DATE IN 10/5/12	SUSPENSE	E. W R JONES	LOGGED IN 10/22/12	TYPE SWD	APP NO. PKVR1229645112

Letter 11/7/12
Reply 3/14/13

ABOVE THIS LINE FOR DIVISION USE ONLY 1408

Basic Energy Services LP
Red Hawk 32 State #1

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505

ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication
☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ■ SWD ☐ IPI ☐ EOR ☐ PPR

[D] Other: Specify _____

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or ☐ Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ☐ Offset Operators, Leaseholders or Surface Owner

[C] ☐ Application is One Which Requires Published Legal Notice

[D] ☐ Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ■ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☐ Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

David H Alvarado		SENM FLUID SALES DISTRICT MGR.	9/17/12
Print or Type Name	Signature	Title	Date

david.alvarado@basicenergyservices.com
e-mail Address

BASIC
ENERGY SERVICES

September 18, 2012

Basic Energy Services L.P.
NM Fluid Sales

Per New Mexico Oil Conservation Division Rules and Regulations, please find enclosed a copy of NMOCD form C-108.

Basic Energy Services L.P. P.O. Box 10460, Midland Texas 79702 has filed form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division.

Basic Energy Services L.P. is seeking administrative approval of the conversion of the RedHawk 32 State # 1 API # 3002531888, 1980 FSL & 810 FWL, Unit "L", Section 32, Township 19 South, Range 34 East, Lea County New Mexico from a abandon plugged gas well to a Lower Delaware commercial salt water disposal well.

The disposal interval would be from 6800' – 7600'.

Disposal fluid would be produced water trucked in from numerous producing formations in Southeastern New Mexico only by Basic Energy Services L.P. trucking department. Basic Energy Services L.P. anticipates a disposal rate of 3500 BWPD with a maximum disposal rate of 5000 BWPD.

The anticipated disposal surface pressure of the RedHawk 32 State # 1 approximated at 1100 psi with a maximum disposal pressure of 1450 psi if granted.

Well is located 26.45 miles west from North Grimes Street Hobbs NM on HWY 62/180 turn right travel west .98 mile turn north .33 mile then turn east .13 mile to location.

Sincerely,

Lynn Wigington
VP Permian Basin Unit
P.O. Box 10460
Midland Texas 79702
Phone: 432.620.5500
lynn.wigington@basicenergyservices.com

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance __SWD__ Disposal _____ Storage
Application qualifies for administrative approval? __x__ Yes _____ No

II. OPERATOR: **Basic Energy Services LP**

ADDRESS: **P.O. Box 10460 Midland, Texas 79702**

CONTACT PARTY: **DAVID ALVARADO** PHONE: **575-746-2072**

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? _____ Yes _____ **X** _____ No
If yes, give the Division order number authorizing the project: _____

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).

*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

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

NAME: **David H. Alvarado** TITLE: **SENM District Fluid Sales Mgr.**

SIGNATURE: David H. Alvarado DATE: 9-17-12

E-MAIL ADDRESS: **david.alvarado@basicenergyservices.com**

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

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

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;

(3) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

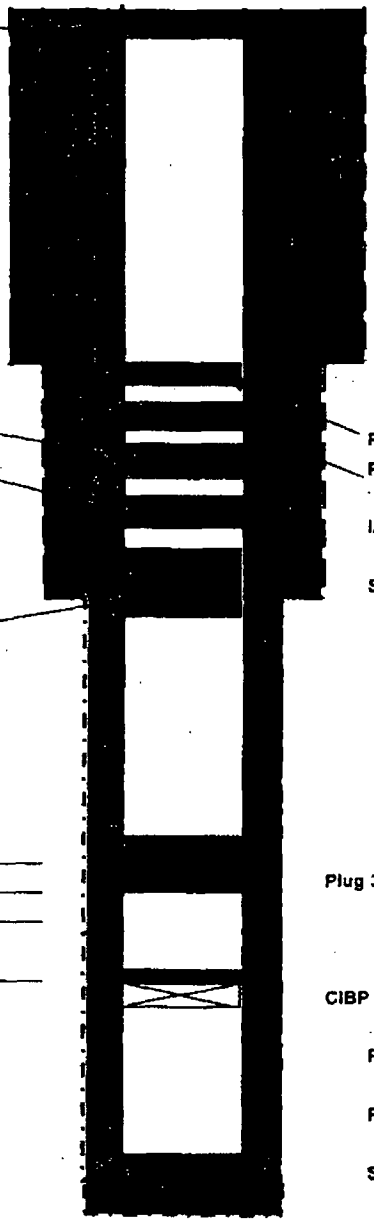
NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

Current

Basic Energy Services LP
Red Hawk 32 State # 1
1980' FSL, 810' FWL, Unit (L), Sec 32, T19S, R34E Lea Co.
API # 30-025-31888

Perf @ 60' 30sx to Surf

Tree Conection P&A



Surface Casing: 13 3/8" 54.5#

Surface Hole
Bit Size 17 1/2"

Setting Depth @ 525' 500sx
Circulated to Surf

Plug 3228' 25sx

Perf @ 575' pump 40 sx with Pkr. tag @ 413'

Plug 4650' 25sx tag 4481'

Plug 1832' 30sx tag 1647'

Inter. Hole
Bit Size 12 1/4"

Interm. Casing: 8 5/8" 32#

Setting Depth: 5241' 3250sx DV @3485'
Circulated to Surf.

Plug 5288' 30sx tag TOC 5124'

Cement Data:

Lead -

Tail -

Note -

Plug 30sx @ 8315' est TOC @ 8012'

CIBP @10,050' + 35' Cmt.

PBTD: 13,568"

Production Csg.: 5 1/2" 17#

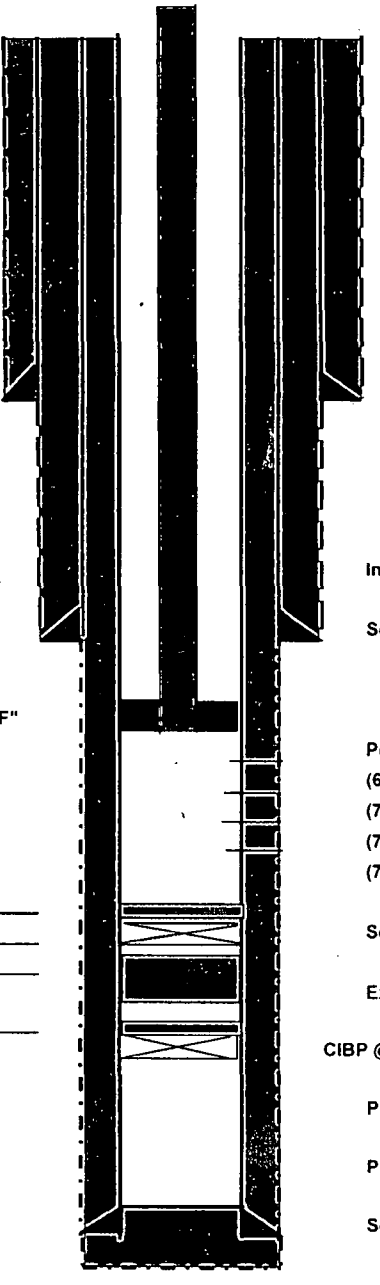
Bit size 7 7/8"

Setting Depth @ 13,658' 1850sx DV @ 9633'
Cur culated to Surf

TD @ 13,660'

Proposed

Basic Energy Services LP
Red Hawk 32 State # 1
1980' FSL, 810' FWL, Unit (L), Sec 32, T19S, R34E Lea Co.
API # 30-025-31888



Tree Connection 2 7/8" J-55 PCT

Surface Hole
Bit Size 17 1/2"

Surface Casing: 13 3/8" 54.5#

Setting Depth @ 525' 500sx
Circulated to Surf
Existing

Inter. Hole
Bit Size 12 1/4"

Interm. Casing: 8 5/8" 32#

Setting Depth: 5,241' 3,250sx DV @ 3,485'
Circulated to Surf.
Existing

Packer Set @ 6,750'
Packer 5 1/2" X 2 7/8" AS1-X(NP) (SS) 2.25" "F"
2 7/8" T-2 on/off tool SS top NP btm.

Perforation Intervals as Follows:
(6,800'- 6,876'), (6,900'- 6,986'), (7,000'-7,068')
(7,110'-7,218'), (7,226'-7,242'), (7,256'-7,277')
(7,286'-7304'), (7,322'-7,344'), (7,376'-7392')
(7,406'-7,484'),(7,504'-7,556') Net pay 556'

Cement Data:

Lead -

Tail -

Note -

Set CIBP @7,700 + 25'cmt. on top

Existing plug @ (8,012' - 8315')

CIBP @ 10,050' + 35' Cmt.

PBTD: 13,568"

Production Csg.: 5 1/2" 17# Existing

Bit size 7 7/8"

Setting Depth @ 13,658' 1,850sx DV @ 9,633'
Circulated to Surf
Existing

TD @ 13,660'

Side 1

INJECTION WELL DATA SHEET

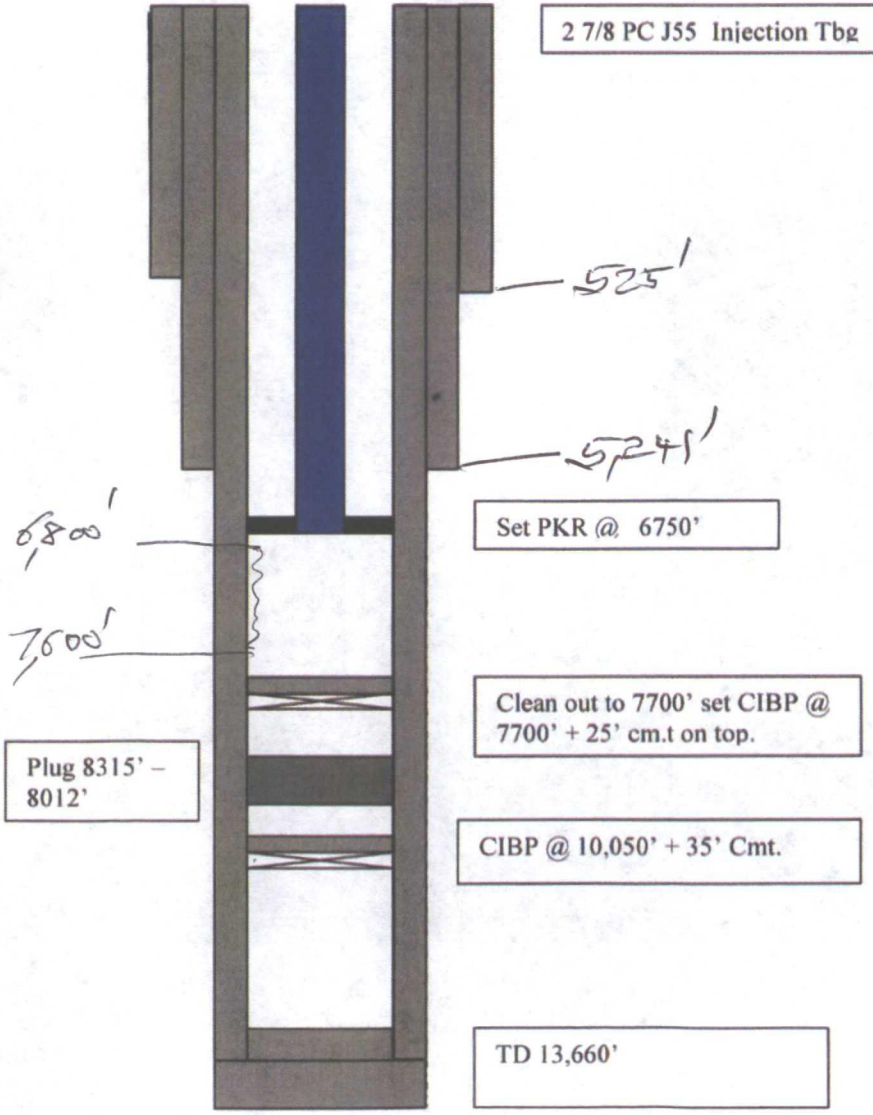
OPERATOR: **Basic Energy Services LP**

WELL NAME & NUMBER: **Red Hawk 32 State # 1**

WELL LOCATION: **1980' FSL, 810' FWL L 32 T19S 34E ,**

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: **17 ½"** Casing Size: **13 3/8 54 #**

Cemented with: **500** sx. *or* _____ ft³

Top of Cement: **Surface** Method Determined: **C-105**

Intermediate Casing

Hole Size: 12 ¼" Casing Size: **8 5/8 " 32#**

Cemented with: **5241** sx. *or* _____ ft³

Top of Cement: **Surface** Method Determined: **C-105**

Production Casing

Hole Size: **7 7/8 "** Casing Size: **5 ½" 17#**

Cemented with: **1850** sx. *or* _____ ft³

Top of Cement: **Surface** Method Determined: **C-105**

Total Depth: 13,660'

Injection Interval

6800' feet To **7600'**

(Perforated)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: **2 7/8 J-55** Lining Material: Plastic Coated

Type of Packer: **Arrow Set 2 7/8" X 5 ½" Nickel SS W/ "F" Nipple & ON / Off Tool**

Packer Setting Depth: **6,750'**

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? _____ Yes **XX** No

   If no, for what purpose was the well originally drilled? **Gas / Oil**

   _____

2. Name of the Injection Formation: Delaware

3. Name of Field or Pool (if applicable): **37584**

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. **13,298' -13,338' 4SPF**

   13,165' – 13,175' 10,148' – 10,158' Possible intent 6,232' – 6,247' Plugs are as Follow:
   CIBP @ 10,050' + 35'cmt., 30sx @ 8,315' – 8,012', 30sx @ 5,288' – 5,124'
   25sx @ 4,650' – 4,481', 25sx @ 3,228', 30sx @ 1,832' – 1,547', 40sx @ 5,75' – 413', 30 sx @ 60' – Surf.

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: **Overlaying Delaware, are: Grayburg, Penrose, Queen, Yates,**

   Under laying Zones are as follows Bone Springs 1 & 2, Wolfcamp, Strawn, Atoka, Morrow

   _____

   _____

Submit to Appropriate District Office
State Lease – 6 copies
Fee Lease – 5 copies
DISTRICT I
P.O. Box 1980, Hobbs, NM 88240
DISTRICT II
P.O. Drawer DD, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Form C-105
Revised 1-1-89

WELL API NO. 30-025-31888 ✓
5. Indicate Type of Lease STATE [X] FEE [ ]
6. State Oil & Gas Lease No. LG-607

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a. Type of Well: OIL WELL [ ] GAS WELL [X] DRY [ ] OTHER
b. Type of Completion: NEW WELL [X] WORK OVER [ ] DEEPEN [ ] PLUG BACK [ ] DIFF RESVR [ ] OTHER
7. Lease Name or Unit Agreement Name: Redhawk "32" State
2. Name of Operator: Mitchell Energy Corporation
8. Well No. 1
3. Address of Operator: P. O. Box 4000, The Woodlands, TX 77387-4000
9. Pool name or Wildcat: Quail Ridge (Morrow)
4. Well Location
Unit Letter L : 1980 Feet From The South Line and 810 Feet From The West Line
Section 32 Township 19S Range 34E NMPM Lea County

10. Date Spudded	11. Date T.D. Reached	12. Date Compl. (Ready to Prod.)	13. Elevations (DF& RKB, RT, GR, etc.)	14. Elev. Casinghead
2/17/93	4/6/93	4/21/93	3643' GR	3643'

15. Total Depth	16. Plug Back T.D.	17. If Multiple Compl. How Many Zones?	18. Intervals Drilled By	Rotary Tools	Cable Tools
13,660'	13,568'			X	

19. Producing Interval(s), of this completion - Top, Bottom, Name: 13,298-338' Morrow
20. Was Directional Survey Made: Yes
21. Type Electric and Other Logs Run: GR/DLL/MSFL/Sonic, GR/CNL/LDT, GR/CBL/CCL
22. Was Well Cored: Yes - sidewall

23. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13 3/8"	54.5	525'	17 1/2"	500 sx Cl C to surf	
8 5/8"	32	5241'	12 1/4"	550 sx + 2700 sx thru DV @ 3485' to surf	
5 1/2"	17	13658'	7 7/8"	850 sx Cl H + 300 sx Lite & 700 sx Cl H thru DV @ 9633'	

24. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN

25. TUBING RECORD

SIZE	DEPTH SET	PACKER SET
2 3/8"	13,249'	13,249'

26. Perforation record (interval, size, and number)
13,298-338' (4 SPF) (.4") (160 shots)

27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED

PRODUCTION

28.

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump)	Well Status (Prod. or Shut-in)
4/21/93	Flowing	shut-in

Date of Test	Hours Tested	Choke Size	Prod'n For Test Period	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas - Oil Ratio
4/21/93	10	10.5/64		57.1	658	0	11,520

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API - (Corr.)
4320	-		137	1580	0	50.4

29. Disposition of Gas (Sold, used for fuel, vented, etc.): vented
Test Witnessed By: Gary Butler
30. List Attachments

31. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief

Signature James Blount Printed Name James Blount Title Engineer Date 4/30/93

5/21/93 SE Carp

Red Hawk 32 St. Com #1
API 30025318888

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Division not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, Items 25 through 29 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico				Northwestern New Mexico			
T. Anhy	1465'	T. Canyon		T. Ojo Alamo		T. Penn. "B"	
T. Salt		T. Strawn	12,160'	T. Kirtland-Fruitland		T. Penn. "C"	
B. Salt	3160'	T. Atoka	12,394'	T. Pictured Cliffs		T. Penn. "D"	
T. Yates	3710'	T. Miss		T. Cliff House		T. Leadville	
T. 7 Rivers		T. Devonian		T. Menefee		T. Madison	
T. Queen	4608'	T. Silurian		T. Point Lookout		T. Elbert	
T. Grayburg		T. Montoya		T. Mancos		T. McCracken	
T. San Andres		T. Simpson		T. Gallup		T. Ignacio Otzte	
T. Glorieta		T. McKee		Base Greenhorn		T. Granite	
T. Paddock		T. Ellenburger		T. Dakota		T.	
T. Blinebry		T. Gr. Wash		T. Morrison		T.	
T. Tubb		T. Delaware Sand	5730'	T. Todilto		T.	
T. Drinkard		T. Bone Springs	8260'	T. Entrada		T.	
T. Abo		T.		T. Wingate		T.	
T. Wolfcamp	11,192'	T.	Morrow 12,707'	T. Chinle		T.	
T. Penn		T.		T. Permain		T.	
T. Cisco (Bough C)		T.		T. Penn "A"		T.	

OIL OR GAS SANDS OR ZONES

No. 1, from 7966' to 7994' No. 3, from 13,030' to 13,341'

No. 2, from 9392' to 9520' No. 4, from ..... to .....

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from ..... to ..... feet .....

No. 2, from ..... to ..... feet .....

No. 3, from ..... to ..... feet .....

LITHOLOGY RECORD (Attach additional sheet if necessary)

From	To	Thickness in Feet	Lithology	From	To	Thickness in Feet	Lithology
surf	2950'	2950'	red beds & anhydrite	12707'	12958'	251'	limestone
2950	3160'	210'	salt	12958'	13660'	702'	sand & shale
3160'	4608'	1448'	dolomite & anhydrite				
4608'	4700'	92'	sand				
4700'	5730'	1030'	dolomite				
5730'	8262'	2532'	sand & dolomite				
8262'	9380'	1118'	limestone & shale				
9380'	11192'	1812'	lime, shale & siltstone				
11192'	11370'	178'	chert				
11370'	12160'	790'	limestone & shale				
12160'	12395'	235'	limestone & chert				
12395'	12707'	312'	shale				

Dennis W. Powers, Ph. D.

Consulting Geologist

February 28, 2013

David Alvarado
SENM Fluid Sales Area Superintendent
Basic Energy Services
P.O. Box 1375
Artesia, NM 88211

Review of Planned Recompletion of Redhawk 32 State #1 (30-025-31888) for SWD

As-built and planning diagrams provided by David Alvarado include the following information:
Surface casing to 525 ft
Intermediate casing to 5241 ft
Production casing to 13658 ft
Top of proposed plug 7675 ft
Top of existing plug 8012 ft
Interval to be perforated: 6800-7556 ft

Stratigraphic intervals interpreted (preliminary) from geophysical logs of Redhawk 32 State #1:
Top of Santa Rosa 920 ft
Base of Dockum (Santa Rosa)/top of Dewey Lake 1030 ft
Top of Rustler 1465 ft
Top of Salado 1800 ft
Top of Yates 3280 ft
Base of Yates/Top Seven Rivers-Capitan 3470 ft
Base reef (Goat Seep)/Top Cherry Canyon 5240 ft
Base Cherry Canyon/Top Brushy Canyon-lower Grayburg-San Andres 6790
Top Bone Spring 8264 ft

The perforated interval is interpreted to be entirely in the Brushy Canyon-lower Grayburg-San Andres interval based on initial log examination. Facies change rapidly in this shelf environment, and formation names also change laterally.

The resistivity log from well 30-025-40041 in the same section as Redhawk 32 State #1 through the proposed perforation interval shows general low resistivity through much of the interval. The best and thickest combinations of low natural gamma (proxy for sand) and low resistivity (indicator of porosity) are in the lower 100-150 ft of the proposed perforation interval.

The surface and intermediate casings cover probable water-producing intervals above the proposed perforation interval.

Dennis W. Powers, Ph.D.
Consulting Geologist

170 Hemley Road, Anthony, TX 79821
Telephone: (915) 877-3929 E-mail: dwpowers@evaporites.com *CELL: (915) 588-7901*

FEDRO & ASSOCIATES L. P.

GEOLOGIC CONSULTING

P. O. BOX 10872

MIDLAND, TEXAS 79702

(432) 557-2196

fedrobob2@yahoo.com

September 4, 2012

To: D. Linebarger
From: B. Fedro
Subject: Red Hawk #1 (API# 30-025-31888)
Sec. 32, T19S – R34E
Lea County, New Mexico
Revised SWD Perforation Recommendation

Recommendation

As a result of Mewbourne Oil Company's response to the original recommended saltwater disposal perforations in the subject well (report dated February 5, 2012 from this office), the area was researched again for offset producing zones. The openhole logs were evaluated again and the following intervals are now recommended for SWD perforations:

6798 – 6807
6827 – 6832
6850 – 6860
6895 – 6921
6938 – 6953
6960 - 6971
7017 – 7026
7142 – 7147
7160 – 7164
7474 – 7478
7530 – 7540

These perforations were picked using an 18% porosity cutoff on the Schlumberger Lithodensity log run March 6, 1993 (copy attached). The perforations were selected in non-productive Delaware sands and should not interfere with possible zones of interest which Mewbourne referenced with mudlog shows in the area.

Thank you for the opportunity to provide this evaluation, and don't hesitate to call if you have any questions.

FINAL COMPOSITE

Company: MITCHELL ENERGY CORPORATION

Well: REDHAWK "32" STATE #1

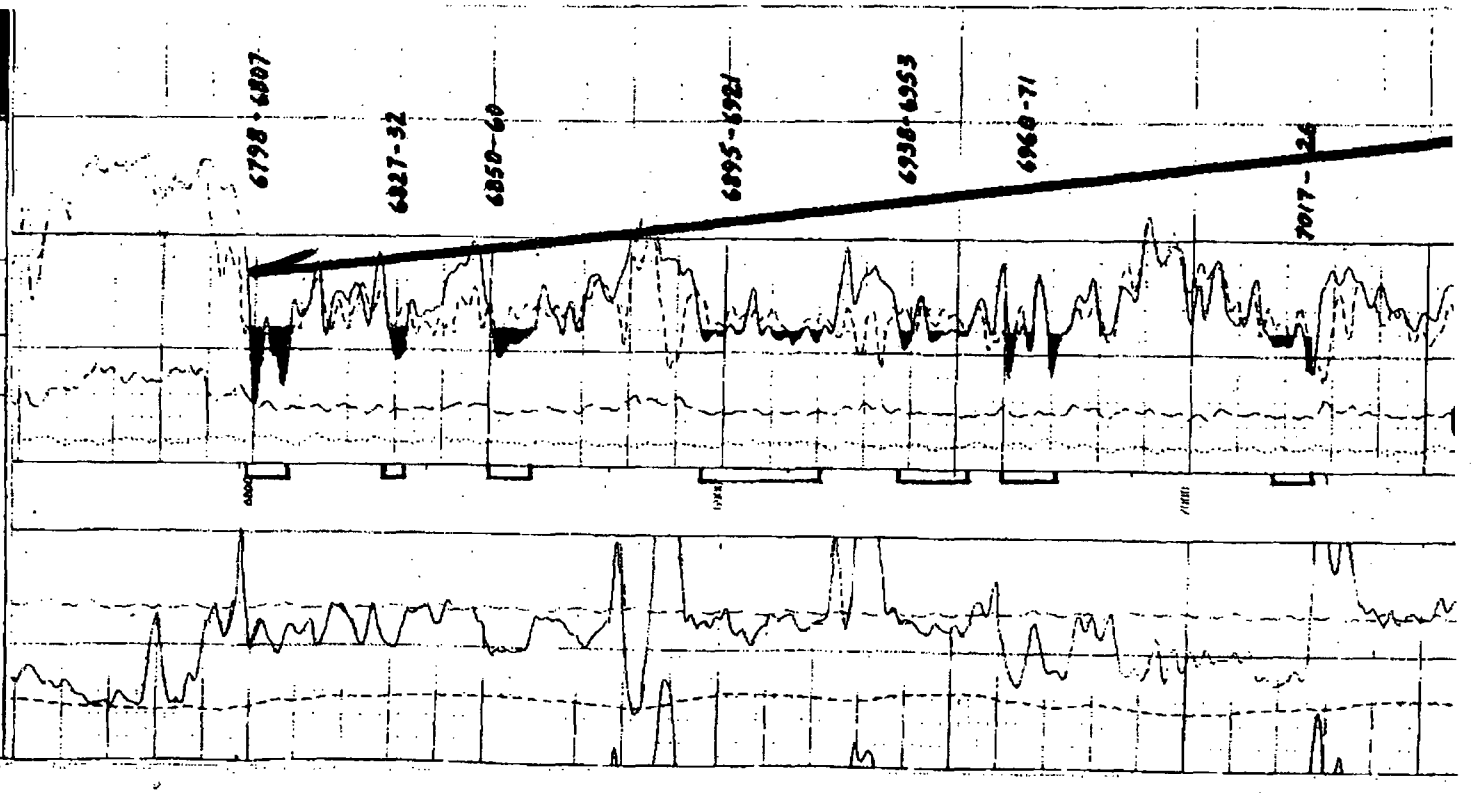
Field: WILDCAT

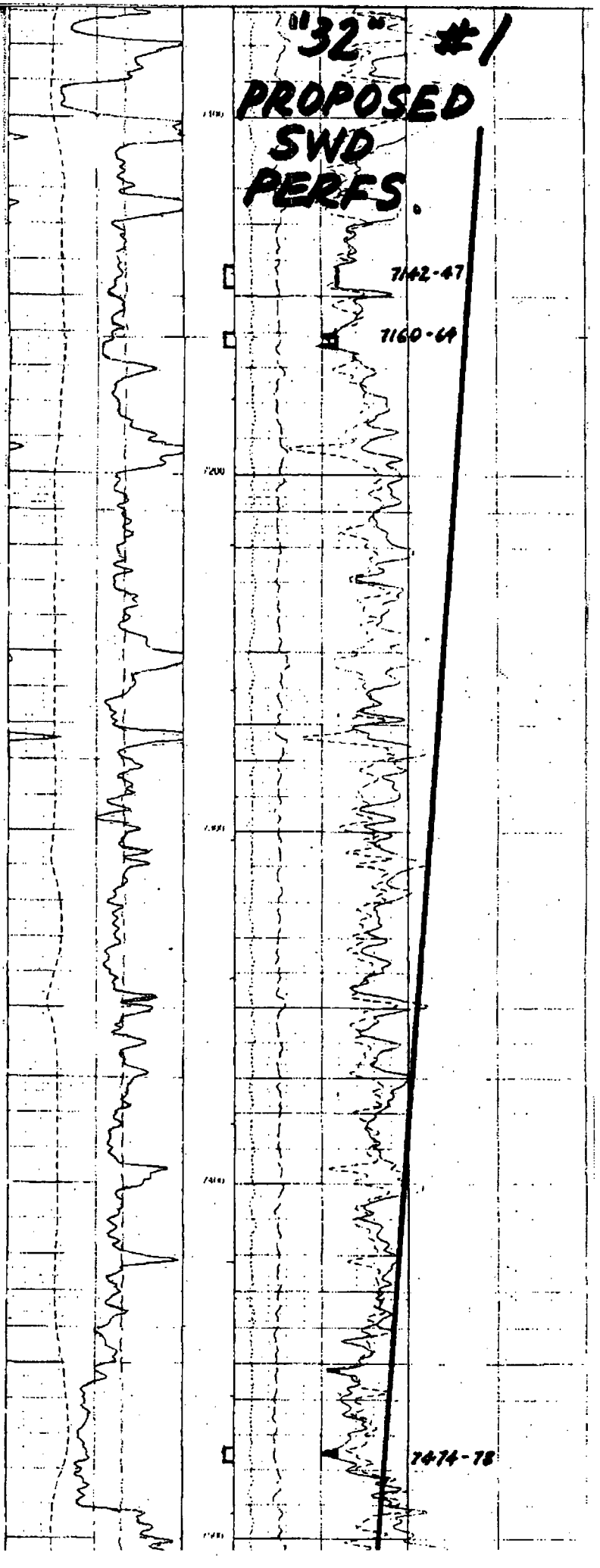
County: LEA State: NEW MEXICO

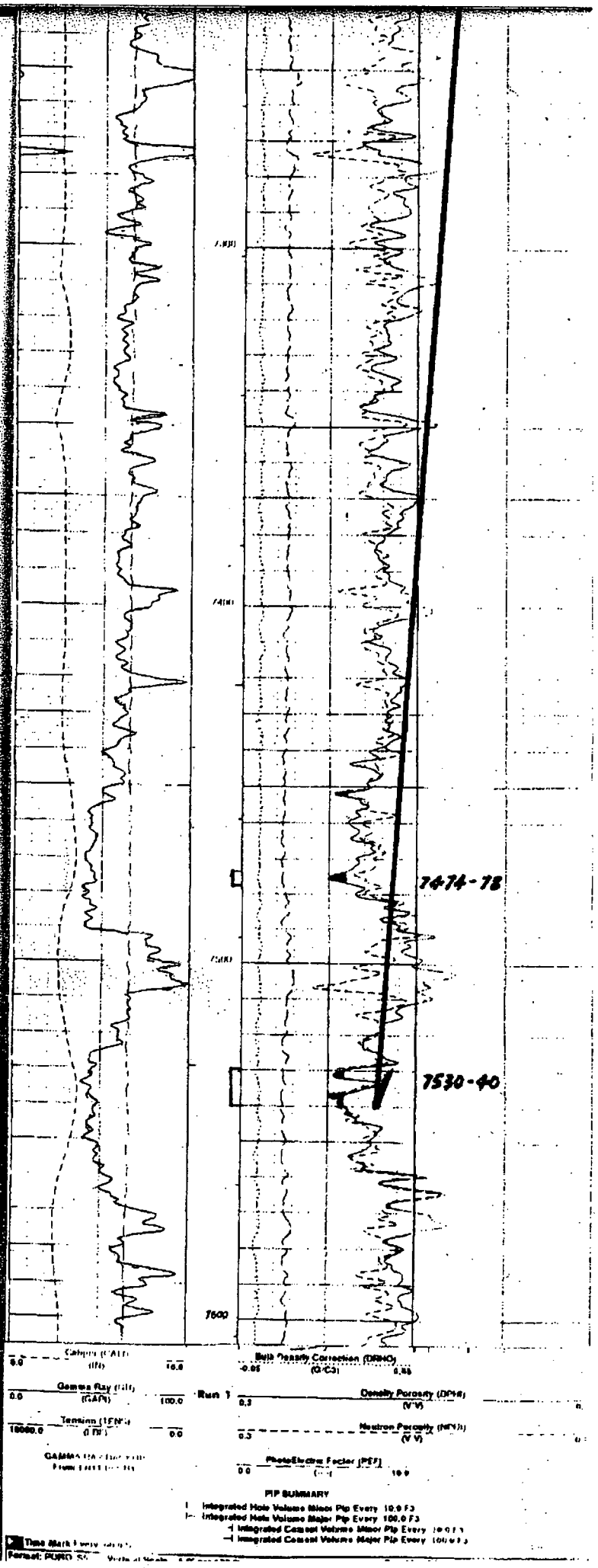
API SERIAL NO	SECTION	TOWNSHIP	RANGE
30-025-31881	32	16 S	34 E

ENERGY, MINERALS & NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
P.O. BOX 1980
HOBBS, N.M. 88241-1980

#30444#




"32" #1
PROPOSED
SWD
PERFS.
7142-47
7160-64
7474-78


7474-78
7530-40
7600
Caliper (CALI)
(IN)
Bulk Density Correction (DRHO)
(G/C3)
Gamma Ray (GR)
(GAPI)
Run 1
Density Porosity (DPHI)
(V/V)
Neutron Porosity (NPHI)
(V/V)
PhotoElectric Factor (PEF)
PIP SUMMARY
Integrated Hole Volume Minor Pip Every 10.0 F3
Integrated Hole Volume Major Pip Every 100.0 F3
Integrated Cement Volume Minor Pip Every
Integrated Cement Volume Major Pip Every

IX

Proposed Stimulation Program

And

Anticipated Treatment Amounts Proposal

Subject to Change

IX Proposed Stimulation Program

Basic Energy Services LP
RedHawk 32 State # 1
API 3002531888 Lea Co.

Basic Energy Services LP Proposes to clean out well bore to 7700', Circulate hole twice its capacity until a clean return is seen. Run a CIL, CBL, Correlation DIN, GR Neutron Log. Set CIBP w/wire line at 7,700'w/25'cmt. on top. In conjunction with the CIBP the existing plug that was set during P&A @ 8012'-8315' will insure as a barrier above the Bone Spring.

A packer will be run to a depth of 7600', set Pkr. then test integrity of cmt. plug and casing if okay, move Pkr. to 6700', Set Pkr. MIT on annulus to 500 psi. and record findings. If fail MIT notify OCD find where leak is and record, plan squeeze and submit C-103 to OCD for approval then execute approved intent, proceed with MIT and test to 500 psi submit C-103 subsequent report.

Perforate intervals as reported on C-108 run packer and retrievable plug. RedHawk 32 # 1 will be treated in three stages possible two shots per foot.

Start pad with 10# quality brine establish rate switch to acid. 32 gal NEFE 15 % per perf hole & possible use of 15 gal per perforation hole of CLO2 using three to five pounds of rock salt per perf as block. Followed by flush.

(1st Stage Set RBP @ 7580' Pkr @ 7250')

(2sd Stage Set RBP @ 7250' Pkr. @ 7090')

(3rd Stage Set RBP @ 7090' Pkr. @ 6750')

Tubing subs will be required totaling 32' of combination of 2 7/8" 8rd.

RedHawk 32 State # 1
Stimulation Interval Plan

INTERVALS Stage 1	*NET PAY*	*SPF*	*PERF HOLES*	*NEFE 15% gal / shot.*	*Net gal NEFE / Interval*	*Net 1bls/ Salt block @ 4 lbs per hole*
7256-7277	16	4	64	25	1600	256
7286-7304	18	4	72	25	1800	288
7322-7344	22	4	88	25	2220	352
7376-7392	16	4	64	25	1600	256
7406-7484	78	4	312	25	7800	1248
7504-7556	52	4	208	25	5200	832
Totals Stage 1	**202**		**1464**		**33,220**	**3,232**
INTERVALS Stage 2	*NET PAY*	*SPF*	*PERF HOLES*	*NEFE 15% gal / shot.*	*Net gal NEFE / Interval*	*Net 1bls/ Salt block @ 4 lbs per hole*
7110-7218	108	4	432	25	10,800	1728
7226-7242	16	4	64	25	1600	256
Totals Stage 2	**124**		**992**		**12,400**	**1984**
INTERVALS Stage 3	*NET PAY*	*SPF*	*PERF HOLES*	*NEFE 15% gal / shot.*	*Net gal NEFE / Interval*	*Net 1bls/ Salt block @ 4 lbs per hole*
6800-6876	76	4	304	25	7600	1216
6900-6986	86	4	344	25	8600	1376
7000-7068	68	4	272	25	6800	1088
Totals Stage 3	**230**		**1840**		**46,000**	**3680**

Basic Energy Services LP will be utilizing at the RedHawk 32 State # 1 a total of 556' net pay in the Delaware.

X

Log

Filed with the Division

Density GR / Neutron

MITCHELL ENERGY
"32" STATE #1

L-32-T19S-R34E 1980' FS ... FW
ABNER ENTERPRISES LTD. CO.
REDHAWK 32 STATE #1
30-025-31880

Company: MITCHELL ENERGY CORPORATION

Well: REDHAWK "32" STATE #1

Field: WILDCAT

County: LEA State: NEW MEXICO

API SERIAL NO.	SECTION	TOWNSHIP	RANGE
025-31880	32	19-S	34-E

G.L. Elevation: ...
Elevations: KB ... DF ... GL ...

ENERGY, MINERALS & NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
P.O. BOX 1980
HOBBS, N.M. 88241-1980

BEST COPY available

FOLD HERE

The well name, location and borehole reference data were furnished by the customer.

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretations made by any of our officers, agents or employees. These interpretations are also subject to Clause 4 of our General Terms and Conditions as set out in our current Price Schedule.

Run No.	1	2
Service Order No.	[illegible]	[illegible]
Program Version	2C0-403	2C0-403

EQUIPMENT DATA

LEH-AA	SGT-E
SGT-E	CNB-AE ...
CNB-AE ...	NLS-RF
NLS-RF ...	SGH-U/T ...
SGH-U/T	TCM-AB
TCM-AB	

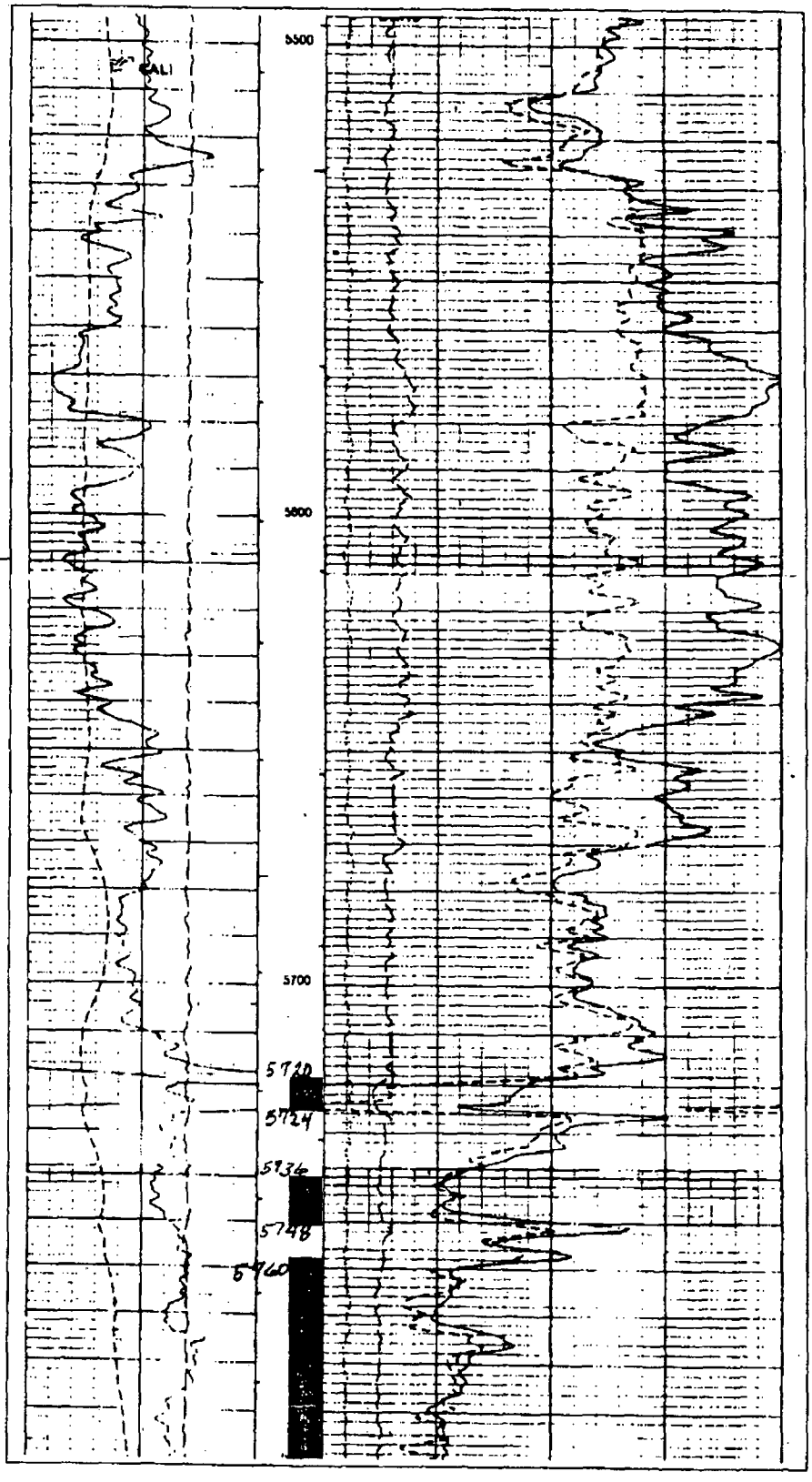
HEADING REMARKS

Run 1 Remarks

ALL SCALES AT CLIENT REQUEST.
CEMENT VOLUME SHOWN RIGHT SIDE OF DEPTH TRACK.

RIG: PETERSON #1
OPERATORS: ... AND GOMEZ

THANK YOU FOR CALLING SCHLUMBERGER.



(5720 − 5724) = 4' NET PAY

(5736 − 5748) = 12' NET PAY

(5760 − 5828) = 68' NET PAY

(5888-5900) = 12' NET PAY

(5908-5922) = 14' NET PAY

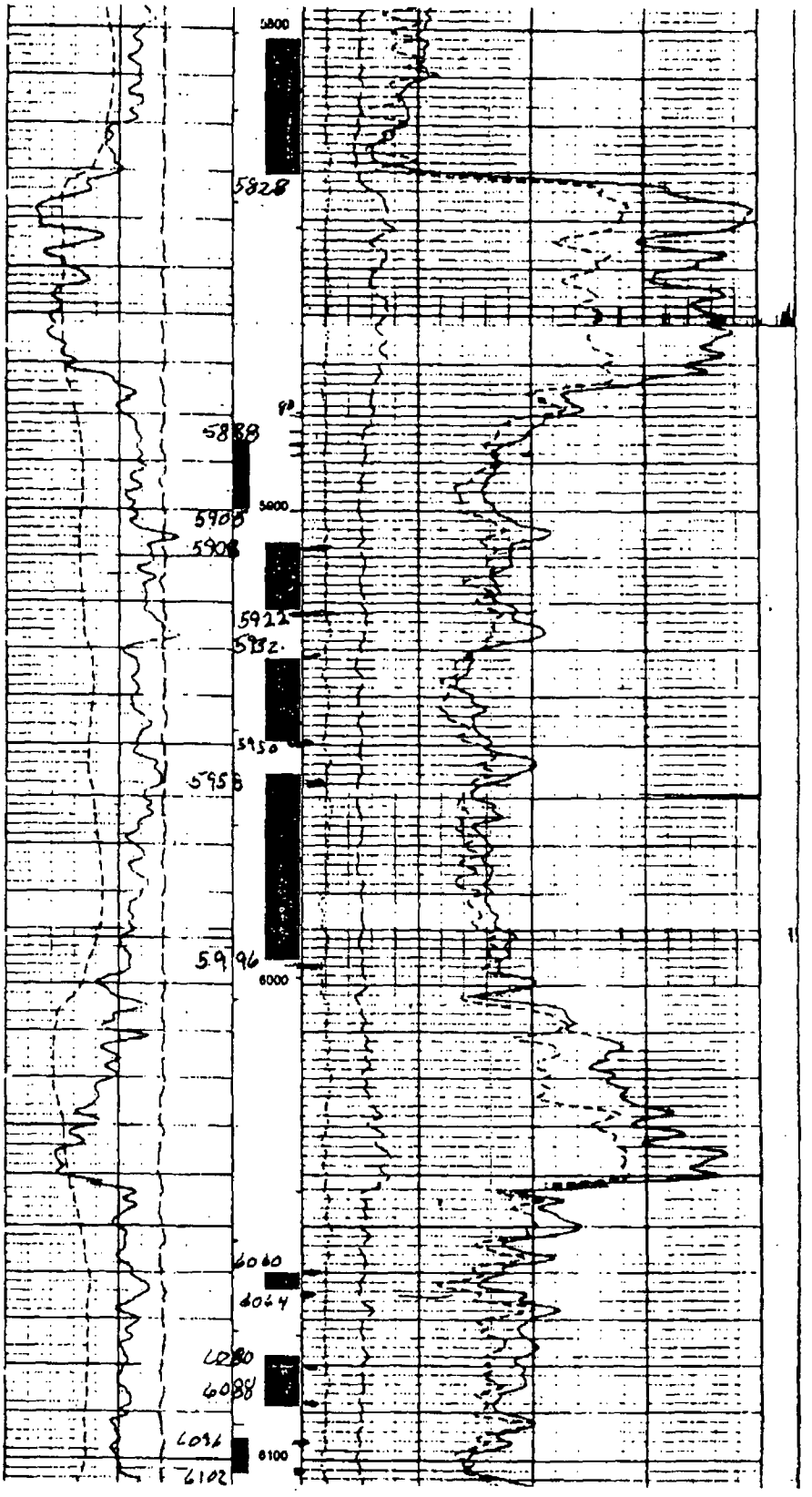
(5932-5950) = 18' NET PAY

(5958-5996) = 38' NET PAY

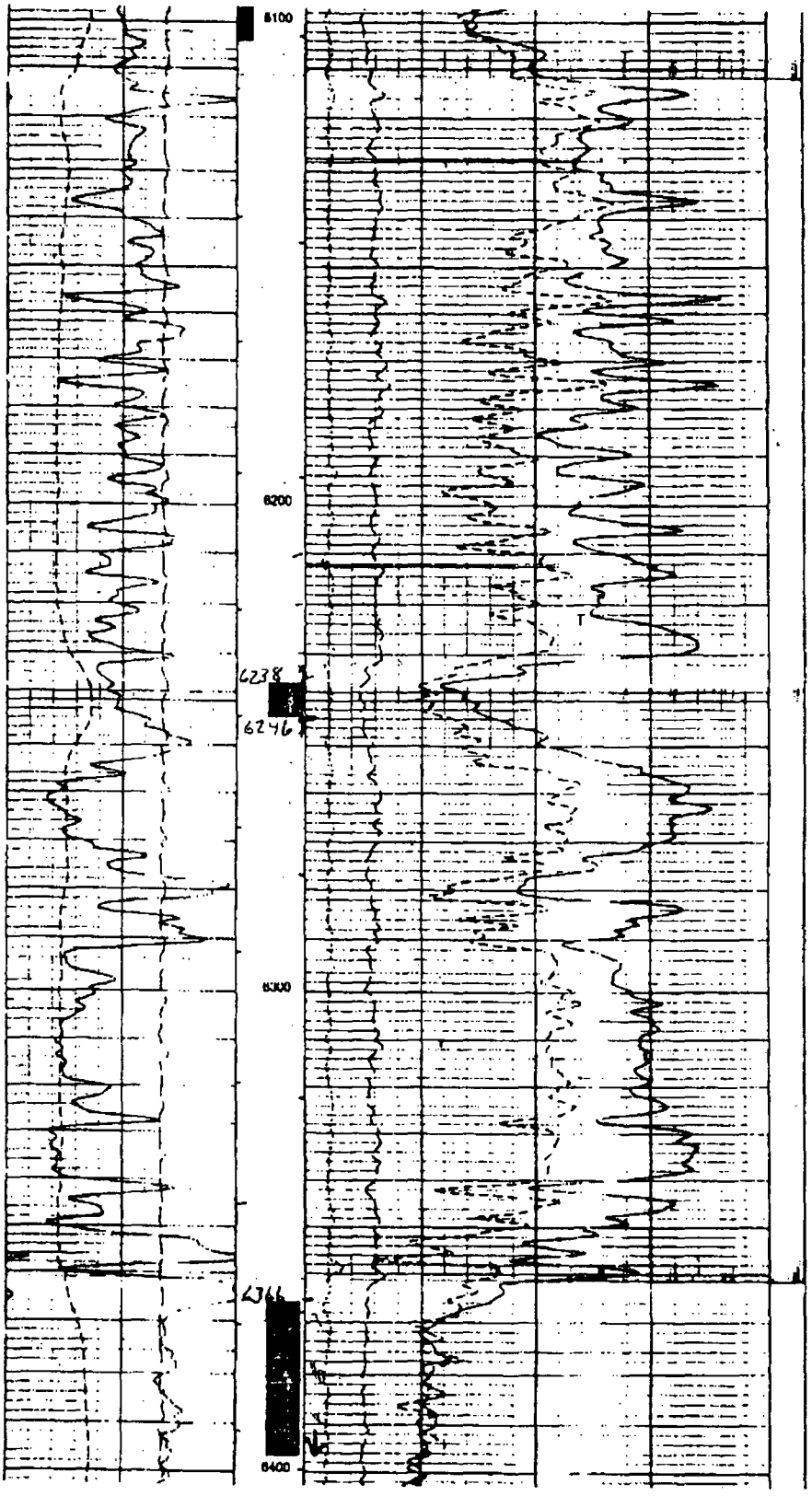
(6060-6064) = 4' NET PAY

(6080-6088) = 8' NET PAY

(6096-6102) = 6' NET PAY



(6238-6246) = 8' NET PAY



(6366'-6440) = 74' NET PAY

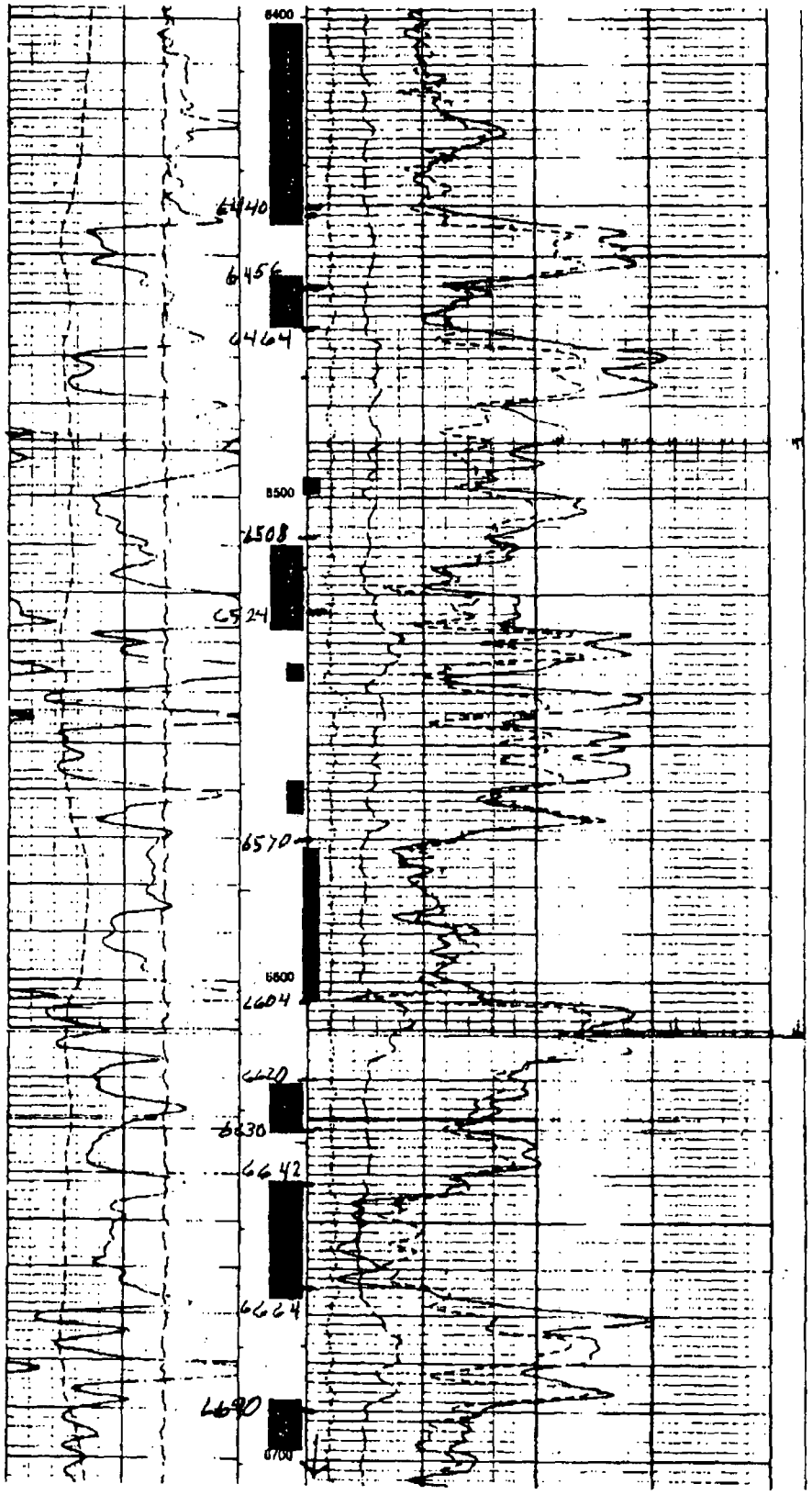
(6456-6464) = 8' NET Pay

(6508-6524) = 16' NET PAY

(6570-6604) = 34' NET PAY

(6620-6630) = 10' NET PAY

(6642-6664) = 22' NET PAY



(6690-6746) = 56' NET PAY

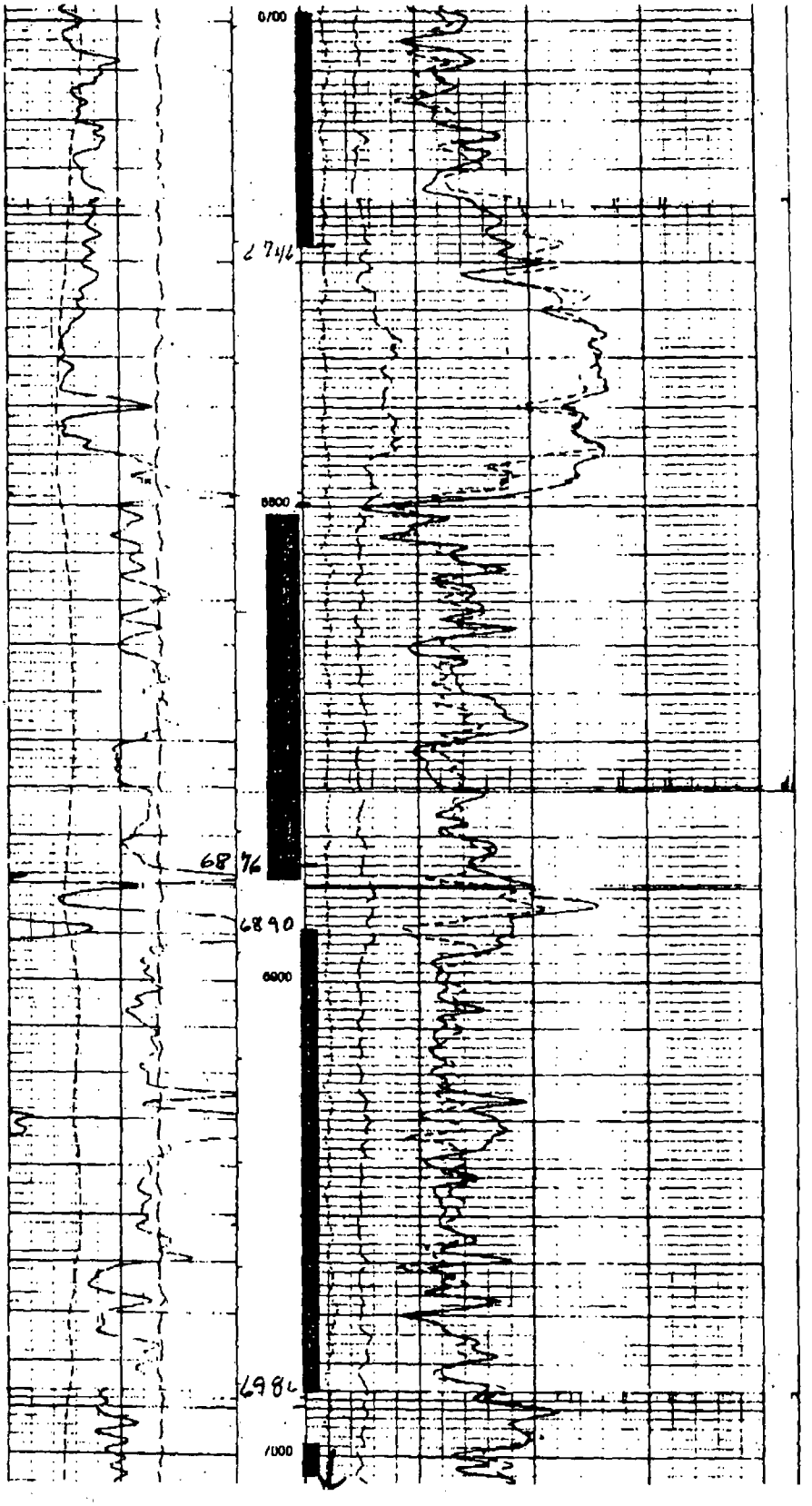
Set PKR @ 6750' New

6798 Bob

(6800-6876) = [redacted] NET PAY ✓

6895 Bob

(6900-6986) = [redacted] NET PAY ✓

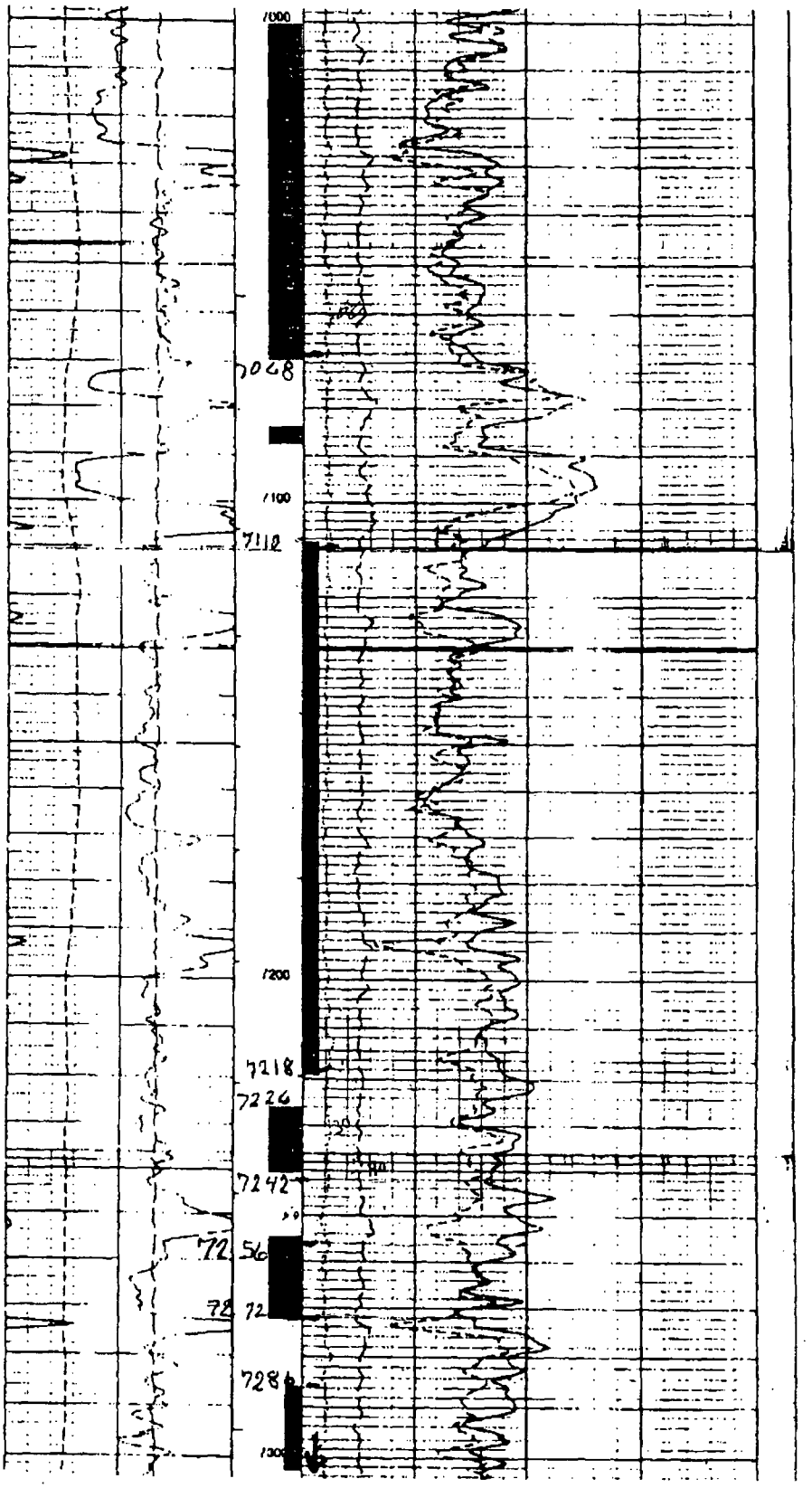


(7000 - 7068) = [redacted] NET PAY ✓

(7110 - 7218) = [redacted] NET PAY ✓

(7226-7242) = [redacted] NET PAY

(7256-7272) = [redacted] NET PAY ✓



(7282 – 7304) = [redacted] NET PAY

(7322 – 7344) = [redacted] NETPAY ✓

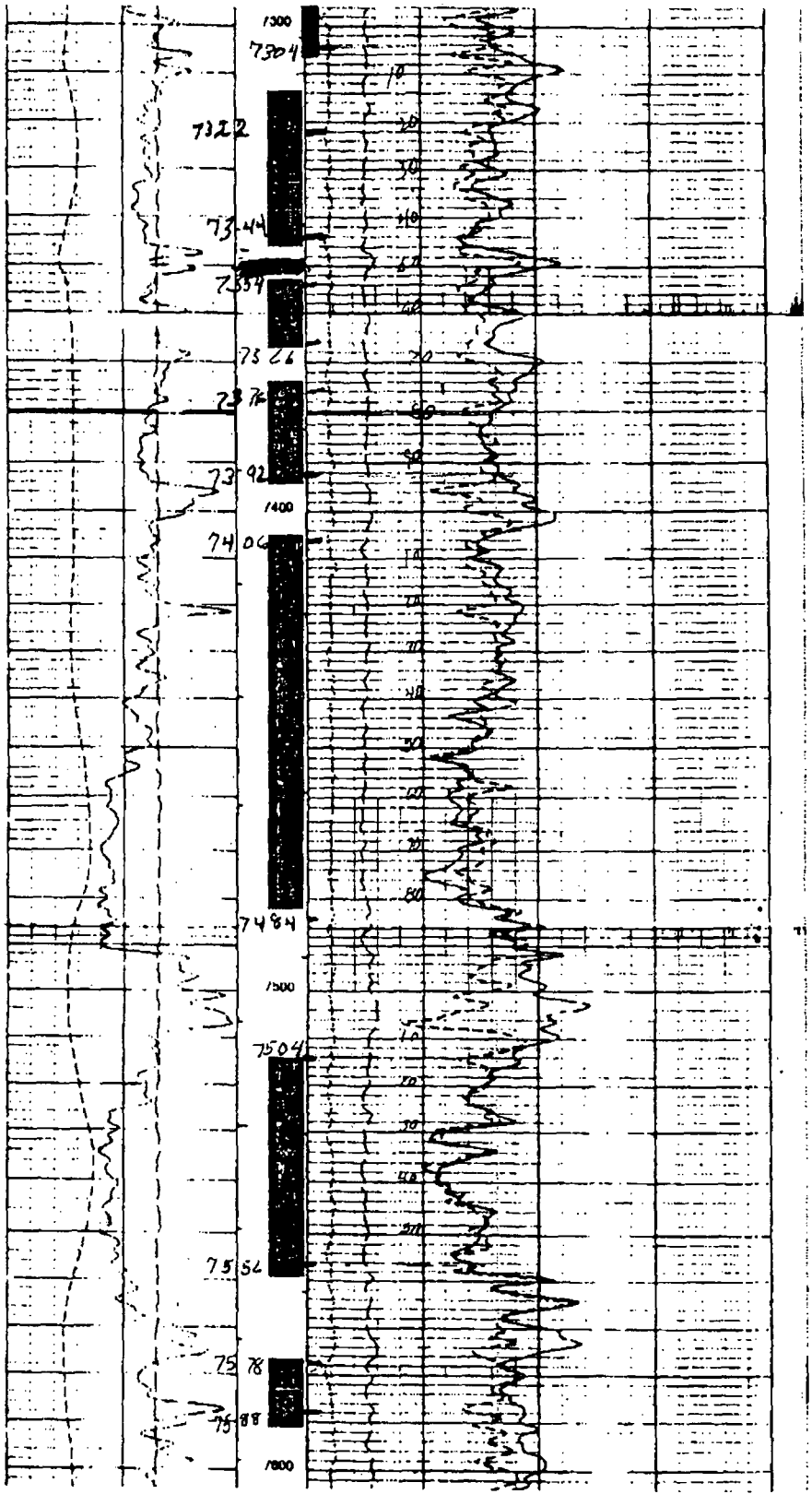
(7366 – 7354) = [redacted] NET PAY SKIP

(7376 – 7392) = [redacted] NET PAY ✓

(9)
(7406 – 7484) = [redacted] NETPAY ✓

(8)
(7504 – 7556) = [redacted] NET PAY ✓

(7578 – 7588) = [redacted] NETPAY SKIP



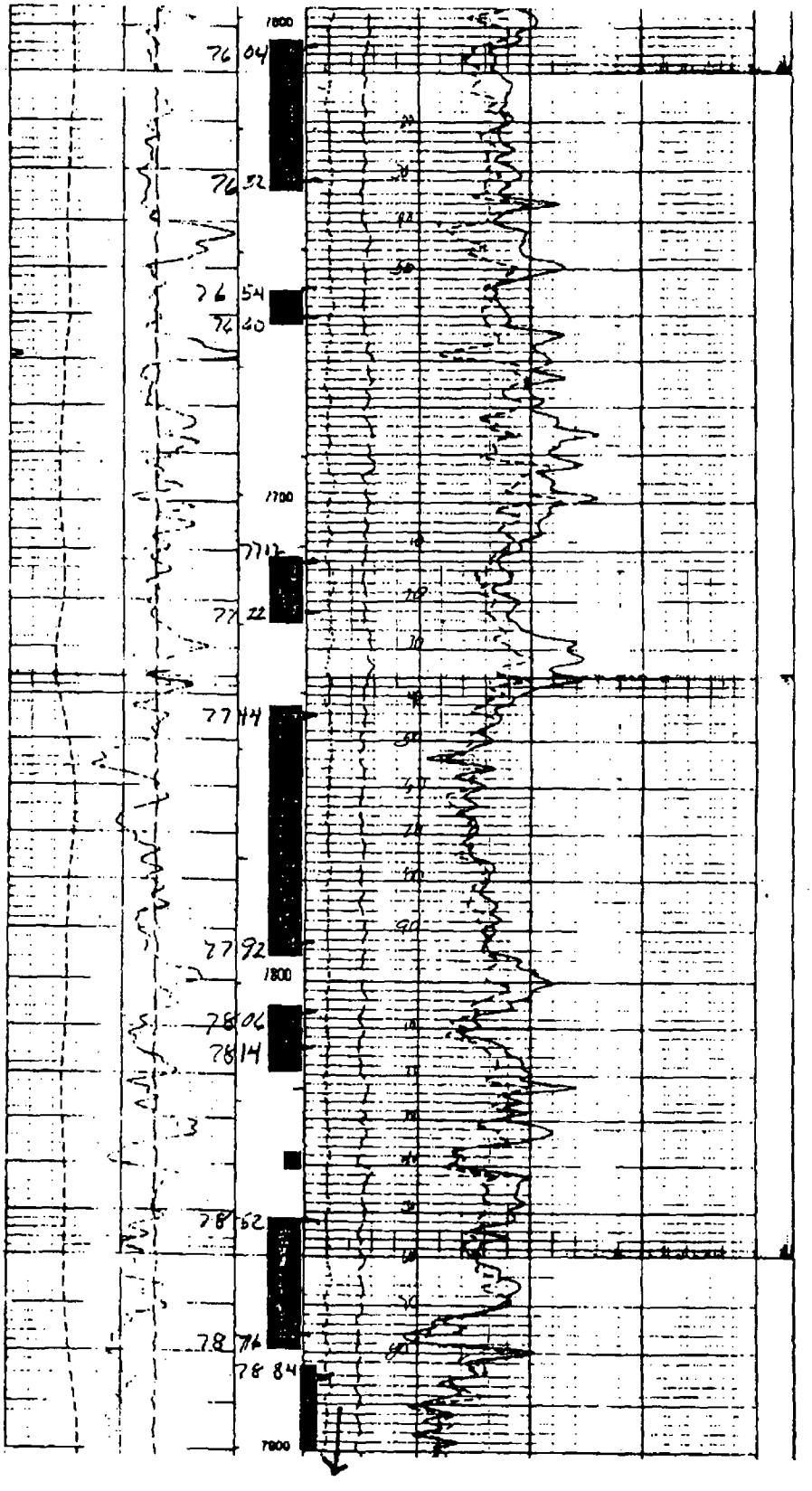
(7)
(7604 - 7632) = 28' NET PAY ✓

(7654 - 7660) = 6' NET PAY
SKIP

(7712 - 7722) = 10' NET PAY
SKIP

(6)
(7744 - 7792) = 48' NET PAY

(7806 - 7814) = 8' NET PAY
SKIP



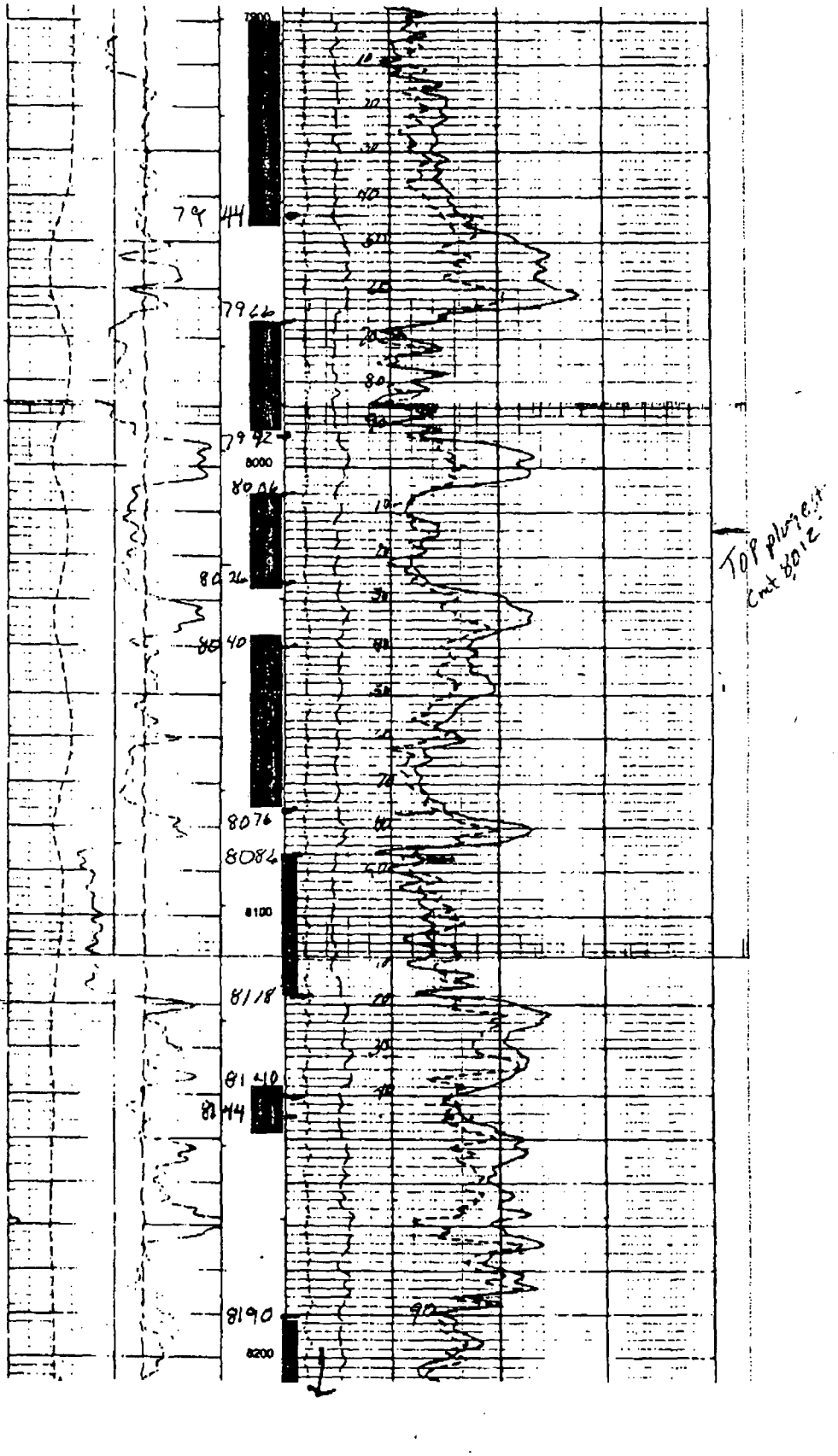
(5)
(7884 - 7944) = 60' NET PAY

(4)
(7966 - 7992) = 26' NET PAY

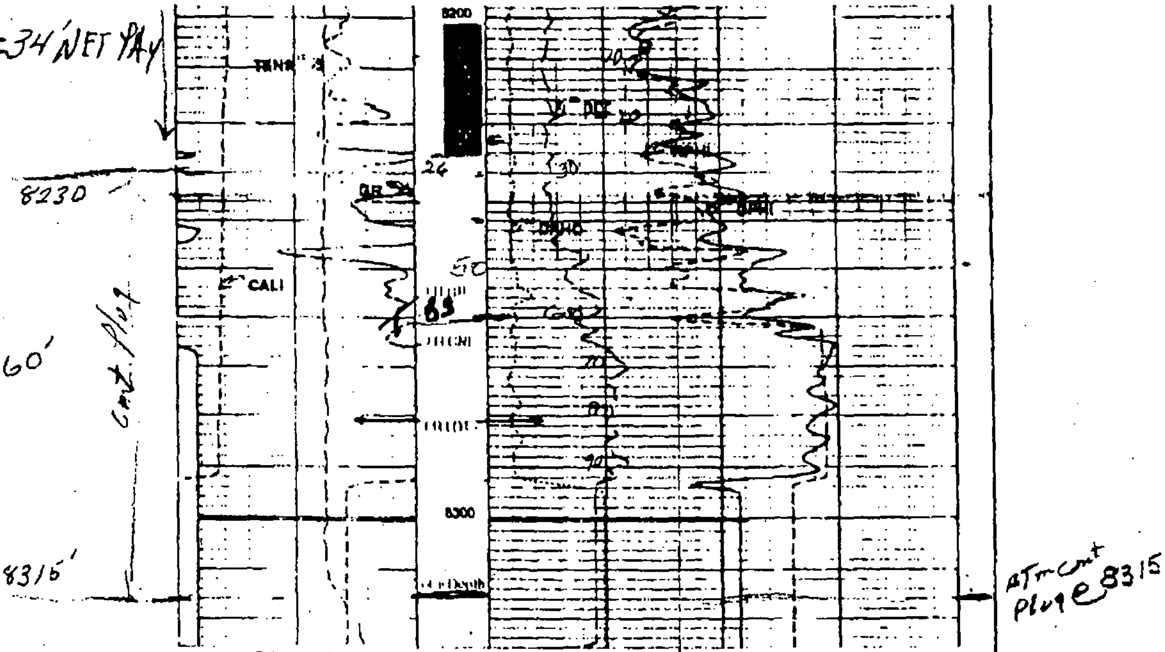
(3)
(8006 - 8026) = 20' NET PAY

(2)
(8040 - 8076) = 36' NET PAY

(1)
(8086 - 8118) = 32' NET PAY



(8190 - 8224') = 34' NET PAY
Skip



Caliper (CALI) 6.0 (IN) 16.0
Gamma Ray (GR) 0.0 (GAPI) 100.0
Tension (TENS) 10000.0 (LBF) 0.0
GAMMA RAY BACKUP

Run 1

Bulk Density Correction (DRHO) -0.05 (G/C3) 0.45
Density Porosity (DPHI) 0.3 (V/V) -0.1
Neutron Porosity (NPHI) 0.3 (V/V) -0.1
Photoelectric Factor (PEF) 0.0 (----) 10.0

PIP SUMMARY

Integrated Hole Volume Minor Pip Every 10.0 F3
Integrated Hole Volume Major Pip Every 100.0 F3
Integrated Cement Volume Minor Pip Every 10.0 F3
Integrated Cement Volume Major Pip Every 100.0 F3

Time Mark Every 60 S

Format: PORO_R5 Vertical Scale: 5.0" per 100.0' Graphics File Created: 6-MAR-1993 08:47

OP System Version: 5C0-423

LDT-D 5B423K-146
BSP 5B423K-146
CNT-H 5B423K-146

Output DLIS Files

DEFAULT FP-17 .000 FIELD 6-MAR-1993 08:47

Parameters

DLIS Name	Description	Value	
ANGL	Angle (Average) of Borehole Deviation	0	DEG
BFM	Borehole Fluid Medium	LIQUID	
BHFL	Borehole Fluid Type	WATER	
BHS	Bore Hole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	125	DEGF
BS	Bit Size	7.875	IN
BSAL	Borehole Salinity	180000.0	PPM
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
CREF	Current Reference	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	STAN	
DPRF	DEEP REFERENCE POWER	880	MW
FCD	Future Casing (Outer) Diameter	5.5	IN
FD	Fluid Density	1.1	G/C3
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	CALIPER_CALI	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	1.000000e-02	DF/F
[illegible]	[illegible]	[illegible]	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
KFAC	K FACTOR	BOND	
LLOO	LATEROLOG LOOP	OFF	
LSHC	LS Hardware Loop Control	DISALLOW	
MATR	Rock Matrix Type	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2.71	G/C3
MWCO	Mud Weight Correction Option	NO	
OMR	Origin of Mud Resistivity	CONS	
PLRM	POWER LOOP REFERENCE MODE	DEEP	
PTCO	Pressure/Temperature Correction Option	NO	
RMUD	Resistivity of Mud Sample	1	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	75	DEGF
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
SPNV	SP Next Value	0	MV
SPRF	SHALLOW REFERENCE POWER	550	MW
SPT	SRT Pad Type	BLIN	
SSHC	SS Hardware Loop Control	DISALLOW	
TD	Total Depth	8314	FT
TWS	Temperature of Connate Water Sample	100.0	DEGF

VII

Proposed Operation Data

Maximum and Average Rate and Daily Volume

Type of System Closed Loop

Water Analysis from BJ from Surrounding AOR

VII Proposed Operation Data
RedHawk 32 State # 1
API # 3002531888

Basic Energy Services LP proposes the facility to start with 15 to 20 loads of trucking per day of PW with an increase of up to 40 loads per day by the end of 2012. This is dependant of truck availability and personnel. Most of the area's PW will be to the north and to the south west of the RedHawk 32 State # 1 where high activity of drilling is taking place. Basic Energy Services LP anticipates 3500 bbls to a maximum amount of 5,000 bbls of PW daily with injection psi to be at around 1,100 psi to maximum of 1,450 psi. The facility will be equipped with a four truck unloading contained cement base rack. As fluid is unloaded PW will flow into two 500 bbl sludge tanks allowing solids to fall out. Chemical will be added via chemical pumps and regulated to the anticipated daily total barrels hauled by Baker Petro-lite. Once water has been treated it will over flow and enter 3000 bbls of equalizing storage tanks. Fluid levels will be controlled by C-pumps sending fluids thru a 1000 bbl gun barrel where water and skimmed hydrocarbons will be separated. The gun barrel's water leg sending the PW to two 500 bbl tanks where a 200 T Gardner Denver triplex pump equipped with 3" plungers powered with reduction 150 hp motor will inject down the bore hole and injected in to our selected intervals. Hydrocarbons will be passed thru a 500 bbl brine wash before stored in sales tanks. Basic Energy Services LP's facility at the RedHawk 32 State # 1 will be contained in a concrete containment capable of holding 1.3 times the total volume of the facility.

Operated in a closed loop system the facility will be fully automated and operated by an electronically computerized system allowing monitoring of the facility thru smart phone or computer log in. Its integrated alarm system will notify by phone any alarm that might occur from low oil in the crank case of the triplex to high tank levels shutting down access to midway unloading valves thus rendering total shut down of the facility until problem is fixed and restoration of alarms are reset. All Basic Employees are assigned a pass code that records his name and time with the amount of PW unloaded and is recorded as to the lease and operator it has be hauled from. The data can then be generated and filtered giving totals for company or leases allowing total bbls hauled from a facility or a lease. Please find the water and solids analysis from Baker Petro-lite on waters that will be hauled into the facility and also data of compatibility of waters into the proposed injection zone.

VIII

Geological Data Lithologic Detail with C-105

Data from NM Wades on all Aquifers overlaying proposed Injection Zone

And

Underlying… "None Were Found"

XI
Chemical Analysis of Fresh Water With In One Mile

No water wells were found with in one mile of the RedHawk 32 State # 1

XI

Chemical Analysis of Fresh Water From Two or More Wells None Were Found at the RedHawk 32 State # 1

BALLEAU GROUNDWATER, INC.
901 RIO GRANDE BLVD. NW, SUITE F-242
ALBUQUERQUE, NEW MEXICO 87104

W. PETER BALLEAU CPG, P.Hg., P.G. (AZ, KS)
DAVE M. ROMERO P.H.
STEVEN E. SILVER GISP
CASEY W. COOK P.E. (NM)

March 12, 2013

Mr. David Alvarado
Basic Energy Services, LP
1007 W Main
Artesia, NM 88210

Subject: Underground Sources of Drinking Water at Proposed Salt Water Disposal Well Location

Dear Mr. Alvarado:

As you requested, Balleau Groundwater, Inc. (BGW) has identified Underground Sources of Drinking Water (USDW) at the location of a proposed salt water disposal (SWD) injection well in Lea County, NM. The term *USDW* is as defined by the NM Oil Conservation Division (NMOCD) Underground Injection Control Program Manual. We understand application was made to NMOCD on September 17, 2012 for Authorization to Inject (Form C-108) for SWD. The proposed injection well shown on Figure 1, Redhawk 32 State #001 (hereafter Redhawk 32) was drilled in 1993 to a depth of 13,660 ft and presently is shut in. The application proposes to inject produced salt water at depths between 6800 and 7600 ft in the Permian Delaware Mountain Group. Part of the information requested by Application Item VIII is: "*Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.*"

On November 10, 2012, NMOCD asked "*What is the depth to bottom of freshwater in this area? Is it Ogallala?*"[1]

The NMOCD Underground Injection Control Program Manual (February 26, 2004) defines a USDW as an aquifer or its portion:

1. *Which supplies any public water system; or*

---

[1] Electronic Communication, November 10, 2012, from Mr. William Jones, NMOCD to Mr. David Alvarado of Basic Energy Services.

2. *Which contains a sufficient quantity of ground water to supply a public water system; and*

   i. *Currently supplies drinking water for human consumption; or*
   ii. *Contains fewer than 10,000 mg/l total dissolved solids; and*
   iii. *Which is not an exempted aquifer*

We conclude that unconsolidated alluvium, Chinle, Santa Rosa and Dewey Lake Formations are potential USDW at the site with TDS less than 10,000 mg/l, and that the bottom of the USDW zone is 1465 ft deep at the top of a logged anhydrite interpreted to be the Permian Rustler Formation. The Ogallala aquifer is not present at the site of Redhawk 32.

This letter provides details on our assessment of subsurface water-bearing formations and water quality in the area of the proposed injection well and the status of subsurface formations as USDW according to the NMOCD definition. The information is intended to respond to the Form C-108 Item VIII determination of USDW and the November 2012 NMOCD request for additional information.

Regarding aquifer exemption in Item 2. iii; above, the OCD manual states: "A *state can request approval from the EPA to exempt certain aquifers that meet the criteria for USDW from protection under the program if they don't serve as a source of drinking water and they will never serve as a source in the future. Operators may apply to the OCD to exempt an aquifer that will never serve as a source of drinking water.*" Mr. William Jones of NMOCD indicates[2] that such exemptions are rare in New Mexico. He knows of no exemptions in upper Permian or Triassic beds in Lea County, though some deeper oil and gas-producing Permian beds (Artesia Group and older) may be locally exempted where they contain water having TDS less than 10,000 mg/l. Accordingly, identification of USDW at the Redhawk 32 site focuses on the aspects of a public water system and water quality with fewer than 10,000 mg/l TDS.

In the application materials sent by Mr. Brian Wood[3], we note that the applicant did not find a freshwater well with quality samples reported within one mile of the injection well. Such information is requested in Application Form C-108 Item XI. In our research, we found one stock well (map ID 6 on attached Figure 3) with chemistry data located 3/4 mile from Redhawk 32. The chemical analysis from that well is attached to this letter for your use.

---

[2] Personal Communication, March 11, 2013, Mr. William Jones of NMOCD to Casey W. Cook, P.E. of Balleau Groundwater, Inc.

[3] Electronic Communication, January 25, 2013, from Mr. Brian Wood of Permits West Inc. to Casey W. Cook, P.E. of Balleau Groundwater, Inc.

Background and Approach

The proposed injection well is located in western Lea County about 30 miles west-southwest of Hobbs, NM between the Querecho Plains and Laguna Valley (attached Figure 1). The site lies north of the shelfward edge of the Capitan Reef aquifer, and is about five miles southwest of Mescalero Ridge. Mescalero Ridge marks the southwestern boundary of the Ogallala Formation and the Ogallala aquifer in this area (see Figure 1). Remnants of the Ogallala are mapped a few miles south, but Ogallala Formation is not present in the subsurface at the Redhawk 32 site. Therefore, the Ogallala is not an aquifer at this site.

To answer the regulatory question regarding USDW, we inspected published literature on the geology[4] and hydrogeology[5, 6, 7, 8] of the region, and online databases for water wells[9, 10] and water quality[11, 12]. Water quality data in the databases are reported in terms of chloride and/or total dissolved solids (TDS). In some cases, only chloride is reported. A crossplot of TDS versus chloride (Figure 2) for water samples near the site shows that samples with chloride less than 3000 mg/l generally have TDS less than 10,000 mg/l. We use this relationship to assess quality of water in formations where only chloride data are reported. Figure 3 shows the location of wells for which water quality data are available. We reviewed data within the adjacent townships in a representative area of four to six miles from the proposed injection well. An inset table on Figure 3 describes the formation, purpose of use, sample date, TDS and chloride concentrations for each well.

Subsurface Geology

Geologic formations below the site are described in the Well Completion Report and Log for proposed injection well Redhawk 32 (attached). The log identifies the following formations and depths above the proposed injection zone. Elevation from mean sea level (msl) is calculated from land elevation at 3643 ft msl.

---

[4] Kelley, V.C., 1971, Geology of the Pecos Country, Southeastern New Mexico: New Mexico Bureau of Mines and Mineral Resources, Memoir 24

[5] Hiss, W.L., 1973, Capitan Aquifer Observation-Well Network Carlsbad to Jal, New Mexico, New Mexico State Engineer, Technical Report 38.

[6] Nicholson, A., Jr. and Clebsch, A., Jr., 1961, Geology and Ground-Water Conditions in Southern Lea County, New Mexico: New Mexico State Bureau of Mines and Mineral Resources Ground-Water Report 6, 123p.

[7] 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.

[8] Hendrickson, G.E., and Jones, R.S., 1952, Geology and Ground-Water Resources of Eddy County, New Mexico: New Mexico Bureau of Mines and Mineral Resources, Ground Water Report 3.

[9] NM Office of the State Engineer, Water Rights Reporting System: nmwrrs.ose.state.nm.us/nmwrrs/index.html.

[10] U.S. Geological Survey, 2000, Groundwater Site Inventory (GWSI) Database.

[11] NMWAIDS: http://octane.nmt.edu/waterquality/data/nmwaidssamplesearch.asps., accessed February 27, 2013.

[12] National Water Information System: http://waterdata.usgs.gov/nwis, accessed February 26, 2013.

	Depth (ft)	Elevation (ft above/below (-) msl)
Top of anhydrite	1465 ft	2178
Bottom of salt	3160 ft	483
Top of Yates	3710 ft	-67
Top of Queen	4608 ft	-965
Top of Delaware Sand	5730 ft	-2087

We interpret the anhydrite at 1465 ft to represent the Permian Rustler Formation, which is the uppermost major anhydrite-bearing formation in the Delaware basin[4above; 7above] and also the bottom of the USDW. A log for nearby oil well Quail Ridge 32 State #4H about 1400 ft southwest of the proposed injection well shows the top of the Rustler Formation near 1500 ft deep, which is reasonably compatible with the top of anhydrite logged in Redhawk 32. The bottom of salt is interpreted as the base of the Permian Salado Formation. The Yates and Queen formations are part of the Permian Artesia Group. The top of the Delaware Group, which contains the proposed injection intervals, is at 5730 ft depth. The well log does not identify any formations above the 1465-foot deep Rustler Formation.

Hiss[5above] provides a cross section of Triassic and Permian stratigraphy approximately four miles south of Redhawk 32, based on oil and gas drilling logs. Hiss maps the elevation of the top of the Rustler at about 2100 ft above mean sea level (msl), compatible with the top of anhydrite elevation in Redhawk 32 (2178 ft msl) and a slight dip of beds toward the southeast[6above]. The base of Salado in Hiss and the Redhawk 32 log both are about 500 ft msl. Herein, we adapt Hiss's stratigraphic thicknesses for formations above the Rustler at the injection site. A summary of the projected depth, thickness, lithology and water quality of geologic formations above the proposed injection zone is provided in Table 1.

Assessment of USDW Formations

Part of the criteria for determining a USDW is whether it currently supplies a public water system. A public water system is one that supplies water to at least 15 service connections, or regularly serves at least 25 individuals[13]. Figure 1 shows water wells from the NMOSE Water Rights Reporting System (WRRS)[9above] database and designated purpose of use. Wells used for stock, domestic, monitoring and oil field service water generally are completed in alluvium or Triassic redbed formations[11above]. Produced water wells are oil wells completed in deeper Permian beds. No public water systems are identified as using groundwater from the region a few miles around the injection site.

The other criterion for determining USDW are whether a formation contains water with TDS less than 10,000 mg/l. Below we describe the data and reasoning behind our

[13] Safe Drinking Water Act, Section 1401 (4) (1996 Amended)

assessment of USDW at the Redhawk 32 site with regard to alluvium, the Chinle, the Santa Rose, the Dewey Lake, the Rustler and the Salado Formations and the underlying Artesia and Delaware Groups. We do not consider any of the formations below the Dewey Lake to be USDW.

The ground surface at the site is covered with dune sand a few inches to 20 feet thick[6above]. The dune sand generally is above the water table and is not an aquifer. Underlying the sand is approximately 50 to 60 ft of alluvium[6above], consisting of silt, sand and gravel which thickens to the west. A stock well about one mile west of Redhawk 32 is reported[6above] to have 66 ft depth to water (while pumping) and to be completed in alluvium. Deeper Triassic Chinle wells near the site have water levels over 100 ft deep. We estimate the depth to the water table at the injection site to be 50 ft or less. The alluvium at the injection site may be unsaturated, but it contains water within a mile and supplies water to wells. In terms of quality, the alluvium has water with TDS of about 2000 mg/l, based on an alluvial stock well ¾ mile northwest of the site (map ID 6 on Figure 3). A chemical analysis for that well is attached for your use in responding to Form C-108 Item XI requesting a chemical analysis for freshwater wells within a mile of the injection site. No other water wells with chemical analyses are reported within one mile of Redhawk 32.

Triassic Chinle Formation underlies the alluvium and provides a source of water in southern Lea County to wells completed in fractured mudstone or sandstone beds[6above]. The Chinle is projected from Hiss to be approximately 800 ft thick. TDS of water in the Chinle ranges 890 to 7280 mg/l. We note that the OSE WRRS[9above] reports a few wells (e.g. OSE File Nos. CP-00748 and CP-00750) drilled 280 to 320 ft into red sandstone and clay interpreted to be the Chinle were "dry holes" that were subsequently plugged. This suggests yields from the Chinle are variable and boreholes drilled to that formation may or may not intersect productive fractures or beds. However, because of the potential for productive wells and TDS of water less than 10,000 mg/l, we consider the Chinle to be a USDW at the site.

Triassic Santa Rosa Formation underlying the Chinle is estimated to be 100 ft thick, and consists mostly of fine- to coarse-grain sandstone. The Santa Rosa is the principal aquifer for domestic and public water in southwestern Lea County and serves as a secondary source of water to the Town of Jal.[6above] Chloride in samples from Santa Rosa wells is reported (Figure 3, Well 22) at 130 to 190 mg/l, which generally correlates to water having TDS less than 10,000 mg/l. The Santa Rosa is a USDW at the injection site.

The Dewey Lake Formation below the Santa Rosa is the uppermost Permian Formation in the region, and is estimated to be 500 ft thick at the injection site. Local information on water quality in the Dewey Lake Formation was not found. No water wells in Lea County are identified as being completed in the Dewey Lake. However, a few wells in southeastern Eddy County 20 to 30 miles southwest of the site are reported[11above] to produce from the Dewey Lake with chlorides ranging 120 to 350 mg/l. These data suggest

that the Dewey Lake Formation at the Redhawk 32 site is likely to contain water of suitable quality and potential yields to qualify as USDW.

The Rustler and underlying formations generally contain water with TDS over 10,000 mg/l. Nicholson and Clebsch[6above] report that "*the top of the Rustler anhydrite formation is regarded as the lower limit of potable groundwater.*" Water quality in the Rustler is not reported locally, but is reported[7above] near the WIPP site in eastern Eddy County as highly mineralized with TDS generally ranging tens to hundreds of thousands of mg/l[14]. The underlying Salado Formation, Artesia Group[15] and Delaware Group also contain saline water with TDS in the tens to hundreds of thousands of mg/l. Accordingly, none of the formations below the Dewey Lake at the injection site are considered to be USDW.

The C-108 Application requests a determination of any USDW immediately below the injection zone. The Redhawk 32 log identifies the Permian Bone Springs Formation below the Delaware Sand at 8260 ft deep. San Andres Formation is not specifically identified, but also may be present. Both formations contain saline water with tens to hundreds of thousands mg/l TDS and are not considered to be USDW.

Conclusions

1. Potential Underground Sources of Drinking Water are present in the subsurface at the proposed Redhawk 32 injection site.

2. The bottom of the Underground Source of Drinking Water zone at the site is 1465 feet deep, corresponding to the bottom of the Dewey Lake Formation and the logged top of the Rustler Formation.

3. Unconsolidated alluvium, Triassic Chinle and Santa Rosa Formations and Permian Dewey Lake Formation are Underground Sources of Drinking Water with total dissolved solids concentrations less than 10,000 mg/l and potential yields to wells.

4. Formations below the Dewey Lake Formation, including the proposed injection zone and formations immediately below are not Underground Sources of Drinking Water, with TDS concentrations above 10,000 mg/l.

---

[14] One well near WIPP has TDS of 3860 mg/l, but we do not consider that to be representative of quality in the Rustler at the injection site.

[15] One well (map ID 19 on Figure 2) is reported to have 9610 mg/l TDS in Artesia Formation. Other Artesia Group wells in the area show TDS of tens to hundreds of thousands mg/l. We consider the TDS values > 10,000 mg/l to be representative of water in the Artesian Group at the injection site.

5. Water wells within a few miles of the site are used for domestic, stock and oil and gas purposes. Most water wells are completed in alluvium or Triassic formations. No public water supply wells are located in the vicinity of the injection site.

6. Ogallala Formation is not present at the site and is not an Underground Source of Drinking Water.

Thanks for asking for this information. Please call with any questions you may have or if you wish to discuss this material in further detail.

Very truly yours,

BALLEAU GROUNDWATER, INC.

Casey W. Cook, P.E.
Hydrologist

CWC/tb
Attachment: Table (1)
Figure (3)
Water Sample Analysis
Redhawk 32 Well Log

cc: Mr. Brian Wood

REDHAWK

TABLE 1. SUMMARY OF FORMATIONS ABOVE PROPOSED INJECTION ZONE

Formation	Approx. Depth to Bottom of Formation [1] (ft)	Estimated Formation Thickness [1] (ft)	Lithology	Representative Values of Chloride (mg/L)	Representative Values of TDS mg/L)	Underground Source of Drinking Water
Sand Dunes	few feet	few feet	Sand	-	-	No
Alluvium	50 +	50	Silt/Sand/Gravel	280 - 290	1700 - 2000	Yes
Chinle	850	800	Red Sandstone and Mudstone	730 - 1500	890 - 7280	Yes
Santa Rosa	950	100	Red Sandstone	130 - 190	-	Yes
Dewey Lake	1465 [2]	500	Sandstone/Siltstone	124 - 350	-	Yes [6]
Rustler	-	100	Anhydrite/Gypsum/Dolomite	-	10,350 - 325,800 [7]	No
Salado	3160 [3]	1600	Gypsum/Salt	-	Brine	No
Artesia Group [4]	5730 [5]	2570	Anhydrite/Dolomite/Sandstone	7600 - 184,000	16,150 - 295,710 [8]	No
Delaware Group	-	-	Sandstone/Dolomite	102,150 - 245,270	152,060 - 340,840	No

[1] Nicholson and Clebsch, 1961; Kelly, 1991; Hiss, 1973; Redhawk 32 Well Log.

[2] Top of anhydrite (Rustler Formation) in Redhawk 32 Well Log.

[3] Bottom of salt (Salado Formation) in Redhawk 32 Well Log.

[4] Includes Yates and Queen formations identified in Redhawk 32 Well Log.

[5] Top of Delaware Sand in Redhawk 32 Well Log.

[5] Reported use in southeast Eddy County (Hendrickson and Jones, 1952); No use from Dewey Lake Formation is reported in Lea County.

[7] WIPP Site, Eddy County (Richey and Others, 1985). TDS of 3860 mg/l is reported in one well south of WIPP, but other wells have TDS tens to hundreds of thousands of mg/l. We consider TDS values > 10,000 mg/l to be representative of the water in the Rustler at the injection site.

[3] One well (map ID 19 on Figure 2) is reported to have 9610 mg/l TDS in Artesia Formation. Other Artesia Group wells in the area show TDS of tens to hundreds of thousands mg/l. We consider the TDS values > 10,000 mg/l to be representative of water in the Artesian Group at the injection site.

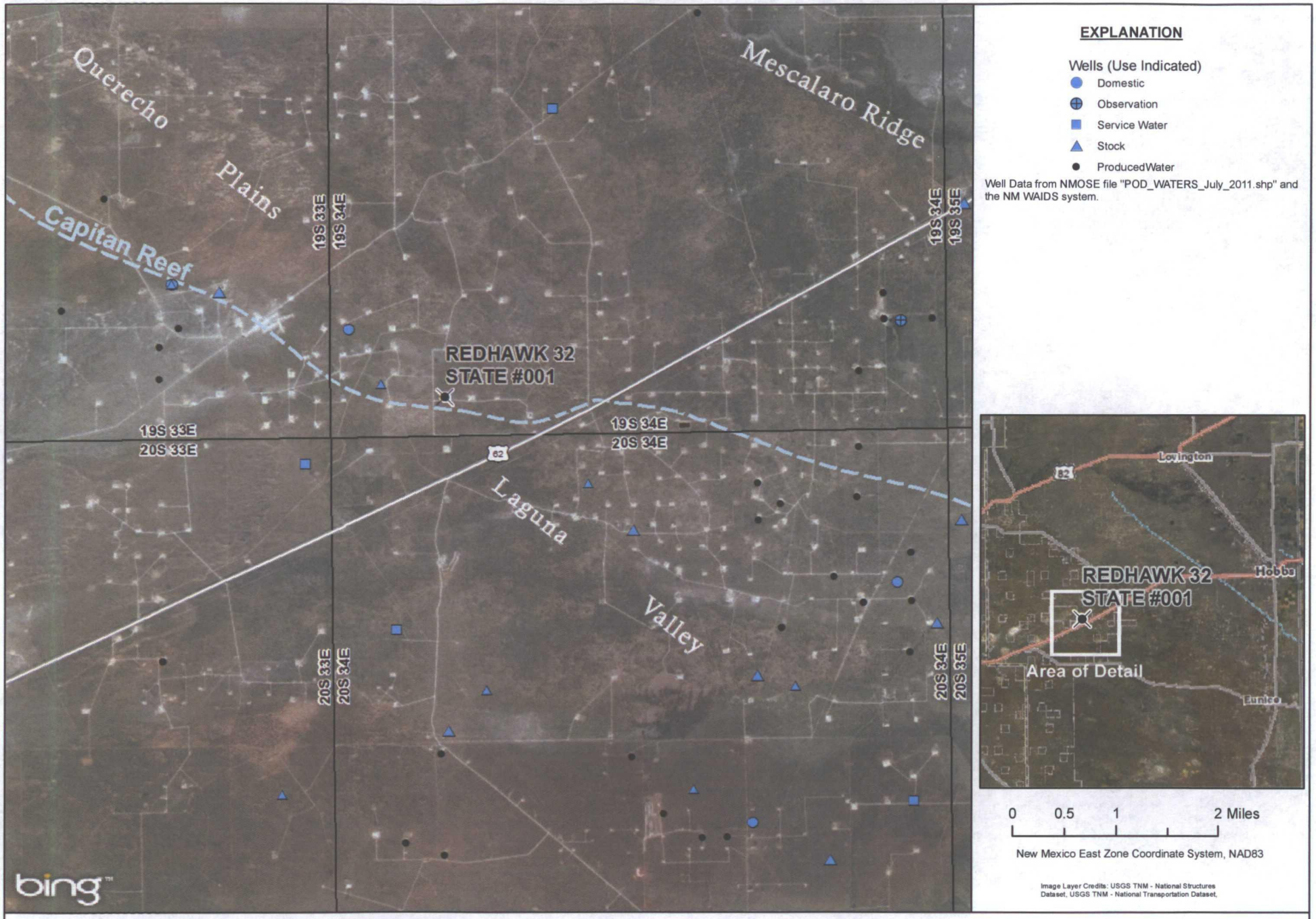
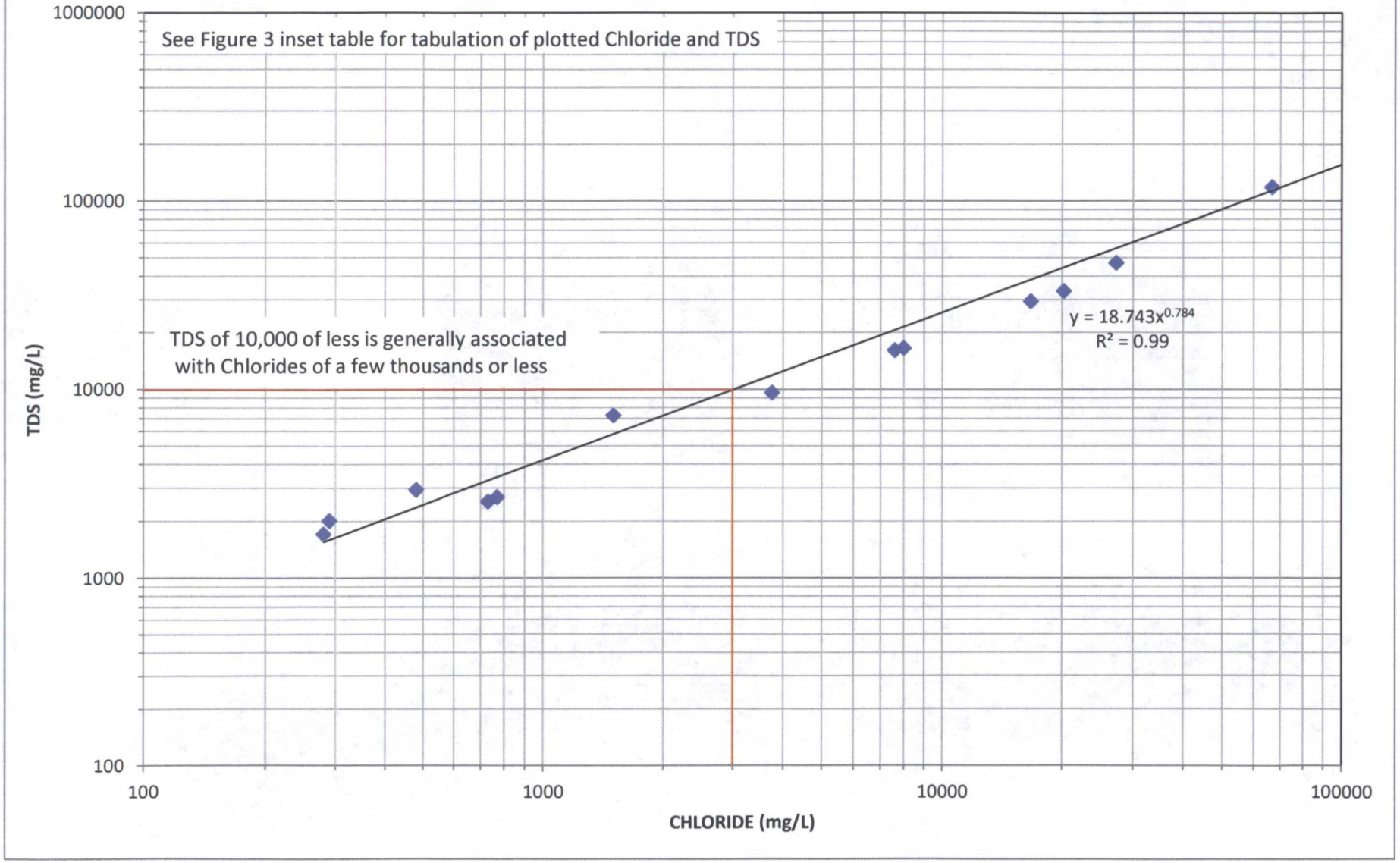


FIGURE 1. LOCALITY MAP

SES/CC File:E:\Clients\BasicEnergyServices\Figure1.mxd Date Saved: 3/12/2013 9:47:42 AM

BALLEAU GROUNDWATER, INC.

FIGURE 2
CHLORIDE vs. TDS

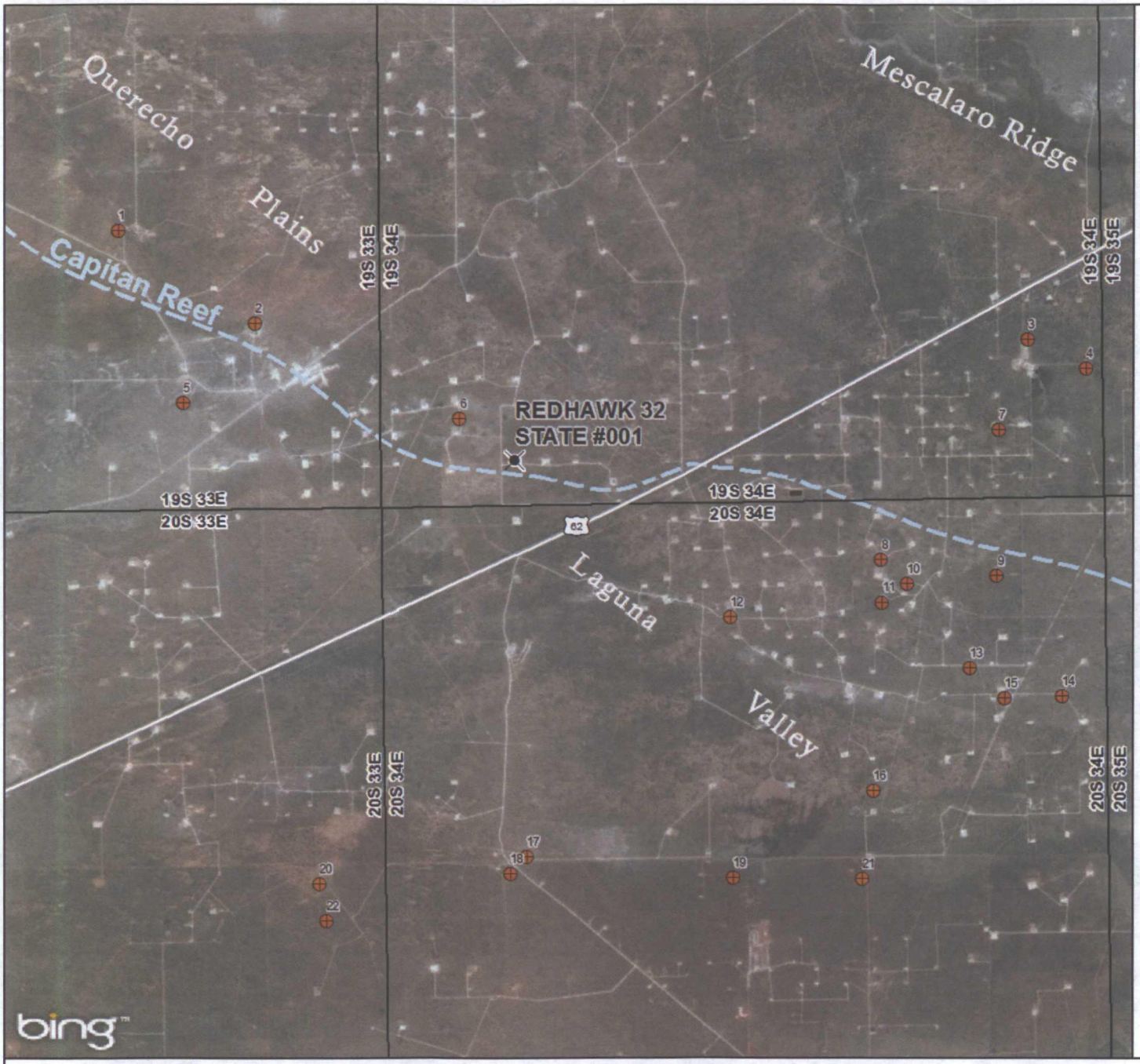


producedwater.xlsb
SES
3/12/2013


"Hughes Well" in NE4 Sec. 31


Approximate location of "Drill Hole" in NWSE Sec. 31.
P & A oil well in foreground

Remains of P&A water well in SESESE Sec. 31.



EXPLANATION

1 = Map ID

Wells with Water Quality Analysis of Produced Water or Groundwater (See Table below for formation, TDS and Chloride values)

Water Quality Data in the Vicinty of Redhawk 32 State #001[1]

Map ID	Well ID	Formation	Use of Well	Sample Date	TDS (mg/L)	Chloride (mg/L)
6	USGS323712103355001	Alluvium	--	9/25/1972	2000	290
2	USGS323749103373301	Alluvium	--	9/25/1972	1700	280
20	USGS323348103370801	Chinle Frm.	--	9/22/1972	892	--
21	USGS323350103322801	Chinle Frm.	--	10/2/1972	2530	730
16	USGS323422103321701	Chinle Frm.	--	10/2/1972	2670	770
17	USGS323359103351501	Chinle Frm.	--	10/2/1972	2930	480
12	USGS323543103332901	Chinle Frm.	--	10/2/1972	7280	1500
22	24 / 20S / 33E	Santa Rosa SS	STK	9/22/1972	--	130
22	24 / 20S / 33E	Santa Rosa SS	STK	3/25/1986	--	189
18	API3002523861	Aretesia Frm.	PW	2/23/1998	33296	20220
15	API3002502427	Aretesia Frm.	PW	--	16595	8000
15	API3002502427	Aretesia Frm.	PW	--	16150	7600
19	API3002502439	Aretesia Frm.	PW	4/26/1957	9610	3760
4	API3002502395	Aretesia Frm.	PW	--	295707	184000
4	API3002502395	Aretesia Frm.	PW	--	288496	181300
7	API3002502405	Aretesia Frm.	PW	--	172201	107800
3	API3002508457	Aretesia Frm.	PW	--	225796	--
5	API3002522597	Aretesia Frm.	PW	6/11/1968	117622	66700
10	API3002531696	Deleware	PW	5/9/2000	152064	102148
11	API3002532105	Deleware	PW	5/9/2000	296822	215237
8	API3002532466	Deleware	PW	5/9/2000	340838	245270
15	API3002502427	Deleware Mnt	PW	--	214787	132700
9	API3002502408	San Andres	PW	--	187065	114800
13	API3002502424	Bone Spring	PW	--	29436	16720
14	API3002502429	Bone Spring	PW	--	121800	--
14	API3002502429	Bone Spring	PW	--	202606	118100
1	API3002501678	Wolfcamp	PW	--	46915	27270

PW= Produced Water

STK = Stock Water

[1] Produced water quality data (wells with API Id) are from: NM WAIDS System, http://octane.nmt.edu/waterquality/data/nmwaidssamplesearch.aspx, accessed February 27, 2013. Groundwater quality data for wells with USGS Well Id are from the USGS National Water Information System, http://waterdata.usgs.gov/nwis, accessed February 26, 2013. Groundwater quality data wells with PLS Id are from the NM WAIDS System, http://octane.nmt.edu/WaterQuality/data/gwatersearch.aspx, accessed February 27, 2013.

0 0.5 1 2 Miles

New Mexico East Zone Coordinate System, NAD83

FIGURE 3. WATER QUALITY IN THE VICINITY OF REDHAWK 32 STATE #001

REDHAWK

WATER SAMPLE ANALYSIS FROM USGS 323712103355001, SEPTEMBER 25, 1972 LOCATED IN 19S.34E.31.232

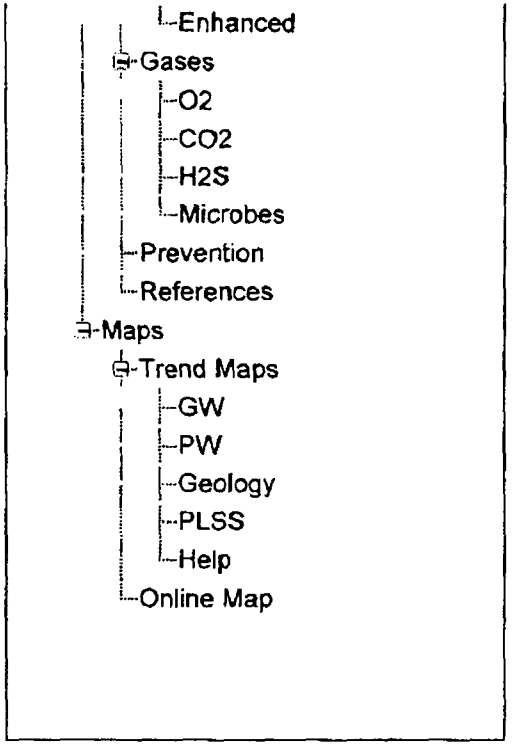
Parameter	Value
Sampling depth, feet	120
Specific conductance, water, unfiltered, microsiemens per centimeter at 25 deg	2960
Hydrogen ion, water, unfiltered, calculated, milligrams per liter	0.00001
pH, water, unfiltered, field, standard units	8
Carbon dioxide, water, unfiltered, milligrams per liter	3.3
Acid neutralizing capacity, water, unfiltered, fixed endpoint (pH 4.5) titrati	171
Bicarbonate, water, unfiltered, fixed endpoint (pH 4.5) titration, field, mill	208
Carbonate, water, unfiltered, fixed endpoint (pH 8.3) titration, field, millig	0
Nitrate plus nitrite, water, filtered, milligrams per liter as nitrogen	0.24
Orthophosphate, water, filtered, milligrams per liter	0.03
Orthophosphate, water, filtered, milligrams per liter as phosphorus	0.01
Hardness, water, milligrams per liter as calcium carbonate	220
Noncarbonate hardness, water, unfiltered, field, milligrams per liter as calci	50
Calcium, water, filtered, milligrams per liter	42
Magnesium, water, filtered, milligrams per liter	28
Sodium, water, filtered, milligrams per liter	590
Sodium adsorption ratio, water, number	17
Sodium fraction of cations, water, percent in equivalents of major cations	85
Potassium, water, filtered, milligrams per liter	2.1
Chloride, water, filtered, milligrams per liter	290
Sulfate, water, filtered, milligrams per liter	930
Fluoride, water, filtered, milligrams per liter	1.2
Silica, water, filtered, milligrams per liter as SiO2	12
Iron, water, filtered, micrograms per liter	
Manganese, water, filtered, micrograms per liter	40
Dissolved solids, water, filtered, sum of constituents, milligrams per liter	2000
Dissolved solids, water, filtered, tons per acre-foot	2.72
Depth of hole, feet below land surface datum	120

Source: National Water Information System: http://waterdata.usgs.gov/nwis, accessed February 26, 2013.

water sample suspects

name in C-108 app. pack	well	API #	formation	operator	where
Diamonte Fed. 21, #1	not found				
Mallon 34 Federal, 19	Mallon 34 Federal 19H	30-025-39894	Bone Spring	Cimarex	H-34-19s-34e
Mallon 35 Federal, 7	Mallon 35 Federal 7H	30-025-40086	Bone Spring	Cimarex	D-35-19s-34e
Mallon 35 Federal, 4	Mallon 35 Federal 4	30-025-39382	Bone Spring	Cimarex	M-35-19s-34e
Mallon 34 Federal, 20	Mallon 34 Federal 20H	30-025-40135	Bone Spring	Cimarex	A-34-19s-34e
Quail Ridge, 32 St. 3H	Quail Ridge 32 State 3	30-025-40040	Bone Spring	Cimarex	I-32-19s-34e
BONDURANT FED., Battery	Bondurant Federal 12H	30-025-40182	Bone Spring	Cimarex	B-1-19s-32e
BONDURANT FED., Battery	Bondurant Federal Com 1	30-025-26702	Bone Spring	Cimarex	I-1-19s-32e
BONDURANT FED., Battery	Bondurant Federal Com 2	30-025-30972	Bone Spring	Cimarex	H-1-19s-32e

General Information About: Sample 11157			
Section/ Township/Range	31 / 19S / 34E	Lat/Long	32.6168/-103.5991
Elevation	3632	Depth	0
Date Collected	10/8/1976 12:00:00 AM	Chlorides	297
Collector / Point of Collection	SEO/DP	Use	Stock
Formation	OAL	TDS	0



PETROLEUM RECOVERY RESEARCH CENTER, SOCOI

select	4	31	19S	34E	19S.34E.31.232112	

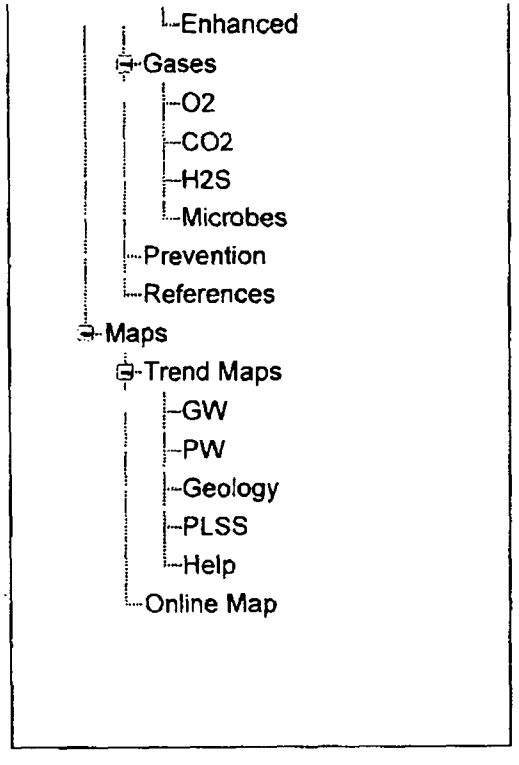
Water Samples for Township 19SRANGE 34E Section 31 Location 19S.34E.31.232112

Operation	SampleID	Township	Range	Section	Formation	Location	Date	Chlorides
select	12560	19S	34E	31	OAL	19S.34E.31.232112	11/17/1965	289
select	11632	19S	34E	31	OAL	19S.34E.31.232112	8/20/1976	298
select	11766	19S	34E	31	OAL	19S.34E.31.232112	9/25/1972	290
select	11157	19S	34E	31	OAL	19S.34E.31.232112	10/8/1976	297

General Information About: Sample 12560			
Section/ Township/Range	31 / 19S / 34E	Lat/Long	32.6168/-103.5991
Elevation	3632	Depth	0
Date Collected	11/17/1965 12:00:00 AM	Chlorides	289
Collector / Point of Collection	SEO/DP	Use	Stock
Formation	OAL	TDS	0

General Information About: Sample 11632			
Section/ Township/Range	31 / 19S / 34E	Lat/Long	32.6168/-103.5991
Elevation	3632	Depth	0
Date Collected	8/20/1976 12:00:00 AM	Chlorides	298
Collector / Point of Collection	SEO/DP	Use	Stock
Formation	OAL	TDS	0

General Information About: Sample 11766			
Section/ Township/Range	31 / 19S / 34E	Lat/Long	32.6168/-103.5991
Elevation	3632	Depth	0
Date Collected	9/25/1972 12:00:00 AM	Chlorides	290
Collector / Point of Collection	USG/DP	Use	Stock
Formation	OAL	TDS	0



PETROLEUM RECOVERY RESEARCH CENTER, SOCORR

select	4	31	19S	34E	19S.34E.31.232112	

Water Samples for Township 19SRANGE 34E Section 31 Location 19S.34E.31.13220

Operation	SampleID	Township	Range	Section	Formation	Location	Date	Chlorides
select	11913	19S	34E	31	OAL	19S.34E.31.13220	11/17/1965	717

General Information About: Sample 11913			
Section/ Township/Range	31 / 19S / 34E	Lat/Long	32.6168/-103.5991
Elevation	3623	Depth	66
Date Collected	11/17/1965 12:00:00 AM	Chlorides	717
Collector / Point of Collection	SEO/DP	Use	Stock
Formation	OAL	TDS	0

General Information About: Sample 3828			
Section/ Township/Range	12 / 19S / 34E	Lat/Long	32.6748/-103.5133
Elevation	3928	Depth	
Date Collected	9/7/1995 12:00:00 AM	Chlorides	36
Collector / Point of Collection	SEO/DP	Use	Stock
Formation	OGALLALA	TDS	

North American Oil and Gas News

ZaZa Energy reports record 2012 third quarter results

Deep Down reports third quarter 2012 results

ONEOK Partners announces open season for Bakken NGL pipeline

Saratoga Resources reports result of operations and third quarter 2012 financials

Source: Oil Voice

NYMEX LS Crude	**85.54**
Navajo WTXI	**0**
Henry Hub	**3.57**
Updated :	11/12/2012

State Land Office Data Access

OCD well/log image files

PRRC NM-TECH NM-BGM

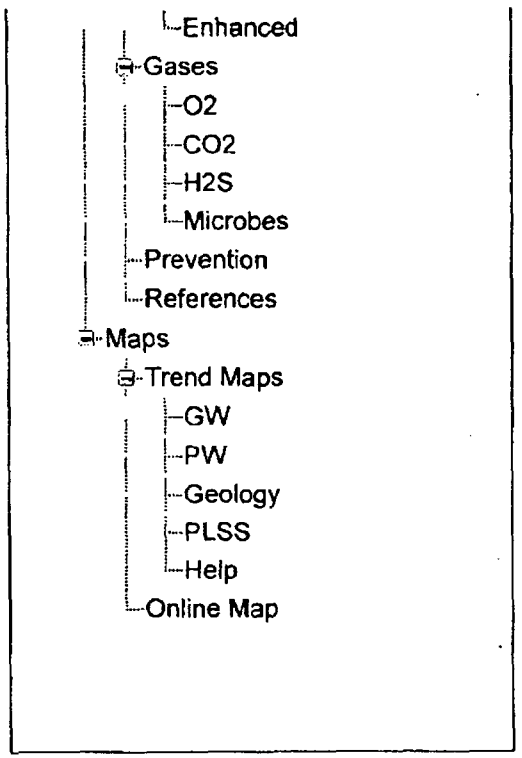
Ground Water Samples Query

Water Sample Search

SECTION	32
Township	19S
Range	34E
Formation	
DATE	
CHLORIDE (mg/L)	

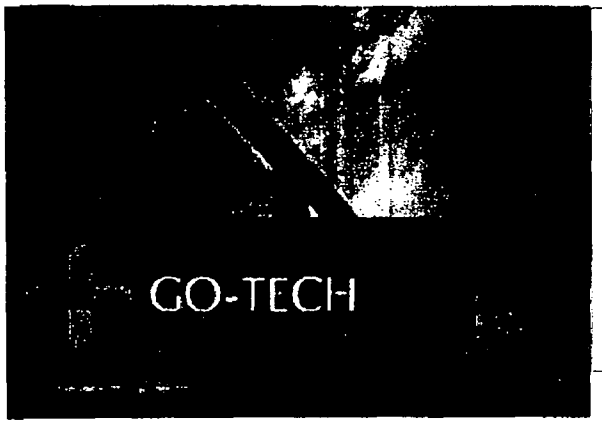
Find | Export Data

Water Samples for TOWNSHIP 19S RANGE 34E SECTION 32



Water Samples for Township 19SRANGE 34E Section 03 Location 19S.34E.03.41213

PETROLEUM RECOVERY RESEARCH CENTER, SOCORRO, NM-87801



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Source: Oil Voice

NYMEX LS Crude	**85.54**
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Updated :	11/12/2012

State Land Office Data Access

OCD well/log image files

PRRC NM-TECH NM-BGI

~ Home>>~ Water Data>>Ground Water

NM WAIDS
- Data
  - Produced Water
  - Ground Water
  - Conversion Tools
- Scale
  - Scale details
  - Stiff
  - Oddo
  - Probable Mineral Composition
  - mix
- Corrosion
  - Theory
    - Uniform
    - Galvanic
    - Crevice
    - Hydrogen Damage
    - EIC
    - Erosion
  - Equipment
    - Artificial
    - Casing and Tubing
    - Surface

Ground Water Samples Query

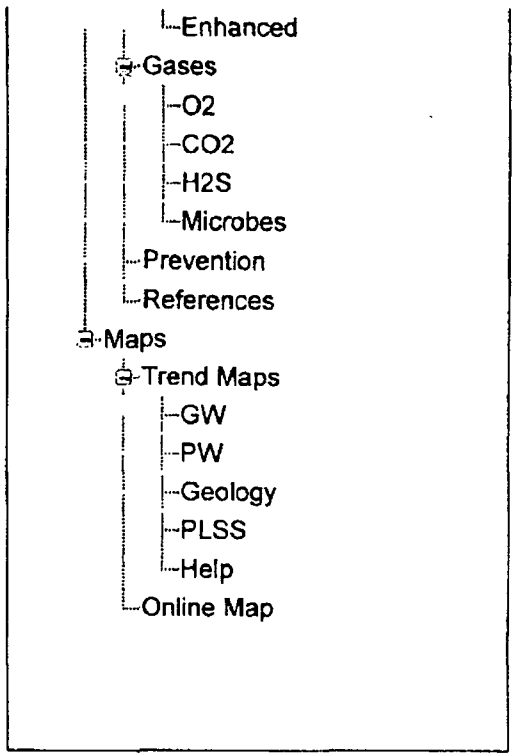
Water Sample Search

SECTION
Township 19S
Range 34E
Formation
DATE
CHLORIDE (mg/L)

Find | Export Data

Water Samples for TOWNSHIP 19S RANGE 34E

Operation	# of samples	S	T	R	Location (qtr/qtr)
select	2	03	19S	34E	19S.34E.03.41213
select	2	09	19S	34E	19S.34E.09.24231
select	4	12	19S	34E	19S.34E.12.24432
select	1	31	19S	34E	19S.34E.31.13220



PETROLEUM RECOVERY RESEARCH CENTER, SOCORRO

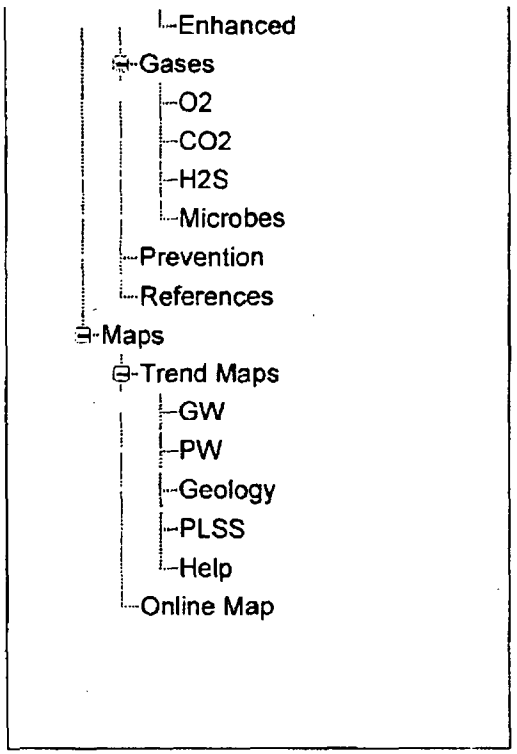
select	4	31	19S	34E	19S.34E.31.232112	

Water Samples for Township 19SRANGE 34E Section 03 Location 19S.34E.03.41213

Operation	SampleID	Township	Range	Section	Formation	Location	Date	Chlorides
select	6627	19S	34E	03	OGALLALA	19S.34E.03.41213	10/23/1979	20
select	5673	19S	34E	03	OGALLALA	19S.34E.03.41213	7/18/1984	26

General Information About: Sample 6627			
Section/ Township/Range	03 / 19S / 34E	Lat/Long	32.6893/-103.5477
Elevation	3968	Depth	0
Date Collected	10/23/1979 12:00:00 AM	Chlorides	20
Collector / Point of Collection	SEO/DP	Use	Stock
Formation	OGALLALA	TDS	0

General Information About: Sample 5673			
Section/ Township/Range	03 / 19S / 34E	Lat/Long	32.6893/-103.5477
Elevation	3968	Depth	0
Date Collected	7/18/1984 12:00:00 AM	Chlorides	26
Collector / Point of Collection	SEO/DP	Use	Stock
Formation	OGALLALA	TDS	0



PETROLEUM RECOVERY RESEARCH CENTER, SOCORR

select	4	31	19S	34E	19S.34E.31.232112	

Water Samples for Township 19SRANGE 34E Section 09 Location 19S.34E.09.24231

Operation	SampleID	Township	Range	Section	Formation	Location	Date	Chlorides
select	13107	19S	34E	09	OAL	19S.34E.09.24231	12/9/1958	560
select	10829	19S	34E	09	OAL	19S.34E.09.24231	10/16/1979	238

General Information About: Sample 13107			
Section/ Township/Range	09 / 19S / 34E	Lat/Long	32.6748/-103.5643
Elevation	3890	Depth	33
Date Collected	12/9/1958 12:00:00 AM	Chlorides	560
Collector / Point of Collection	SEO/DP	Use	Stock
Formation	OAL	TDS	0

General Information About: Sample 10829			
Section/ Township/Range	09 / 19S / 34E	Lat/Long	32.6748/-103.5643
Elevation	3980	Depth	33
Date Collected	10/16/1979 12:00:00 AM	Chlorides	238
Collector / Point of Collection	SEO/DP	Use	Stock
Formation	OAL	TDS	0

- Enhanced
- Gases
  - O2
  - CO2
  - H2S
  - Microbes
- Prevention
- References
- Maps
- Trend Maps
  - GW
  - PW
  - Geology
  - PLSS
  - Help
- Online Map

PETROLEUM RECOVERY RESEARCH CENTER, SOCORR

select	4	31	19S	34E	19S.34E.31.232112	

Water Samples for Township 19SRANGE 34E Section 12 Location 19S.34E.12.24432

Operation	SampleID	Township	Range	Section	Formation	Location	Date	Chlorides
select	6235	19S	34E	12	OGALLALA	19S.34E.12.24432	10/23/1979	52
select	5621	19S	34E	12	OGALLALA	19S.34E.12.24432	7/18/1984	41
select	5082	19S	34E	12	OGALLALA	19S.34E.12.24432	6/13/1990	72
select	3828	19S	34E	12	OGALLALA	19S.34E.12.24432	9/7/1995	36

General Information About: Sample 6235			
Section/ Township/Range	12 / 19S / 34E	Lat/Long	32.6748/-103.5133
Elevation	3928	Depth	0
Date Collected	10/23/1979 12:00:00 AM	Chlorides	52
Collector / Point of Collection	SEO/DP	Use	Stock
Formation	OGALLALA	TDS	0

General Information About: Sample 5621			
Section/ Township/Range	12 / 19S / 34E	Lat/Long	32.6748/-103.5133
Elevation	3928	Depth	0
Date Collected	7/18/1984 12:00:00 AM	Chlorides	41
Collector / Point of Collection	SEO/DP	Use	Stock
Formation	OGALLALA	TDS	0

General Information About: Sample 5082			
Section/ Township/Range	12 / 19S / 34E	Lat/Long	32.6748/-103.5133
Elevation	3928	Depth	0
Date Collected	6/13/1990 12:00:00 AM	Chlorides	72
Collector / Point of Collection	SEO/DP	Use	Stock
Formation	OGALLALA	TDS	0

XII

Affirmative Statement

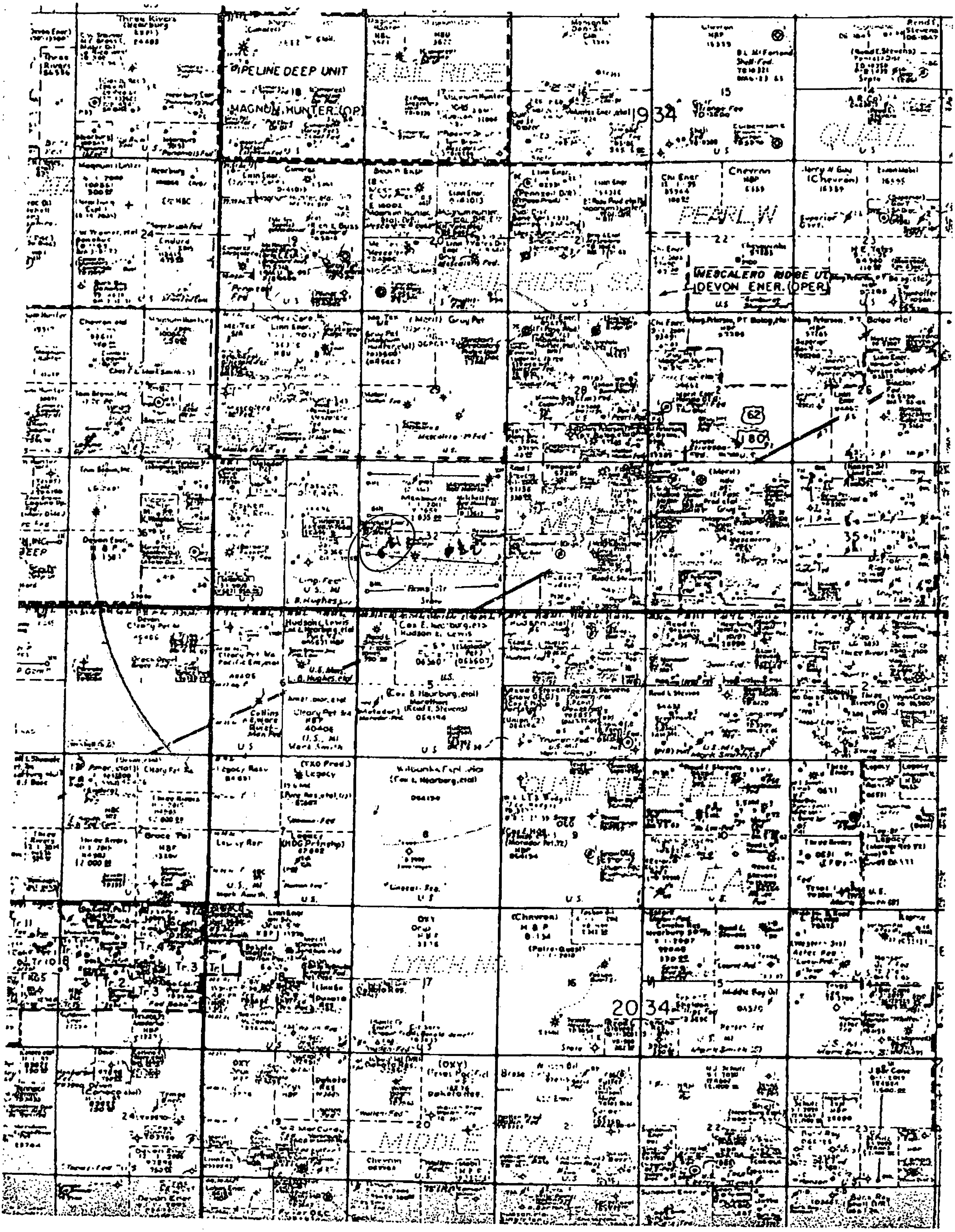
See Denise Powers Written

V

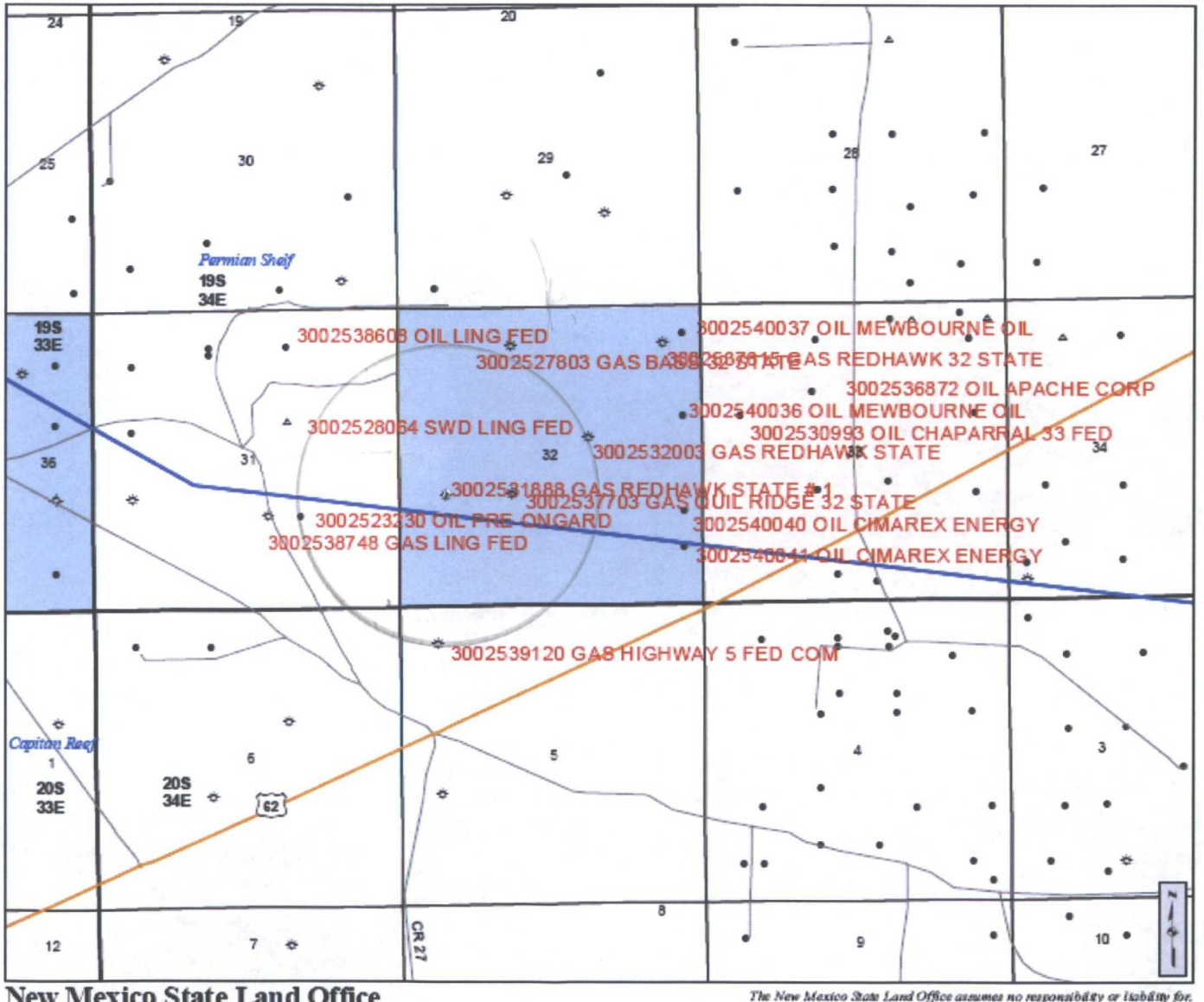
Identification Plat Map within Two Mile of Proposed Well

With

One-Half Mile Radius Map Identifying all Wells in AOR


PIPELINE DEEP UNIT
MAGNUM HUNTER (OP)
9 34
PEARL W
MESCALERO RIDGE UT
DEVON ENER. (OPER)
62
180
20 34
LYNCH
MIDDLE LYNCH

AOR ½ MILE
REDHAWK 32 STATE # 1
API # 3002531888
LEA COUNTY



New Mexico State Land Office
Oil, Gas, and Minerals

0 0.1 0.2 0.4 0.6 0.8 Miles

Universal Transverse Mercator Projection, Zone 13

1983 North American Datum

The New Mexico State Land Office assumes no responsibility or liability for, or in connection with, the accuracy, reliability or use of the information provided here, in State Land Office data layers or any other data layer.

Land Office Geographic Information Center
logic@slo.state.nm.us

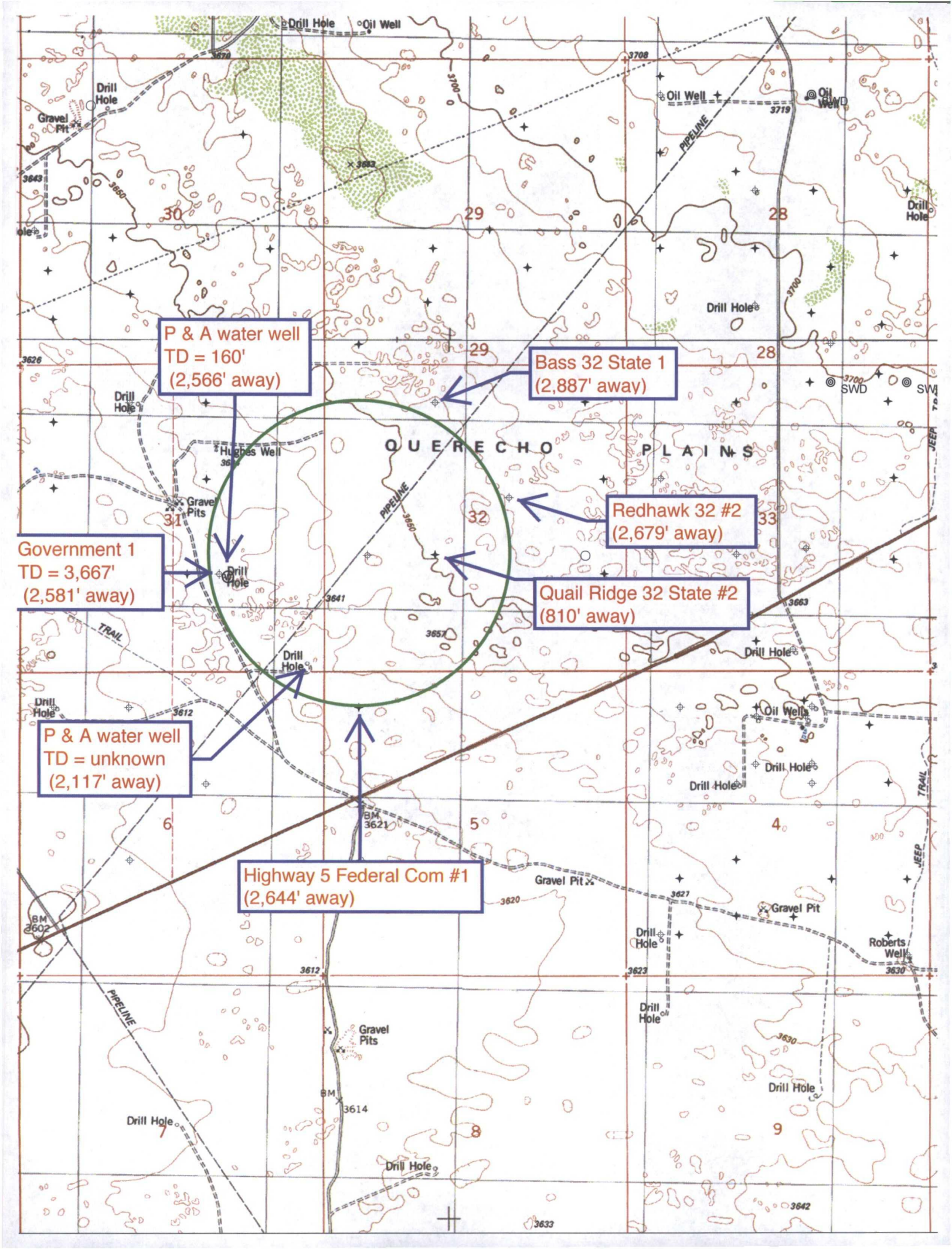
VI

Tabulation of Data in One-Half Mile AOR

And

Schematic of Wells that Penetrate our Injection Zone that Are Plugged


mile radius
Redhawk 32 State 1
QUERECHO PLAINS
Hughes Well
Gravel Pits
Drill Hole
Oil Well
Oil Wells
SWD
Gravel Pit
Roberts Well
PIPELINE
JEEP TRAIL
BM 3621
BM 3602
BM 3614
30
29
28
31
32
33
6
5
4
7
8
9


P & A water well
TD = 160'
(2,566' away)
Bass 32 State 1
(2,887' away)
Redhawk 32 #2
(2,679' away)
Government 1
TD = 3,667'
(2,581' away)
Quail Ridge 32 State #2
(810' away)
P & A water well
TD = unknown
(2,117' away)
Highway 5 Federal Com #1
(2,644' away)
QUERECHO PLAINS
Drill Hole
Oil Well
Gravel Pit
Gravel Pits
Hughes Well
PIPELINE
TRAIL
JEEP
SWD
BM 3621
BM 3602
BM 3614
Roberts Well
29
28
30
31
32
33
6
5
4
7
8
9

Subject well

VI Tabulation Of Data In 1/2 Mile AOR
ALL Wells that Penetrate Proposed Injection Zone @ 7,406' - 8,118'
RedHawk 32 State # 1
(L) Sec 32 T19S R34E 1980' FSL, 810' FWL
API 3002531888 LEA County NM

API	Legals	Type	Surface Csg.	Interm. Csg.	Production Csg.	Open Hole	Date Drilled	TD	Record of Completion
3002531888	(L) Sec 32-T19S-34E	Gas	13 3/8", 54.5# set @ 625'	8 5/8" 32# set @ 5241'	5 1/2" 17# set @ 13658'	None	4/6/1993	13,660'	4/21/93 Morrow 13,298 - 338'
	1980'FSL, 810FWL		500 sx Cir. Surf.	3250 sx Cir.Surf.	1850sx Cir. Surf. DV @ 9633'				P&A
3002527803	(C) Sec 32-T19S-R34E	Gas	11 3/4", 42# set @ 500'	8 5/8 ", 24# & 28# set @ 4598'	5 1/2", 17# set @ 13,600'	Yes	11/1/1991	13,660'	9/13/82 13,481'-13,499' Morrow, 11/1/91 9,480'-9544' Bone S.
A	660' FNL, 1980' FWL		400 sx Class C	350 sx Lite C	350 sx, Class H	6720-4598	Bass 32 State 1		P&A
OUT OF AOR					Pull 6800' 5 1/2" 11/23/04				
3002532003	(J) Sec32-T19S-R34E	Gas	11 3/8", 54.5# set @ 504'	8 5/8", 32# set @ 5255'	5 1/2", 17# set @ 13,610'	Yes	8/17/1993	13,612'	Morrow (12,202' - 13,482') Dry Hole
B	2310' FNL & 1980' FEL		750 sx "C" Cir. Surf.	3450 sx Cir. Surf	950 sx TOC EST. @ 9000'	7483'-5300'	Redhawk 32 #2		P&A
OUT OF AOR					Pull 7486' 5 1/2"				
3002537703	(K) Sec32-T19S-R34E	Gas	13 3/8", 48# set @ 437'	9 5/8", 40# set @ 3225'	5 1/2", 17# set @ 13675'	None	4/30/2006	13,682	6/9/06 13276-13566 Quail Ridge Morrow
(in AOR)	1980' FSL, 1980' FWL		390 sx Cir. Surf.	980 sx Cir. Surf.	2055 sx TOC 3000'	Quail Ridge 32 State 2			Active
3002539120	(D) Sec 5-T20S-R34E	Gas	13 3/8" 54# set @ 1600'	8 5/8" n/a# set @ 5044'	5 1/2" 20# & 17# set @ 7696'	None	3/17/2008	13,750'	4/18/08 13,514-24 ,13202-284 Morrow
OUT OF AOR	660' FNL, 660' FWL		1125 sx, Cir. Surf	1698 sx Cir. Surf	1275sx CBL @ 3,860'	Highway 5 Federal Com 1			Active

CURRENT (A)

Basic Energy Services LP
Bass 32 State No. 001
660FNL & 1980FWL Unit C Sec.32 T19S R34E
API # 30-025-27803

Plug 10sx
30' - Surf.

Tree Conection P&A

Surface Casing: 11 3/4" 42#

Surface Hole
Bit Size 14 3/4"

Plug 45sx
550'- 405' Tag

Setting Depth @ 500' 400sx Circulated

Plug 40sx
1,650'-1,503'

Plug 40sx
2,500'- 2,353'

Inter. Hole
Bit Size 11"

Plug 90sx
4,548'- 4,401' Tag

Interm. Casing: 8 5/8" 24# & 28#

Setting Depth: 4,598' 350sx Lite "C"

Plug 35sx @ 6,850'-6,720 & Tag

5 1/2 cut @ 6800'

Cement Data:

Lead -

Tail -

Note -

Plug 30sx @ 8,000'-7,800'

CIBP @ 9,380' +35' Top-9,345'

CIBP @10,106'-10,126' + 35' cmt.

CIBP @ 12,995' + 35' cmt.

PBTD: 9,864'

Production Csg.: 5 1/2" 17#

Bit size 7 7/8"

Setting Depth @ 13,600' 350 sx Class H
11/23/2004 Pulled 6,800' of 5 1/2"

TD @ 13,660'

Current B

JUST OUT of ½ mi AOR

Basic Energy Services LP
Redhawk 32 # 2
1980' FSL, 1980'FEL, Unit (J), Sec 32, T19S, R34E
API # 30-025-32003

Plug @ 38.5' - Surf

Tree Conection P&A

Surface Casing: 13 3/8" 54.5#

Surface Hole
Bit Size 17 1/2"

Setting Depth @ 504' 750sx Class C
Circulated to Surf.

Plug @ 1000' - 728' est. top

Plug @ 3170' - 3054' est. top

Inter. Hole
Bit Size 12 1/2"

Interm. Casing: 8 5/8" 32#

Setting Depth: 5255' 750 "C" + 2700 thru DV
Circulated to Surf

Plug @ 5300' - 5255'

Cement Data:

Lead - 950sx "H" Est. TOC @ 9000'

Tail -

Note - Attempt to cut FP csg.@ 8486'
Attempt to cut csg.@ 7926'
Csg. Cut @ 7486' POH

Plug @ 7545' - tag TOC @ 7463'

Plug @ 8012' - 7709' 30sx

Plug @ 8536' - 8283' 25sx

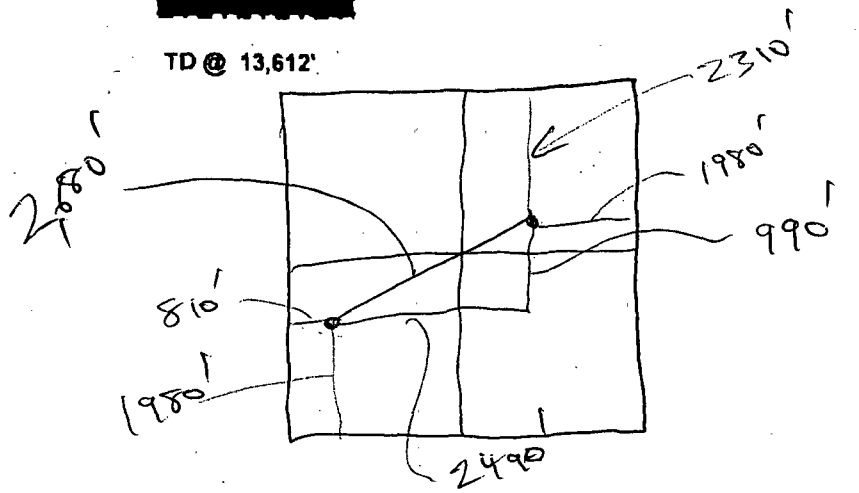
PBTD: 13,030'

Production Csg.: 5 1/2" 17#

Bit size 7 7/8"

Setting Depth @ 13,610'

TD @ 13,612'



Water Samples for Sect 32 Township 19 South R ge 34 East Formation ARTE A(Chlorides>5000) and (Chlorides<10000)

Instructions:

The number represents the number of water samples of certain well. Click the number if you want to download the data.

No Record Is Found!

# of samples	S	T	R	Formation	Date	Chlorides (mg/L)	Location (qtr/qtr)

Water Samples for Sect 32 Township 19 South Range 34 East Formation GOAT SEEP(Chlorides>5000) and (Chlorides<10000)

Instructions:

The number represents the number of water samples of certain well. Click the number if you want to download the data.

No Record Is Found!

# of samples	S	T	R	Formation	Date	Chlorides (mg/L)	Location (qtr/qtr)

Water Samples for Sect 32 Township 19 South Range 34 East Formation CAP(Chlorides>5000) and (Chlorides<10000)

Instructions:

The number represents the number of water samples of certain well. Click the number if you want to download the data.

No Record Is Found!

# of samples	S	T	R	Formation	Date	Chlorides (mg/L)	Location (qtr/qtr)

Water Samples for Sect 32 Township 19 South Range 34 East Formation DEWEY LAKE(Chlorides>5000) and (Chlorides<10000)

Instructions:

The number represents the number of water samples of certain well. Click the number if you want to download the data.

No Record Is Found!

# of samples	S	T	R	Formation	Date	Chlorides (mg/L)	Location (qtr/qtr)

Water Samples for Sect 32 Township 19 South Range 34 East Formation OGALLALA(Chlorides>5000) and (Chlorides<10000)

Instructions:
The number represents the number of water samples of certain well. Click the number if you want to download the data.

No Record Is Found!

# of samples	S	T	R	Formation	Date	Chlorides (mg/L)	Location (qtr/qtr)

SELECT/DESELECT ALL

Water Samples for Sect 32 Township 19 South Range 34 East Formation SANTA ROSA(Chlorides>5000) and (Chlorides<10000)

Instructions:
The number represents the number of water samples of certain well. Click the number if you want to download the data.

No Record Is Found!

# of samples	S	T	R	Formation	Date	Chlorides (mg/L)	Location (qtr/qtr)

Water Samples for Sect 32 Township 19 South Range 34 East Formation RSLR(Chlorides>5000) and (Chlorides<10000)

Instructions:
The number represents the number of water samples of certain well. Click the number if you want to download the data.

No Record Is Found!

# of samples	S	T	R	Formation	Date	Chlorides (mg/L)	Location (qtr/qtr)

SELECT/DESELECT ALL

Water Samples for Sect 32 Township 19 South Range 34 East Formation CRET(Chlorides>5000) and (Chlorides<10000)

Instructions:
The number represents the number of water samples of certain well. Click the number if you want to download the data.

No Record Is Found!

# of samples	S	T	R	Formation	Date	Chlorides (mg/L)	Location (qtr/qtr)

SELECT/DESELECT ALL

Water Samples for Sect 32 Township 19 South Range 34 East Formation TRIASSIC(Chlorides>5000) and (Chlorides<10000)

Instructions:
The number represents the number of water samples of certain well. Click the number if you want to download the data.

No Record Is Found!

Analytical Laboratory Report for:

BAKER HUGHES

Account Representative:
Willis Mossman

Production Water Analysis

Listed below please find water analysis report from: Diamonte Fed. 21, #1

Lab Test Number	Sample Date
2011114991	05/19/2011

Specific Gravity:	1.047
TDS:	70387
pH:	6.70

Cations	mg/L
Calcium as Ca^{++}	2350
Magnesium as Mg^{++}	345
Sodium as Na^{+}	22130
Iron as Fe^{++}	140.00
Potassium as K^{+}	157.0
Barium as Ba^{++}	1.07
Strontium as Sr^{++}	156.00
Manganese as Mn^{++}	2.43

Anions	mg/L
Bicarbonate as HCO_3^{-}	305
Sulfate as $SO_4^{=}$	700
Chloride as Cl^{-}	44100

Gases	mg/L
Carbon Dioxide as CO_2	60
Hydrogen Sulfide as H_2S	0.0

Analytical Laboratory Report for:

BAKER HUGHES

Account Representative:
Willie Mossman

DownHole SAT™ Scale Prediction @ 100 deg. F

Lab Test Number	Sample Date	Location
2011114991	05/19/2011	#1

Mineral Scale	Saturation Index	Momentary Excess (lbs/1000 bbls)
Calcite (CaCO3)	2.08	0.16
Strontianite (SrCO3)	0.21	-1.75
Anhydrite (CaSO4)	0.19	-1681.64
Gypsum (CaSO4*2H2O)	0.25	-1400.35
Barite (BaSO4)	2.28	1.02
Celestite (SrSO4)	0.32	-349.74
Siderite (FeCO3)	187.62	0.36
Halite (NaCl)	0.01	-496420.69
Iron sulfide (FeS)	0.00	-0.04

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 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) to positive (precipitating) values. The Momentary Excess represents the amount of scale possible while the Saturation Level represents the probability that scale will form.

Analytical Laboratory Report for:

BAKER HUGHES

Account Representative:
Lavell Hanson

Production Water Analysis

Listed below please find water analysis report from: MALLON 34 FEDERAL, 19

Lab Test Number	Sample Date
2011109993	04/08/2011

Specific Gravity:	1.055
TDS:	83623
pH:	6.50

Cations	mg/L
Calcium as Ca^{++}	2770
Magnesium as Mg^{++}	550
Sodium as Na^{+}	27227
Iron as Fe^{++}	36.00
Potassium as K^{+}	630.0
Barium as Ba^{++}	1.88
Strontium as Sr^{++}	282.00
Manganese as Mn^{++}	1.81

Anions	mg/L
Bicarbonate as HCO_3^{-}	244
Sulfate as $SO_4^{=}$	680
Chloride as Cl^{-}	51200

Gases	mg/L
Carbon Dioxide as CO_2	60
Hydrogen Sulfide as H_2S	0.0

Analytical Laboratory Report for:

BAKER HUGHES

Account Representative:
Lavell Hanson

DownHole SAT™ Scale Prediction @ 100 deg. F

Lab Test Number	Sample Date	Location
2011109993	04/08/2011	19

Mineral Scale	Saturation Index	Momentary Excess (lbs/1000 bbls)
Calcite (CaCO3)	1.15	0.02
Strontianite (SrCO3)	0.16	-1.12
Anhydrite (CaSO4)	0.20	-1527.15
Gypsum (CaSO4*2H2O)	0.26	-1280.30
Barite (BaSO4)	3.16	2.18
Celestite (SrSO4)	0.46	-286.06
Siderite (FeCO3)	21.03	0.16
Halite (NaCl)	0.02	-481332.34
Iron sulfide (FeS)	0.00	-0.29

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 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) to positive (precipitating) values. The Momentary Excess represents the amount of scale possible while the Saturation Level represents the probability that scale will form.

Analytical Laboratory Report for:

BAKER HUGHES

Account Representative:
Lavell Hanson

Production Water Analysis

Listed below please find water analysis report from: Mallon 35 Federal, 7

Lab Test Number	Sample Date
2011133150	11/04/2011

Specific Gravity:	1.051
TDS:	76612
pH:	6.90

Cations	mg/L
Calcium as Ca^{++}	2352
Magnesium as Mg^{++}	380
Sodium as Na^{+}	23459
Iron as Fe^{++}	16.36
Potassium as K^{+}	407.6
Barium as Ba^{++}	1.38
Strontium as Sr^{++}	230.28
Manganese as Mn^{++}	0.00
Zinc as Zn^{++}	72.20

Anions	mg/L
Bicarbonate as HCO_3^{-}	244
Sulfate as $SO_4^{=}$	650
Chloride as Cl^{-}	48800

Gases	mg/L
Carbon Dioxide as CO_2	90
Hydrogen Sulfide as H_2S	0.0

Analytical Laboratory Report for:

Account Representative:
Lavell Hanson

DownHole SAT™ Scale Prediction @ 100 deg. F

Lab Test Number	Sample Date	Location
2011133150	11/04/2011	7

Mineral Scale	Saturation Index	Momentary Excess (lbs/1000 bbls)
Calcite (CaCO3)	2.58	0.23
Strontianite (SrCO3)	0.36	-1.01
Anhydrite (CaSO4)	0.17	-1735.54
Gypsum (CaSO4*2H2O)	0.23	-1475.04
Barite (BaSO4)	2.50	1.41
Celestite (SrSO4)	0.41	-314.58
Siderite (FeCO3)	25.89	0.43
Halite (NaCl)	0.02	-485574.22
Iron sulfide (FeS)	0.00	-0.24

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 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) to positive (precipitating) values. The Momentary Excess represents the amount of scale possible while the Saturation Level represents the probability that scale will form.

Analytical Laboratory Report for:

BAKER HUGHES

Account Representative:
Lavell Hanson

Production Water Analysis

Listed below please find water analysis report from: MALLON 35 FEDERAL, 4

Lab Test Number	Sample Date
2011109995	04/08/2011

Specific Gravity:	1.084
TDS:	127792
pH:	6.50

Cations	mg/L
Calcium as Ca^{++}	4418
Magnesium as Mg^{++}	815
Sodium as Na^{+}	37530
Iron as Fe^{++}	38.00
Potassium as K^{+}	850.0
Barium as Ba^{++}	1.30
Strontium as Sr^{++}	365.00
Manganese as Mn^{++}	2.35

Anions	mg/L
Bicarbonate as HCO_3^{-}	122
Sulfate as $SO_4^{=}$	650
Chloride as Cl^{-}	83000

Gases	mg/L
Carbon Dioxide as CO_2	60
Hydrogen Sulfide as H_2S	0.0

Analytical Laboratory Report for:

BAKER HUGHES

Account Representative:
Lavell Hanson

DownHole SAT™ Scale Prediction @ 100 deg. F

Lab Test Number	Sample Date	Location
2011109995	04/08/2011	4

Mineral Scale	Saturation Index	Momentary Excess (lbs/1000 bbls)
Calcite (CaCO3)	0.78	-0.01
Strontianite (SrCO3)	0.06	-1.23
Anhydrite (CaSO4)	0.24	-965.45
Gypsum (CaSO4*2H2O)	0.29	-850.02
Barite (BaSO4)	1.14	0.27
Celestite (SrSO4)	0.31	-458.78
Siderite (FeCO3)	6.64	0.05
Halite (NaCl)	0.06	-397202.41
Iron sulfide (FeS)	0.00	-0.34

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 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) to positive (precipitating) values. The Momentary Excess represents the amount of scale possible while the Saturation Level represents the probability that scale will form.

Analytical Laboratory Report for:

BAKER HUGHES

Account Representative:
Lavell Hanson

Production Water Analysis

Listed below please find water analysis report from: Mallon 34 Federal, 20

Lab Test Number	Sample Date
2011133149	11/04/2011

Specific Gravity:	1.064
TDS:	97044
pH:	6.50

Cations	mg/L
Calcium as Ca^{++}	3467
Magnesium as Mg^{++}	542
Sodium as Na^{+}	31341
Iron as Fe^{++}	26.73
Potassium as K^{+}	597.5
Barium as Ba^{++}	2.90
Strontium as Sr^{++}	287.64
Manganese as Mn^{++}	2.44
Zinc as Zn^{++}	71.87

Anions	mg/L
Bicarbonate as HCO_3^{-}	305
Sulfate as $SO_4^{=}$	600
Chloride as Cl^{-}	59800

Gases	mg/L
Carbon Dioxide as CO_2	90
Hydrogen Sulfide as H_2S	0.0

Analytical Laboratory Report for:

BAKER HUGHES

Account Representative:
Lavell Hanson

DownHole SAT™ Scale Prediction @ 100 deg. F

Lab Test Number	Sample Date	Location
2011133149	11/04/2011	20

Mineral Scale	Saturation Index	Momentary Excess (lbs/1000 bbls)
Calcite (CaCO3)	1.69	0.07
Strontianite (SrCO3)	0.17	-1.18
Anhydrite (CaSO4)	0.20	-1302.64
Gypsum (CaSO4*2H2O)	0.26	-1104.10
Barite (BaSO4)	3.57	3.54
Celestite (SrSO4)	0.34	-388.96
Siderite (FeCO3)	16.69	0.18
Halite (NaCl)	0.03	-460471.84
Iron sulfide (FeS)	0.00	-0.41

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 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) to positive (precipitating) values. The Momentary Excess represents the amount of scale possible while the Saturation Level represents the probability that scale will form.

Analytical Laboratory Report for:

BAKER HUGHES

Account Representative:
Lavell Hanson

Production Water Analysis

Listed below please find water analysis report from: **Quail Ridge, 32 St. 3H**

Lab Test Number	Sample Date
2011126477	09/01/2011

Specific Gravity:	1.089
TDS:	135335
pH:	6.50

Cations	mg/L
Calcium as Ca^{++}	5054
Magnesium as Mg^{++}	741
Sodium as Na^{+}	44000
Iron as Fe^{++}	36.00
Potassium as K^{+}	690.0
Barium as Ba^{++}	8.40
Strontium as Sr^{++}	361.00
Manganese as Mn^{++}	1.56

Anions	mg/L
Bicarbonate as HCO_3^{-}	183
Sulfate as $SO_4^{=}$	560
Chloride as Cl^{-}	83700

Gases	mg/L
Carbon Dioxide as CO_2	100
Hydrogen Sulfide as H_2S	0.0

Analytical Laboratory Report for:

BAKER HUGHES

Account Representative:
Lavell Hanson

DownHole SAT™ Scale Prediction @ 100 deg. F

Lab Test Number	Sample Date	Location
2011126477	09/01/2011	32 St. 3H

Mineral Scale	Saturation Index	Momentary Excess (lbs/1000 bbls)
Calcite (CaCO3)	1.28	0.02
Strontianite (SrCO3)	0.08	-1.23
Anhydrite (CaSO4)	0.23	-876.96
Gypsum (CaSO4*2H2O)	0.28	-774.79
Barite (BaSO4)	6.05	11.86
Celestite (SrSO4)	0.25	-515.01
Siderite (FeCO3)	8.90	0.08
Halite (NaCl)	0.06	-396966.50
Iron sulfide (FeS)	0.00	-0.36

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 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) to positive (precipitating) values. The Momentary Excess represents the amount of scale possible while the Saturation Level represents the probability that scale will form.

Analytical Laboratory Report for:

BAKER HUGHES

Account Representative:
Richard D Nallon

Production Water Analysis

Listed below please find water analysis report from: BONDURANT FED., Battery

Lab Test Number	Sample Date
2011114988	05/19/2011

Specific Gravity:	1.105
TDS:	160128
pH:	6.00

Cations	mg/L
Calcium as Ca^{++}	939
Magnesium as Mg^{++}	376
Sodium as Na^{+}	52185
Iron as Fe^{++}	14.00
Potassium as K^{+}	1322.0
Barium as Ba^{++}	1.00
Strontium as Sr^{++}	326.00
Manganese as Mn^{++}	0.38

Anions	mg/L
Bicarbonate as HCO_3^{-}	915
Sulfate as $SO_4^{=}$	850
Chloride as Cl^{-}	103200

Gases	mg/L
Carbon Dioxide as CO_2	150
Hydrogen Sulfide as H_2S	0.0

Analytical Laboratory Report for:

BAKER HUGHES

Account Representative:
Richard D Nallon

DownHole SAT™ Scale Prediction @ 100 deg. F

Lab Test Number	Sample Date	Location
2011114988	05/19/2011	Battery

Mineral Scale	Saturation Index	Momentary Excess (lbs/1000 bbls)
Calcite (CaCO3)	0.54	-0.14
Strontianite (SrCO3)	0.15	-1.32
Anhydrite (CaSO4)	0.09	-2765.84
Gypsum (CaSO4*2H2O)	0.10	-2804.11
Barite (BaSO4)	1.33	0.42
Celestite (SrSO4)	0.42	-393.39
Siderite (FeCO3)	7.20	0.16
Halite (NaCl)	0.10	-336985.06
Iron sulfide (FeS)	0.00	-2.02

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 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) to positive (precipitating) values. The Momentary Excess represents the amount of scale possible while the Saturation Level represents the probability that scale will form.

XII

Proof of Notice

Legal Notice

Basic Energy Services L.P.
NM Fluid Sales

Per New Mexico Oil Conservation Division Rules and Regulations, please find enclosed a copy of NMOCD form C-108.

Basic Energy Services L.P. P.O. Box 10460, Midland Texas 79702 has filed form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division.
Basic Energy Services L.P. is seeking administrative approval of the conversion of the RedHawk 32 State # 1 API # 3002531888, 1980 FSL & 810 FWL, Unit "L" , Section 32, Township 19 South, Range 34 East, Lea County New Mexico from a abandon plugged gas well to a Lower Delaware commercial salt water disposal well.
The disposal interval would be from 6800' – 7600'.
Disposal fluid would be produced water trucked in from numerous producing formations in Southeastern New Mexico only by Basic Energy Services L.P. trucking department.
Basic Energy Services L.P. anticipates a disposal rate of 3500 BWPD with a maximum disposal rate of 5000 BWPD.
The anticipated disposal surface pressure of the RedHawk 32 State # 1 approximated at 1100 psi with a maximum disposal pressure of 1450 psi if granted.
Well is located 26.45 miles west from North Grimes Street Hobbs NM on HWY 62/180 turn right travel west .98 mile turn north .33 mile then turn east .13 mile to location.
Interested parties must file objections or requests for hearings with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico within 15 days.

Lynn Wigington
VP Permian Basin Unit
P.O. Box 10460
Midland Texas 79702
Phone: 432.620.5500
lynn.wigington@basicenergyservices.com

Affidavit of Publication

State of New Mexico,
County of Lea.

I, JUDY HANNA
PUBLISHER
of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period

of 2 issue(s).
Beginning with the issue dated
October 03, 2012
and ending with the issue dated
October 10, 2012

PUBLISHER
Sworn and subscribed to before me
this 3rd day of
October, 2012

Gussie Black

Notary Public

My commission expires
January 29, 2015
(Seal)

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-15

This newspaper is duly qualified to publish legal notices or advertisments within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said publication has been made.

LEGAL LEGAL

Legal Notice
October 3, 2012

Basic Energy Services, L.P.
NM Fluid Sales

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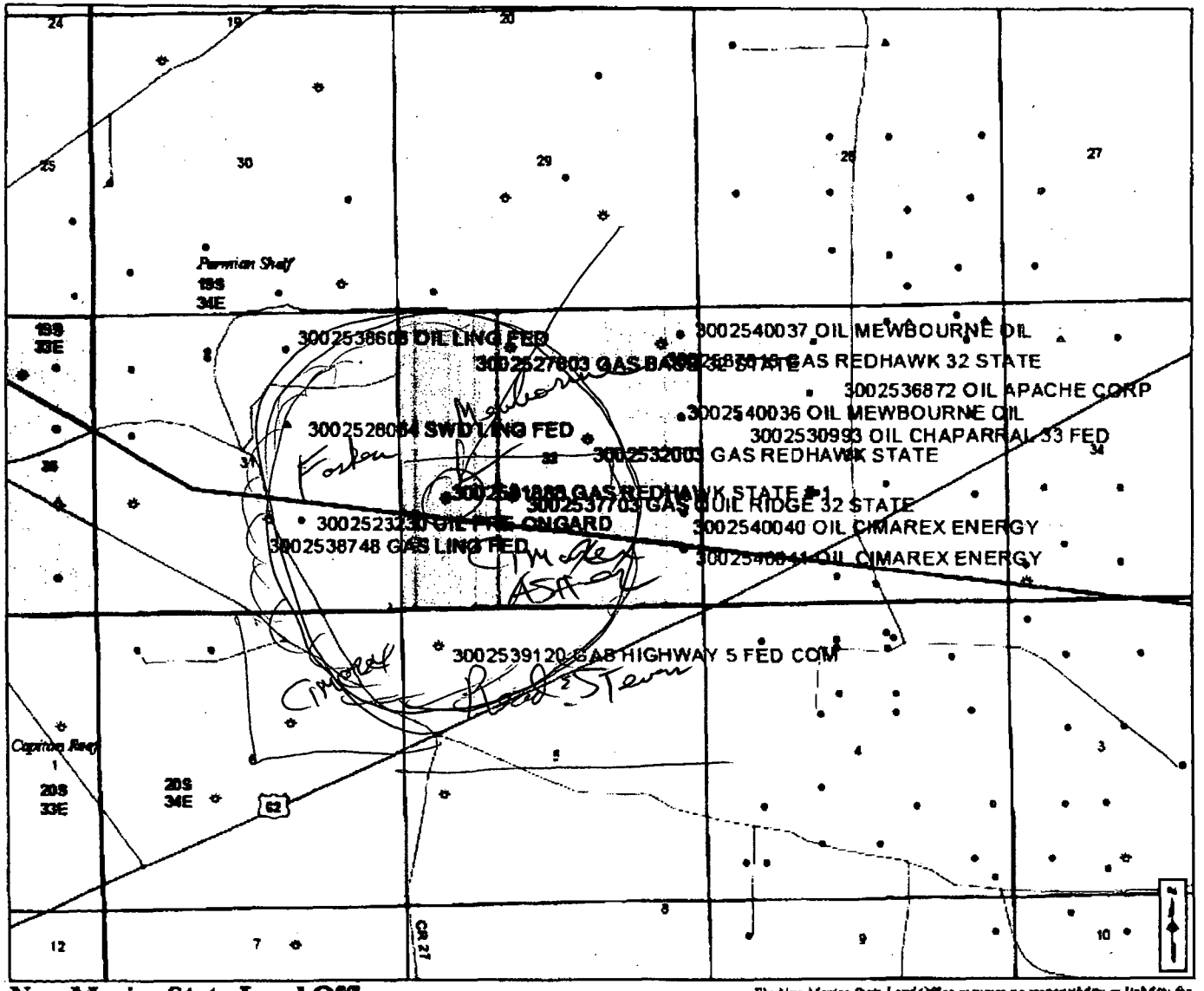
Lynn Wigington
VP Permian Basin Unit
P.O. Box 10460
Midland Texas 79702
Phone: 432.620.5500
lynn.wigington@basicenergyservices.com
#27621

67108909 00101659

GLORIA ALANIZ
BASIC ENERGY SERVICES
NM FLUID SALES/1307
PO BOX 1375
ARTESIA, NM 88211

AOR ½ MILE
REDHAWK 32 STATE # 1
API # 3002531888
LEA COUNTY



New Mexico State Land Office
Oil, Gas, and Minerals

0 0.1 0.2 0.4 0.6 0.8 Miles

Universal Transverse Mercator Projection, Zone 13

The New Mexico State Land Office assumes no responsibility or liability for, or in connection with, the accuracy, reliability or use of the information provided here, in State Land Office data layers or any other data layer.

Land Office Geographic Information Center
logic@slo.state.nm.us

February 15, 2012

SURFACE OWNERS WITHIN1/2 MILE AREA SURROUNDING REDHAWK 32 STATE #001 WELL

Lea County, New Mexico

Township 19 South, Range 34 East;

Section 32: ALL;

State of New Mexico
Commissioner of Public Lands
310 Old Santa Fe Trail
Santa Fe, NM 87501

Section 31: E/2;

Larry Bennett Hughes
Star Route A – Box 57
Monument, NM 88265

Township 20 South, Range 34 East;

Section 4: N/2;

Department of the Interior
Bureau of Land Management
302 Dinosaur Trail
Santa Fe, NM 87508

Section 5: NE/4;

Department of the Interior
Bureau of Land Management
302 Dinosaur Trail
Santa Fe, NM 87508

Section 6: NE/4;

Larry Bennett Hughes
Star Route A – Box 57
Monument, NM 88265

February 15, 2012

LEASEHOLD OPERATORS WITHIN 1/2 MILE AREA SURROUNDING REDHAWK 32 STATE #001 WELL

Lea County, New Mexico

Township 19 South, Range 34 East:

Section 32: N/2;

Mewbourne Oil Company
P. O. Box 5270
Hobbs, NM 88241

Section 32: S/2;

Cimarex Energy of Colorado
600 N. Marienfeld
Suite 600
Midland, TX 79701

Asher Enterprises LTD Company
12808 Lorien Way
Oklahoma City, OK 73170

Section 31: E/2;

Fasken Oil & Ranch LTD
303 W. Wall
Suite #1800
Midland, TX 79701

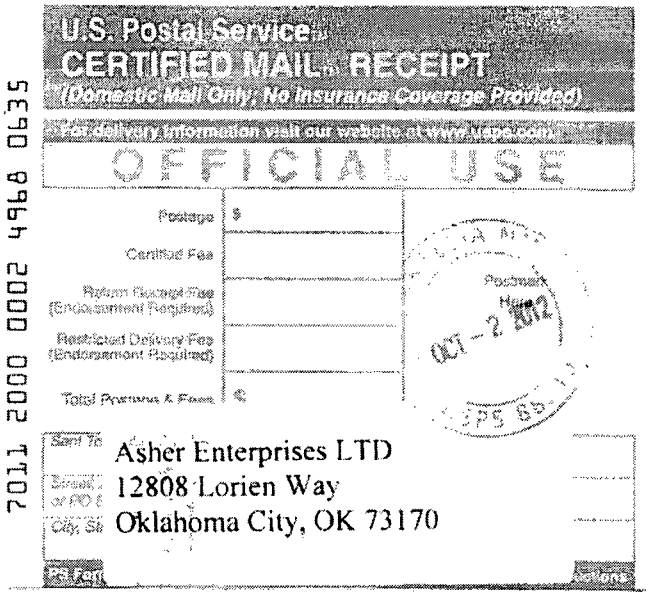
Township 20 South, Range 34 East;

Section 5: N/2;

Read & Stevens, Inc.
P. O. Box 1518
Roswell, NM 88202

Section 6: NE/4;

Cimarex Energy of Colorado
600 N. Marienfeld
Suite 600
Midland, TX 79701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12808 Lorien Way
City, State, ZIP+4
Oklahoma City, OK 73170
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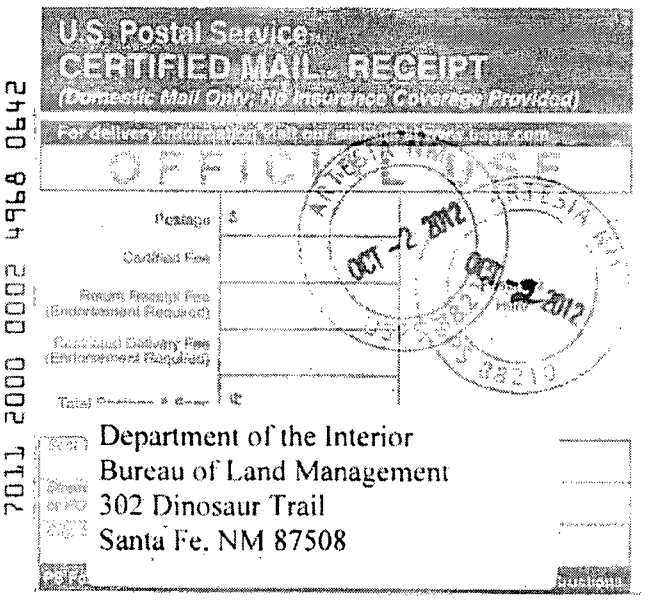
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Bureau of Land Management
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302 Dinosaur Trail
Santa Fe, NM 87508
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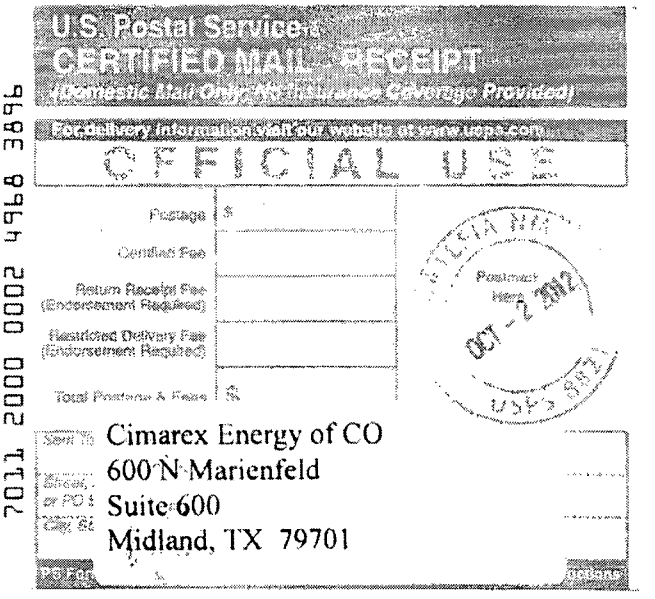
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City, State, ZIP+4
Suite 600
Midland, TX 79701
PS Form
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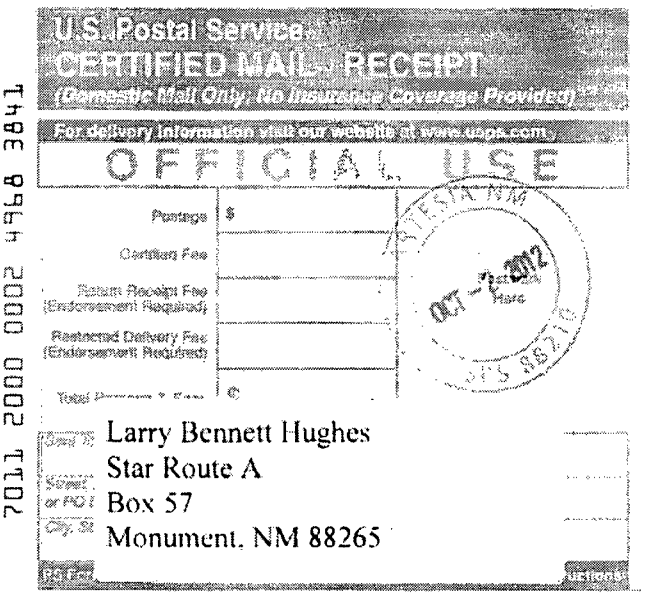
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Monument, NM 88265
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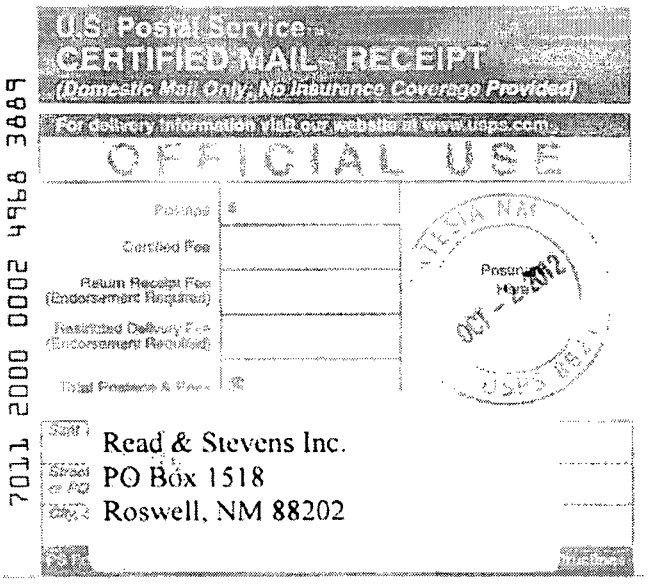
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PO Box 1518
City, State, ZIP+4
Roswell, NM 88202
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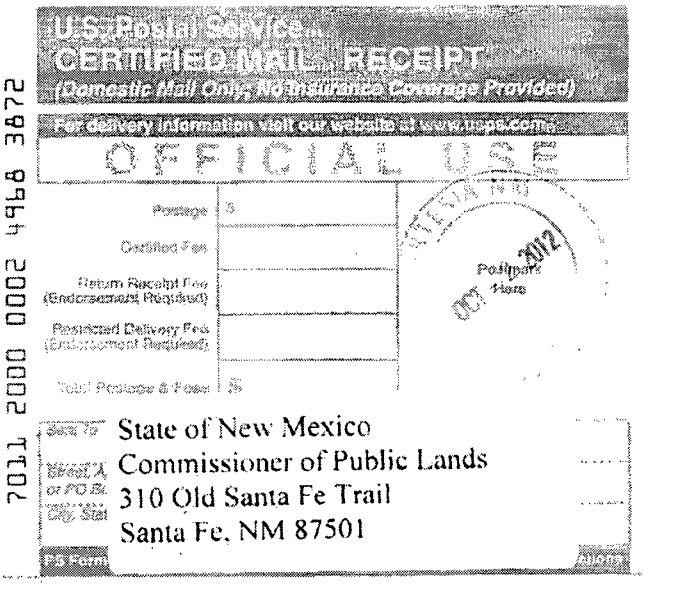
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Commissioner of Public Lands
City, State, ZIP+4
310 Old Santa Fe Trail
Santa Fe, NM 87501
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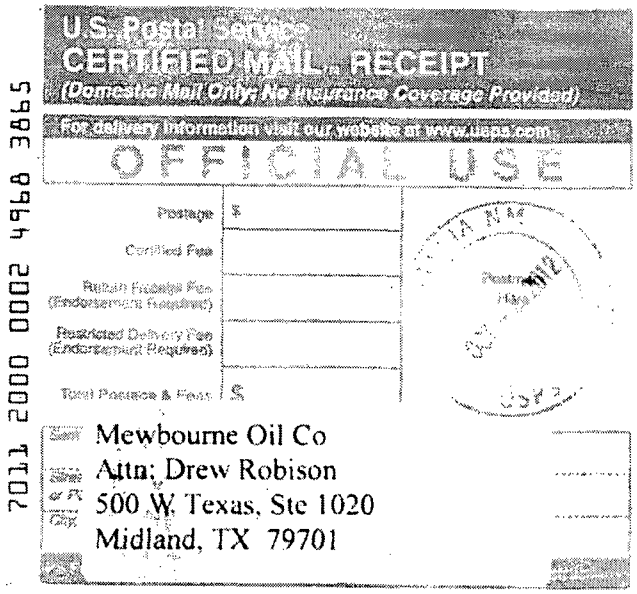
See Reverse for Instructions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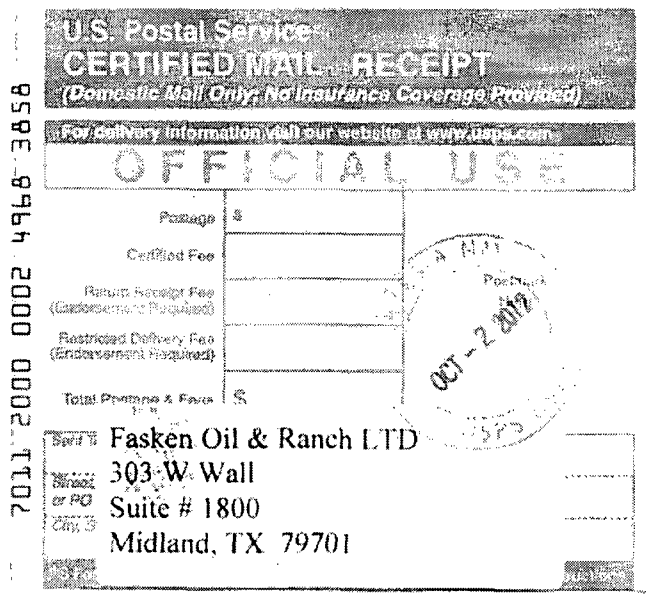
Mewbourne Oil Co
Attn; Drew Robison
Street, Apt. No., or PO Box No.
500 W. Texas, Ste 1020
City, State, ZIP+4
Midland, TX 79701
7011 2000 0002 4968 3865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Restricted Delivery Fee (Endorsement Required)
Total Postage & Fees $
Sent To
Fasken Oil & Ranch LTD
Street, Apt. No., or PO Box No.
303 W. Wall
Suite # 1800
City, State, ZIP+4
Midland, TX 79701
7011 2000 0002 4968 3858

SENDER: *COMPLETE THIS SECTION*

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1. Article Addressed to:

Mewbourne Oil Co
Attn: Drew Robison
500 W Texas, Ste 1020
Midland, TX 79701

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (*Printed Name*) [illegible] C. Date of Delivery 10-5

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (*Extra Fee*) ☐ Yes

2. Article Number (*Transfer from service label*) 7011 2000 0002 4968 3865

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

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1. Article Addressed to:

State of New Mexico
Commissioner of Public Lands
310 Old Santa Fe Trail
Santa Fe, NM 87501

USPS SANTA FE, NM 87501 OCT 5 2012 SANTA FE MAIN POST

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (*Printed Name*) C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (*Extra Fee*) ☐ Yes

2. Article Number (*Transfer from service label*) 7011 2000 0002 4968 3872

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1. Article Addressed to:

Fasken Oil & Ranch LTD
303 W Wall
Suite # 1800
Midland, TX 79701

COMPLETE THIS SECTION ON DELIVERY

A. Signature
x Carol Holley ☐ Agent ☐ Addressee

B. Received by (*Printed Name*) Carol Holley C. Date of Delivery 10-3-12

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (*Extra Fee*) ☐ Yes

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1. Article Addressed to:

Read & Stevens Inc.
PO Box 1518
Roswell, NM 88202

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) GEORGIA GRIFFITH

C. Date of Delivery 10-4-12

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7011 2000 0002 4968 3869

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

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1. Article Addressed to:

Cimarex Energy of CO
600 N Marienfeld
Suite 600
Midland, TX 79701

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Sadie Cortez

C. Date of Delivery 10-3-12

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7011 2000 0002 4968 3896

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1. Article Addressed to:

Department of the Interior
Bureau of Land Management
~~302~~ Dinosaur Trail
Santa Fe, NM 87508

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Bevan Bap ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery 10-4-12

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

301 Dinosaur Tr.

CORONADO STATION SANTA FE NM 2012 USPS

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service la* 7011 2000 0002 4968 0642

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Larry Bennett Hughes
Star Route A
Box 57
Monument, NM 88265

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Larry B. Hughes ☒ Agent ☐ Addressee

B. Received by (*Printed Name*) Larry B Hughes
C. Date of Delivery 10/4/12

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (*Extra Fee*) ☐ Yes

2. Article Number (*Transfer from service label*) 7011 2000 0002 4968 3841

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

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OFFICIAL USE

Postage $
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
Total Postage & Fees $

ARTESIA NM Postmark Here OCT - 2 2012 USPS 88210

7011 2000 0002 4968 0635

Sent To Asher Enterprises LTD
Street, Apt. No., or PO Box 12808 Lorien Way
City, State, ZIP+4 Oklahoma City, OK 73170

PS Form ... Instructions

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Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
Total Postage & Fees $

ARTESIA NM OCT - 2 2012 USPS 88210

7011 2000 0002 4968 0642

Sent To Department of the Interior
Street, Apt. No., or PO Box Bureau of Land Management
City, State, ZIP+4 302 Dinosaur Trail
Santa Fe, NM 87508

PS Form ... Instructions

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Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
Total Postage & Fees $

ARTESIA NM Postmark Here OCT - 2 2012 USPS 88210

7011 2000 0002 4968 3896

Sent To Cimarex Energy of CO
Street, Apt. No., or PO Box 600 N Marienfeld
City, State, ZIP+4 Suite 600
Midland, TX 79701

PS Form ... Instructions

U.S. Postal Service™
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OFFICIAL USE

Postage $
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
Total Postage & Fees $

ARTESIA NM Postmark Here OCT - 2 2012 USPS 88210

7011 2000 0002 4968 3841

Sent To Larry Bennett Hughes
Street, Apt. No., or PO Box Star Route A
City, State, ZIP+4 Box 57
Monument, NM 88265

PS Form ... Instructions

U.S. Postal Service™
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Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
Total Postage & Fees $

ARTESIA NM Postmark Here OCT - 2 2012 USPS 88210

7011 2000 0002 4968 3889

Sent To Read & Stevens Inc.
Street, Apt. No., or PO Box PO Box 1518
City, State, ZIP+4 Roswell, NM 88202

PS Form ... Instructions

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OFFICIAL USE

Postage $
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
Total Postage & Fees $

ARTESIA NM Postmark Here OCT 2012 USPS 88210

7011 2000 0002 4968 3872

Sent To State of New Mexico
Street, Apt. No., or PO Box Commissioner of Public Lands
City, State, ZIP+4 310 Old Santa Fe Trail
Santa Fe, NM 87501

PS Form ... Instructions

7011 2000 0002 4968 3865

U.S. Postal Service™
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(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

ARTESIA NM
Postmark Here
OCT - 2 2012
USPS 88210

Sent To: Mewbourne Oil Co
Street or PO: Attn: Drew Robison
City, S: 500 W. Texas, Ste 1020
Midland, TX 79701

PS F ... structions

7011 2000 0002 4968 3858

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

ARTESIA NM
Postmark Here
OCT - 2 2012
USPS 88210

Sent To: Fasken Oil & Ranch LTD
Street or PO: 303 W. Wall
City, S: Suite # 1800
Midland, TX 79701

PS Fo ... ructions

Alvarado, David

From: Linebarger, Dan
Sent: Tuesday, September 04, 2012 9:08 AM
To: Alvarado, David
Cc: Echols, John-Mark
Subject: FW: Red Hawk SWD application

Attachments: pic05097.gif; pic16512.jpg

pic05097.gif (2 KB) pic16512.jpg (4 KB)

David,

Please see below from Mewbourne on the Red Hawk lease. I am going to contact our Geologist and have him review the specific interval for satisfactory porosity and permeability.

Dan R. Linebarger
Director - Fluids Development Group
Basic Energy Services LP
PO Box 10460
Midland, TX. 79702
Direct Line: 432-620-6822

-----Original Message-----
From: Drew Robison [mailto:drobison@Mewbourne.com]
Sent: Tuesday, September 04, 2012 9:22 AM
To: Linebarger, Dan
Cc: Echols, John-Mark
Subject: Re: Red Hawk SWD application

Dan,
We would not object to injecting anywhere between 6800-7600 in the Redhawk State 32 #1. We have mudlog shows above and below this interval and would like a few hundred feet of separation.

Thanks,
Drew

(Embedded image moved to file: pic05097.gif)
Drew Robison
Reservoir Engineer
Mewbourne Oil Company
500 W. Texas, Suite 1020
Midland, Tx 79701 US

Phone: (432)682-3715 | Fax: (432)683-3902
Cell: (918)605-0210
Email: drobison@mewbourne.com

FEDRO & ASSOCIATES L. P. **GEOLOGIC CONSULTING**

P. O. BOX 10872 MIDLAND, TEXAS 79702

(432) 557-2196 fedrobob2@yahoo.com

September 4, 2012

To: D. Linebarger
From: B. Fedro
Subject: Red Hawk #1 (API# 30-025-31888)
Sec. 32, T19S – R34E
Lea County, New Mexico
Revised SWD Perforation Recommendation

Recommendation

As a result of Mewbourne Oil Company's response to the original recommended saltwater disposal perforations in the subject well (report dated February 5, 2012 from this office), the area was researched again for offset producing zones. The openhole logs were evaluated again and the following intervals are now recommended for SWD perforations:

6798 – 6807
6827 – 6832
6850 – 6860
6895 – 6921
6938 – 6953
6960 - 6971
7017 – 7026
7142 – 7147
7160 – 7164
7474 – 7478
7530 – 7540

These perforations were picked using an 18% porosity cutoff on the Schlumberger Lithodensity log run March 6, 1993 (copy attached). The perforations were selected in non-productive Delaware sands and should not interfere with possible zones of interest which Mewbourne referenced with mudlog shows in the area.

Thank you for the opportunity to provide this evaluation, and don't hesitate to call if you have any questions.

Jones, William V., EMNRD

From: Jones, William V., EMNRD
Sent: Monday, September 17, 2012 4:26 PM
To: 'Alvarado, David'
Cc: Kautz, Paul, EMNRD; Ezeanyim, Richard, EMNRD
Subject: RE: Redhawk #1 SWD API 30-025-31888

Hello David,
Just send in another complete C-108 form (application) with new notices to all affected persons in those depths .... New wellbore diagrams, etc.

Regards,

Will Jones

From: Alvarado, David [mailto:David.Alvarado@basicenergyservices.com]
Sent: Monday, September 17, 2012 4:18 PM
To: Jones, William V., EMNRD
Subject: Redhawk #1 SWD API 30-025-31888

Will,
Good afternoon Sir.
Looks like Mewbourne Oil Company Drew Robinson has no objection to Basic Energy Services L.P. injecting into interval 6800'-7600' in the Redhawk State # 1.
Please find with this e-mail correspondence with Mr. Robinson and Basic Energy Services. I also have attached have the geology report that was done and showing of good intervals with over 18 % porosity in this interval. I can make a good little SWD with this!

What procedure do I follow to amend our interval for your approval?

David Alvarado
Office 575.746.2072
Cell 575.513.1238
Fax 575.746.2435

Jones, William V., EMNRD

From: Alvarado, David <David.Alvarado@basicenergyservices.com>
Sent: Friday, September 28, 2012 11:10 AM
To: Jones, William V., EMNRD
Cc: Ehrlich Mark; Wigington, Lynn
Subject: Redhawk 32 State # 1 API 30-025-31888
Attachments: 0143_120928230204_001.pdf

Good Moring Will,
Talked with Cindy in District 1 this morning and received an updated report please see attachment to Asher Enterprise.

Please advise Sir.

Regards,

David Alvarado
Office 575.746.2072
Cell 575.513.1238
Fax 575.746.2435

Jones, William V., EMNRD

From: Alvarado, David <David.Alvarado@basicenergyservices.com>
Sent: Tuesday, September 25, 2012 4:24 PM
To: Jones, William V., EMNRD; Ehrlich Mark
Cc: Gonzales, Elidio L, EMNRD; Phillips, Dorothy, EMNRD
Subject: RE: Redhawk State 32 # 1 API # 300253188 & Shugart State #2 API # 3001532488

Will do sir.
We are working on this with Mr. Gonzales and Mrs. Mull.

-----Original Message-----
From: Jones, William V., EMNRD [William.V.Jones@state.nm.us]
Sent: Tuesday, September 25, 2012 05:03 PM Central Standard Time
To: Alvarado, David
Cc: Gonzales, Elidio L, EMNRD; Phillips, Dorothy, EMNRD
Subject: RE: Redhawk State 32 # 1 API # 300253188 & Shugart State #2 API # 3001532488

Hello David,
Let me know when all is well and I could then finish processing this C-108.
The rules don't allow me to until then.

Thank You,

Will Jones

From: Alvarado, David [mailto:David.Alvarado@basicenergyservices.com]
Sent: Tuesday, September 25, 2012 11:04 AM
To: Gonzales, Elidio L, EMNRD; Jones, William V., EMNRD
Cc: Dye, Mike; Ehrlich Mark; Crawford, Candace (Kay); Shamlian, Jonathan
Subject: Redhawk State 32 # 1 API # 300253188 & Shugart State #2 API # 3001532488

EL,
Just got off the phone with Dorothy and she is showing the Redhawk in violation of site release since 2008? Once it is removed our blanket bond will cover this well
If the New C-108 is approved by Mr. Jones.

On the Shugart I turned in the C-101 and C-102 here in Eddy County on 2/9/12 and has not been placed in the system, I will head over and had the copies to Randy so they can process them. This also according to Dorothy will fall under our blanket bond.

Respectfully asking for your advice to this matter sir.

David Alvarado
Office 575.746.2072
Cell 575.513.1238
Fax 575.746.2435

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

SUSANA MARTINEZ
Governor
John H. Bemis
Cabinet Secretary

Jami Bailey
Director
Oil Conservation Division

Response Required – Deadline Enclosed

Field Inspection Program

"Preserving the Integrity of Our Environment"

HOBBS OCD

SEP 26 2012

RECEIVED

26-Sep-12

ASHER ENTERPRISES LTD
12808 LORIEN WAY
OKLAHOMA CITY, OK 73170

LETTER OF VIOLATION - Inspection

Dear Operator:

The following inspection(s) indicate that the well, equipment, location or operational status of the well(s) failed to meet standards of the New Mexico Oil Conservation Division as described in the detail section below. To comply with standards imposed by Rules and Regulations of the Division, corrective action must be taken immediately and the situation brought into compliance. The detail section indicates preliminary findings and/or probable nature of the violation. This determination is based on an inspection of your well or facility by an inspector employed by the Oil Conservation Division on the date(s) indicated.

Please notify the proper district office of the Division, in writing, of the date corrective actions are scheduled to be made so that arrangements can be made to reinspect the well and/or facility.

INSPECTION DETAIL SECTION

RED HAWK 32 STATE No.001 L-32-19S-34E **30-025-31888-00-00**

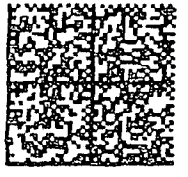
Inspection Date	Type Inspection	Inspector	Violation?	*Significant Non-Compliance?	Corrective Action Due By:	Inspection No.
09/26/2012	Routine/Periodic	Mark Whitaker	Yes	No	10/31/2012	iMAW1227052665

Violations
Surface Damage/Restoration

Comments on Inspection: DO NOT RELEASE BOND. Need to correct API # on dry marker, remove piping bracing west of marker, remove sucker rods and piping, remove concrete portable base and level battery area, remove gas processor, remove yellow anchor marker SW of dry hole marker, and contact gas purchaser to remove meter run (attach proof of contact with purchaser to C103). Failure to comply could result is forfeiture of bond. 1st notice.

SEP 26 2012

EMNRD
OIL CONSERVATION DIVISION
1625 N FRENCH DRIVE
HOBBS NM 88240



HASLER
015H14150977
$0.45
09/26/12
Mailed From 88240
US POSTAGE

ASHER ENTERPRISES LTD
12808 LORIEN WAY
OKLAHOMA CITY, OK 73170

In the event that a satisfactory response is not received to this letter of direction by the "Corrective Action Due By:" date shown above, further enforcement will occur. Such enforcement may include this office applying to the Division for an order summoning you to a hearing before a Divison Examiner in Santa Fe to show cause why you should not be ordered to permanently plug and abandon this well.

Sincerely,

COMPLIANCE OFFICER

Hobbs OCD District Office

Note: Information in Detail Section comes directly from field inspector data entries - not all blanks will contain data.
*Significant Non-Compliance events are reported directly to the EPA, Region VI, Dallas, Texas

Jones, William V., EMNRD

From: Alvarado, David <David.Alvarado@basicenergyservices.com>
Sent: Friday, September 28, 2012 11:10 AM
To: Jones, William V., EMNRD
Cc: Ehrlich Mark; Wigington, Lynn
Subject: Redhawk 32 State # 1 API 30-025-31888
Attachments: 0143_120928230204_001.pdf

Good Moring Will,
Talked with Cindy in District 1 this morning and received an updated report please see attachment to Asher Enterprise.

Please advise Sir.

Regards,

David Alvarado
Office 575.746.2072
Cell 575.513.1238
Fax 575.746.2435

Jones, William V., EMNRD

From: Jones, William V., EMNRD
Sent: Saturday, November 10, 2012 12:46 PM
To: 'Alvarado, David'
Cc: Ezeanyim, Richard, EMNRD; Gonzales, Elidio L, EMNRD; jamesbruc@aol.com
Subject: Disposal application from Basic Energy Services, LP: Red Hawk 32 State # 1 API 30-025-31888 Delaware perfs from 6800 to 7600 feet

Hello David,
I looked over the latest application and just have a few questions and comments:

a. Don't worry about it in this application, but in future applications, please put the "producing formation name" as well as the Well Name on the water analysis – hard to tell where the water came from.
b. What is the depth to bottom of Fresh water in this area? Is it Ogallala?
c. I didn't see an "Affirmative Statement" from a geologist as is required in C-108 applications – please send that.
d. Did the "affected persons" including the State Land Office all get a complete copy of the C-108 application?
e. Don't worry about it in this application, but in future applications - the ½ Mile Circle map showing the wells within ½ mile is very busy and should be easier to read. What works best is to put a code letter on the map where the well is located and reference that code in the table of wells.
f. There is one well located just outside the ½ mile Area of Review that has open interval from 5300 feet to 7400 feet so it could possibly be a conduit allowing your disposed waters to move up into the ~~Grayburg, San Andres,~~ Upper Delaware or Upper Delaware. If there were active production from these intervals and if this well were within ½ mile it clearly would need to be re-entered. Since the situation is not clear, I will just ask for more clarification and copy Mewbourne's attorney:
    a. Does Mewbourne know about this P&Aed well and do they have any issues with it? No Mewbourne Response
    b. Would you ask your geologist to (if possible) send ~~the formation tops~~ of the Grayburg, San Andres, down to the bottom of your disposal ~~interval and including the members~~ of the Delaware if the Delaware is partitioned in this area. Main interest is 5300 feet down to the Bone Spring.

Otherwise all looks well,
Thank You for the application!

Mark 432-940-7959

Regards,
Will Jones

Jones, William V., EMNRD

From: Alvarado, David <David.Alvarado@basicenergyservices.com>
Sent: Wednesday, November 14, 2012 11:44 AM
To: Jones, William V., EMNRD
Subject: RE: Disposal application from Basic Energy Services, LP: Red Hawk 32 State # 1 API 30-025-31888 Delaware perfs from 6800 to 7600 feet
Attachments: Redhawk State 32 API 30-025-31888 Will Jones.doc; WIll Jones.pdf

Hello Will,
Here is a report and the PDF back up as to what I have on record and I will handle the next application to your needs thanks for the guidance as always I appreciate all that is done for us.
And please send us some more cool weather maybe some of the flies and bugs will thin out down here.

Regards
Dave

From: Jones, William V., EMNRD [mailto:William.V.Jones@state.nm.us]
Sent: Saturday, November 10, 2012 12:46 PM
To: Alvarado, David
Cc: Ezeanyim, Richard, EMNRD; Gonzales, Elidio L, EMNRD; jamesbruc@aol.com
Subject: Disposal application from Basic Energy Services, LP: Red Hawk 32 State # 1 API 30-025-31888 Delaware perfs from 6800 to 7600 feet

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    a. Does Mewbourne know about this P&Aed well and do they have any issues with it?
    b. Would you ask your geologist to (if possible) send the formation tops of the Grayburg, San Andres, down to the bottom of your disposal interval and including the members of the Delaware if the Delaware is partitioned in this area. Main interest is 5300 feet down to the Bone Spring.

Otherwise all looks well,
Thank You for the application!

Regards,
Will Jones

Jones, William V., EMNRD

From: Jones, William V., EMNRD
Sent: Friday, December 07, 2012 2:19 PM
To: 'Alvarado, David'
Cc: Ezeanyim, Richard, EMNRD
Subject: Disposal application from Basic Energy Services, LP: Red Hawk 32 State # 1 API 30-025-31888 Delaware perfs from 6800 to 7600 feet

David,
I looked this over today and it seems am still waiting on your reply to the questions below?

The PDF file you sent earlier seems to duplicate portions of the application.
In case the answers were buried in that report, I apologize.

Please help me by addressing the questions, item by item and I will let you know if we can approve this.

Regards,

Will Jones

From: Jones, William V., EMNRD
Sent: Wednesday, November 14, 2012 12:59 PM
To: 'Alvarado, David'
Subject: RE: Disposal application from Basic Energy Services, LP: Red Hawk 32 State # 1 API 30-025-31888 Delaware perfs from 6800 to 7600 feet

Thank You Sir!!

From: Alvarado, David [mailto:David.Alvarado@basicenergyservices.com]
Sent: Wednesday, November 14, 2012 11:44 AM
To: Jones, William V., EMNRD
Subject: RE: Disposal application from Basic Energy Services, LP: Red Hawk 32 State # 1 API 30-025-31888 Delaware perfs from 6800 to 7600 feet

Hello Will,
Here is a report and the PDF back up as to what I have on record and I will handle the next application to your needs thanks for the guidance as always I appreciate all that is done for us.
And please send us some more cool weather maybe some of the flies and bugs will thin out down here.

Regards
Dave

From: Jones, William V., EMNRD [mailto:William.V.Jones@state.nm.us]
Sent: Saturday, November 10, 2012 12:46 PM
To: Alvarado, David
Cc: Ezeanyim, Richard, EMNRD; Gonzales, Elidio L, EMNRD; jamesbruc@aol.com
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    b. Would you ask your geologist to (if possible) send the formation tops of the Grayburg, San Andres, down to the bottom of your disposal interval and including the members of the Delaware if the Delaware is partitioned in this area. Main interest is 5300 feet down to the Bone Spring.

Otherwise all looks well,
Thank You for the application!

Regards,
Will Jones

Jones, William V., EMNRD

From: Alvarado, David <David.Alvarado@basicenergyservices.com>
Sent: Tuesday, December 11, 2012 9:14 AM
To: Jones, William V., EMNRD
Subject: Re: Disposal application from Basic Energy Services, LP: Red Hawk 32 State # 1 API 30-025-31888 Delaware perfs from 6800 to 7600 feet

Will good morning,
We have been going thru a massive e mail and computer migration now that Corp has settled in forty Worth.
I tried to enter my new set up only to waist 5 hours this morning LOL . I will get back to you as soon as I can.
Dave

Connected by Motorola

"Jones, William V., EMNRD" <William.V.Jones@state.nm.us> wrote:

David,
I looked this over today and it seems am still waiting on your reply to the questions below?

The PDF file you sent earlier seems to duplicate portions of the application.
In case the answers were buried in that report, I apologize.

Please help me by addressing the questions, item by item and I will let you know if we can approve this.

Regards,

Will Jones

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To: 'Alvarado, David'
Subject: RE: Disposal application from Basic Energy Services, LP: Red Hawk 32 State # 1 API 30-025-31888 Delaware perfs from 6800 to 7600 feet

Thank You Sir!!

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Subject: RE: Disposal application from Basic Energy Services, LP: Red Hawk 32 State # 1 API 30-025-31888 Delaware perfs from 6800 to 7600 feet

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And please send us some more cool weather maybe some of the flies and bugs will thin out down here.

Regards
Dave

Jones, William V., EMNRD

From: Alvarado, David <David.Alvarado@basicenergyservices.com>
Sent: Thursday, December 27, 2012 8:11 AM
To: 'fedrobob2@yahoo.com'
Cc: Jones, William V., EMNRD
Subject: Redhawk 32 State #1

Bob, Good morning,
Will Jones sent an e-mail and had a few questions on the Redhawk State 32 # 1 permit for SWD approval. API # 30-025-31888 Unit L, Sec 32, T19S, R34E Lea County New Mexico. I sent in a new C-108 with the revised SWD Perforation Recommendations.

Below are the questions at hand. Could you help me address Wills request.

I will send Mewbourne's Drew Robison notice of the P&A well if he is cool with it.

A. What is the depth to bottom of Fresh water in this area? Is it Ogallala?

B. I didn't see an "Affirmative Statement" from a geologist as is required in C-108 applications – please send that

C. There is one well located just outside the ½ mile Area of Review that has open interval from 5300 feet to 7400 feet so it could possibly be a conduit allowing your disposed waters to move up into the Grayburg, San Andres, or Upper Delaware. If there were active production from these intervals and if this well were within ½ mile it clearly would need to be re-entered. Since the situation is not clear, I will just ask for more clarification and copy Mewbourne's attorney:

D. Would you ask your geologist to (if possible) send the formation tops of the Grayburg, San Andres, down to the bottom of your disposal interval and including the members of the Delaware if the Delaware is partitioned in this area. Main interest is 5300 feet down to the Bone Spring.

Thanks
Dave

PERMITS WEST, INC.
PROVIDING PERMITS for LAND USERS
37 Verano Loop, Santa Fe, New Mexico 87508 (505) 466-8120

March 14, 2013

Will Jones
NM Oil Conservation Division
1220 S. S. Francis Dr.
Santa Fe, NM 87505

Dear Will,

I am replying to your comments on Basic Energy's Red Hawk 32 State 1 SWD (30-025-31888) application.

1. A table listing the source of the water samples is attached. (The source of the Diamante sample could not be determined. Please disregard that sample.)
2. Depth to bottom potential fresh water is 1,465' (Dewey Lake Formation). See attached report from Balleau Groundwater.
3. Affirmative statement from geologist David Powers is attached.
4. A complete copy of the C-108 application was sent to all affected persons on October 2, 2012. A copy of the green card signed by the State Land Office on October 5, 2012 is attached.
5. A map is attached showing the half-mile area of review and all wells in or nearby. Wells have been labeled on the map. Only one well (Quail Ridge 32 State 2) penetrated the Lower Delaware and is within 2,640'.
6. Mewbourne received the application package on October 3, 2012 and has not replied to Basic to date.
7. Formation tops are provided in the attached letter from Dennis Powers, Consulting Geologist.
8. While researching topic 5., it was discovered that there were 3 water wells within a mile. All three are now dry according to the landowner, Mr. Hughes. See attached photographs of each.
9. The north well was a windmill that is not in the State Engineer's database. It is now dry, rods removed, and water is piped to the stock tanks.
10. No evidence could be found of the middle well. According to the State Engineer, it was drilled to 160'. According to Mr. Hughes, it went dry and was plugged. Water is now piped to the stock tank.
11. The south well is not in the State Engineer's database. It was found and is plugged and abandoned.

Please call me if you have any questions.

Sincerely,

Brian Wood

cc: Alvarado

in 10/5/12 Site one else
Last OOA 3/14/13

Injection Permit Checklist (11/15/2010)

WFX ____ PMX ____ SWD 1408 Permit Date 10/18/13 UIC Qtr (J/F/M)

Wells 1 Well Name(s): REDHAWK 32 STATE #1

API Num: 30-0 25-31888 Spud Date: 4/6/93 New/Old: N (UIC primacy March 7, 1982)

Footages 1980FSL/810FWL Unit L Sec 32 Tsp 19S Rge 34E County LEA

General Location: 30mi W. of Hobbs

Operator: BASIC ENERGY SERVICES, L.P. Contact LYNN WIGINGTON DAVID H. ALVARADO

OGRID: 246368 RULE 5.9 Compliance (Wells) 0/8 (Finan Assur) OK IS 5.9 OK? OK

Well File Reviewed ___ Current Status: P&A (old morrow well)

Planned Work to Well: Clean out to 7,700 Run Logs Set CIBP/CMT

Diagrams: Before Conversion ✓ After Conversion: ___ Elogs in Imaging File: ✓

Well Details:	Sizes Hole.....Pipe	Setting Depths	Stage Tool	Cement Sx or Cf	Determination Method
New __Existing ✓ Surface	17½ 13⅜	525'	—	500 SX	Surf
New __Existing ✓ Interm	12¼ 8⅝	5241'	—	~~524~~ 325 SX	Surf
New __Existing ✓ LongSt	7⅞ 5½	13,660 TD	9633'	1850 SX	Surf.
~~New __Existing __ Liner~~					
~~New __Existing __ OpenHole~~					

Depths/Formations:	Depths, Ft.	Formation	Tops?
Formation(s) Above	4608' / 6101' / 5,730	Queen / Dol / Del Sand	✓
Injection TOP: 7,556'	6800	Brushy C	Max. PSI 1360 OpenHole ___ Perfs ✓
Injection BOTTOM: ~~7600~~	~~7600~~	~~Brushy Canyon~~	Tubing Size 2⅞ Packer Depth 6750
Formation(s) Below	6790 / 8260	Brushy Bone SP,	✓

CBG/SA = 0
MUDLOG SHOWS ABOVE & BELOW

17,00' ~~5,160~~

Capitan Reef? ✓ (Potash? ___ Noticed? ___ ~~WIPP?~~ ___ ~~Noticed?~~ ___ Salado Top/Bot ~~2248~~ ___ Cliff House? ___

Fresh Water: Depths: <1,465' Formation Alluv/Chinle/SR/DL Wells? None Analysis? ___ Affirmative Statement ✓

Disposal Fluid Analysis? Sources: COMMERCIALLY TRUCKED

Disposal Interval: Analysis? Production Potential/Testing:

Notice: Newspaper Date 10/3/12 Surface Owner SLO 10/2/12 or BLM Mineral Owner(s) SLO/BLM/Larry Hill

RULE 26.7(A) Affected Persons: 6 Parties

AOR: Maps? Well List? ✓ Producing in Interval? NO Wellbore Diagrams? ✓

.....Active Wells 21 Repairs? 0 Which Wells? —

.....P&A Wells 10 Repairs? 0 Which Wells? —

Issues: Mewbourne Hold input / ~~Running Survey~~ Request Sent ___ Reply ___

≈ 1.3 mi NE to Pool Queen, SA
≈ 1.5 mi E. to Pool, CBG
≈ 3.4 mi NE to Pool, SA

Send letter ½ mi AOR MAP w/ wells
PUT FORMATION SOURCE ON WATER analysis