☐ Drums ☐Disposal Facility

TOTAL DEPTH OF WELL: 271.60 Feet

DEPTH TO WATER: 264.50 Feet

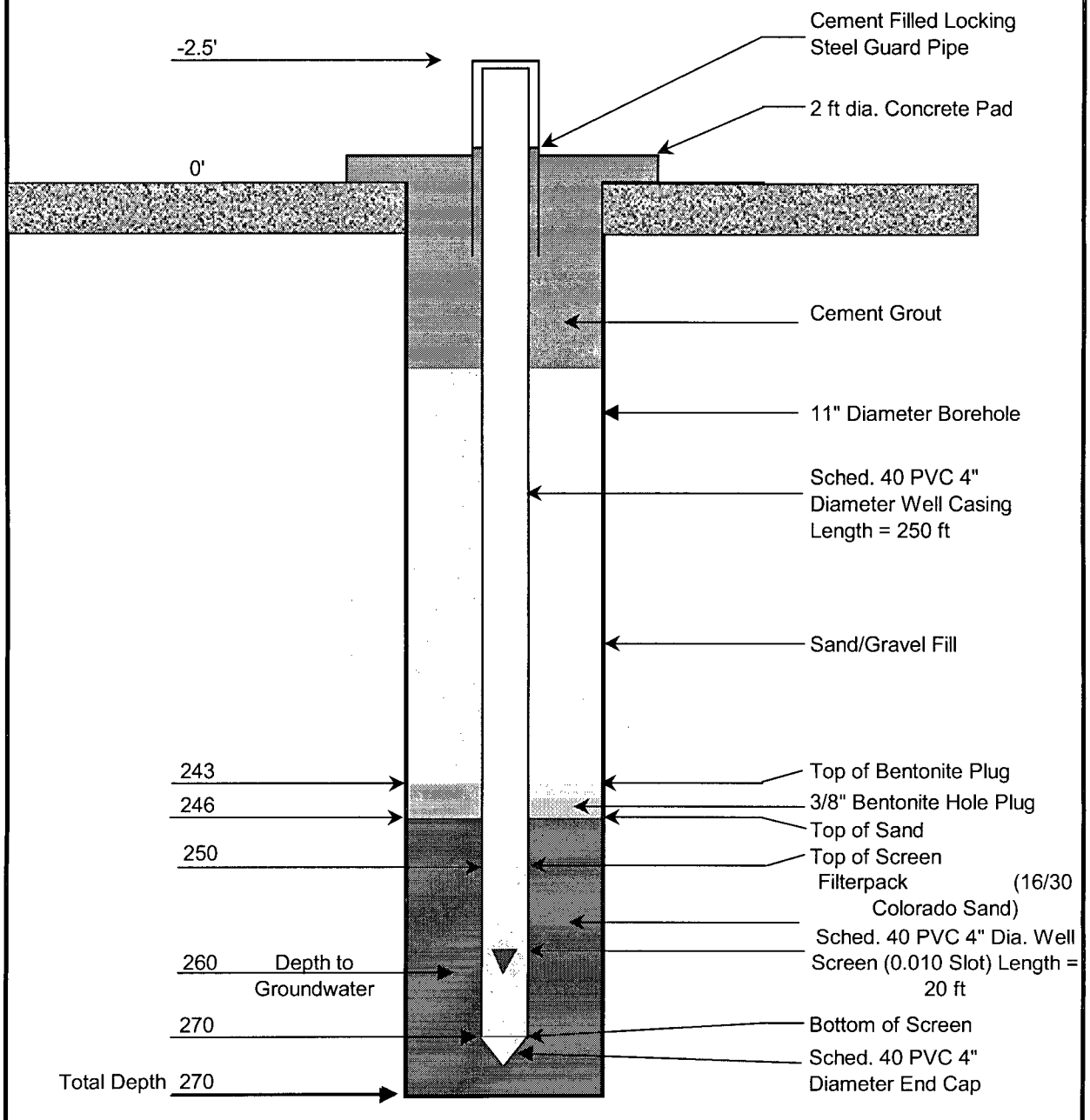
HEIGHT OF WATER COLUMN: 7.10 Feet — 13.9 Minimum gallons to purge 3 well volumes

WELL DIAMETER: 4.0 Inch — _____ Actual Gallons purged

DATE	TIME	VOLUME PURGED	TEMP. °C	COND. mS/cm	pH		PHYSICAL APPEARANCE AND REMARKS
9/28/05	11:30	5	22.5	5.72	7.64		Bailed dry
9/29/05	15:15	10	21.6	7.08	7.02		Bailed dry
9/30/05	15:08	7	21.1	7.15	7.34		Collected sample

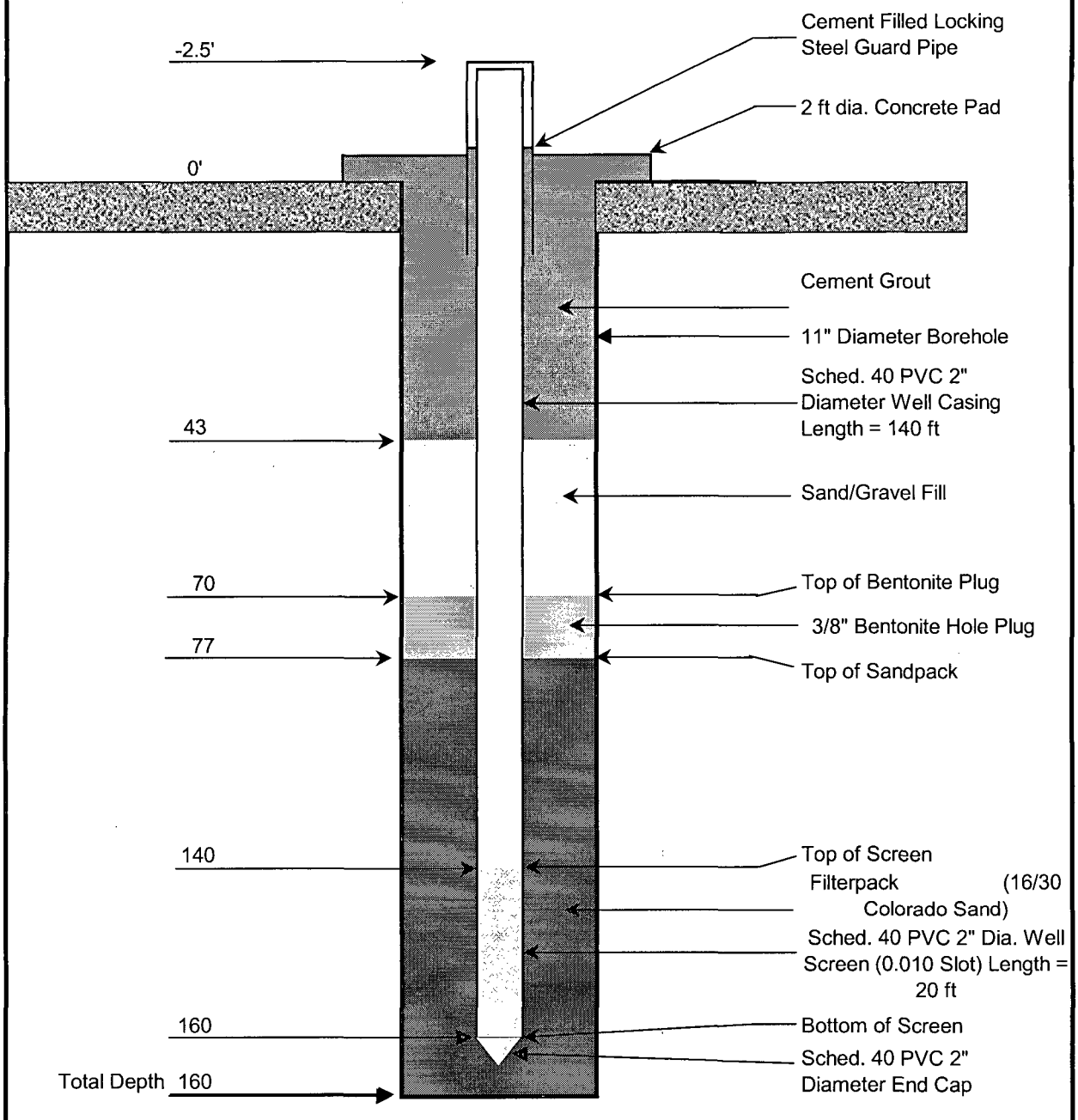
COMMENTS: Delivered samples to Assaigai Analytical Laboratories, Inc. (Albuquerque NM) for analysis of: anions (chloride, fluride, sulfate, and bicarbonate), cations (sodium, calcium, potassium, and magnesium), and TDS

MONITORING WELL CONSTRUCTION DIAGRAM



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW, Suite F-142 Albuquerque, New Mexico 87104	Company: Marbob Energy Co. Site: Caliche Pit Date: 8/18/2005 Geologist: Gil Van Deventer	MW-1d Rustler Monitoring Well Construction Diagram

MONITORING WELL CONSTRUCTION DIAGRAM



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW, Suite F-142 Albuquerque, New Mexico 87104	Company: Marbob Energy Co. Site: Caliche Pit Date: 8/18/2005 Geologist: Gil Van Deventer	MW-1s Santa Rosa Monitoring Well Construction Diagram

APPENDIX C

NOTICE OF PUBLICATION

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.

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

82.

R. T. HICKS CONSULTANTS, LTD.
901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

April 12, 2007

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:

As we discussed on April 3, 2007, Marbob Energy Corporation is completing their acquisition of the property associated with the above-referenced permit application (submitted to NMOCD in February 2006). We issued public notice in accordance with the rules existing at the time and NMOCD received no comments or requests for a public hearing. We now ask that NMOCD complete the review of the permit application under Rule 711.

We understand that NMOCD may provide conditional approval of this facility pending NMOCD review of proposed submittals outlined in our application. For example Section 7B of the application states:

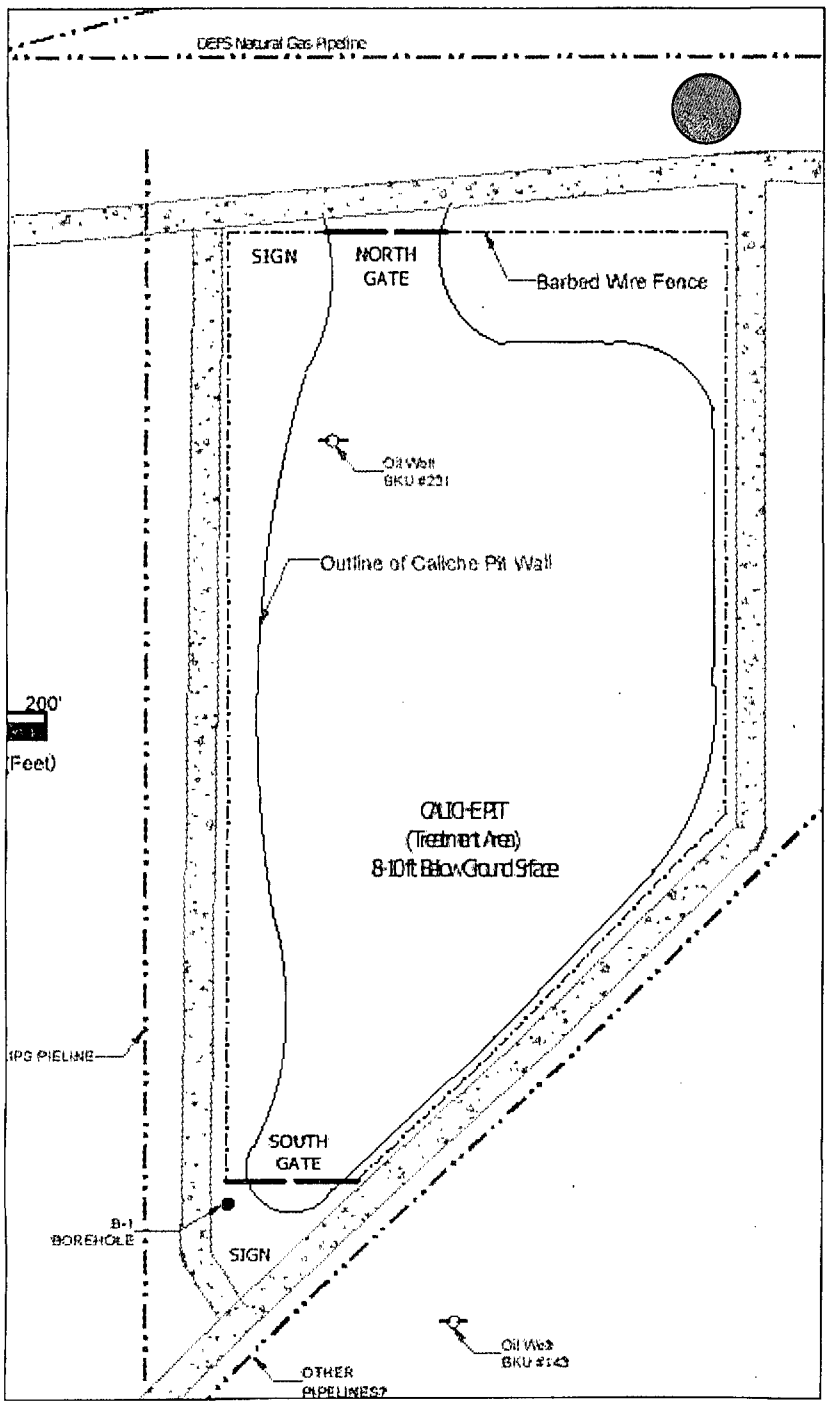
> **Landfill Operation**
> The operation of the landfill portion of the facility is outlined in general terms below. We intend to perform several tests of this landfill protocol with reserve pit material that is currently at a drilling site waiting excavation and disposal. This protocol will be observed 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.

Therefore, we respectfully request permission to move forward with these pilot tests as soon as possible. We understand that one of the conditions of NMOCD approval will be a satisfactory review of the plans and specifications generated after the pilot testing program.

Another condition of approval that we discussed in the field is the installation of a second monitoring well at the site. Figure 1 shows the location of this proposed well within the area of the green circle. Site conditions dictate that we use mud rotary at the site, therefore detecting where (or if) we encounter ground water (as defined by the statute and Rules) may be very difficult. We propose to employ the same design for this second well as we used for MW-1 (shown as B-1 in the lower

Case 14102
OCD Motion to Dismiss
Exhibit No. E

left side of Figure 1). We attach the construction diagram of MW-1 for your reference.



Finally, we also understand that we must eventually comply with the new Surface Waste Management Rules. Section 14 of the permit application outlines a series of permit conditions and submissions that applied to the DRAFT Rule (November

2005) circulating at the time of our application. After completion of the pilot testing program, we will submit the plans and specifications discussed above and a revision to Section 14 that ties the commitments and submissions to Part 36 of the NMOCD Rules.

We look forward to a rapid response to our request to conduct the pilot-scale testing program.

Sincerely,
R.T. Hicks Consultants, Ltd.

Randall T. Hicks
Principal

Copy: Rand French, Marbob Energy

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

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

May 7, 2007

Mr. Rand French
Marbob Energy Corporation
PO Box 227
Artesia, New Mexico 88211-0227

New Mexico

RE: Marbob Energy Corporation Surface Waste Management Permit Application Section 19 and 30, Township 17 South, Range 30 East

Dear Mr. French:

The New Mexico Oil Conservation Division (OCD) has received a letter, dated April 12, 2007, submitted by Mr. Randal T. Hicks of R. T. Hicks Consultants, LTD on the behalf of Marbob Energy Corporation's (Marbob) requesting OCD to allow the operation of a surface waste management facility without a permit. An OCD file review has demonstrated that a permit was never issued for this proposed facility. Any proposed conditional approvals requested in the original application were never approved in a permit, therefore they remain proposed conditional approvals. The request is hereby denied. If Marbob chooses to proceed to permit the proposed facility, OCD will require the submittal of an application in accordance with 19.15.36 NMAC.

The letter also indicates that Mr. Hicks has been contacting an OCD employee (Mr. Ed Martin) that is no longer involved in the permitting of surface waste management facilities. Mr Brad A. Jones is the proper contact regarding surface waste management and has been since August of 2006. If you have any questions regarding this matter, please contact Mr. Jones at (505) 476-3487 or brad.a.jones@state.nm.us.

Sincerely,

Wayne Price
Environmental Bureau Chief

LWP/baj

cc: OCD District II Office, Artesia
Mr. Randall T. Hicks, R.T. Hicks Consultants, Ltd., Albuquerque, NM

Case 14102
OCD Motion to Dismiss
Exhibit No. F