Jones, William V., EMNRD

From: Jones, William V., EMNRD
Sent: Thursday, June 28, 2007 11:48 AM
To: 'Tom Kellahin'; Andrew McCalmont
Cc: Ezeanyim, Richard, EMNRD
Subject: SWD Application on behalf of Chesapeake: Globe 14 Federal #1 API No. 30-015-34755

Hello Tom and Andrew:

After reviewing this SWD application:

1) Please let me know from which formation - the water analysis included in the application - it was not labeled.
2) What types of waters will be disposed of in this well? Send water analysis of all these types and a water analysis of the insitu San Andres waters.
3) Why was this interval chosen to test and subsequently perforated and why was it wet? Did the mudlog or elog indicate otherwise? Are you sure the water was not coming from poor cement job? Does this interval have an oil saturation and what would it be?
4) What is the depth to top and bottom of fresh water in this area - apparently it is in the Roswell Controlled Water Basin
5) The OCD wants injection intervals to be isolated as well as possible and will require the well to be plugged back with CIBP to within 200 feet of the lowest perforation.
6) OCD imaging site has no logs on this well: Please gather copies of all elogs, cbl's, and temp surveys run on this well, put the API number on them and mail to Hobbs - Hobbs has the log scanner for both Artesia and Hobbs.
7) Send a copy of the CBL showing the top-of-cement for the 5-1/2 inch casing to me in Santa Fe.
8) What is the actual footage location of this well at 3660 feet down? - well file shows it may be a deviated well. Does this new footage location change any Area of Review wells or affected parties?
9) Our new notice rule for injection wells is Rule 701B(2). I see in the well file that the surface owner is the BLM and you have notified them with a sundry - however your C-108 says the Surface is Bogle - aren't they the surface lessee?
10) Applicants normally list all affected parties, but do not give the OCD a record of the breakdown of affected parties within each subdivision of lands, such as each quarter, etc. The OCD is beginning to require this to be on the record for NSL applications and this would be useful here also. In this particular SWD application, you only list Strata as the one and only affected party in the 1/2 mile circle. Please let us know the breakdown of "affected parties" within every partial section contained in the circle encompassing the 1/2 mile AOR. Send a list of Affected Parties in these Lands:

S/2 S/2 of Section 11 (but only within the AOR circle)

All Quarter Sections of Section 14 or other breakdown of this Section (and within the circle)

W/2 W/2 of Section 13 (and within the circle)

For each one of the parties listed, have they been noticed?

11) Looks like the Dry and Abandoned well API NO. 30-015-10367 needs to be re-entered and re-plugged from the top of the Glorieta at approx 4490 feet to the surface. There was a reason probably this well was not plugged as it was intended? May be some fishing involved - but isn't that always fun? We can make the re-entering and replugging of this well as a condition of an approved permit - but I need a reading from Chesapeake whether they will commit to doing this or not. If re-entry is unsuccessful, the proposed injection permit will be void.

12) The applicant is listed as Chesapeake Energy. Let me know if this is correct or it should be Chesapeake Operating Inc.???? I see no wells under Chesapeake Energy. The bond covering this well is a BLM bond it seems.

Can't nitpick any more here, let me know as soon as possible on these points.

We are under orders to send applications back if not resolved within 30 days. This would not be a problem for this application if Strata is the only affected party - refiling the application will not be hard to do.

Regards,

William V. Jones PE
New Mexico Oil Conservation Division
1220 South St. Francis
Santa Fe, NM 87505
505-476-3448

6/28/2007

Injection Permit Checklist 2/8/07

SWD Order Number ____________ Dates: Division Approved ____________ District Approved ____________

Well Name/Num: GLOBE 14 FEDERAL #1 Date Spudded: 2006

API Num: (30-) 015-34755 County: EDDY

Footages 2280 FNL/1980 FEL Sec 14 Tsp 16S Rge 30E

Operator Name: Chesapeake [illegible] INC Contact Andrew McCalmont

Operator Address: PO BOX 18496 OKLAHOMA CITY, OK 73154-0496

Current Status of Well: SI after Test, SA/WC Planned Work: Inj. Tubing Size: 2 7/8 @ 3600'

	Hole/Pipe Sizes	Depths	Cement	Top/Method
Surface	17 1/2 13 3/8	520'	650	CIRC
Intermediate	8 5/8	3000'	650	CIRC
Production	5 1/2	9100	1000	2990' CBL
Last DV Tool				
Open Hole/Liner				
Plug Back Depth				

Diagrams Included (Y/N): Before Conversion ✓ After Conversion ✓

Checks (Y/N): Well File Reviewed ✓ ELogs in Imaging NO

Intervals:	Depths	Formation	Producing (Yes/No)
Salt/Potash			
Capitan Reef			
Cliff House, Etc:			
Formation Above	2981'	SA (TOP)	
Top Inj Interval	3660 (Slaughter)	SA (wet)	yes @ 3140-3160
Bottom Inj Interval	3708 (Slaughter)	SA (wet)	
Formation Below			

732 PSI Max. WHIP

NO Open Hole (Y/N)

NO Deviated Hole (Y/N)

Roswell Controlled Water Basin

Fresh Water: Depths: ____________ Wells(Y/N) NO Analysis Included (Y/N): NO Affirmative Statement ✓

Salt Water Analysis: Injection Zone (Y/N/NA) _____ DispWaters (Y/N/NA) _____ Types: ____________

Notice: Newspaper(Y/N) ✓ Surface Owner BLM Mineral Owner(s) ?

Other Affected Parties: State, Bogle, others

AOR/Repairs: NumActiveWells 2 Repairs? 0 Producing in Injection Interval in AOR ______

AOR Num of P&A Wells 2 Repairs? ______ Diagrams Included? ______ RBDMS Updated (Y/N) ______

Well Table Adequate (Y/N) ______ AOR STRs: Sec ______ Tsp ______ Rge ______ UIC Form Completed (Y/N) ______

New AOR Table Filename ______ Sec ______ Tsp ______ Rge ______ This Form completed ______

Conditions of Approval: Sec ______ Tsp ______ Rge ______ Data Request Sent ______

Set CIBP within 200' of Bottom Perf

~~Notify BLM [illegible]~~

Send ELOGS/CBLS/Tests To Hobbs for Scanning

WHICH well [illegible] PNA [illegible]

AOR Required Work:

What is location @ 3660' of DEVIATED well

Required Work to this Well: ____________

OGRD 147179

0 / 4 / 10 / 92

Rule 40

3662 / 7320

4"

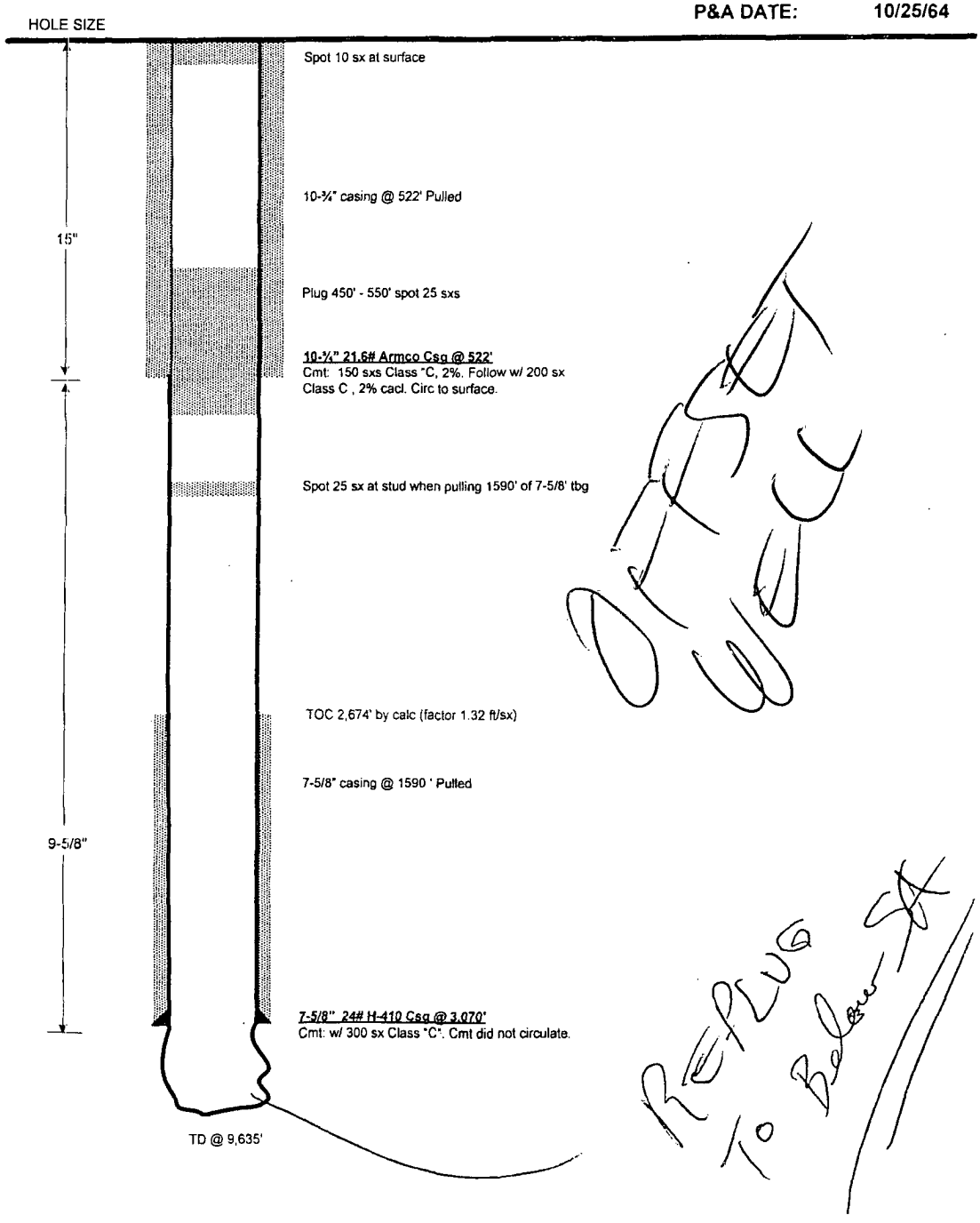
Chesapeak Energy Corporation
Globe # 14 Fed # 1

	Operator	Well Name	API No	County	Sec Twn Range	Type	Status	Spud Date	Comp Date	TD	PBTD	Comp Zone	Comp Interval	Casing Program	TOC
1	Pre-Ongard	PRE-ONGARD WELL # 1	30-015-10367	Eddy	14 T16S R30E	OIL/GAS	D&A	5/16/1964	NA	9635'	NA	Wolfcamp	~ 8742'-9444'	10-3/4", 21# @522 w/350 sxs 7-5/8", 24# @ 3070' w/300	Circ 2674' (Calc)
2	Strata Production Co	NORMAN FEDERAL # 1	30-015-22748	Eddy	14 T16S R30E	GAS	P&A'd	12/20/1978	2/2/79	3834'	3585'	Queen	3621-3834' 2201'-3560'	8-5/8", 23# @ 443' w/ 300 sxs 4-1/2", 9.5# @ 3824' w/400 sxs	Circ 2665' (Calc)
3	Chesapeake	HENSHAW A FEDERAL 1-14	30-015-32891	Eddy	14 T16S R30E	GAS	Producing	2/19/2004	3/29/2004	12830'	12680'	Ordivician	8308'-12680'	13-3/8", 54# @ 504' w/ 520 sxs 9-5/8", 40# @ 3120' w/ 1050 sxs 5-1/2", 20# @ 12680' w/1815 sxs	Circ Circ 2303
4	Lothian	ETZ # Fed I	30-015-03888	Eddy	13 T16S R30E	OIL	Active	12/21/1939	11/1/1940	3744'	3492'	San Andres	3140'-3160'	10-348",@ 464' w/ 50 sxs 8-5/8", @ 2350' w/ 75 sxs 6" @ 2380' w/ ?? sxs 4-1/2" 10.5# @ 2910' w/ 85 sxs	Circ 2226' (Calc) 2910' (Temp Svy)

CURRENT WELLBORE SCHEMATIC

WELL : PRE-ONGARD WELL # 1
FIELD : HENSHAW DEEP UNIT
COUNTY : EDDY STATE : NM
LOCATION : 660' FNL & 660' FEL, SEC. 14-16S-30E
ELEVATION : DF 3,860'

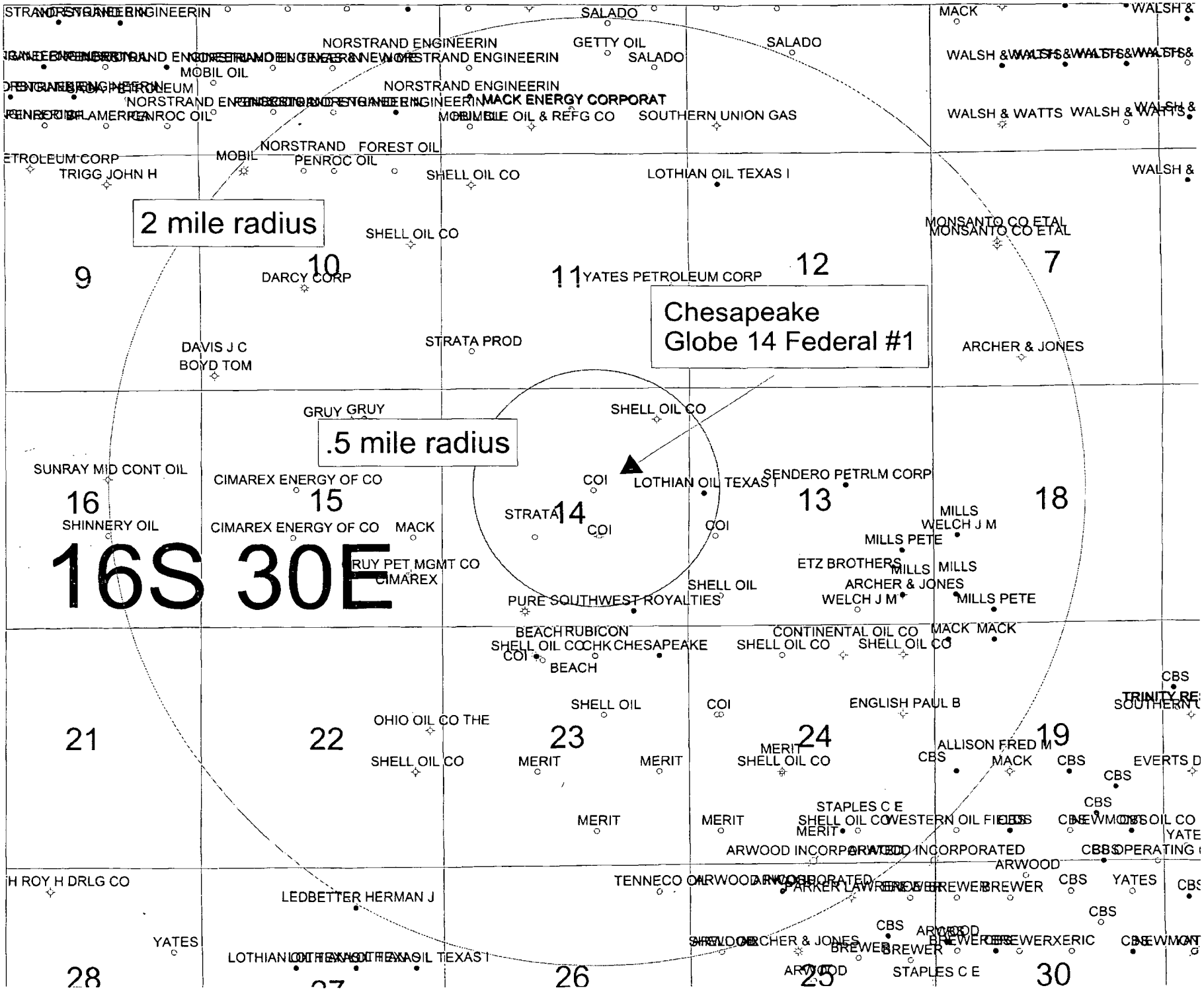
API #: 30-015-10367
SPUD DATE: 5/16/64
P&A DATE: 10/25/64



PREPARED BY: Myo Htoon DATE: 3/14/07

UPDATED BY: _____ DATE: _____

AJM


2 mile radius
.5 mile radius
Chesapeake
Globe 14 Federal #1
16S 30E
9
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21
22
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NORSTRAND ENGINEERIN
SALADO
GETTY OIL
MACK
WALSH &
MOBIL OIL
MACK ENERGY CORPORAT
SOUTHERN UNION GAS
WALSH & WATTS
NORSTRAND
FOREST OIL
MOBIL
PENROC OIL
TRIGG JOHN H
SHELL OIL CO
LOTHIAN OIL TEXAS I
MONSANTO CO ETAL
DARCY CORP
YATES PETROLEUM CORP
DAVIS J C
BOYD TOM
STRATA PROD
ARCHER & JONES
GRUY GRUY
SUNRAY MID CONT OIL
CIMAREX ENERGY OF CO
COI
SENDERO PETRLM CORP
SHINNERY OIL
MACK
STRATA
MILLS
WELCH J M
MILLS PETE
ETZ BROTHERS
RUY PET MGMT CO
CIMAREX
SHELL OIL
PURE SOUTHWEST ROYALTIES
BEACH RUBICON
CONTINENTAL OIL CO
CHK CHESAPEAKE
BEACH
CBS
TRINITY RE
ENGLISH PAUL B
OHIO OIL CO THE
MERIT
ALLISON FRED M
EVERTS D
STAPLES C E
WESTERN OIL FIELDS
ARWOOD INCORPORATED
PARKER LAWRENCE
BREWER
YATES
H ROY H DRLG CO
LEDBETTER HERMAN J
TENNECO OIL
LOTHIAN OIL TEXAS I

P.O. BOX 98
MIDLAND, TX. 79702
PHONE (432) 683-4521

Martin Water Laboratories, Inc.

709 W. INDIANA
MIDLAND, TEXAS 79701
FAX (432) 682-8819

RESULT OF WATER ANALYSES

LABORATORY NO. 207-91
SAMPLE RECEIVED 2-7-07
RESULTS REPORTED 2-9-07

TO: Mr. Robert Martin
via email: rmartin@chkenergy.com

COMPANY Chesapeake LEASE Henshaw 23 Fed #1
FIELD OR POOL
SECTION ____ BLOCK ____ SURVEY ____ COUNTY Eddy STATE NM
SOURCE OF SAMPLE AND DATE TAKEN:
NO. 1 Submitted water sample - taken from wellhead on 1-9-07.
NO. 2
NO. 3
NO. 4
REMARKS: S23, T-16S&R-30E

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.1182			
pH When Sampled				
pH When Received	6.18			
Bicarbonate as HCO_3	256			
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	54,500			
Calcium as Ca	15,600			
Magnesium as Mg	3,767			
Sodium and/or Potassium	48,887			
Sulfate as SO_4	375			
Chloride as Cl	113,600			
Iron as Fe	50.1			
Barium as Ba	0			
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	182,485			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen,				
Hydrogen Sulfide	0.0			
Resistivity, ohms/m at 77° F.				
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Resistivity, ohms/m @ 77°F. - measured	0.056			

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks

Form No. 3

By Greg Ogden, B.S.

LATHAM PRINTING CO. - 333-1292

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 ____X__Disposal _____Storage
Application qualifies for administrative approval? ____X____Yes _____No

II. OPERATOR: __Chesapeake Energy_____

ADDRESS: ____PO Box 18496 Oklahoma City, OK 73154-0496_____

CONTACT PARTY: __Andrew McCalmont_____PHONE: _405-879-7852_

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: _____Andrew J. McCalmont_____TITLE: ____Sr. Asset Manager_____

SIGNATURE: _____DATE: 5/1/2007

E-MAIL ADDRESS: _____amccalmont@chkenergy.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.

1. Globe 14 Federal 1
   Section 14-T16S-R30E
   2280' FNL - 1980' FEL

2. Surface casing - 13-3/8" 42# set at 520'. Cement with 650 sxs, circ to surface.

   Intermediate casing - 8-5/8" 32# set at 3000'. Cement with 650 sxs, circ 21 sx to surface.

   Production casing - 5-1/2" 17# set at 9100'. Cement with 1000 sx, top of cement 2970' by CBL.

3. Injection tubing to be used will be 6.5# 2-7/8" poly-lined tubing. Setting depth is above injection interval at ~ 3600'.

4. Injection packer to be used is an Arrow Set 1 packer set at ~ 3600'.

B.

1. The injection formation is the San Andres member of the Guadalupe Series.

2. The injection interval will be 3660 - 3708' (OA).

3. This well was originally drilled in 2006 to test the Wolfcamp formation. The Wolfcamp was not commercial. The San Andres was tested but was wet. The well is currently SI.

4. The Wolfcamp is perforated 8771 - 8911' (OA). A CIBP is set at 8750'. 35' of cement is on top of this CIBP.
   The Wolfcamp is also perforated 8646 - 8736' (OA). A CIBP is set at 8600'. 35' of cement is on top of this CIBP.
   The Wolfcamp is also perforated 7697 - 7800' (OA). A CIBP is set at 7650'. 35' of cement is on top of this CIBP.
   The San Andres is perforated 3660' - 65', 3670 - 80', 3685 - 3700', & 3702 - 08'.

5. There are no known oil or gas zones above the proposed injection interval within the area of review.

   The nearest deeper producing zone within the area of review is in the Chesapeake operated Henshaw A Federal 1, Sec 14-16S-30E. Its top perforation is at 12574'.

NOTICE LIST FOR CHESAPEAKE'S SWD GLOBE 14 FEDERAL NO 1

Surface: Lessee

H & K Farms, Inc.
Attn: Ted Higginbotham
P.O. Box 1379
Seminole, TX 79360

Surface is BLM
Notified on Sundry, 5/8/07

Offsetting Operator:

Strata Production Company
P. O. Box 1030
Roswell, NM 88202

VII. Data on Proposed Operation

1. Anticipated average daily injection rate into the Globe 14 Federal 1 SWD is 500 BWIPD, with maximum daily rate expected at 2000 BWIPD.

2. The system will be a closed system.

3. The maximum injection pressure will be 732 psig (current maximum allowed injection pressure). Expected average injection pressure will be 650 psig.

4. The injected fluid will be Wolfcamp produced water from Chk's Henshaw 23 Fed 1. Water analysis attached.

5. The proposed disposal zone is not productive of oil or gas within miles of the Globe 14 Fed 1. The San Andres is often water flooded and is utilized as a diposal zone or for supply water in the Permian Basin. One can generally infer that no compatibility problems will occur that the operator cannot remedy with known means (such as an occasional acid job).

VIII. Gelogical Data

The top of San Andres in the Globe 14 Federal #1 is 2981'. The San Andres is primarily composed of Dolomite with minor amounts of shale and anhydrite that is approximately 1500' thick in this area. These dolomites are generally porous, permeable, and water bearing when there is no four way closure. Immediately above the San Andres is a massive anhydrite section with minor amounts of shale. The only fresh water in the area is above 500' where 13-3/8" casing was set.

IX. Proposed Stimulation

This well will be acidized with 15% HLCL and rock salt for diversion.

X. An openhole log is on file with the OCD.

XI. A serarch of this area reveals that there are no fresh water wells located within 1 mile of the Globe 14 Federal 1.

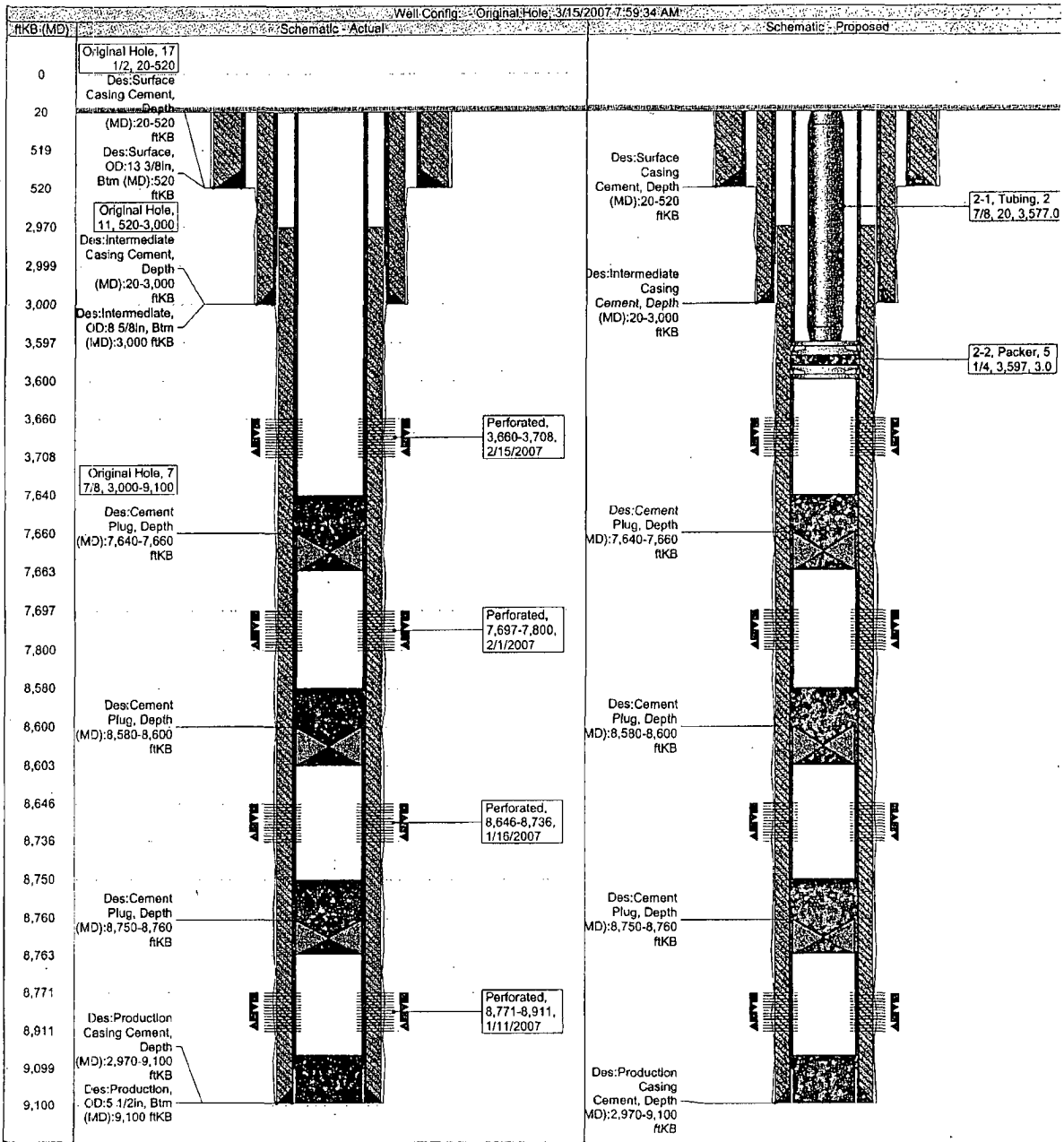
XII. The available geologic and engineering data has been reviewed and ther is no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

Workover Proposal

GLOBE 14 FEDERAL 1

Field: Henshaw
County: EDDY
Location: SEC 14-16S-30E, 2280 FNL & 1980 FEL
Elevation: GL 3,845.00 KB 3,865.00
KB Height: 20.00

Spud Date: 11/24/2006
Initial Compl. Date:
API #: 3001534755
CHK Propterty #: 819685
1st Prod Date:
PBTD: Original Hole - 7640.0
TD: 9,100.0



Cement

Description	String	Wellbore	Stg No.	Fluid	Amount (sacks)	Class	Yield (ft³/sa	Density (lb/gal)	Top Meas Meth	Comment
Surface Casing Cement	Surface, 520.0ftKB	Original Hole	1	Lead	180		1.52	14.60		Thixtropic
Surface Casing Cement	Surface, 520.0ftKB	Original Hole	1	Lead	220	C	2.10	12.40		35:65:6, 5% salt, 1/8# CF
Surface Casing Cement	Surface, 520.0ftKB	Original Hole	1	Tail	250	C	1.32	14.80		2% CaCl2
Intermediate Casing Cement	Intermediate, 3,000.0ftKB	Original Hole		Lead	450	C	2.37	11.90		50:50 POZ, 5% sodium Chloride, 1/4 pps, CF, 10% gel
Intermediate Casing Cement	Intermediate, 3,000.0ftKB	Original Hole		Tail	200	C	1.34	14.80		2% CaCl2
Cement Plug	Production, 9,100.0ftKB	Original Hole			2					Cmt cap onCIBP @ 7660'.
Cement Plug	Production, 9,100.0ftKB	Original Hole			2					Cmt cap onCIBP @ 8600'.
Cement Plug	Production, 9,100.0ftKB	Original Hole			1					Cmt cap onCIBP @ 8760'.
Production Casing Cement	Production, 9,100.0ftKB	Original Hole		Lead	520	H	2.53	11.90	Wireline Tag	50/50/10, 10% salt, 1/3# CF
Production Casing Cement	Production, 9,100.0ftKB	Original Hole		Tail	480	H	1.22	14.40	Wireline Tag	50/50/2, 2/10% CD32, ..3% FL52

Report Printed: 3/15/2007

CURRENT WELLBORE SCHEMATIC
CHESAPEAKE OPERATING INC.

WELL : HENSHAW A FEDERAL 1-14

LOCATION : 1,980' FSL & 1,830' FEL, SEC. 14-16S-30E

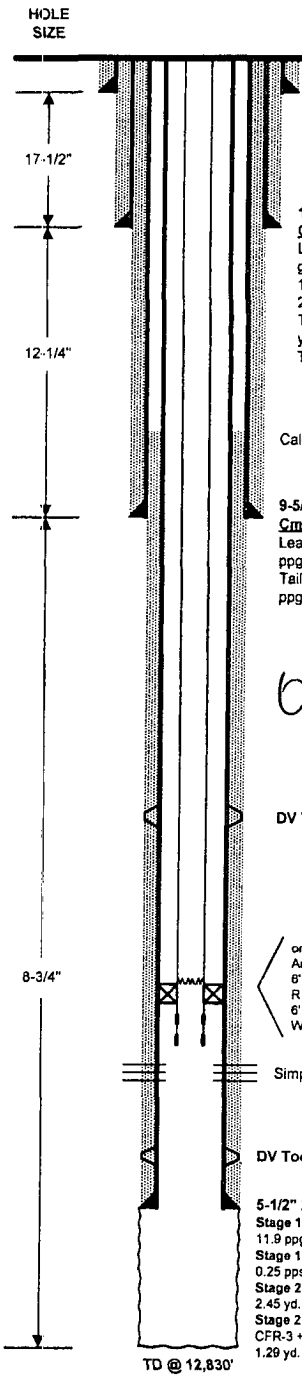
COUNTY : EDDY STATE : NM

FIELD : HENSHAW

ELEVATION : GL - 3,851' KB - 3,871'

Chesapeake Natural Gas. Natural Advantages.

API #: 30-015-32891
SPUD DATE: 2/19/04
RIG RELEASED: 3/29/04
FIRST SALES: 6/16/04



Well History:

COMPLETION

4/2004: Tag cmt. @ 8860', tag DV tool @ 8954' & DO. Spot 200 gal. 15% NeFe @ 12,830'. BD fmtn. w/ acid; at 2.4 bpm & 5400 psi, ann. press. incr. fr 1000 to 2100 psi; SD, bled ann. press. down, start acid, ann. press. up to 2200 psi. Acdz down tbg. incr. rate from 1.1 bpm @ 4600 psi to 4.7 bpm @ 4797 psi. ISIP 3302#, 5'-1592#, 10'-1032#, 15'-727#. 2nd run, sand line parted; left 2000' SL, sinker bar & swab mandrel in hole. Large amts. of fmtn. sand in lubricator, SSOG. Left well flwg. on 10/64 ck, TP 20 psi, CP 0 psi. TOH & LD pkr; repl. sand line. SITP & CP 540 psi. Dress DV tool @ 8954'; RU WL & TIH w/ WG, pump out plug, R-nipple, 2-6' N-80 subs, Arrowset 1-XS pkr & F-nipple (had trouble getting thru DV tool). Set pkr @ 12,626', SIP 650 psi. Strap tbg, pick up on/off tool. TIH & latch pkr, pump out plug. RIH w/ swab, IFL surf. Made 4 runs, well KO'd. SITP 1200#; put well on flare, est. 574 mcfd on 12/64 ck, FTP 1000#. FTP 310#, est 474 mcfd, 12/64 ck, 20 BFPH, tr. cond. Well loads up; incr. ck to 30/64, est 850 mcfd, 350# FTP,18 BFPH, 99% wtr. Flwg to flare, gas & CP incr. fr 880 mcf @ 350# to 945 mcf @ 390# , 30/64 ck. Fluid decr. fr 12 to 5 BF/hr, water w/ skim oil. FTP 390 psi. Flwg to flare on 30/64 ck, 907 mcfd; rec. 8 BO, 6.5 BW/hr. Total 78 BW rec. SWI, WO facilities.

5/2004: Spot 200 gal acid @ 12,608', pull pkr up to 12451' & set, test BS to 1000 psi, held. RIH w/ 2" perf guns & perf Simpson Sd. 12,574-581' w/ 4 spf, 32 holes. Acdz w/ 1000 gal; Frac down csg. w/ 40# 70Q binary pad; pump 86 bbls, start 1/4 ppg 18/40 Versaprop; @ 26 bbls w/ 900# sd, press incr to 7540 psi; shut down.

6/2004: Frac dwn tbg. Start 40# 70Q binary pad; fmtn BD @ 10333 psi & 9.5 bpm. Start sand, stage fr. 1/4 to 2 ppg. Flush w/ 30 bbls. ISIP 5831#, 5'-5280#, 10'-5250#, 15'-5165#. MTP 10363#, ATP 10000#, MTR 10.5 bpm, ATR 10 bpm. SITP 5500#. FB. 24 hr FB: Rec 173 BW, 85% CO_2. TIH & tag sand @ 11560' 72 hr FB: Rec 359 BW, 1% OC, ~835 mcf, 150#, 32/64 ck. TIH w/ CT; jet w/ 1/2 bpm 2% KCl & 500 scf/m N_2. Tag sand @ 11,571', couldn't wash out; TIH w/ 3 blade bit on CT, still couldn't work thru. TOH w/ tbg & pkr, jt. 369 collapsed. TIH w/ bit & DC on tbg, drilling cmt. Tag & DO plug @ 12,648'. Tag btm @ 12,838' TOH w/ bit, TIH w/ WL RE-guide, 6' sub, R-nipple, 6' sub, Arrowset pkr, on/off tool & 397 jts. 2-3/8" tbg. Set pkr @ 12508', TIH w/ swab, IFL 1300'. Rec 73 BW/14 runs, FFL 4300', fair blow of gas. 1st sales to Duke 6/16/04 on 18/64 ck, FTP 1000#, spot rate 1680 mcf.

1/2006: Install Plunger Lift Equip.

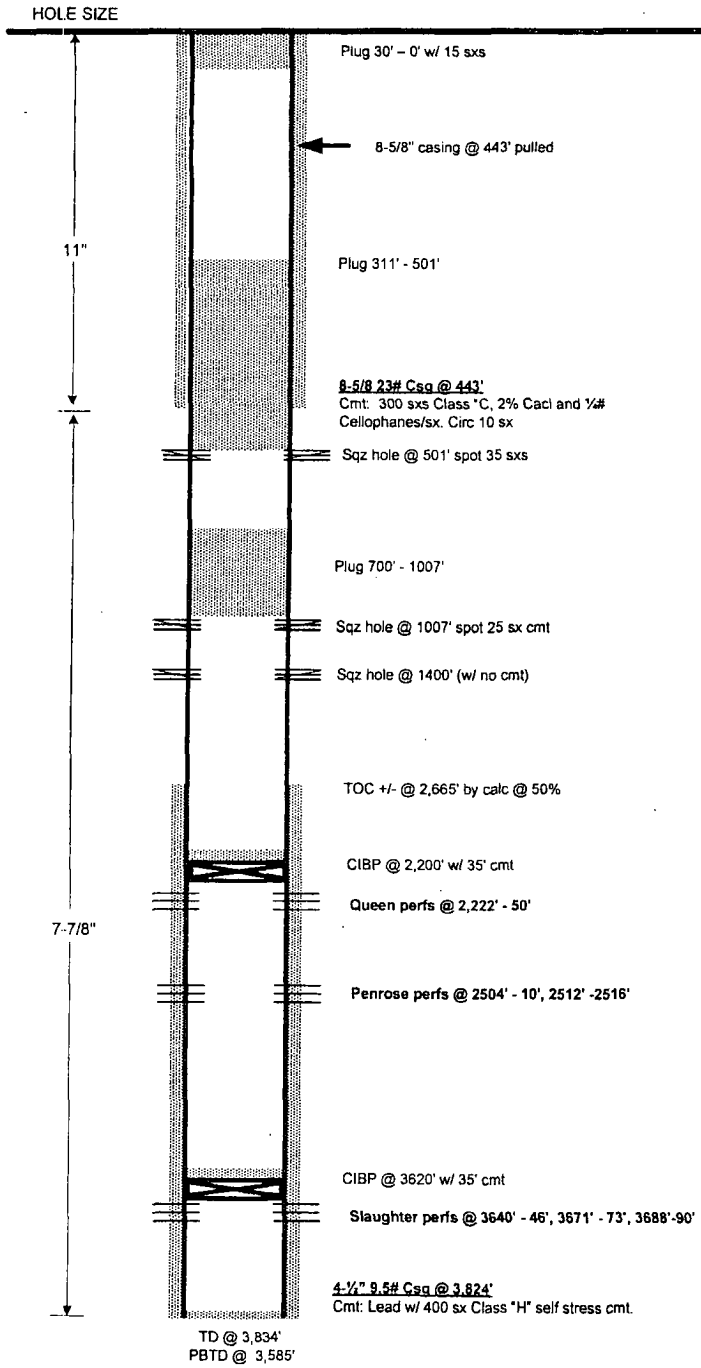
PREPARED BY: Ginni A. Kennedy DATE: 4/6/04

UPDATED BY: Ginni A. Kennedy DATE: 6/22/04

CURRENT WELLBORE SCHEMATIC

WELL : NORMAN FEDERAL # 1
FIELD : HENSHAW
COUNTY : EDDY STATE : NM
LOCATION : 1980' FSL & 1980' FWL, SEC. 14-16S-30E
ELEVATION : KB 3834'

API #: 30-015-22748
SPUD DATE: 12/20/78
P&A DATE: 3/27/03



OK

PREPARED BY: Myo Htoon DATE: 3/14/07

UPDATED BY: _____ DATE: _____ AJM

CURRENT WELLBORE SCHEMATIC
CHESAPEAKE OPERATING INC.

WELL : ETZ # 1

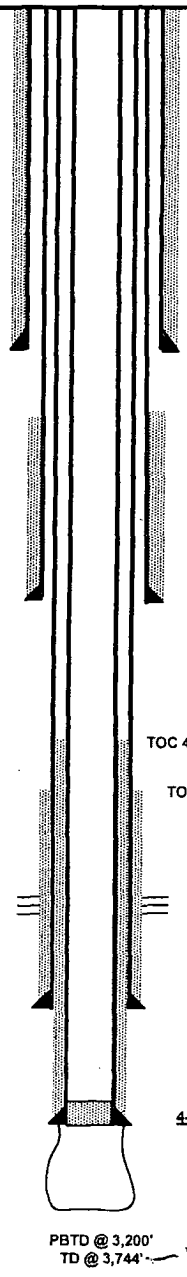
FIELD HENSHAW

LOCATION : 2310' FNL & 330' FWL, Unit "E" SEC. 16-T22S-R30E

COUNTY : EDDY STATE : NM

ELEVATION : GL - 3,066.2' RKB - '

API #: 30-015-03888
SPUD DATE: 11/10/39
COMPLETION DATE: 04/03/40



PREPARED BY: Myo Htoon DATE: 9/20/06

UPDATED BY: _____ DATE: _____