Form 3160-5
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OM B No 1004-0137
Expires: March 31, 2007

# SUNDRY NOTICES AND REPORTS ON WELLS

***Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160 - 3 (APD) for such proposals.***

***SUBMIT IN TRIPLICATE*** *- Other instructions on reverse side.*

5. Lease Serial No.
**NMNM99041**

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well
☑ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
**Spruce Goose Federal #1**

2 Name of Operator **Marbob Energy Corporation**

9. API Well No.
**30-025-38445**

3a. Address
**PO Box 227, Artesia, NM 88211-0227**

3b. Phone No. *(include area code)*
**575-748-3303**

10 Field and Pool, or Exploratory Area
**Lusk; Bone Spring, North**

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
**330 FNL 430 FEL, Sec. 7-T19S-R32E, Unit A**

11. County or Parish, State
**Lea Co., NM**

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | | |
|---|---|---|---|---|
| ☑ Notice of Intent | ☐ Acidize | ☐ Deepen | ☐ Production (Start/Resume) | ☐ Water Shut-Off |
| ☐ Subsequent Report | ☐ Alter Casing | ☐ Fracture Treat | ☐ Reclamation | ☐ Well Integrity |
| ☐ Final Abandonment Notice | ☐ Casing Repair | ☐ New Construction | ☐ Recomplete | ☐ Other |
| | ☐ Change Plans | ☐ Plug and Abandon | ☐ Temporarily Abandon | |
| | ☐ Convert to Injection | ☐ Plug Back | ☑ Water Disposal | |

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

**Marbob Energy Corporation requests approval for disposal of produced water.**

**Attached please find the Water Production & Disposal Information Sheet, a current water analysis and a copy of the state issued permit.**

14 I hereby certify that the foregoing is true and correct
Name *(Printed/Typed)* **Diana J. Briggs** Title **Production Analyst**

Signature Date **01/23/2008**

## THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by Title Geologist Date APR 08 2008

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon. Office KZ

Title 18 U.S.C Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*(Instructions on page 2)*

The following information is needed before your disposal of produced water can be approved, per Onshore Oil & Gas Order #7.

You may attach this information to your Sundry Notice (3160-5). Submit all required information as per this attachment, submit a Sundry Notice(3160-5),one original and five copies to this office within the required time.

SPRUCE GOOSE FEDERAL #1

1. Name(s) of all formation(s) producing water on the lease. Bone Spring

2. Amount of water produced from all formations in barrels per day. 159 BPD

3. A CURRENT water analysis of produced water from all zones showing at least the total dissolved solids, ph, and the concentrations of chlorides and sulfates. Attached

4. How water is stored on the lease. 500 bbl figerglass tank

5. How water is moved to the disposal facility. Polyethylene pipeline

6. Identify the Disposal Facility by:
   A. Operators' Name Marbob Energy Corporation
   B. Well Name Lusk Deep Unit A
   C. Well type and well number SWD #16
   D. Location by quarter/quarter, section, township, and range Lot 4, Sec. 18-T19S-R32E

7. A copy of the Underground Injection Control Permit - issued for the injection well by the Environmental Protection Agency or New Mexico Oil Conservation Division where the State has achieved primacy.

   Administrative Order SWD-1043 attached

- Diana
- wtr File
- Will File

Analytical Laboratory Report for:

**MARBOB ENERGY CORPORATION**

BJ Chemical Services

Account Representative:
Polk, Bill

# Production Water Analysis

**Listed below please find water analysis report from: SPRUCE GOOSE FEDERAL, 1**

| | | | |
|---|---|---|---|
| **Lab Test No:** | **2007155008** | **Sample Date:** | **11/21/2007** |
| **Specific Gravity:** | **1.117** | | |
| **TDS:** | **179658** | | |
| **pH:** | **6.55** | | |

| Cations: | mg/L | as: |
|---|---|---|
| Calcium | 1860 | $(Ca^{++})$ |
| Magnesium | 499 | $(Mg^{++})$ |
| Sodium | 65500 | $(Na^{+})$ |
| Iron | 20.90 | $(Fe^{++})$ |
| Potassium | 1598.0 | $(K^{+})$ |
| Barium | 1.40 | $(Ba^{++})$ |
| Strontium | 337.00 | $(Sr^{++})$ |
| Manganese | 0.24 | $(Mn^{++})$ |
| **Anions:** | **mg/L** | **as:** |
| Bicarbonate | 342 | $(HCO_3^{-})$ |
| Sulfate | 500 | $(SO_4^{=})$ |
| Chloride | 109000 | $(Cl^{-})$ |
| **Gases:** | | |
| Carbon Dioxide | 120 | $(CO_2)$ |
| Hydrogen Sulfide | 17 | $(H_2S)$ |

MARBOB ENERGY CORPORATION

Lab Test No: 2007155008

## DownHole SAT™ Scale Prediction @ 100 deg. F

BJ Chemical Services

| Mineral Scale | Saturation Index | Momentary Excess (lbs/1000 bbls) |
|---|---|---|
| Calcite (CaCO3) | 1.24 | .0118 |
| Aragonite (CaCO3) | 1.05 | .0029 |
| Witherite (BaCO3) | < 0.001 | -27.83 |
| Strontianite (SrCO3) | .164 | -.457 |
| Magnesite (MgCO3) | .465 | -.0592 |
| Anhydrite (CaSO4) | .0955 | -707.16 |
| Gypsum (CaSO4*2H2O) | .109 | -709.07 |
| Barite (BaSO4) | .909 | -.083 |
| Celestite (SrSO4) | .213 | -212.26 |
| Silica (SiO2) | 0 | -42.85 |
| Brucite (Mg(OH)2) | < 0.001 | -.451 |
| Magnesium silicate | 0 | -111.01 |
| Siderite (FeCO3) | 11.12 | .0643 |
| Halite (NaCl) | .113 | -114518 |
| Thenardite (Na2SO4) | < 0.001 | -85272 |
| Iron sulfide (FeS) | 18.3 | 1.57 |

**Interpretation of DHSat Results:**

**The Saturation Index is calculated for each mineral species independently and is a measure of the degree of supersaturation (driving force for precipitation) under the conditions modeled. This value ranges from 0 to infinity with 1.0 representing a condition of equilibrium where scale will neither dissolve nor precipitate. Values less than 1.0 are undersaturated and values greater than 1.0 are supersaturated. The scale is logarithmic, i.e. a Saturation Index of 3 is 10 times more saturated than a value of 2.**

**The Momentary excess is a measure of how much scale would have to precipitate to bring the system back to a non-scaling condition. This value ranges from negative (dissolving) infinity to positive (precipitating) infinity. The Momentary Excess represents the amount of scale possible while the Saturation Level represents the probability that scale will form.**

NEW MEXICO ENERGY, MINERALS and
NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

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

ADMINISTRATIVE ORDER SWD-1043

**APPLICATION OF MARBOB ENERGY CORPORATION FOR PRODUCED WATER DISPOSAL, LEA COUNTY, NEW MEXICO.**

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Rule 701(B), Marbob Energy Corporation made application to the New Mexico Oil Conservation Division for permission to utilize for produced water disposal its Delaware Federal Well No. 16 (API No. 30-025-35053) located 785 feet from the South line and 660 feet from the West line of Section 18, Township 19 South, Range 32 East, NMPM, Lea County, New Mexico.

THE DIVISION DIRECTOR FINDS THAT:

(1) The application has been duly filed under the provisions of Rule 701(B) of the Division Rules and Regulations;

(2) Satisfactory information has been provided that all offset operators and surface owners have been duly notified;

(3) The applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 will be met; and

(4) No objections have been received within the waiting period prescribed by said rule.

IT IS THEREFORE ORDERED THAT:

The applicant is hereby authorized to utilize its Delaware Federal Well No. 16 (API No. 30-025-35053) located 785 feet from the South line and 660 feet from the West line of Section 18, Township 19 South, Range 32 East, NMPM, Lea County, New Mexico, in such manner as to permit the injection of produced water for disposal purposes into the Strawn formation through perforations from approximately 11,260 feet to 11,306 feet and through plastic-lined tubing set in a packer located within 100 feet of the top of the injection interval.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

After installing injection tubing, the casing shall be pressure tested from the surface to the packer setting depth to assure the integrity of said casing.

The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

The wellhead injection pressure on the well shall be limited to **no more than 2,252 psi**. In addition, the injection well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface injection pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formation. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

The operator shall notify the supervisor of the Hobbs district office of the Division of the date and time of the installation of disposal equipment and of any mechanical integrity test so that the same may be inspected and witnessed.

The operator shall immediately notify the supervisor of the Hobbs district office of the Division of the failure of the tubing, casing, or packer in said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

PROVIDED FURTHER THAT, jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh water or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein.

The operator shall provide written notice of the date of commencement of injection to the Hobbs district office of the Division.

The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Rule Nos. 706 and 1120 of the Division Rules and Regulations.

The injection authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject well, provided

however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

Approved at Santa Fe, New Mexico, on September 12, 2006.

MARK E. FESMIRE, P.E.
Director

MEF/wvjj

cc: Oil Conservation Division – Hobbs
Bureau of Land Management – Carlsbad