

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ yes ☐ no
- II. Operator: Shahara Oil, LLC
Address: 207 West McKay Carlsbad, NM 88220
Contact party: Perry L. Hughes Phone: 505-885-5433
- 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 ☐ no
If yes, give the Division order number authorizing the project R-2749
- 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 geological data on the injection zone including appropriate lithologic detail, geological 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 source 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 source 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: Perry L. Hughes Title Executive Officer
Signature: Perry L. Hughes Date: 07/13/00
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.

ATTACHMENT TO OCD FORM C-108

SHAHARA OIL, LLC
GRAYBURG JACKSON PREMIER SAND UNIT

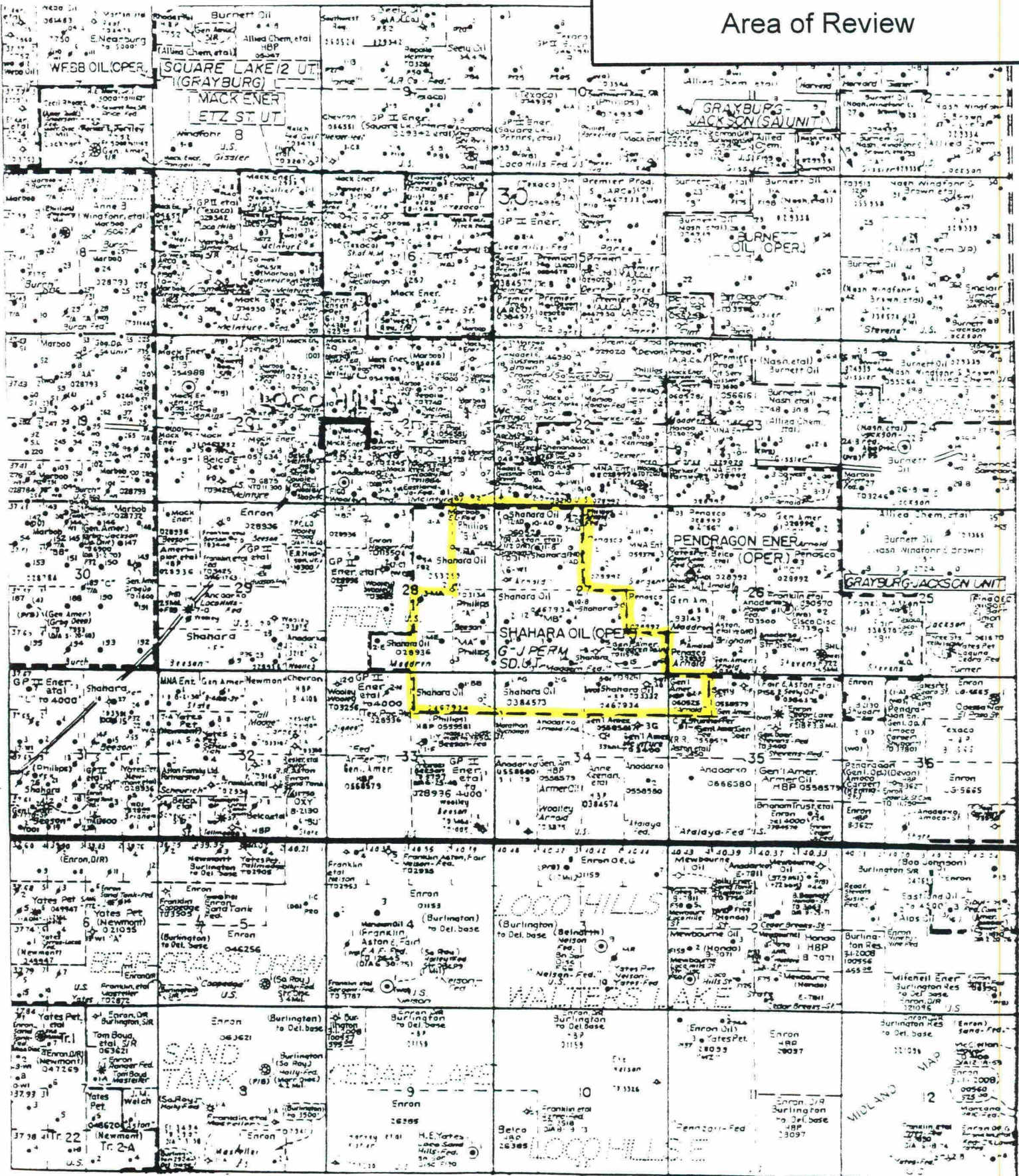
- I. Purpose - Application is made for authorization to expand injection of water and to institute micro-emulsion flooding into the Premier Sand of the Grayburg formation underlying the Grayburg Jackson Premier Sand Unit in Sections 27, 28, 33, 34 & 35 of Township 17 South, Range 30 East, Eddy County, New Mexico, as shown on the attached Exhibit "A". The proposed project is an enhanced recovery program designed to economically recover additional oil reserves to the benefit of all parties holding an interest in the Lease Area.
- II. Operator - Shahara Oil, LLC
207 W McKay, Carlsbad, NM 88220
- III. Injection Well Data - The required well data and schematic diagrams of Grayburg Jackson Premier Sand Unit AD No. 12, FG No. 1, ME No. 1, MB No. 3, MB No. 1, MB No. 5, BB No. 1, FG No. 2, AD No. 8, AD No. 9, AD No. 1, AD No. 3, AD No. 6 and MA No. 2 are enclosed as Exhibit "B".
- IV. Oil Conservation Commission Order R-2749 dated July 29, 1964 remains in effect.
- V. Maps - The attached Exhibit "A" and Exhibit "A-1" identify the proposed injection wells, the Area of Review within one-half mile of a proposed injection well, and all wells and leases within two miles of a proposed injection well.
- VI. Well Data - The well data for the wells within the Area of Review is attached as Exhibit "C" and the well data and schematic diagrams for all plugged and abandoned well bores within the Area of Review are attached as Exhibit "D".
- VII. Proposed Operations:
 1. Proposed average daily injection rate - 250 BWPD/well
Proposed maximum daily injection rate - 500 BWPD/well
 2. A closed injection system will be maintained.
 3. An average injection pressure of approximately 1800 psi is anticipated. The maximum injection pressure will be subject to the injection pressures authorized by the Oil Conservation Division.
 4. The proposed injection fluid will consist of water produced by wells in the Grayburg Jackson Premier Sand Unit, from Beeson "F" Federal wells operated by Shahara Oil, LLC and from produced water purchased from other operators in the immediate area.

- VIII. Geological Data - The injection interval is in the Premier Sand formation at a depth of approximately 3100 to 3300 feet. The Premier Sand is quartz sand with dolomitic cementation. The surface formation is Cretaceous and has no known sources of drinking water in this area.
- IX. Stimulation - Small acid treatments of about 2000 gallons per well have been sufficient to open the perforations for injection. Some of the wells proposed to be converted to injectors have been shot or fraced previously.
- X. Logging Data - The available logs are those on file with the Oil Conservation Division from the original operators of the wells and those furnished the Oil Conservation Division and the Bureau of Land Management by Shahara Oil, LLC.
- XI. Fresh Water Wells - No fresh water wells are located in the area of review.
- XII. Not applicable.
- XIII. Proof of Notice - Copies of this C-108 Application have been mailed to the surface owner, the grazing permittee and to each leasehold operator within one-half mile of the proposed injection wells. An Affidavit of such notice is attached Exhibit "E". Copies of the return receipts will be furnished upon request.

Exhibit "A"

Shahara Oil, LLC
Attachment to OCD Form C-108

Area of Review



ILLEGIBLE

Exhibit "B"

Well Data and Schematic Diagrams of Proposed Injection Wells

Shahara Oil, LLC
Attachment to OCD Form C-108

Exhibit "B"
Proposed Injection Well Data
Attachment to Grayburg Jackson Premier Sand Unit C-108

Operator - Well Name Location	Completion Date	TD	Casing Size	Casing Depth	Cement Sacks	WI/W Pkr @	Present Interval	Stimulation	Current Status
Shahara Oil LLC									
Grayburg Jackson PSU AD No. 12	Approved permit to drill. Well drill during 2000.								Pending
330' FNL & 330' FWL Unit D									
Section 27-117S-R30E									
Shahara Oil LLC									
Grayburg Jackson PSU FG No. 1	05/31/39	3360'	8 1/4"	557'	50sx	2890'	3297'-3308'	90qts Nitro	WI/W
330' FNL & 330' FWL Unit D			7"	2947'	100sx				
Section 34-117S-R30E									
Shahara Oil LLC									
Grayburg Jackson PSU ME No. 1	1950	3418'	8 1/4"	500'	50sx	2998'	3180'-3190'	190qts Nitro. Acid w/3,000qts pentol 200. Frac w/12bbis HCL, 74 bbis crude, 970bbis crude w/ 50,000# Ottawa sand	WI/W
990' FSL & 1650' FEL Unit O			7"	1642'	70sx				
Section 28-117S-R30E			5 1/2"	1517'-3171'	55sx				
Shahara Oil LLC									
Grayburg Jackson PSU MB No. 3	07/40	3252	8 1/4"	660'	50sx	3110	3235'-3252'	160qts Nitro	WI/W
990' FSL & 1650' FWL Unit N			7"	3169'	100sx			Frac w/24bbis kero, 25bbis crude	
Section 27-117S-R30E								8,040qts refined oil w/10,600# snd	
Shahara Oil LLC									
Grayburg Jackson PSU MB No. 1	07/38	3265'	8 1/4"	535'	50sx	2840'	2900'-3265'	Acid w/2500qts 15% NEFE	Shut In
990' FSL & 330' FWL Unit M			7"	2900'	100sx				WI/W
Section 27-117S-R30E	Re-entry 5/00								
Shahara Oil LLC									
Grayburg Jackson PSU MB No. 5	01/41	3257	8 1/4"	685'	50sx	3075'	3142'-3250'	Acid w/2500qts 15% NEFE acid	Shut In
990' FSL & 2310' FEL Unit O			7"	3131'	100sx				WI/W
Section 27-117S-R30E	Re-entry 4/00		4 1/2"	3251'	280sx				
Shahara Oil LLC									
Grayburg Jackson PSU BB No. 1	11/21/41	3507	8 1/4"	660'	50sx		3268'-3295'	130qts Nitro, 1,000qts 15% NEFE	Producing
330' FNL & 990' FEL Unit A			7"	3160'	100sx			Frac w/43bbis crude, 10,250qts refined oil, 5,450qts crude w/ 25,000# sand	
Section 33-117S-R30E									
Shahara Oil LLC									
Grayburg Jackson PSU FG No. 2	06/16/41	3281'	8 1/4"	699'	50sx		3260'-3281'	100qts Nitro, Frac w/574bbis crude	
330' FNL & 1650' FWL Unit C			7"	3178'	100sx			& 2,700# 20/40 sand	Shut In
Section 34-117S-R30E	Re-entry 4/00		4 1/2"	3281'	300sx	3118'	3160'-3268'	Acid w/2500qts 15% NEFE acid	WI/W
Shahara Oil LLC									
Grayburg Jackson PSU AD No. 8	06/03/65	3261'	8 5/8"	546'	100sx	3166'	3241'-3281'	Acid w/2500qts 15% NEFE	Shut In
330' FNL & 2140' FEL Unit B			5 1/2"	3241'	150sx				WI/W
Section 34-117S-R30E	Re-entry 4/00								
Shahara Oil LLC									
Grayburg Jackson PSU AD No. 9	08/15/65	3332'	8 5/8"	550'	100sx	3184'	3260'-3295'	Acid w/2500qts 15% NEFE	Shut In
330' FNL & 640' FEL Unit A			5 1/2"	3260'	150sx				WI/W
Section 34-117S-R30E	Re-entry 5/00								

Proposed Injection Well Data

[illegible]

SHAHARA OIL, LLC
GRAYBURG JACKSON PSU "AD" #12
Unit "D" SEC. 27 T7S R230E

PENDING INJECTION WELL

TO BEDRL 2000

12 1/4" HOE

5 5/8" 24# @ 500' - CMT CIRC.

PROJECTED TOP GRAYBURG
@ 2800'

5 1/2" 15.5# NEW AD-1 PKL TO BG
SET @ ~3000' w/ NEW 2 3/8"
COATED TBG.

PROJECTED TOP PREMIER SN
@ 3040'
7 7/8" HOE TO 3500'

PROJECTED PREMIER SN PERFS
3050'-3200' - ACIDIZE w/ 2500 gal
15% NEFE
5 1/2" 15.5# TO SET @ 3500' w/
CMT 100' ABOVE 5 5/8" SHOE.

N 7/12/00

SHAHARA OIL, LLC

GRAYBURG JACKSON PSU "FG" #1

Unit "D" SEC 34 T7S R30E

DRL 5/39

PRESENTLY INJECTING

8 1/4" 28# SA 557' W/5054

TOC @ 1656' (CALC. 1.25 F)

TOD GRAYBURG @ 2920'

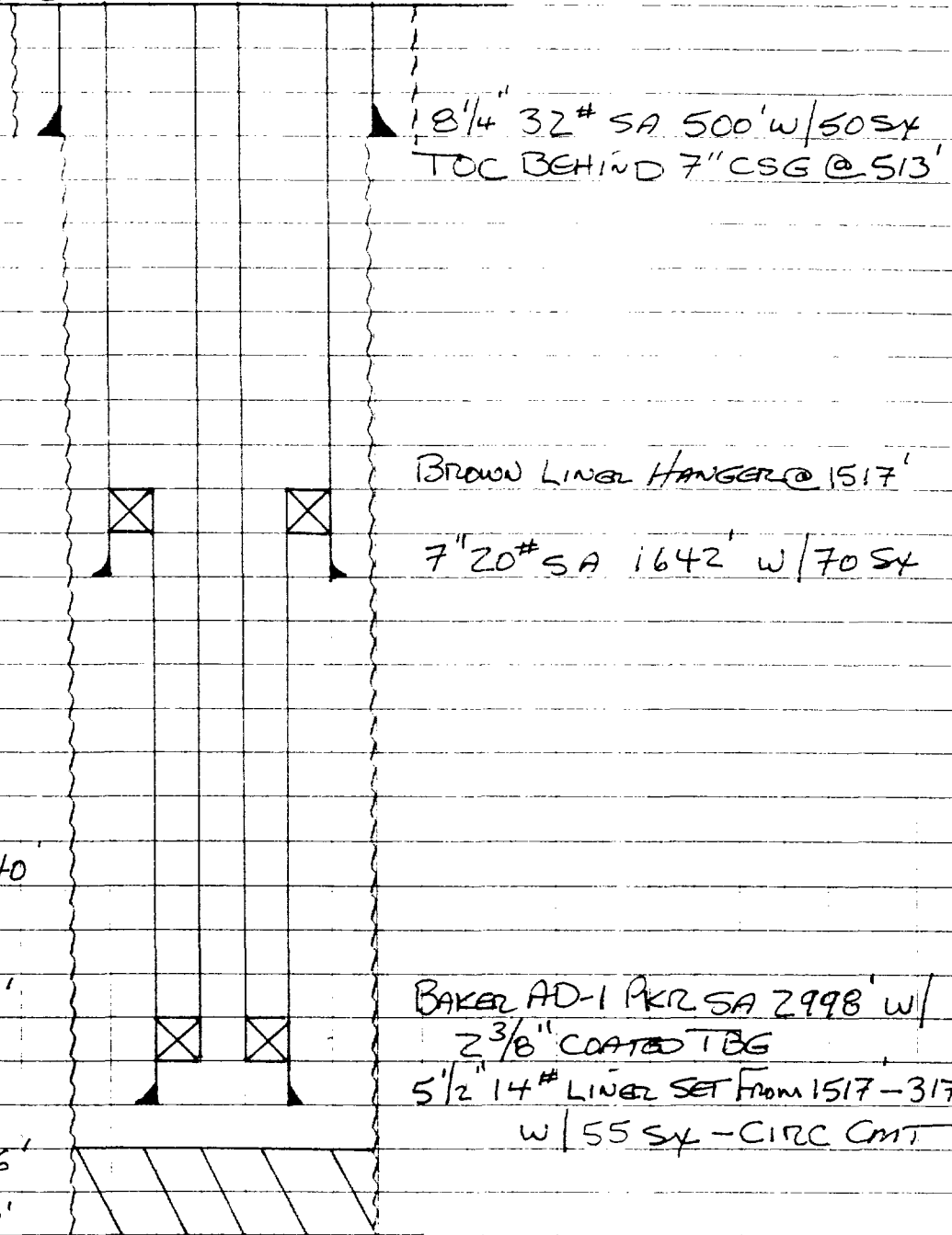
BAKER Injection PER SA 2890'
W/ 2 3/8" COATED TBG
7" 20# SA 2947' W/10084

TD 3360'

6/7/12/00

SHAHARA OIL, LLC
GRAYBURG JACKSON PSU "ME" #1
Unit "O" Sec 28 T7S R30E

PRESENTLY INJECTING



TOP GRAYBURG @ 2840'

TOP PREMIER @ 3084'

PBTDC @ 3196'

TD 3418'

BAKER AD-1 PKR SA 2998' W/
2 3/8" COATED TBG
5 1/2" 14# LINER SET FROM 1517-3171'
W/55 SY - CIRC CMT

7/11/00

SHAHARA OIL, LLC
GRAYBURG JACKSON PSU "MB" #3
Unit "N" SEC. 27 T17S R30E

DRL 7/40

PRESENTLY INJECTING

8 1/4" 24# SA 660' w/50 SY

TDC @ 1556 (CALC.)

TOP GRAYBURG @ 2882'

TOP PREMIER SMO @ 3132'

7" 20# JOHNSON TENSION PKR SA
3110' w/2 3/8" COATED TBG

7" 20# SA 3169' w/100 SY.

TD 3252'

N 7/12/00

SHAHARA OIL LLC
GRAYBURG JACKSON PSU "MB" #1
Unit "M" SEC 27 T7S R30E

DRL 7/38

INJECTION COMPLETION
AWAITING AUTHORIZATION

8 1/4" 32# SA 535' w/50 SY.

TOC BEHIND 7" @ 1676' (CALC.)

TOP GRAYBURG @ 2880'

7" 20# NEW AD-1 TENSION PKR SA
2840' w/NEW 2 3/8" GATED TBG.

7" 20# SA 2900' w/100 SY

TD 3265'

HZ/11/00

SHAHARA OIL, LLC

GRAYBURG JACKSON PSU "MB" #5

Unit "O" SEC 27 T7S R30E

DRL 1/41

Injection Completion
Awaiting Authorization

8 1/4" 24# SA 685' w/50 sy

TOC @ 1516' (CALC.) Behind 7"

Top GRAYBURG @ 2902'

Top Premier SW @ 3130'

4 1/2" 10.5# AD-1 PKR SA 3075'
w/ 2 3/8" COATED TBG

Perf. 3142'-3250'
(14 HOLES)
TD 3257'

7" 20# SA 3131' w/100 sy

4 1/2" 10.5# SA 3251' w/280 sy-Grc.

7/12/00

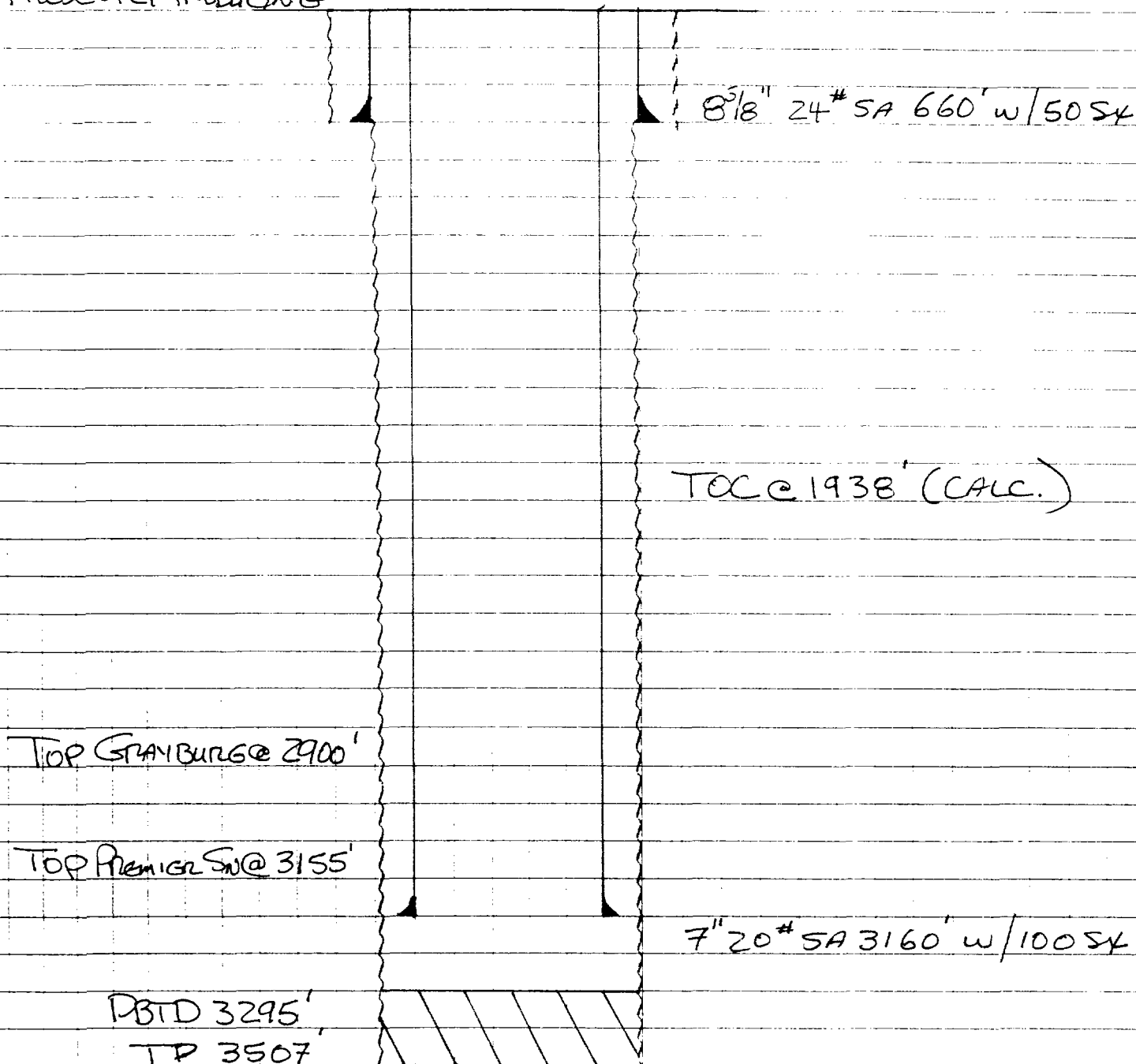
SHAHARA OIL, LLC

GRANBURG JACSON PSU "BB" #1

Unit "A" Sec 33 T17S R30E

DRL 11/41

Presently Producing



Propose TO:

1. ACIDIZE OPEN HOLE
2. Run & SET NEW AD-1 TENSION PKR
AND NEW 2 3/8" COATED TBG AT
ABOUT 3100'

R/ 7/11/00

SHAHARA OIL, LLC
GRAYBURG JACKSON PSU "FG" #2
Unit "C" SEC. 34 T7S R30E

DRL 6/41

INJECTION COMPLETION
AWAITING AUTHORIZATION

8 1/4" 24# SA 699' w/50 SK

TOC @ 1560' BEHIND 7" (CALC.)

TOP GRAYBURG @ 2887'

TOP PREMIER SNE @ 3150'

SET 4 1/2" 10.5 AD-1 PKR @ 3118'
w/ 2 3/8" COATED TBG.

PERF 3160'-3268' (12 HOLES)

7" 20# SA 3178' w/100 SK

TD 3281'

4 1/2" 10.5# SA 3281' w/300 SK - GIRC.

7/12/00

SHAHARA OIL, LLC
GRAYBURG JACKSON PSU "AD" #8
Unit "B" SEC. 34 T7S R30E

DRL 6/65

INJECTION Completion
AWAITING AUTHORIZATION

8⁵/₈" 24" SA 546' w/100SY

TOC @ 2165' (CALC.)

TOP GRAYBURG @ 2862'

TOP PREMIER SW @ 3085'

TD 3281'

5¹/₂" 14" AD-1 PQR SA 3166' w/
2³/₈" PLASTIC COATED TBG
5¹/₂" 14" SA 3241' w/150SY

7/12/00

SHAHARA OIL, LLC
GRAYBURG JACKSON PSU "AD" #9
UNIT "A" SEC 34 175 R30E

DRL 8/65

Injection Completion
Awaiting Authorization

8 5/8" 24# SA 550' w/100 SY

TOC @ 2184' (CALC.)

TOP GRAYBURG @ 2895'

TOP PREMIER SN @ 3155'

SET 5 1/2" 14# TENSION PRR @ 3184'
w/ NEW 2 3/8" COATED Inj TBG.

5 1/2" 14# SA 3260' w/150 SY

PSTD 3300'
TD 3332'

7/11/00

PHILLIPS PETROLEUM Co.

GTWFL Tr AD #1

Unit "F" Sec 27 T17S R230E

WILLIAMSON PETROLEUM CONSULTANTS, INC.

PAGE NO. _____ OF _____

DATE _____

DRL 8/43

PEA 11/93

Perf @ 250' - Pump

275 sy - Circ.

Perf @ 350' - Pump

493 sy - TAG @ 260'

Perf @ 570' - Pump

100 sy - TAG @ 480'

FILLED ANNULUS w/ CMT

8 5/8" CSG SA 520' w/ 75 sy

Perf CSG @ 1290' - SQ

w/ 75 sy. SET PLUG

1290' - 1190' TAG

@ 1160'

TOC CALC @ 1772' (1.25 SF)

SET CIRC @ 2290' -

SQ w/ 120 sy &

SET PLUG 2290-2200'

Jump in Hole Below 2300'

7" SA 3063 w/ 100 sy

TD 3522'

8" Hole

Propose TO:

1. CLEAN OUT TO TD

2. Run 4 1/2" 10.5" CSG TO TD AND CIRC CMT, LOG

3. Perf Premier SN ~ 3050' - 3200' & ACIDIZE

4. Run 4 1/2" 10.5" NEW AD-1 PKR & NEW

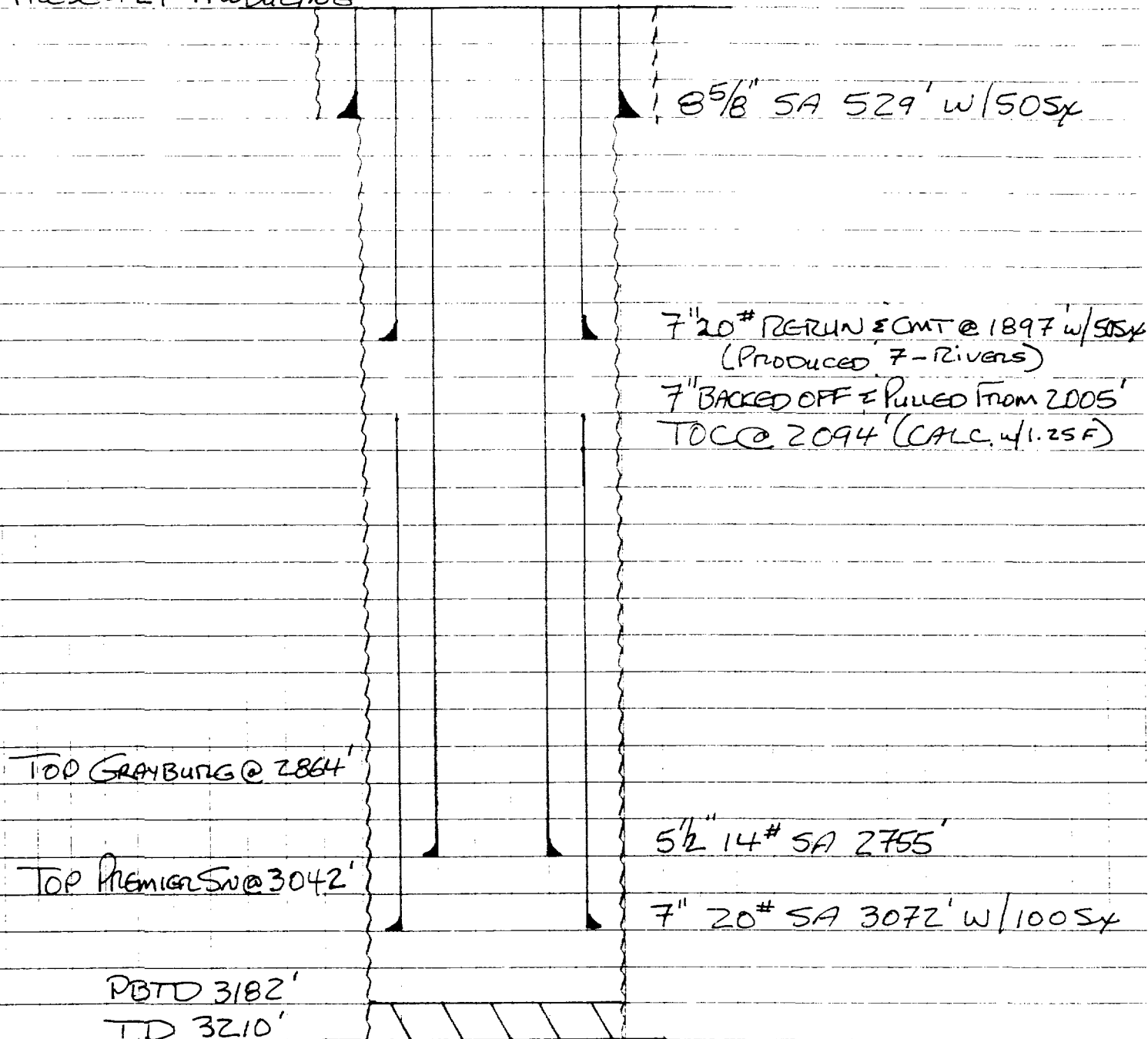
2 3/8" COATED TBG AND SET PKR @ ± 3000'

N 7/6/00

SHAHARA OIL, LLC
GRAYBURG JACKSON PSU "AD" #3
Unit "C" Sec. 27 T17S R230E

DRL 4/44

PRESENTLY PRODUCING



PROPOSE TO:

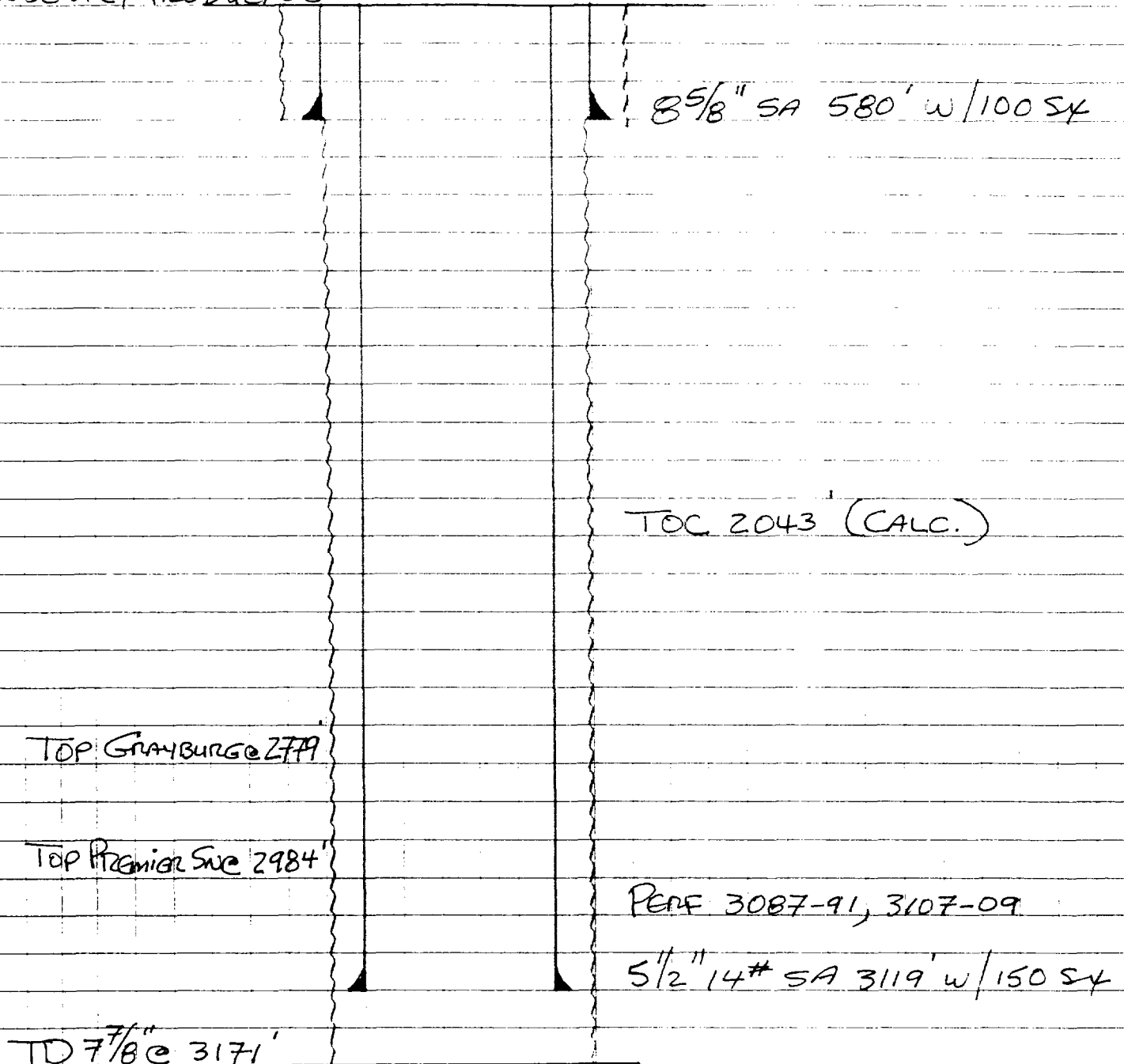
1. RECEMENT 5 1/2"
2. PERF ADD'L PREMIER SAND INTERVALS BEHIND 7"
3. ACIDIZE PERFS & OPEN HOLE
4. RUN & SET NEW AD-1 TENSION PERF AND NEW 2 3/8" COATED TBG WITHIN 100' OF TOP PERF.

H 7/11/00

SHAHARA OIL, LLC
GRAYBURG JACKSON PSU "AD" #6
Unit "E" SEC. 27 T17S R230E

DRL 4/65

Presently Producing



Propose To:

1. ADD PERFS in PREMIER SW. 2990 - 3070'
2. ACIDIZE PERFS
3. RUN & SET NEW AD-1 TENSION PKR
AND NEW $2\frac{3}{8}"$ COATED TBG WITHIN
100 FE OF TOP PERF.

N 7/11/00

General American Oil Co. of Tx.

GRANBURG JACKSON PSU TR "MA" #2

Unit "H" SEC 28 T7S R30E

DRL 7/65

PEA 9/75

SET CNT PLUG 25'-0'

8 5/8" 24# SA 547' W / 50 SY

SET CNT PLUG 1250-1150'

TOC CALC @ 2181' (SF 1.25)

TOP GRANBURG @ 2775'

SET CNT PLUG 2800-2775'

SET CIBP @ 2800'

TOP PREMIGLSN @ 2974'

5 1/2" 14# SA 3095' W / 150 SY

TD 3135'

Propose to:

1. CLEAN OUT TO TD 3135'
2. TEST CSG - REPAIR IF NECESSARY
3. ADD PERFS 3010 - 3095
4. ACIDIZE PERFS & OPEN HOLE
5. RUN 5 1/2" 14# AD-1 PKR & 2 3/8" NEW COATED
TTBG & SET @ $\pm$ 2950'.

N 7/7/00

Exhibit "C"

Well Data for
Wells Within the
Area of Review

Shahara Oil, LLC
Attachment to OCD Form C-108

Area of Review Well Data

Operator - Well Name Location	Completion Date	TD	PBTD	Casing Size	Casing Depth	Cement Sacks	Top of Cement	W/V Pkr @	Producing Interval	Stimulation	Current Status
Mack Energy Corporation Federal "X" #5 330' FSL & 2310 FVWL Unit N Section 21-117S-R30E	10/09/52	1920'	N/A	8 5/8" 7"	472' 1799'	50sx 50sx			1828'-1868'	Acid w/160qls Nitro.	Producing
Mack Energy Corporation Federal "S" #15 660' FNL & 1980' FVWL Unit C Section 28-117S-R30E	06/12/97	5808'	3592'	8 5/8" 7" 4 1/2"	483' 2991' 3608'	50sx 100sx 300sx			3462' - 3470'	Acid w/4300 gals 15% NE acid	Producing
Shahara Oil LLC Maddren #4 330' FNL & 1650' FEL Unit B Section 28-117S-R30E	06/13/80	3200'	3190'	8 5/8" 5 1/2"	510' 3190'	350sx 550sx			2348'-3079' 2348'-3079'	Frac w/60,000qls gel H2O w/60,000 # sand Frac w/100,000qls & 100,000# sand.	Producing
Shahara Oil LLC Grayburg Jackson PSU AD #6 2310' FNL & 300' FVWL Unit E Section 27-117S-R30E	04/27/65	3180'	3171'	8 5/8" 5 1/2"	580' 3119'	100sx 150sx			3087'-3171'	Acid w/1500qls 7 1/2% NEFE, HCL Acid w/500qls 15% acid, Frac w/ 30,000qls gel & 30,000# 20/40 Frac w/24,000qls Mini Max III-40 & 33,500# 12/20 sand.	Producing
Yates Petroleum Corporation Cedar Lake AD Federal Com #1 2140' FNL & 660' FVWL Unit E Section 26-117S-R30E	03/10/86	11500'	11427'	13 3/8" 8 5/8" 5 1/2"	410' 4507' 11500'	650sx 2200sx 1200sx			10673-10681'	Natural	Producing
Premier Oil & Gas Inc. Date H Parke "A" #10 2100' FSL & 900' FVWL Unit L Section 22-117S-R30E	08/04/76	3687'	3672'	8 5/8" 7" 4 1/2"	1559' 2150' 3685'	500sx 250sx 375sx			3024'-3525'	Acid w/2,000qls MCA 2,500qls 15% NE & 40,000qls gelled brine. Frac w/40,000# 20/40 & 5000# 10/20 sand.	Producing
Pendragon Energy Part Inc. Grayburg Jackson Unit Tract 6 #1 510' FSL & 1980' FEL Unit O Section 22-117S-R30E	09/27/45	3153'	N/A	8 1/4" 7"	488' 2942'	50sx 100sx			3007'-3153'	Acid w/415qls Nitro, Frac w/39,000 qls brine gel & 45,000# 20/40 sand	Producing
Pendragon Energy Part Inc. Grayburg Jackson Unit 7B1 1980' FSL & 660' FEL Unit I Section 27-117S-R30E	09/14/41	3244'	N/A	8 1/4" 7"	663' 3112'	50sx 100sx			3206' - 3227'	Acid w/100qls Nitro	TA'd
Pendragon Energy Part Inc. Grayburg Jackson Unit Tract 11 #3 1650' FNL & 330' FEL Unit H Section 27-117S-R30E	05/30/58	3386'	N/A	5 1/2"	3385'	200sx			2950' - 3285'	Frac w/20,000qls gel wtr & 23,000# 20/40 sand w/8000# 10/20 sand	Producing
Pendragon Energy Part Inc. Grayburg Jackson Unit Tract 6 #2 1980' FNL & 1980' FEL Unit G Section 27-117S-R30E	04/12/43	3195'	N/A	8 1/2" 7"	478' 3002'	50sx 100sx			3150' - 3191'	Acid w/140qls Glycerine Frac w/20,000qls wtr & 30,000# 20/40 sand w/500# rock salt & 500# moth balls	TA'd

Exhibit "C"
Area of Review Well Data
Attachment to Grayburg Jackson Premier Sand Unit C-108

Operator - Well Name Location	Completion Date	TD	PBTD	Casing Size	Casing Depth	Cement Sacks	Top of Cement	WWP Pkr @	Producing Interval	Stimulation	Current Status
Pendragon Energy Part Inc. Grayburg Jackson Unit Tract 6 #5	02/13/58	3200'	3170'	8 5/8" 7"	483' 1899'	50sx 100sx	Circ 2819'		3164' - 3170'	Acid w/210qts Glycerine Acid w/1000 gls 15% acid Frac w/10,000# 20/40 sand & 10,000gls refined oil	1Ad
Pendragon Energy Part Inc. Grayburg Jackson Unit Tract 6 #4	05/17/58	3196'	3167'	8 5/8" 7"	491' 1805'	50sx 100sx	Circ 2760'		2967' - 3175'	Acid w/240qts Glycerine Frac w/12,000# 20/40 sand & 6600lbs lease oil & 20 rubber balls	1Ad
Pendragon Energy Part Inc. Grayburg Jackson Unit Tract 5 #2	03/09/76	3200'	3177'	8 5/8" 5 1/2"	495' 3200'	100sx 400sx	Circ		3081' - 3102'	Acid w/4,500gls acid Frac w/45,000gls gel H2O & 45,000# 20/40 & 15,000# 10/20 sand	Producing
Mack Energy Corporation Brigham B #2	07/12/62	1925'	N/A	8 5/8" 7"	450' 1916'	75sx 125sx	Circ		1916' - 1925'	Frac open hole w/5,000gls oil & 4,000# sand	Producing
Mack Energy Corporation Brigham B #1	06/02/54	1947'	N/A	8 5/8" 7"	464' 1938'	50sx 100sx	Circ		1938' - 1947'	N/A	Producing
MNA Enterprises LTD Co. Federal E #8	01/18/54	1950'	N/A	8 5/8" 7"	428' 1875'	50sx 50sx	945'		1916' - 1935'	Acid w/130qts Nitro.	Producing
MNA Enterprises LTD Co. Federal E #7	05/31/50	1963	N/A	8 5/8" 7"	495' 1825'	50sx 100sx	1724'		1901' - 1952'	Acid w/212qts Nitro.	Producing
MNA Enterprises LTD Co. Federal E #6	06/18/44	1950'	N/A	8 5/8" 7"	502' 1877'	50sx 100sx	Circ		1877' - 1950'	Acid w/180qts Nitro.	Producing
MNA Enterprises LTD Co. Federal B #10	07/07/50	1987'	N/A	8 5/8" 7"	480' 1910'	50sx 100sx	Circ		1941' - 1983'	Acid w/164qts Nitro.	Producing
Nadel & Gussman Permian LLC Brown Crow Federal #2	10/16/85	3300'	3284'	8 5/8" 5 1/2"	448' 3300'	300sx 600sx	Circ		2579' - 3056'	Acid w/3,000gls. Frac w/80,000 gls H2O & 148,000# sand	Producing

Exhibit "C"
Area of Review Well Data
Attachment to Grayburg Jackson Premier Sand Unit C-108

Operator - Well Name Location	Completion Date	TD	PBTD	Casing Size	Casing Depth	Cement Sacks	Top of Cement	WIW Pkr @	Producing Interval	Stimulation	Current Status
Mack Energy Corporation Federal "X" #4	09/07/62	1880'	N/A	8 5/8"	525'	505x			1799'-1850'	Acid w/200qts Nitro.	Producing
330' FSL & 990' FWL, Unit M				7"	1774'	505x	844'				
Section 21-117S-R30E											
Mack Energy Corporation Federal "X" #3	02/14/52	1880'	N/A	8 5/8"	552'	505x			1820'-1855'	Acid w/275qts Nitro.	Producing
330' FSL & 1650' FWL, Unit N				7"	1805'	505x	875'				
Section 21-117S-R30E											
The Eastland Oil Co.											
Jo Federal #1	08/25/85	3300'	3160'	8 5/8"	331'	3005x			2556'-3048'	Acid w/2,500qts 15% NEFE acid	Producing
430' FSL & 1650' FEL, Unit O				5 1/2"	3160'	6005x	Circ			Frac w/30,000qts 2% KCl gel, H2O	
Section 21-117S-R30E										35,000# 20/40 sand & 16,000# 12/20 sand	
Seely Oil Co.											
General American Federal #1	06/06/73	3550'	3508'	8 5/8"	519'	1005x			3225'-3336'	Acid w/750 qts 15% NEFE	Producing
330' FNL & 1980' FWL, Unit C				4 1/2"	3549'	2505x	2100'			Frac w/80,000qts gel H2O & 80,000# sand.	
Section 35-117S-R30E											
Shahara Oil LLC											
Grayburg Jackson PSU AD #9	08/15/65	3332'	3300'	8 5/8"	550'	1005x			3260'-3300'	Acid w/600qts 20% reg acid.	Producing
330' FNL & 640' FEL, Unit A				5 1/2"	3260'	1505x	2117'				
Section 34-117S-R30E											
Anadarko Petroleum Corporation											
Arnold Federal Com. #1	02/27/82	11552'	11550'	13 3/8"	418'	4005x			11398'-11434'	None	Producing
1980' FNL & 1980' FEL, Unit G				8 5/8"	3464'	28005x	Circ				
Section 34-117S-R30E				4 1/2"	11552'	20005x	Circ				
Nadel & Gussman Permian LLC											
Beeson Federal #1-Y	07/14/87	3650'	3627'	8 5/8"	525'	3505x			3276'-3498'	Acid w/1,500qts acid	Producing
2160' FNL & 2160' FEL, Unit G				5 1/2"	3650'	5255x	Circ			Frac w/50,000qts H2O & 58,000# snd	
Section 33-117S-R30E											
Shahara Oil LLC											
Madden E Federal #2	03/05/81	3350'	N/A	8 5/8"	494'	3355x			1980'-3170'	Frac w/100,000qts gel H2O	Producing
990' FSL & 1650' FWL, Unit N				5 1/2"	3350'	4005x	Circ			w/100,000# 20/40 sand.	
Section 28-117S-R30E											
Shahara Oil LLC											
Madden A Federal #5	02/05/81	3330'	N/A	8 5/8"	497'	3355x			2833'-3244'	Acid w/1,800qts 15% NEFE	Producing
1650' FNL & 2310' FEL, Unit G				5 1/2"	3330'	5055x	Circ			Frac w/95,000qts gel H2O w/95,000# sand & 1,000qts 15% acid	
Section 28-117S-R30E											
Shahara Oil LLC											
Grayburg Jackson PSU MB #6	06/27/41	3234'	3100'	8 5/8"	693'	505x			3195' - 3234'	Shot w/180 qts nitro	TA'd
1650' FSL & 1650' FEL, Unit J				7"	3126'	1005x	1267'			Treated w/8bbls crude, 31bbls Kero	
Section 27-117S-R30E										1,000qts refined oil w/1# sand per gal.	

Area of Review Well Data

Operator - Well Name Location	Completion Date	TD	PBTD	Casing Size	Casing Depth	Cement Sacks	Top of Cement	WIW Pkr @	Producing Interval	Stimulation	Current Status
Mack Energy Corporation Federal "S" #4 1650' FNL & 2310' FWL, Unit F Section 28-117S-R30E	03/24/53	1930'	1891'	7" 5 1/2"	462' 1865'	505x 505x			1886'-1930'	Shot w/Nitro.	Producing
Mack Energy Corporation Federal "S" #2 1980' FNL & 1980' FWL, Unit F Section 28-117S-R30E	03/22/76	3585'	3320'	10" 4 1/2"	484' 3366'	505x 6405x	1852'		2864'-3093'	Acid w/840gls 15% NEFE Frac w/1,000gls HCL, 80,000 gls gel H2O, 30,000# 100 mesh sand 45,000# 20/40, 18,000# 10/20 sand & 250# Gypban.	Producing
Shahara Oil LLC Madden "B" Federal #9 2310' FSL & 1650' FEL, Unit J Section 27-117S-R30E	12/26/51	3192'	N/A	8 5/8" 7" 5 1/2"	544' 1917' 3164'	505x 755x 505x			3164'-3192'	Acid w/280gls Nitro 500gls 15% acid Frac w/40,000#sand & 40,000gls H2O	Producing
Shahara Oil LLC Madden "B" Federal #1 990' FSL & 330' FWL, Unit M Section 27-117S-R30E	02/05/55	3265'	2784'	8 1/4" 7"	535' 2900'	505x 1005x	1041'		2023'-2029'	Acid w/700gls 15% NEFE Frac w/160bbls crude, 37bbls KERO 1000gls refined oil w/1# sand per gal 8,000gls. Frac w/40,000# 20/40 sand & 40,000gls gel H2O.	Producing
Shahara Oil LLC Grayburg Jackson PSU MB #12 1815' FSL & 1295' FWL, Unit L Section 27-117S-R30E	10/30/69	3278'	3207'	8 5/8" 5 1/2"	497' 3240'	1005x 2005x	1716'		3161'-3195'	Acid w/500gls pental 200 15% NEFE Frac w/30,000gls slick H2O & 30,000# 20/40 sand	Producing
Shahara Oil LLC Grayburg Jackson PSU MB #2 1650' FSL & 330' FWL, Unit L Section 27-117S-R30E	02/28/55	3258'	N/A	8 1/4" 5 3/8"	525' 3024'	505x 1005x	2262'		3024'-3258'	Acid w/130gls Nitro, acid w/1000gls 15% NEFE, acid w/3,000gls 15% NEFE, Frac w/6bbls crude, 23bbls oil w/14,500# sand.	Producing
Shahara Oil LLC Grayburg Jackson PSU AD #10 660' FNL & 990' FWL, Unit D Section 27-117S-R30E	09/24/75	3230'	3224'	8 5/8" 4 1/2"	498' 3230'	1005x 6005x	Circ		3120'-3154'	Acid w/2,250gls Frac w/30,000gls H2O & 20,000# sand.	Producing
Shahara Oil LLC Grayburg Jackson PSU AD #3 660' FNL & 1980' FWL, Unit C Section 27-117S-R30E	04/25/44	3210'	2000'	8 5/8" 7"	529' 3072'	505x 1005x	1213'		3151'-3210'	Acid w/160gls Nitro.	Producing
Pentragon Energy Part Inc. Grayburg Jackson Tract 11 #4 977' FNL & 1200' FEL, Unit A Section 27-117S-R30E	04/11/96	3375'	3232'	13 3/8" 8 5/8" 5 1/2"	230' 551' 3372'	2405x 4705x 15255x	Circ Circ Circ		3146'-3211'	Frac w/15,000gls gel H2O & 33,000# sand.	Producing

Exhibit "C"

Area of Review Well Data

Attachment to Grayburg Jackson Premier Sand Unit C-108

Operator - Well Name Location	Completion Date	TD	PBTD	Casing Size	Casing Depth	Cement Sacks	Top of Cement	WIW Pkr @	Producing Interval	Stimulation	Current Status
Pendragon Energy Part Inc. Grayburg Jackson Tract 7B #2 2310 FSL & 330' FEL, Unit I Section 27-117S-R30E	04/18/57	3253'	N/A	8 5/8" 5 1/2"	507' 3253'	50sx 100sx	2491'		3192'-3224'	Frac w/sand-oil, 5,000# sand & 5,000# gelled oil.	Producing
MMA Enterprises L.L.D. Co. Sargent 4 330' FNL & 330' FEL, Unit A Section 27-117S-R30E	01/11/51	2073'	2023	8 1/4" 7"	505' 1900'	50sx 25sx	1435'		1950'-1995'	Acid w/180qts Nitro.	Producing
Shahara Oil LLC Grayburg Jackson PSU BB #1 330' FNL & 990' FEL, Unit A Section 33-117S-R30E	11/21/41	3507'	3295'	8 1/4" 7"	660' 3160'	50sx 100sx	1301'		3268'-3295'	Acid w/130qts Nitro, 1000qts 15% NEFE Frac w/43bbis crude, 10,250qts refined oil, 5,450qts crude w/	Producing
Shahara Oil LLC Grayburg Jackson PSU FG #1 330' FNL & 330' FNL, Unit D Section 34-117S-R30E	05/31/39	3390'	N/A	8 1/2" 7"	557' 2947'	50sx 100sx	1087'	2890'	3297'-3308'	Acid w/90qts Nitro.	WIW
Shahara Oil LLC Grayburg Jackson PSU ME #1 990' FSL & 1650' FEL, Unit O Section 28-117S-R30E	1950	3418'	3200'	8 5/8" 7" 5 1/2"	500' 1642' 3171'	30sx 7sx 55sx	1511'	2998'	3180'-3190'	Acid w/190qts Nitro, 3000qts Pentol 200 Frac w/12bbis HCL, 74bbis crude 970bbis crude w/50,000# Ottawa sand	WIW
Shahara Oil LLC Grayburg Jackson PSU AD #8 330' FNL & 2140' FEL, Unit B Section 34-117S-R30E	06/03/65	3261'	3151'	8 5/8" 5 1/2"	546' 3241'	100sx 150sx	2098'		2038'-2510' 3241'-3261'	Acid w/500qts 20% reg acid Frac w/80,000qts H2O & 60,000# sand	TA'd
Shahara Oil LLC Grayburg Jackson PSU MB #3 990' FSL & 1650' FNL, Unit N Section 27-117S-R30E	03/29/54	3252'	N/A	8 1/4" 7"	660' 3169'	50sx 100sx	1310'	3100'	3235'-3252'	Acid w/160qts Nitro Frac w/24bbis Xero, 25bbis crude 8,040qts refined oil w/10,600# sand flush w/50bbis crude.	WIW
Pendragon Energy Part Inc. Grayburg Jackson Tract 6 #3 660' FNL & 1986' FEL, Unit B Section 27-117S-R30E	10/03/43	3190'		8 1/4" 7"	450' 2971'	275sx 100sx	1112'		3143'-3185'	Acid w/130qts Nitro.	WIW
Shahara Oil LLC Grayburg Jackson PSU MA #6 330' FSL & 50' FEL, Unit P Section 28-117S-R30E	05/09/98	3700'	3410'	8 5/8" 5 1/2"	520' 3700'	410sx 1023sx	Circ		3418'-3566' 3252'-3365'	Acid w/5000 gals 15% NEFE. Frac w/37,926 gals delta frac & 76,000# 16/30 sand	Producing
Shahara Oil LLC Madden B Federal #11 1310' FNL & 1310' FNL, Unit D Section 27-117S-R30E	05/15/98	5002'	4958'	8 5/8" 5 1/2"	523' 5000'	544sx 1775sx	Circ		3867'-4066' 4402'-4510' 3042'-3198'	Acid w/3000 gals 15% NEFE Acid w/1500 gals 15% NEFE Reacidized w/25gals 15% NEFE	Producing

Exhibit "C"
Area of Review Well Data
Attachment to Grayburg Jackson Premier Sand Unit C-108

Operator - Well Name Location	Completion Date	TD	PBTD	Casing Size	Casing Depth	Cement Sacks	Top of Cement	WIW Pkr @	Producing Interval	Stimulation	Current Status
Shahara Oil LLC.											
Madden B Federal #15	04/21/98	3702		8 5/8"	521'	310sx			2025'-2061'	Acidized w/1500 gals Fercheck w/ball sealers. Frac w/18,900 gals 20#	Producing
330' FSL & 1310' FEL Unit P				5 1/2"	3699'	1092sx	Circ			Delta w/19,000# 20/40 &	
Section 27-117S-R30E											
Shahara Oil LLC.											
Grayburg Jackson PSU MB #10	03/27/98	3707'	3280'	8 5/8"	523'	575sx			3079'-3254'	Acidized w/3000 gals 15% NEFE w/40 ball sealers. Frac 39774 gals #20	Producing
2210' FSL & 2310' FWL Unit K				5 1/2"	3707'	1200sx	Circ			Delta Frac w/76250 #16/30 brady sand	
Section 27-117S-R30E											
Shahara Oil LLC.											
Grayburg Jackson PSU MB #13	03/15/98	3700'	3415'	8 5/8"	523'	853sx			3169'-3331'	Acid w/3000 gals 15% NEFE	Producing
330' FSL & 990' FWL Unit M				5 1/2"	3700'	850sx	Circ		3442'-3444'	Frac w/36414 gals Delta & 75,000#	
Section 27-117S-R30E										16/30 Brady sand.	
Shahara Oil LLC.											
Grayburg Jackson PSU MB #14	03/26/98	3700'	3650'	8 5/8"	523'	410sx			3141'-3296'	Acid w/3000 gals 15% NEFE	Producing
330' FSL & 2310' FWL Unit N				5 1/2"	3700'	1200sx	Circ			Frac w/38,000 gals Delt frac w/sand	
Section 27-117S-R30E										Wedge w/62,000 # 16/30	
Shahara Oil LLC.											
Grayburg Jackson PSU MB #16	04/12/98	3704'	3350'	8 5/8"	524'	310sx			3243'-3325'	Acidized w/2500 gals 15% NEFE	Producing
330' FSL & 430' FEL Unit P				5 1/2"	3704'	1120sx	Circ		3394'-3399'	w/ball sealers	
Section 27-117S-R30E										Frac w/32,620 gals & 60,000#	
										16/30 sand	
Mack Energy											
Federal "S" #6	06/09/68	3293'	3208'	8 5/8"	568'	150sx			2878'-3121'	Acid w/750gls 15%NEFE	Producing
1980' FSL & 1980' FWL Unit K				4 1/2"	3218'	350sx	1190'			Frac w/30,000gls gel brine & 38,000#	
Section 28-117S-R30E										sand Frac w/5,000gls gel H2O, 1000 gls	
										15% NEFE, 30,000# 100 mesh sand &	
										36,000# 20/40 & 220gls	
										scale inhibitor.	

Exhibit "D"

Well Data and
Schematic Diagrams of
Plugged and Abandoned
Well Bores Within the
Area of Review

Shahara Oil, LLC
Attachment to OCD Form C-108

Exhibit "D"
Plugged and Abandoned Well Data
Attachment to Grayburg Jackson Premier Sand Unit C-108

Operator - Well Name Location	Plug Date	TD	Perfs	Casing Size	Casing Depth	Cement Sacks	Top of Cement
Southwest Royalties Inc.							
McIntyre G Federal #3	09/05/74	3050'	D & A	8 5/8"	520'	100sx	
1650' FNL & 990' FEL Unit H							
Section 34-T17S-R30E							
Phillips Petroleum Company							
Grayburg Jackson WFU Tract BA #2	10/22/93	3200'	OH	10 3/4"	1251'	150sx	1500' (calc)
330' FNL & 330' FEL Unit A				5 1/2"	3035'		
Section 28-T17S-R30E							
Phillips Petroleum Company							
Madden Deep Ut B #1	06/13/82	11574'	D & A	13 3/8"	352'	500sx	Circ
660' FSL & 2180' FEL Unit O				8 5/8"	3685'	1825sx	Circ
Section 27-T17S-R30E							
C W Stunhoffer							
Federal #1	05/09/95	3400'	3110'-3341'	8 5/8"	488'	250sx	
1650' FNL & 330' FWL Unit E				5 9/16"	3398'	500sx	859' (calc)
Section 35-T17S-R30E							
General American Oil Company of Tx.							
Grayburg Jackson Premier Sand Unit Tract AF #2	09/30/75	3434'	3210'-3434'	10"	571'	50sx	
660' FNL & 660' FWL Unit D				7"	3186'	mudded	pulled
Section 35-T17S-R30E				5 1/2"	3210'	100sx	2667' (calc)
JFG Enterprise							
Beeson Federal #1	06/01/87	3797'	3615'-3797' (OH)	8 5/8"	576'	75sx	
2310' FNL & 2310' FEL Unit G				4 1/2"	3615'	400sx	1845' (calc)
Section 33-T17S-R30E							
Anadarko Petroleum Corporation							
Federal N #2	10/31/94	3350'	3002'-3283'	8 5/8"	500'	375sx	Circ
660' FNL & 1980' FWL Unit C				4 1/2"	3349'	525sx	1300'
Section 33-T17S-R30E							Temp Survey
Phillips Petroleum Company							
Grayburg Jackson WFU Tract MA #3	11/03/93	3185'	3098'-3102'	8 5/8"	502'	100sx	
2310' FSL & 2310' FEL Unit J				4 1/2"	3185'	700sx	480' (calc)
Section 28-T17S-R30E							
Phillips Petroleum Company							
Grayburg Jackson WFU Tract MA #1	12/01/93	3250'	3090'-3250' (OH)	8 1/4"	546'	50sx	
990' FSL & 330' FEL Unit P				5 3/16"	3090'	100sx	2547' (calc)
Section 28-T17S-R30E							
General American Oil Company of Tx							
Grayburg Jackson Premier Sand Unit BA #3	09/30/75	3268'	3025'-3268' (OH)	8 5/8"	532'	50sx	
1650' FSL & 330' FEL Unit I				7"	3025'	100sx	2047' (calc)
Section 28-T17S-R30E							

Exhibit "D"
Plugged and Abandoned Well Data
Attachment to Grayburg Jackson Premier Sand Unit C-108

Operator - Well Name Location	Plug Date	TD	Perfs	Casing Size	Casing Depth	Cement Sacks	Top of Cement
Enron Oil & Gas Company							
Bogart Federal Com #1	10/16/91	11550'	10861'-10877'	13 3/8"	547'	575sx	Circ
2030' FNL & 1830' FWL, Unit F				9 5/8"	3488'	1850sx	Circ
Section 28-T17S-R30E				2 7/8"	11548'	1350sx	Calc inside 9 5/8' csg
Anadarko Production Company							
Federal S #5	03/13/85	1927'	OH	8 5/8"	450'	50sx	
1650' FNL & 990' FWL, Unit E							
Section 28-T17S-R30E							
Phillips Petroleum Company							
Grayburg Jackson WFU Tract MB #7	11/10/93	3254'	3131'-3254' (OH)	8 1/4"	670'	50sx	1841' (calc)
990' FSL & 990' FEL, Unit P				7"	3131'	100sx	
Section 27-T17S-R30E							
Phillips Petroleum Company							
Grayburg Jackson WFU Tract MB #4	12/07/93	3223'	3125'-3223' (OH)	8 1/4"	663'	70sx	1834' (calc)
1650' FSL & 2310' FWL, Unit K				7"	3125'	100sx	
Section 27-T17S-R30E							
Phillips Petroleum Company							
Grayburg Jackson WFU Tract AD #1	12/01/93	3522'	3063'-3210' (OH)	8 1/4"	520'	75sx	1772' (calc)
1980' FNL & 1980' FWL, Unit F				7"	3063'	100sx	
Section 27-T17S-R30E							
Phillips Petroleum Company							
Arnold D Federal #4	10/25/88	2011'	1851'-2011' (OH)	8 5/8"	494'	75sx	560' (calc)
330' FNL & 2310' FWL, Unit C				7"	1851'	100sx	
Section 27-T17S-R30E							
LBO New Mexico Inc.							
Grayburg Jackson Unit Tract 11 #1	04/16/87	3233'	3198'-3206'	8 1/4"	624'	50sx	
1980' FNL & 660' FEL, Unit H				7"	3047'	100sx	1756' (calc)
Section 27-T17S-R30E				4 1/2"	3230'	700sx	Circ (calc)
General American Oil Company of Tx							
Grayburg Jackson Premier Sand Ut Tract MA #2	09/30/75	3134.5'	3095'-3135' (OH)	8 5/8"	547'	50sx	
2615' FNL & 1295' FEL, Unit H				5 1/2"	3095'	150sx	2181' (calc)
Section 28-T17S-R30E							

SOUTHWEST ROYALTIES INC.

McINTYRE "G" #3

Unit "H" SEC 34 T17S R230E

DRL 9/74 DRY HOLE

SET 255x PLUG @
SURFACE

SET 505x PLUG
570'-470'

8⁵/₈" 20# SA 520' w/ 1005x
IN 12¹/₄" HOLE

SET 505x PLUG
1550'-1450'

SET 505x PLUG
3050'-2950'

7⁷/₈" HOLE TO 3050'

OK
6/30/00 X

PHILLIPS PETROLEUM

GJWFU TR "BA" #2

Unit "A" Sec. 28 T7S R30E

PEA 10/93

PERF. @ 500' - UNABLE
TO BREAK CIRC. SQ
175 SX THRU PERFS. -
TAG CMT @ 33' -
PUMP 15 SX TO FILL
CSG

10³/₄" SA 1251'

PERF. @ 1300' & 1175' -
CIRC W/ 50 SX CMT
1300-1175' W/ CIRC
@ 1200' DUMP 10 SX
ON TOP OF CIRC.

EST TOC @ 1500'

Perf. 2342 - Pump 50 SX - TAG
TOC @ 2234

PERF @ 2575 - ATTEMPT
TO SQ 50 SX -
SOME CMT THRU
PERFS & SOME IN
WORK STRING

SET 50 SX CMT PLUG FROM
2975 - 2600
SET CIBP @ 2975'

TD 3200' (EST.)

5¹/₂" 14# SA 3035 w/ 150 SX

7/1/00

PHILLIPS PETROLEUM Co.
MADDERO DEEP UNIT "B" #1
Unit "O" SEC 27 T7S R30E

DEA 4/82

SET 10 SX SURFACE
PLUG

13 3/8" 48# SET IN 17 1/2" HOLE @ 352'
w/ 500 SX - CIRC.

SET 40 SX 3724-3524'

8 5/8" 32# SET IN 11" HOLE @ 3685'
w/ 1825 SX - CIRC.

SET 67 SX 6320-6120'

SET 580 SX 8500'-7000'

SET 75 SX 9148'-8948'

SET 100 SX 10930'-10730'

7 7/8" HOLE TO 11,574' <

4/7/7/100

C.W. STUMHOFER (PHILLIPS)

FEDERAL #1

Unit "E" SEC. 35 T17S R230E

DRL 3/74

PEA 5/95

Perf @ 553' Pump
155 SX - CMT.
INSIDE & OUTSIDE
5 1/2" CSG TO SURFACE

8 5/8" 20# SA 488' w/ 250 SX

EST TOC @ 859' (1.5 F.)

SET 25 SX CMT PLUG FROM
2543' - 2299'

SET 25 SX CMT PLUG
3048' - 2804'

SET CIBP @ 3048'

PERFS 3110' - 3341' (28 holes)

PBTD @ 3343'
TD 7 7/8" HOLE @ 3400'

SET 5 9/16" 15# @ 3398' w/
500 SX

N 7/1/00

General American Oil Co.

GJPSU TR. "AF" #2

Unit "D" Sec. 35 T7S R30E

DRL 12/43
PEA 9/75

SET 25' CMT PLUG @
SURFACE

SET 100' CMT PLUG FROM
1400' - 1300'

10" SA 571' W/50 SY

5 1/2" CSG SHOT OFF
@ 1785 & PULLED

SET 100' CMT PLUG
INSIDE & OUTSIDE

5 1/2" FROM 1835' - 1735'

7" CSG Pulled From Well

TOC CALC. @ 2667'

SET 75' CMT PLUG
3100' - 3025'

7" SA 3186' W/NO CMT (MUD)
5 1/2" SA 3210' W/100 SY

TD @ 3434'

7/1/00

JFG ENTERPRISE

BEESON FEDERAL #1

2310' FNL, 2310' FEL (UNITG) SEC 33 T175 R30E

DE A 6/48

RE E ABD 5/87

SET 60SX PLUG 200'-0'

SET 60SX PLUG 653-418

SET 60SX PLUG 936'-706'

8 5/8" 24# SA 576' w/75SX

TCC CALC @ 1845' (SF 1.25)

SET 4 1/2" 11.6# @ 3615' w/400SX

OTD 3797'

7/7/00

ANADARKO PET'L CORP.
 FEDERAL "N" #2
 Unit "C" SEC 33 T17S R30E

DRL. 1/79
 PEA 10/94

PERF 4 HOLES

@ 50' - Pump 405x
 15 SPOT 505x in 4 1/2" x
 8 5/8"

PERF 4 HOLES @ 550'
 SQ W/ 505x - SPOT 155x
 TOC 269'

PERF 4 HOLES @ 1270'
 SQ W/ 355x, SPOT
 155x - TOC 1098'

8 5/8" 24# SA 500' W/ 375 SX
 IN 12 1/4" HOLE - CIRC. CMT.

TOC @ 1300' - TEMP. SURVEY

SET 375x PLUG - 2943 - 2400

SET CIBP @ 2943
 PERFS 3002 - 3283' OA

TD 3350

4 1/2" 10.5# SA 3349' W/ 5255x
 IN 7 7/8" HOLE

H/6/30/00

PHILLIPS PETROLEUM

GTWFW Tr "MA" #3

Unit "J" Sec. 28 T7S R30E

DRL 1/76

P&A 11/93

PERF 150' - Pump
50 SY - Circ.
PERF 250' - Pump
130 SY CMT.
SET 30 SY CMT Plug
600' - 250'

4 1/2" CSG & 4 1/2" x 8 5/8"

FULL OF CMT TO SURFACE

8 5/8" 24# SA 502' w/100 SY

TOC CALC @ 480' (1.5F)

SET 15 SY CMT Plug
1370' - 1270'

SET 75 SY CMT Plug
3025' - 2700'

SET CIBP @ 3025'

PERFS 3098' - 3102' (16 HOLES)

7 7/8" HLG TD @ 385'

4 1/2" 9.5# & 10.5# SA 3185'
w/700 SY

11/7/1/00

PHILLIPS PETROLEUM

GJWFU TR. "MA" #1

Unit "P" See 28 T17S R230E

DRL 4/38

PEA 11/93

Perf @ 200' & Pump

70 SY Circ & Fill $5\frac{3}{16}$ "

Perf @ 330' & Pump

150 SY CMT & Circ

Perf @ 596' Pump

230 SY CMT & Circ

TO SURFACE

$8\frac{1}{4}$ " 32# SA 546' w/50 SY

SET 60 SY CMT PLUG

1350' - 1250'

TDC CALC @ 2547'

SET 80 SY CMT PLUG

3000' - 2178'

$5\frac{3}{16}$ " 17# SA 3090' w/100 SY

TD 3250'

7/1/00

General American Oil Co.

GJPSU 12" BA #3

Unit "I" Sec. 28 T7S R30E

DRL 10/38

PEA 9/75

SET CMT PLUG -
25' - 0'

SET CMT PLUG -
560' - 410'

SET CMT PLUG -
1550' - 1450'

8 5/8" 28# SA 532' w/50sy

TOC CALC. @ 2047' (1.25F)

SET CIBP @ 2900'

SET CMT PLUG -
2900' - 2825'

7" 24# SA 3025' w/100sy

TD @ 3268'

12/1/00

ENRON OIL & GAS CO.

BOGART FED. COM. #1

Unit "F" SEC. 28 T17S R30E

DRL 10/91

PEA 10/91 DRY HOLE

SET CMT PLUG -
50' - 0'

SET 60 SX CMT
PLUG 597' - 497'

13 3/8" 48# SA 547' - CIRC

Pump 63 SX @ 3388

Pump 90 SX @ 3588

TAGGED PLUG @ 2990'

TOC CALC INSIDE 9 5/8" CSG

Pump 80 SX CMT
PLUG & TAGGED @
5350'

9 5/8" 36# SA 3488' - CIRC
W/ 1850 SX

Pump 150' CMT PLUG
5500' - 5350'

2 7/8" CSG CUT @
5508' & RECOVERED

SET 20' CMT PLUG
@ 6851'

SET CIBP @ 10760' -
Dump 70' CMT ON TOP
TD @ 11550

PERFS 10861' - 10877'

2 7/8" 6.5# SA 11548' W/
1350 SX

7/11/00

ANADARKO Prod. Co.

FEDERAL "S" #5

UNIT "E" SEC. 28 T7S R30E

DRL 4/54
PEA 3/85

SET 10 SX PLUG
@ SURFACE

TOP OF SALT @ 440'

8 5/8" 24# SA 450' W / 50 SX
IN 12 1/4" HOLE.

SET 30 SX PLUG 501'-387'

BTM SALT @ 1135'

SET 40 SX PLUG 1265'-1122'

TOP 7-RIVERS @
1820'

SET 40 SX PLUG 1840'-1696'
(RE-SET PLUG)

SET 40 SX PLUG 1871'-1748'

7 7/8" HOLE

TD @ 1927' (7 RIVERS)

6/30/00

PHILLIPS PETROLEUM Co.

GTWFL 12" MB" #7

UNIT "P" SEC. 27 T17S R230E

PEA 10/93

Pump 655x -

FLUG 7" & ANNULUS

SET 255x PLUG 409-280'

PERF @ 600 - Pump

1005x - TAG CMT @ 409

PERF @ 770 - Pump 200

Sx - TAG CMT @ 638'

8 1/4" CSG SA 670' w/505x

SET CCCR @ 1270' - SQ

w/755x

CALC TDC @ 1841 (SF 1.25)

SET CCCR @ 2695' - SQ

w/1605x - TAG PLUG

@ 2136'

7" CSG SA 3131' w/1005x

TD 8" HOLE @ 3254'

7/6/00

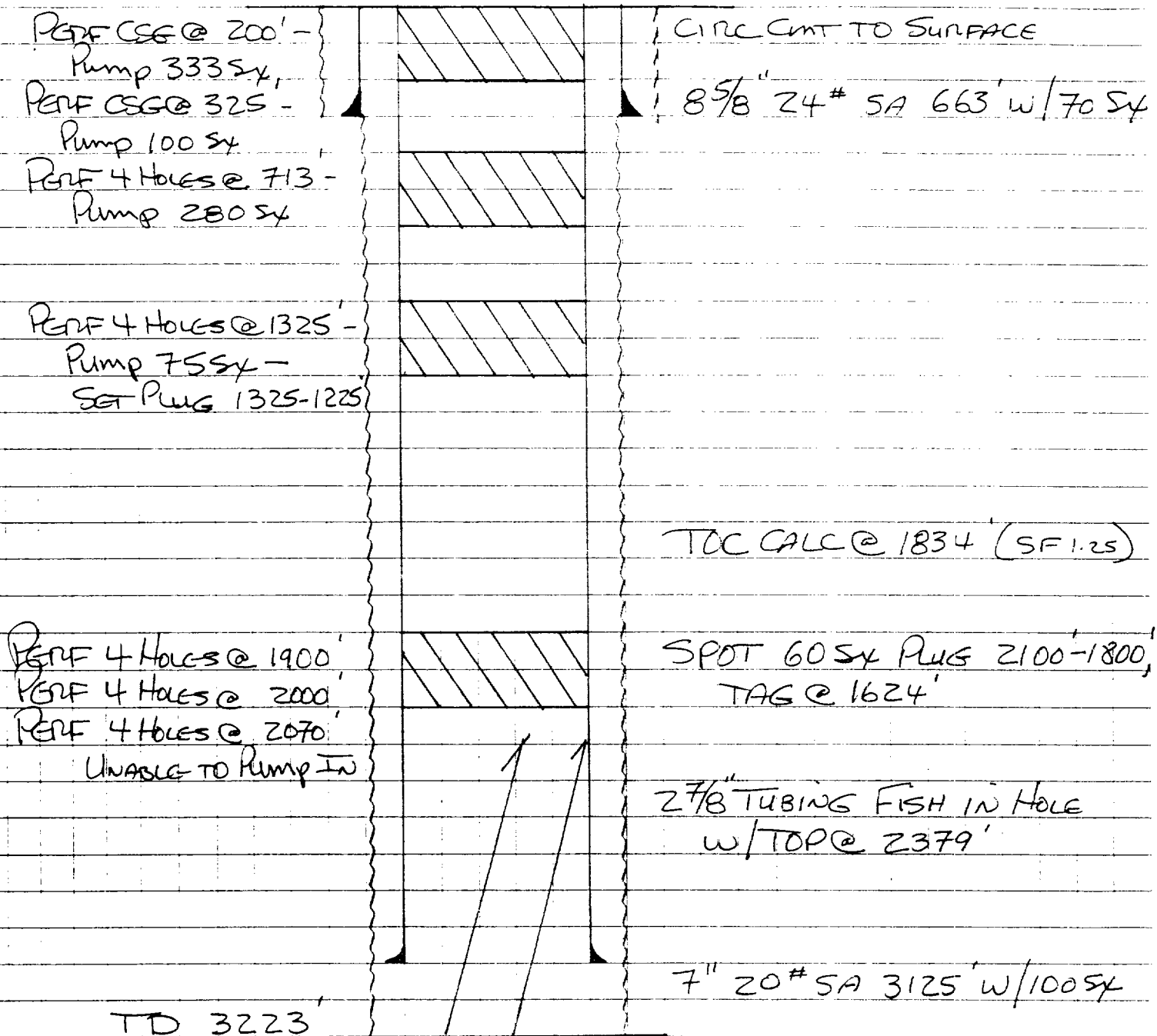
PHILLIPS PETROLEUM Co.

GTWFL TR "MB" #4

Unit "K" SEC 27 T7S R30E

DRL 10/40

PEA 12/93



H 7/6/00

PHILLIPS PETROLEUM Co.

GJWFL Tr AD #1

Unit "F" See 27 TITS R230E

DRL 8/43

PEA 11/93

Perf @ 250' - Pump

275 sy - Circ.

Perf @ 350' - Pump

493 sy - TAG @ 260'

Perf @ 570' - Pump

100 sy - TAG @ 480'

FILLED ANNULUS w/ CMT

8 5/8" CSG SA 520' w/ 75 sy

Perf CSG @ 1290' - SQ

w/ 75 sy. SET PLUG

1290' - 1190' TAG

@ 1160'

TOC CALC @ 1772' (1.25 SF)

SET CIRC @ 2290' -

SQ w/ 120 sy &

SET PLUG 2290-2200'

Junk in Hole Below 2300'

7" SA 3063 w/ 100 sy

PBTD 3210'

TD 3522'

8" Hole

7/6/00

PHILLIPS PETROLEUM CO.

ARNOLD "D" FEDERAL #4

Unit "C" SEC 27 T17S R230E

DRL 5/46

PEA 10/88

Perf @ 443 Pump
65 sy - Circ - Fil 7"
SPOT 20 sy Plug
544 - 443'

8 5/8" 24# SA 494' w/ 75 sy

TDC CALC @ 560' (SF 1.25)

SPOT 95 sy Plug
From TD 2011' - 1703'
(TAGGED)

7" 20# SA 1851' w/ 100 sy
(7 RIVERS COMPLETION)

TD 2011' (6" HOLE)

12/7/6/00

LBO New Mexico Inc

GJ Unit T12 11 #1

Unit "H" Sec 27 T7S R30E

DRL 5/42
PEA 4/87

SET 10SY 110'-0'

SET 25SY 610'-335'

8 1/4" 28# SA 624' w/50SY

TOC 4 1/2" x 7" CSG CALC. CIRC

SET 25 SY 1252'-975'

TOC BEHIND 7" CSG CALC
1756' (SF 1.25)

SET 25SY 2470'-2370'

SET 10SY 3050'-3000'

7" 20# SA 3047' w/100SY

PERFS 3198'-3206'

TD 3233'

4 1/2" 9.5# SA 3230' w/700SY

4/7/7/00

GENERAL AMERICAN OIL CO. OF TX.
GRANBURG JACKSON PSU TR "MA" #2
Unit "H" SEC 28 T7S R30E

DRILL 7/65
PEA 9/75

SET CMT PLUG 25'-0'

8 5/8" 24 # SA 547' W/50 SY

SET CMT PLUG 1250'-1150'

TOC CALC @ 2181' (SF 1.25)

SET CMT PLUG 2800'-2725'

SET CIBP @ 2800'

5 1/2" 14 # SA 3095' W/150 SY

TD 3135'

N 7/7/00

Exhibit "E"
AFFIDAVIT OF MAILING

STATE OF NEW MEXICO

: ss

COUNTY OF EDDY

I, Perry L. Hughes, do solemnly swear that a copy of this application has been mailed by certified mail, return receipt requested, to each of the following interested parties:

Surface Owner

United States Department of the Interior
Bureau of Land Management
2909 W Second
Roswell, NM 88201

Grazing Permittee

Williams & Son Cattle Co.
PO Box 30
Maljamar, NM 88264

Offset Operators:

Southwest Royalties Inc.
PO Drawer 11390
Midland, TX 79702

MNA Enterprises
106 W Alabama
Hobbs, NM 88242

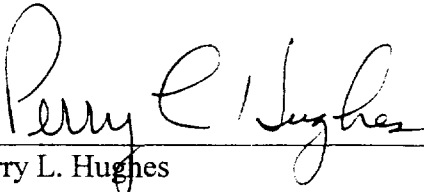
Nadel and Gussman
601 N Marienfeld, Ste 508
Midland, TX 79701

Marbob Energy Corp.
PO Box 227
Artesia, NM 88210

GP II Energy, Inc.
PO Box 50682
Midland, TX 79710

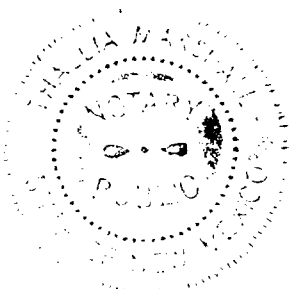
Enron Oil & Gas Corp.
PO Box 2267
Midland, TX 79702

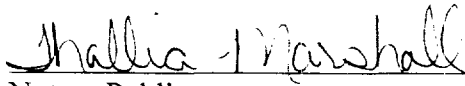
Mack Energy Corporation
PO Box 960
Artesia, NM 88210



Perry L. Hughes

SWORN AND SUBSCRIBED TO before me this 17th day of July, 2000.





Thalia Marshall
Notary Public

Shahara Oil, LLC

207 W. McKay ♦ Carlsbad, NM 88220 ♦ 505-885-5433 ♦ Fax 505-885-4989

July 13, 2000

CERTIFIED NO. Z 259 605 104

United State Department of the Interior
Bureau of Land Management
2909 W Second
Roswell, NM 88201

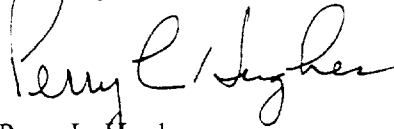
RE: Shahara Oil, LLC
Application for Authorization to Inject
Grayburg Jackson Premier Sand Unit
Eddy County, New Mexico

Gentlemen:

Enclosed is a copy of the New Mexico Oil Conservation Division's Form C-108. Application for Authorization to Inject into wells in Sections 27, 28, 33, 34 & 35 of Township 17S, Range 30E. Eddy County, New Mexico. Shahara Oil, LLC is submitting this Application as part of their ongoing redevelopment project in the Loco Hills Area. This copy is sent to you in compliance with OCD requirement to notify the surface owner.

Should you have any questions regarding this Application, please contact me at 505-885-5433.

Sincerely,



Perry L. Hughes
Executive Officer
Shahara Oil, LLC

PLH/tm

Enclosure

Shahara Oil, LLC

207 W. McKay ♦ Carlsbad, NM 88220 ♦ 505-885-5433 ♦ Fax 505-385-4989

July 13, 2000

CERTIFIED NO. Z 259 605 100

Williams & Son Cattle Co.
PO Box 30
Maljamar, NM 88264

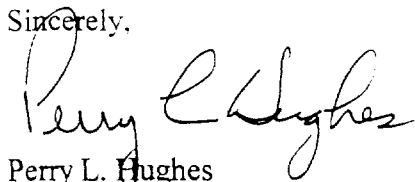
RE: Shahara Oil, LLC
Application for Authorization to Inject
Grayburg Jackson Premier Sand Unit
Eddy County, New Mexico

Gentlemen:

Enclosed is a copy of the New Mexico Oil Conservation Division's Form C-108, Application for Authorization to Inject into wells in Sections 27, 28, 33, 34 & 35 of Township 17S, Range 30E, Eddy County, New Mexico. Shahara Oil, LLC is submitting this Application as part of their ongoing redevelopment project in the Loco Hills Area. This copy is sent to you in compliance with OCD requirement to notify the grazing permittee.

Should you have any questions regarding this Application, please contact me at 505-885-5433.

Sincerely,



Perry L. Hughes
Executive Officer
Shahara Oil, LLC

PLH/tm

Enclosure

Shahara Oil, LLC

207 W. McKay ♦ Carlsbad, NM 88220 ♦ 505-885-5433 ♦ Fax 505-885-4989

July 13, 2000

CERTIFIED NO. Z 259 605 101

Southwest Royalties Inc.
PO Drawer 11390
Midland, TX 79702

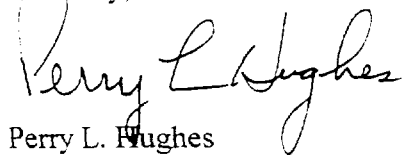
RE: Shahara Oil, LLC
Application for Authorization to Inject
Grayburg Jackson Premier Sand Unit
Eddy County, New Mexico

Gentlemen:

Enclosed is a copy of the New Mexico Oil Conservation Division's Form C-108, Application for Authorization to Inject into wells in Sections 27, 28, 33, 34 & 35 of Township 17S, Range 30E, Eddy County, New Mexico. Shahara Oil, LLC is submitting this Application as part of their ongoing redevelopment project in the Loco Hills Area. This copy is sent to you in compliance with OCD requirement to notify the offset operator.

Should you have any questions regarding this Application, please contact me at 505-885-5433.

Sincerely,



Perry L. Hughes
Executive Officer
Shahara Oil, LLC

PLH:tm

Enclosure

Shahara Oil, LLC

207 W. McKay ♦ Carlsbad, NM 88220 ♦ 505-885-5433 ♦ Fax 505-885-4989

July 13, 2000

CERTIFIED NO. Z 259 605 102

MNA Enterprises
106 W Alabama
Hobbs, NM 88242

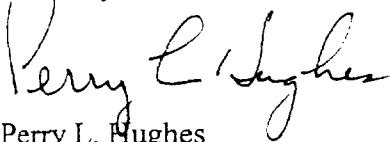
RE: Shahara Oil, LLC
Application for Authorization to Inject
Grayburg Jackson Premier Sand Unit
Eddy County, New Mexico

Gentlemen:

Enclosed is a copy of the New Mexico Oil Conservation Division's Form C-108, Application for Authorization to Inject into wells in Sections 27, 28, 33, 34 & 35 of Township 17S, Range 30E, Eddy County, New Mexico. Shahara Oil, LLC is submitting this Application as part of their ongoing redevelopment project in the Loco Hills Area. This copy is sent to you in compliance with OCD requirement to notify the offset operator.

Should you have any questions regarding this Application, please contact me at 505-885-5433.

Sincerely,



Perry L. Hughes
Executive Officer
Shahara Oil, LLC

PLH\tm

Enclosure

Shahara Oil, LLC

207 W. McKay ♦ Carlsbad, NM 88220 ♦ 505-885-5433 ♦ Fax 505-885-4989

July 13, 2000

CERTIFIED NO. Z 259 605 098

Nadel and Gussman
601 N Marienfeld, Ste 508
Midland, TX 79701

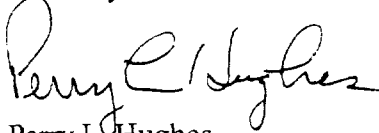
RE: Shahara Oil, LLC
Application for Authorization to Inject
Grayburg Jackson Premier Sand Unit
Eddy County, New Mexico

Gentlemen:

Enclosed is a copy of the New Mexico Oil Conservation Division's Form C-108, Application for Authorization to Inject into wells in Sections 27, 28, 33, 34 & 35 of Township 17S, Range 30E, Eddy County, New Mexico. Shahara Oil, LLC is submitting this Application as part of their ongoing redevelopment project in the Loco Hills Area. This copy is sent to you in compliance with OCD requirement to notify the offset operator.

Should you have any questions regarding this Application, please contact me at 505-885-5433.

Sincerely,



Perry L. Hughes
Executive Officer
Shahara Oil, LLC

PLH/tm

Enclosure

Shahara Oil, LLC

207 W. McKay ♦ Carlsbad, NM 88220 ♦ 505-885-5433 ♦ Fax 505-885-4989

July 13, 2000

CERTIFIED NO. Z 259 605 103

Marbob Energy Corp.
PO Box 227
Artesia, NM 88210

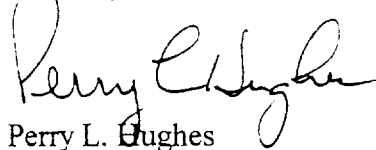
RE: Shahara Oil, LLC
Application for Authorization to Inject
Grayburg Jackson Premier Sand Unit
Eddy County, New Mexico

Gentlemen:

Enclosed is a copy of the New Mexico Oil Conservation Division's Form C-108. Application for Authorization to Inject into wells in Sections 27, 28, 33, 34 & 35 of Township 17S, Range 30E, Eddy County, New Mexico. Shahara Oil, LLC is submitting this Application as part of their ongoing redevelopment project in the Loco Hills Area. This copy is sent to you in compliance with OCD requirement to notify the offset operator.

Should you have any questions regarding this Application, please contact me at 505-885-5433.

Sincerely,



Perry L. Hughes
Executive Officer
Shahara Oil, LLC

PLH:tm

Enclosure

Shahara Oil, LLC

207 W. McKay ♦ Carlsbad, NM 88220 ♦ 505-885-5433 ♦ Fax 505-885-4989

July 13, 2000

CERTIFIED NO. Z 259 605 106

GP II Energy, Inc.
PO Box 50682
Midland, TX 79710

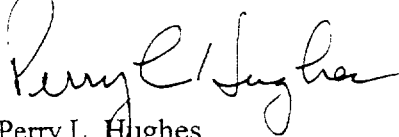
RE: Shahara Oil, LLC
Application for Authorization to Inject
Grayburg Jackson Premier Sand Unit
Eddy County, New Mexico

Gentlemen:

Enclosed is a copy of the New Mexico Oil Conservation Division's Form C-108, Application for Authorization to Inject into wells in Sections 27, 28, 33, 34 & 35 of Township 17S, Range 30E, Eddy County, New Mexico. Shahara Oil, LLC is submitting this Application as part of their ongoing redevelopment project in the Loco Hills Area. This copy is sent to you in compliance with OCD requirement to notify the offset operator.

Should you have any questions regarding this Application, please contact me at 505-885-5433.

Sincerely,



Perry L. Hughes
Executive Officer
Shahara Oil, LLC

PLH\tm

Enclosure

Shahara Oil, LLC

207 W. McKay ♦ Carlsbad, NM 88220 ♦ 505-885-5433 ♦ Fax 505-885-4989

July 13, 2000

CERTIFIED NO. Z 259 605 097

Enron Oil & Gas Corp.
PO Box 2267
Midland, TX 79702

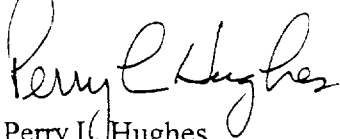
RE: Shahara Oil, LLC
Application for Authorization to Inject
Grayburg Jackson Premier Sand Unit
Eddy County, New Mexico

Gentlemen:

Enclosed is a copy of the New Mexico Oil Conservation Division's Form C-108, Application for Authorization to Inject into wells in Sections 27, 28, 33, 34 & 35 of Township 17S, Range 30E, Eddy County, New Mexico. Shahara Oil, LLC is submitting this Application as part of their ongoing redevelopment project in the Loco Hills Area. This copy is sent to you in compliance with OCD requirement to notify the offset operator.

Should you have any questions regarding this Application, please contact me at 505-885-5433.

Sincerely,



Perry L. Hughes
Executive Officer
Shahara Oil, LLC

PLH:tm

Enclosure

Shahara Oil, LLC

207 W. McKay ♦ Carlsbad, NM 88220 ♦ 505-885-5433 ♦ Fax 505-885-4989

July 13, 2000

CERTIFIED NO. Z 259 605 107

Mack Energy Corporation
PO Box 960
Artesia, NM 88210

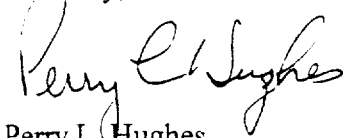
RE: Shahara Oil, LLC
Application for Authorization to Inject
Grayburg Jackson Premier Sand Unit
Eddy County, New Mexico

Gentlemen:

Enclosed is a copy of the New Mexico Oil Conservation Division's Form C-108, Application for Authorization to Inject into wells in Sections 27, 28, 33, 34 & 35 of Township 17S, Range 30E, Eddy County, New Mexico. Shahara Oil, LLC is submitting this Application as part of their ongoing redevelopment project in the Loco Hills Area. This copy is sent to you in compliance with OCD requirement to notify the offset operator.

Should you have any questions regarding this Application, please contact me at 505-885-5433.

Sincerely,



Perry L. Hughes
Executive Officer
Shahara Oil, LLC

PLH:tm

Enclosure

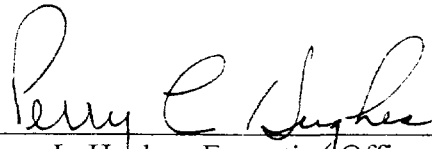
AFFIDAVIT

STATE OF NEW MEXICO
COUNTY OF EDDY

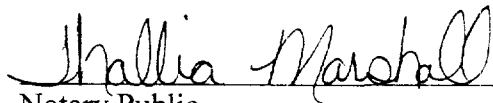
Perry L. Hughes, Affiant, being first duly sworn upon his oath, deposes and states that I graduated from West Virginia University in 1965 with a B.S. degree in Petroleum Engineering and since that time I have been associated with the oil industry in various capacities, both within the United States and overseas. For the last 15 years, I have been a consulting petroleum engineer and an independent producer in West Texas and Southeastern New Mexico.

I am familiar with the land on which the proposed water injection well is situate and have examined the available geologic and engineering data there for. I have found no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

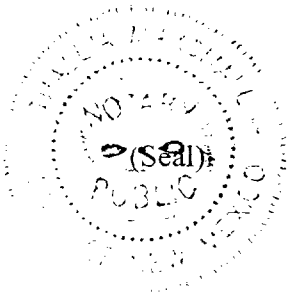
Further, Affiant says not.


Perry L. Hughes, Executive Officer

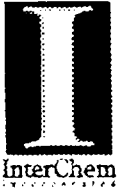
This instrument was sworn and subscribed to before me on July 13, 2000 by Perry L. Hughes, Executive Officer of Shahara Oil, LLC.


Notary Public

My commission expires: 11/06/00



H7/15



InterChem, Inc.

(915) 550-7027 P. O. Box 13166 Odessa, Tx. 79768

Comparison Between Two Waters

06- July -1998

Permian Treating Chemicals Shahara Oil, LLC - Mack Energy Co.

The samples from the above-cited location showed the following conclusions:

Topic:

Combination of the Shahara G.J.W.F.U. Water Flood Station water with the Mack Energy WD McIntyre E-4 water at various ratios:

Conclusions:

As the WD McIntyre E-4 water increases, the calcium carbonate scaling tendency (Stiff & Davis Saturation Index) increases to a severe level at 140° F and to a moderate level at 80° F. In addition, as the WD McIntyre E-4 water increases, the calcium sulfate scaling tendency decreases to a mild level.

Attachments:

A graphical summary of the results is attached.

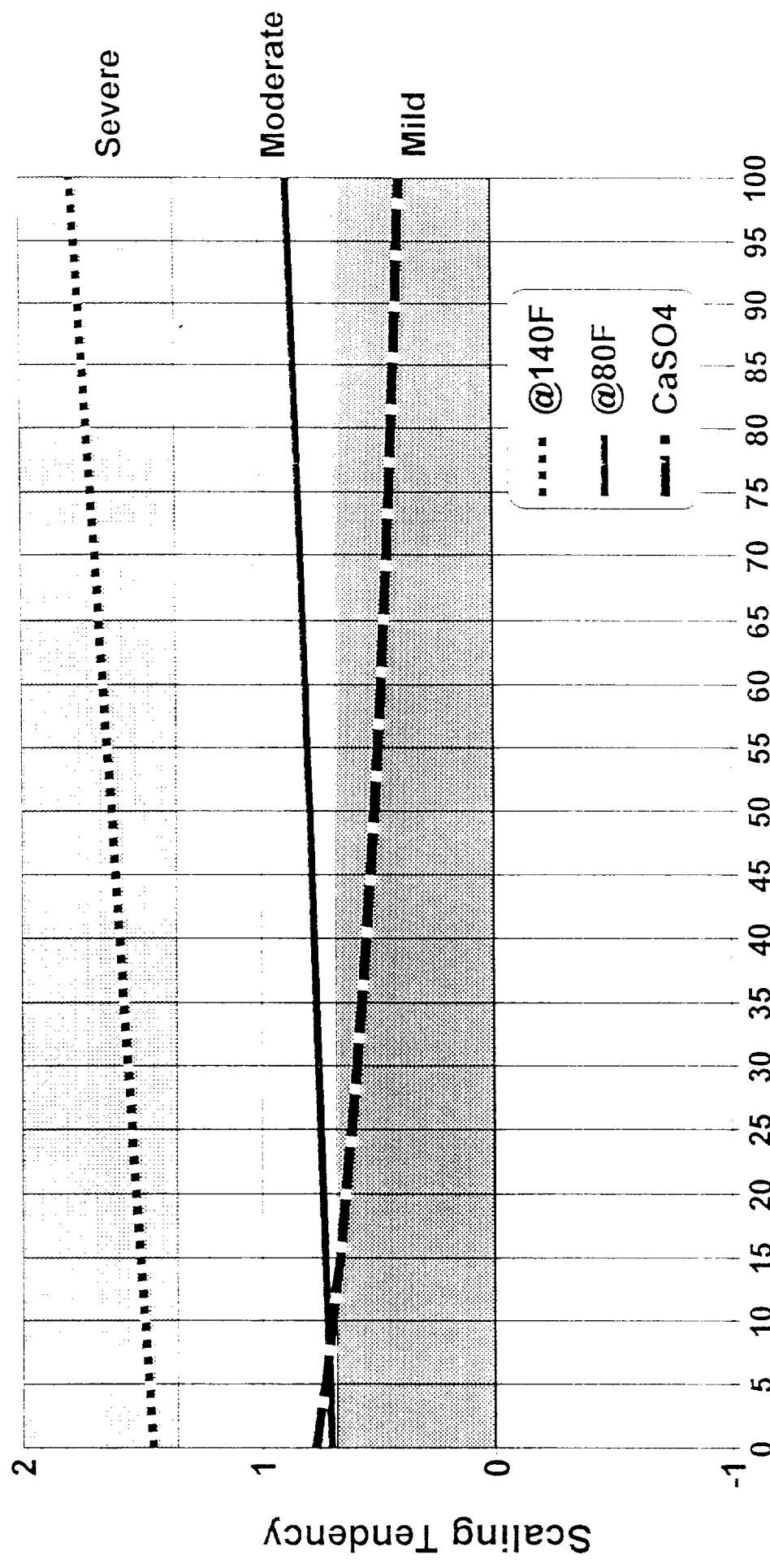
If we may further assist you in the interpretation of the above information, please call at your convenience.


Brad Mullins
Technical Services

Exhibit "F"
Shahara Oil, LLC
Attachment to OCD Form C-108
Water Compatibility Study

Mixture of Two Waters

Shahara Oil, LLC - Mack Energy Co.



Percentage of WD McIntyre E-4 Water

Comparison Between Two Waters

06-July-1998

TO: Permian Treating Chemicals

Company : Shahara Oil & Mack Energy Co.

Sample # 1

Sample # 2

G.J.W.F.U. - Water Flood Sta.

WD McIntyre - E-4

Percent of #1 & #2	pH	TDS mg./L.	SpGr	Saturation Index @80°F.	Saturation Index @140°F.	Calcium Sulfate Scaling Potential
100 - 0	7.050	73,794	1.048	-0.703	-1.455	Mild to Moderate
95 - 5	7.026	80,275	1.053	-0.712	-1.472	Mild to Moderate
90 - 10	7.001	86,756	1.057	-0.722	-1.489	Mild to Moderate
85 - 15	6.977	93,238	1.062	+0.731	-1.505	Mild to Moderate
80 - 20	6.952	99,719	1.066	+0.740	-1.522	Mild to Moderate
75 - 25	6.928	106,200	1.071	+0.749	-1.538	Mild to Moderate
70 - 30	6.903	112,681	1.075	+0.758	-1.555	Mild
65 - 35	6.879	119,162	1.080	+0.767	-1.571	Mild
60 - 40	6.854	125,644	1.084	+0.776	-1.587	Mild
55 - 45	6.830	132,125	1.089	+0.785	-1.604	Mild
50 - 50	6.805	138,606	1.093	+0.795	-1.620	Mild
45 - 55	6.781	145,087	1.098	+0.804	-1.637	Mild
40 - 60	6.756	151,568	1.102	+0.813	-1.653	Mild
35 - 65	6.732	158,050	1.107	+0.821	-1.669	Mild
30 - 70	6.707	164,531	1.111	+0.830	-1.685	Mild
25 - 75	6.683	171,012	1.116	+0.839	-1.702	Mild
20 - 80	6.658	177,493	1.120	+0.848	-1.718	Mild
15 - 85	6.634	183,974	1.125	+0.857	-1.734	Mild
10 - 90	6.609	190,456	1.129	+0.866	-1.750	Mild
5 - 95	6.585	196,937	1.134	+0.875	-1.766	Mild
0 - 100	6.560	203,418	1.138	+0.884	-1.783	Mild

Permian Treating Chemicals

WATER ANALYSIS REPORT

SAMPLE

Oil Co. : Shahara Oil, LLC
 Lease : G.J.W.F.U.
 Well No. : N/A
 Lab No. :

Sample Loc. : Water Flood Station
 Date Analyzed: 02-July-1998
 Date Sampled :

ANALYSIS

1. pH 7.050
 2. Specific Gravity 60/60 F. 1.048
 3. CaCO₃ Saturation Index @ 80 F. +0.669
 @ 140 F. +1.587

Dissolved Gasses

	MG/L	EQ. WT.	*MEQ/L
4. Hydrogen Sulfide	Present		
5. Carbon Dioxide	Not Determined		
6. Dissolved Oxygen	Not Determined		

Cations

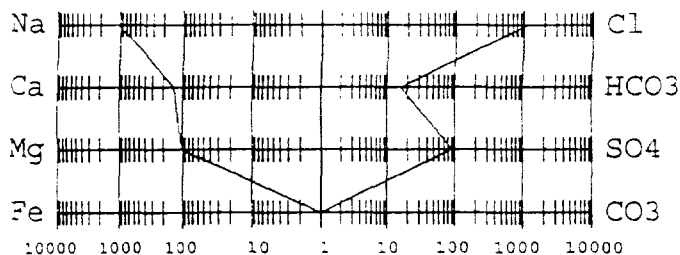
		MG/L	EQ. WT.	*MEQ/L
7. Calcium	(Ca++)	2,605	20.0 =	129.60
8. Magnesium	(Mg++)	1,201	12.0 =	98.44
9. Sodium	(Na+) (Calculated)	23,740	23.0 =	1,032.17
10. Barium	(Ba++)	Not Determined		

Anions

		MG/L	EQ. WT.	*MEQ/L
11. Hydroxyl	(OH ⁻)	0	17.0 =	0.00
12. Carbonate	(CO ₃ ⁼)	0	30.0 =	0.00
13. Bicarbonate	(HCO ₃ ⁻)	957	61.0 =	15.66
14. Sulfate	(SO ₄ ⁼)	4,300	48.0 =	88.11
15. Chloride	(Cl ⁻)	40,991	35.5 =	1,154.68
16. Total Dissolved Solids		73,794		
17. Total Iron (Fe)		7	13.2 =	0.38
18. Total Hardness As CaCO ₃		11,450		
19. Resistivity @ 75 F. (Calculated)		0.135 /cm.		

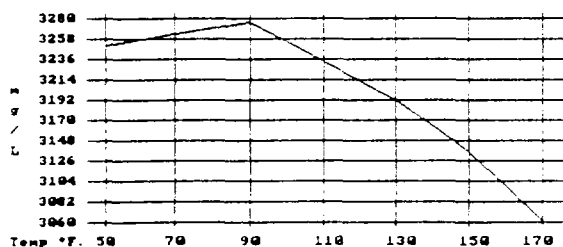
LOGARITHMIC WATER PATTERN

PROBABLE MINERAL COMPOSITION



COMPOUND	EQ. WT. X	*meq/L = mg/L.	
Ca(HCO ₃) ₂	81.04	15.66	1,269
CaSO ₄	68.07	88.11	5,998
CaCl ₂	55.50	25.82	1,433
Mg(HCO ₃) ₂	73.17	0.00	0
MgSO ₄	60.19	0.00	0
MgCl ₂	47.52	98.44	4,683
NaHCO ₃	84.00	0.00	0
NaSO ₄	71.03	0.00	0
NaCl	58.46	1,030.41	50,238

Calcium Sulfate Solubility Profile



*Milli Equivalents per Liter

This water is mildly corrosive due to the pH observed on analysis.
 The corrosivity is increased by the content of mineral salts, and the presence of H₂S in solution.

Permian Treating Chemicals

WATER ANALYSIS REPORT

SAMPLE

Oil Co. : Mack Energy Co.
Lease : WD McIntyre
Well No. : E-4
Lab No. :

Sample Loc. :
Date Analyzed: 02-July-1998
Date Sampled :

ANALYSIS

1. pH 6.560
2. Specific Gravity 60/60 F. 1.138
3. CaCO₃ Saturation Index @ 30 F. +0.908
@ 140 F. +2.018

Dissolved Gasses

- | | MG/L | EQ. WT. | *MEQ/L |
|---------------------|----------------|---------|--------|
| 4. Hydrogen Sulfide | Present | | |
| 5. Carbon Dioxide | Not Determined | | |
| 6. Dissolved Oxygen | Not Determined | | |

Cations

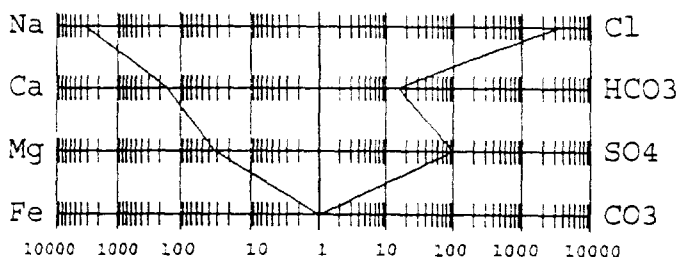
- | | | | |
|---|----------------|------|------------|
| 7. Calcium (Ca ⁺⁺) | 3,022 | 20.0 | = 150.35 |
| 8. Magnesium (Mg ⁺⁺) | 379 | 12.0 | = 31.07 |
| 9. Sodium (Na ⁺) (Calculated) | 75,517 | 23.0 | = 3,233.35 |
| 10. Barium (Ba ⁺⁺) | Not Determined | | |

Anions

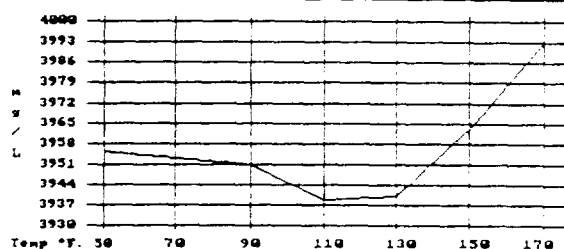
- | | | | |
|--|------------|------|------------|
| 11. Hydroxyl (OH ⁻) | 0 | 17.0 | = 0.00 |
| 12. Carbonate (CO ₃ ⁼) | 0 | 30.0 | = 0.00 |
| 13. Bicarbonate (HCO ₃ ⁻) | 927 | 61.0 | = 15.17 |
| 14. Sulfate (SO ₄ ⁼) | 4,600 | 48.0 | = 94.26 |
| 15. Chloride (Cl ⁻) | 118,973 | 35.5 | = 3,351.35 |
| 16. Total Dissolved Solids | 203,418 | | |
| 17. Total Iron (Fe) | 5 | 18.0 | = 0.27 |
| 18. Total Hardness As CaCO ₃ | 9,108 | | |
| 19. Resistivity @ 75 F. (Calculated) | 0.001 /cm. | | |

LOGARITHMIC WATER PATTERN

*meq/L.



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION			
COMPOUND	EQ. WT. X	*meq/L =	mg/L.
Ca(HCO ₃) ₂	81.04	15.17	1,230
CaSO ₄	68.07	94.26	6,416
CaCl ₂	55.50	40.91	2,271
Mg(HCO ₃) ₂	73.17	0.00	0
MgSO ₄	60.19	0.00	0
MgCl ₂	47.52	31.07	1,479
NaHCO ₃	34.00	0.00	0
NaSO ₄	71.03	0.00	0
NaCl	58.46	3,279.37	191,713

*Milli Equivalents per Liter

This water is slightly corrosive due to the pH observed on analysis.
The corrosivity is increased by the content of mineral salts, and the presence of H₂S in solution.

**NOTICE OF FILING APPLICATION
FOR AUTHORIZATION TO INJECT**

Shahara Oil, LLC, 207 W. McKay, Carlsbad, NM 88220, Executive Officer Mr. Perry L. Hughes, 505-885-5433, is seeking approval from the New Mexico Oil Conservation Division to inject into its Grayburg Jackson Premier Sand Unit, located in Sections 27, 28, 33, 34 & 35 of Township 17 South Range 30 East, Eddy County, New Mexico for waterflood operations in the Premier Sand of the Grayburg formation. Shahara Oil, LLC intends to inject a maximum of 500 BWPD as a maximum injection pressure of 1800 psi.

Interested parties must file objections or requests for hearing with the Oil Conservation Division 2040 South Pacheco, Santa Fe, NM 87505, within 15 days.