Shell Western E&P Inc.

An affiliate of Shell Oil Company

P.O. Box 576
Houston, TX 77001

January 3, 1992

Mr. Jerry Sexton
Supervisor, District I
Energy, Minerals and Natural Resources Department
Oil Conservation Division
P. O. Box 1980
Hobbs, New Mexico 88240

Dear Mr. Sexton:

SUBJECT: REQUEST FOR APPROVAL TO PLUG AND ABANDON NORTHEAST ARGO "A" WELL NO. 10 - HARE - SAN ANDRES FIELD - CURRENTLY SERVING AS WATER SOURCE WELL 819S IN THE NORTHEAST DRINKARD UNIT - DRINKARD NORTHEAST FIELD - LEA COUNTY

Attached are three copies of Form C-103 - Sundry Notices and Reports on Wells - for your approval to plug and abandon the subject San Andres water source well as required by Statewide Rule 201.

Background

The well was drilled to a total depth of 8130 feet into the Ellenburger formation in 1951. Previous completions have been effected in the Hare, Abo, Blinberry and San Andres. The last completed interval (San Andres) has served as a water source well for the Northeast Drinkard Unit since May, 1988.

In November, 1990, during a routine radioactive tracer residence time study, naturally occurring radioactive material (NORM) was discovered in the San Andres source water being pumped from the subject well. The water was leaving a residual radioactive scale deposition in the surface collecting tanks. Elevated radiation levels in the Central Battery west skim tank indicated that the water was coming from the San Andres formation. NEDU well 819S was identified as the source of the NORM scale.

Radiation surveys in the area of the tank indicate radioactivity levels of 4,500 uR/h. The reading, taken with a Geiger counter, was taken at one spot on the tank shell, at ground level. Radiation levels at the fence (6 feet from the tank) are near background - 5 uR/h.

NORM is a naturally occurring material that is found in normal oil and gas producing operations in many fields around the world. The company that has developed a removal/disposal procedure for SWEPI at Drinkard is Macnamee International Inc.

Macnamee has been conducting NORM removal/disposal operations in the United Kingdom since 1983 and has accumulated over 49,700 mandays and 150,000 operating hours in contaminated vessels with no citations or incidents. SWEPI believes Macnamee is one of the most experienced, qualified NORM contractors available to remove the NORM scale from our operations.

All details have been evaluated. Strict adherence to operating and emergency procedures by Macnamee and SWEPI will provide a high level of quality control.

We plan to remove the NORM scale from the tank, tubulars and downhole pump by using high pressure jetting. The NORM scale will then be pumped into the San Andres formation prior to abandoning the well. We believe disposal of NORM back into the formation that produced the material is a simple, logical recommendation and is the right method to use at Drinkard.

We have searched various New Mexico agency records, and can find no rule that governs NORM. The subject well has been shut-in for a year. NMOCD Order No. R-9210 requires corrective action to be taken soon. Therefore, we would like approval to plug the well as soon as possible.

We will be happy to review with you at your convenience, and in detail, our plan of action and timetable.

If additional information is needed, please feel free to contact Bill Kelldorf (713) 870-3426 in Houston.

Very truly yours,

B. S. Jacobs
Division Health, Safety & Environment Manager
Western Division

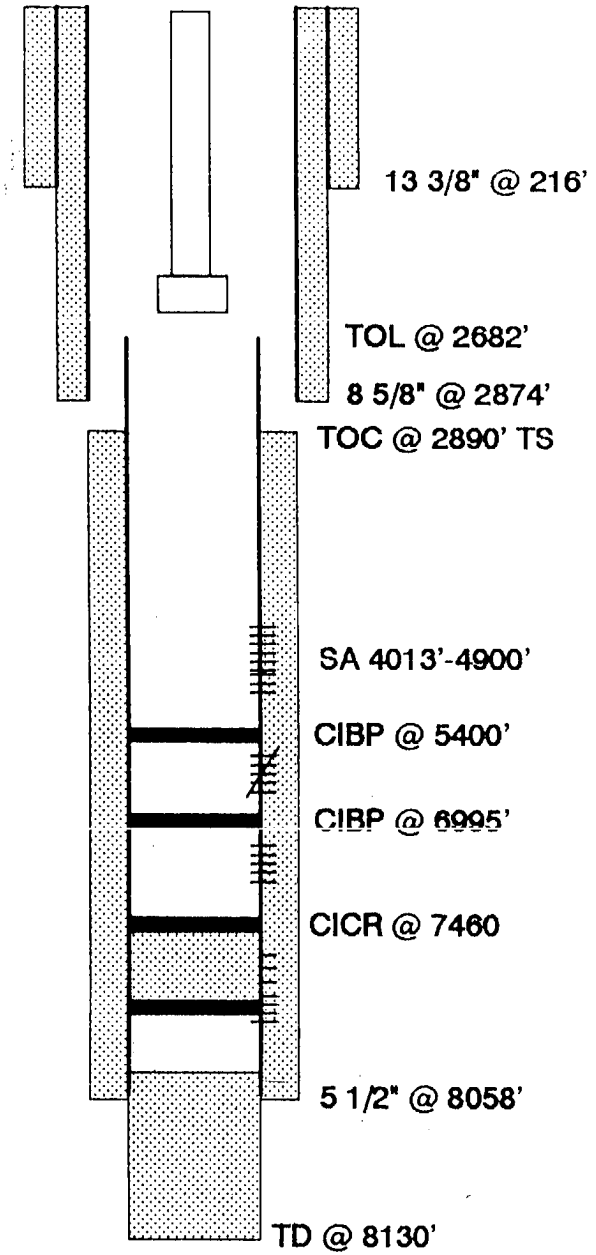
WFNK:rlb

Attachments

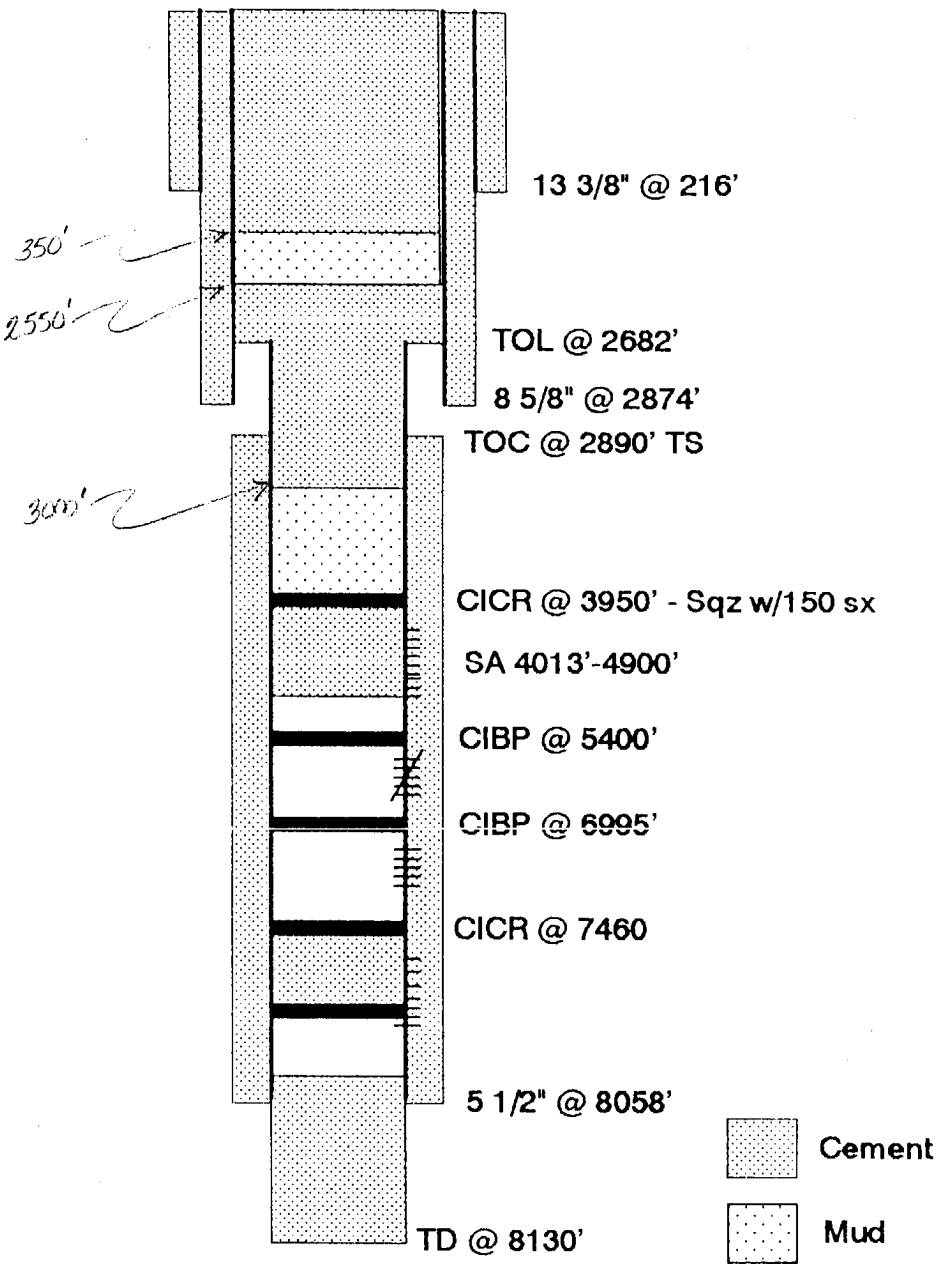
cc: Mr. William J. LeMay
Director
Oil Conservation Division
State of New Mexico
Energy, Minerals and Natural Resources Department
P. O. Box 2088
Santa Fe, New Mexico 87504

FORM C-103 ATTACHMENT
ARGO A #10
SEC. 22, T21S-R37E
API #30-025-06742

CURRENT



PROPOSED PA



FROM: PRODUCTION ENGINEERING, WESTERN DIVISION

TO: STAFF AND OPERATING PERSONNEL

PROJECT ENGINEER: E. T. Meyer
OFFICE PHONE: (713) 870-3299
HOME PHONE: (713) 493-5606

WELL: NORTHEAST DRINKARD UNIT NO. 819S
Formerly SWEPI's Argo A No. 10
Drinkard Northeast Field
New Mexico Production Unit
600' FNL & 1660' FWL
22-T21S-R37E
Lea County, New Mexico

OBJECTIVE: Permanently Abandon Wellbore

PRESENT STATUS: Currently SI. Last production was 10,000 BWPD on 2/91.

AFE DATA:	W. O. Number	Appropriated Funds
	(R&A)	70,000 (29,000 SG)

WELL INFORMATION:

MISC:

TD:	8130		Est. BHP: 1800 psi
PBTD:	5365	(Cmt cap on CIBP @ 5400')	Max SITP: 500 psi
ELEV:	3425	(GL)	Est. BHT: 105 deg F
ZERO:	3437'	(DF)	

LOGS:

DATE	COMPANY	TYPE	INTERVAL
1-29-63	Welex	GR/N	

REFERENCE LOG: Welex GR/N Log dated 1-29-63

TOPS:

ZONE	TOP	SUBSEA
Glorieta		
San Andres		
Blinebry		

OTHER DATA AVALIABLE:

PERFORATIONS: (* Not Open Now)

5-13-88	SA	4013-15, 21-43, 57-61, 4228-48, 67-73, 4315-29, 90-4434, 46-56, 73-83, 89-97, 4501-65, 75-85, 93-4601, 08-56, 73-83, 96-4706, 21-25, 30-46, 50-54, 59-69, 73-75, 85-4801, 31-57, 61-63, 66-70, 96-4900 .(1 JSP2F - 260 holes)
4-18-87	Abo	*7288-7332 (92 holes) CIBP in 5/88
3-25-87	Abo	*7105-7212 (72 holes) CIBP in 5/88
10-27-86	Abo	*7037-7250 (108 holes) Sqz'd in 1986
6-05-74	BI-II, V	*5474-5619, 5878-5928 (22 holes) Sqz'd in 1986
1-28-63	BIII-IV	*5724-5847 (17 holes) Sqz'd in 1986
11-30-51	Hare	*7517-7860 (720 holes) CIBP in 1951

CASING DETAIL:

Size (in.)	Wt., Grade (lb/ft)	Depth (ft)	Cmt (sx)	Toc (ft)	Yld (Klbs)	Burst (psi)	Clps (psi)
13 3/8	48.0, H-40	216	250	sfc, circ	322	1730	770
8 5/8	32.0, N-80	2874	1900	sfc, circ	434	4460	3450
5 1/2 LNR	15.5, J-55	2682-8058	800	2890, TS	202	4810	4040

TUBING DETAIL: Centrilift ESP + ? jts 4 1/2", IPC, EUE 8RD tbg

WORKOVER RECORD:

11/51	Hare	Drilled to depth of 8130'. Ran 5 1/2" liner to 8058' and cmt'd w/800 sx. PBTD @ 8035'. Perf'd Hare from 7517'-7860'. OPT Hare: 134 BOPD, GOR 1782 scf/stb
1/63	BIII-IV	Set CIBP @ 7410' and capped w/1 sx cmt to abandon Hare (Cum Prod form Hare 47 MBO). Perf'd Blinebry III-IV from 5724'-5847' and AT w/3000 gal then Frac w/20,000 gal GLC + 20,000# sd. OPT BIII-IV: 140 BOPD, GOR 3727 scf/stb
6/74	BI-II,V	Perf'd BI-II,V from 5474'-5519'and 5878'-5928'. AT BI-V w/13,100 gal 15% NEA. AFTER: 10 BOPD, 0 BWPD + 450 MCFPD
10/86	Abo	Sqz'd BI-V w/200 sx cmt. Pushed CIBP @ 7410' to 7639'. Set CICR @ 7460' and sqz'd Hare perfs from 7517'-7860' w/75 sx cmt. Perf'd Abo from 7037'-7250'. AF Abo w/30,000 gal 28% HCL + 42,500 gal gel. AFTER: 11 BOPD + 11 BWPD + 128 MCFPD
3/87	Abo	Sqz'd Abo from 7037'-7250' w/160 sx cmt. Perf'd Abo from 7105'-7212'. AT Abo w/7,500 gal 20% HCL using RS as divert. BEFORE: 2 BOPD + 2 BWPD + 60 MCFPD AFTER: 3 BOPD + 84 BWPD + 66 MCFPD
4/87	Abo	Perf'd Abo from 7288'-7332'. AT Abo w/6800 gal 20% using RS as divert. BEFORE: 3 BOPD + 84 BWPD + 66 MCFPD AFTER: 2 BOPD + 12 BWPD + 60 MCFPD
5/88	SA	Ran CIBP to 7000'. Shear pin pulled out of CIBP and and plug fell to PBTD. Set 2nd CIBP @ 6995' and cap'd w/35' cmt. Ran 3rd CIBP and set @ 5400' and cap'd w/35' cmt. Perf'd SA from 4013'-4900'. AT SA w/500 bbls 15% HCL in 10-50 bbl stages using RS as divert. Ran 120 HP Centrilift "test" ESP on 81 jts 2 1/2" tbg and hung @ 2566'. AFTER: 5200 BWPD + 320 MCFPD

Northeast Drinkard Unit 819S

RECOMMENDED PROCEDURE:

WARNING: A poisonous gas - Hydrogen Sulfide (H2S) - a highly toxic, colorless gas that is heavier than air may be present at this location and/or present in the gas or liquids injected or produced from this well. Plans must be reviewed dealing with H2S safety prior to working on this well. Check with the Foreman concerning local conditions.

NOTE: Do not begin until notified by Houston that state approval has been granted, indicating the proposed operation is in compliance with NMOCD RULE 202 (PLUGGING AND PERMANENT ABANDONMENT).

NOTE: Notify NMOCD at least 24 hours prior to commencing any plugging operations.

NOTE: Rig Supervision will be under the control of the Shell Operations Foreman representing Shell's dedicated working crew from Xpert Well Systems. Rig operations supervision from Macnamee International (MI) will be represented by Rip Herman. Site safety and all other operations will be under the control of Mike Fowler (MI) and Shell's Safety Representative.

NOTE: Hold safety meeting at SWEPI's production office in Hobbs, NM to discuss all aspects of the operation prior to commencing work.

1. Check for overhead power lines and other location hazards.

2. Set up and establish a controlled work area for radiation operations.

3. MI&RUPU. Ensure tbg is dead. Install BOP. TOH laying down 4-1/2" production tbg and ESP equipment.

   NOTE: AS TUBING IS PULLED, WASH THE INSIDE OF EACH JOINT TO FLUSH DOWN LOOSE SCALE AND WIPE THE EXTERIOR WITH PIPE WIPER ASSEMBLY. EACH JOINT OF TUBING IS TO BE SURVEYED INTERNALLY AND EXTERNALLY FOR NORM AND ACTIVITY (DOSE RATE) LOGGED. THE ENDS OF EACH JOINT ARE TO BE SEALED PRIOR TO RACKING. IF EXTERNAL CONTAMINATION IS PRESENT THEN EACH JOINT OF TUBING MUST BE SEALED AGAINST CONTAMINATION DISPERSAL BY WRAPPING IN VISQUEEN PRIOR TO RACKING.

   NOTE: IF ESP CABLE IS CONTAMINATED WITH NORM SCALE THEN THIS MATERIAL MUST BE JETTED AND DRUMMED FOR INJECTION (SAME AS ABOVE).

4. Pick up 2 7/8" work string and RIH w/7 5/8" bit and 8 5/8" casing scraper for 8-5/8, 32# casing and CO to top of liner @ 2682'. TOH w/bit and scraper.

5. RIH w/4-3/4" bit and 5 1/2" casing scraper for 5-1/2", 15.5# csg and clean out liner to PBTD +/- 5365' (TOL @ 2682'). TOH w/bit and scraper.

6. RIH 5 1/2" pkr. Set pkr @ +/- 3950' and establish injection rate and pressure into San Andres perfs 4013'-4900'. Notify Engineering of injection test results. POOH w/pkr.

7. Remove BOP. RDPU. Reassemble wellhead. and leave well SI.

AFTER ALL SCALE HAS BEEN REMOVED FROM THE TANK, TUBING, AND PUMP AND SLURRIFIED FOR INJECTION PROCEED AS FOLLOWS:

8. MI&RUPU. Ensure well is dead. Install BOP.

9. Pick up 2 7/8" work string and RIH 5 1/2" pkr. Set pkr @ +/- 3950' and establish injection rate and pressure into San Andres perfs 4013'-4900'. Notify Engineering of injection test results. POOH w/pkr.

10. RIH w/5 1/2" CICR and set @ +/- 3950'. Establish injection rate and pressure into San Andres perfs, then pump NORM slurry followed by 90 BBL fresh water flush.

11. PLUG AND ABANDON WELL
    a. Mix and pump 75 sx Class "C" w/0.3% Halad-9 (D-60) followed by 75 sx Class "C" w/2% CaCl. Sting out of CICR and cap CICR w/35' cmt.
    b. Spot 22 BBLS 10 #/gal brine w/25 # gel/bbl from 3915' to 3000'
    c. Place cmt plug from 3000' to 2550' (450' cmt plug, 70 sx cmt).
    d. Spot 134 BBLS 10 #/gal brine w/25 # gel/bbl from 2550' to 350'.
    e. Place cmt plug from 350' to sfc' (350' cmt plug, 90 sx cmt).
    f. Cut off casing 3' below the ground surface.

NOTE: All cement should be color (RED) tagged as a future safety precaution. This will identify the well as radioactive should any future work be done with/without SWEPI knowledge.

11. Remove BOP. RDPU.

12. Fill the cellar, remove all loose junk and trash, and level the location.

13. Survey location for possible radioactive contamination. Notify Engineering of results.

NOTE: All operations will be conducted in compliance with MI's NORM Operating and Emergency Procedures and Shell's safety requirements.

Final reporting on scale activity, volumes and personnel dosimetry records will be made available to Shell and to applicable State of New Mexico agencies at Shell's request. All data regarding this project is confidential and proprietary to SWEPI and will be treated as such by MI.

14. Mark the exact well location with a steel marker not less than 4 inches in diameter set in cement and extending at least 4' above mean ground level. The operator name, lease name and well number and location, including unit letter, section township and range, shall be welded, stamped or otherwise permanently engraved into the metal of the marker.

15. Contact the NMOCD and arrange for an inspection of the well and location.

WA-J1?? A

FORM "11" SWEPI's ARGO A #10

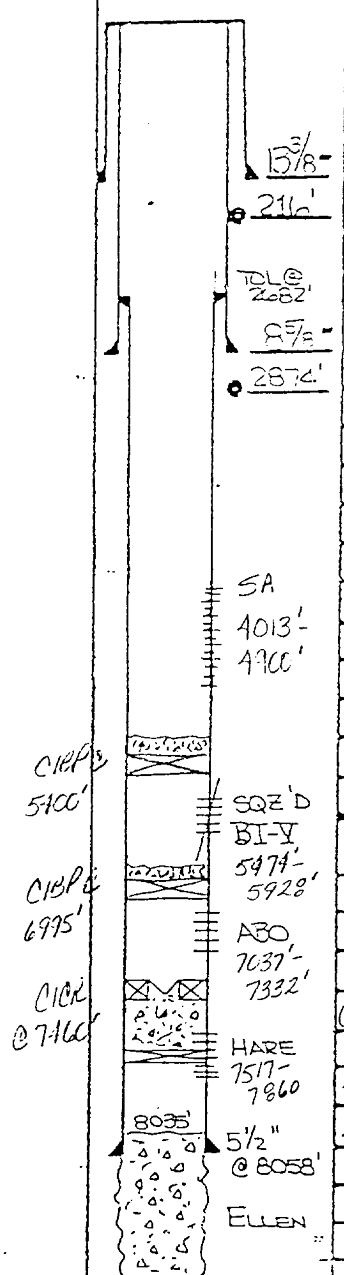
COMPLETION DATE 12/51 NEDU No. 819S COMPLETION INTERVAL: ABO

RECOMPLETION DATE DRINKARD NE FIELD 1 of 2

LOCATION 600' FNL & 1660' FWL SECTION 22 ~~BLOCK~~ 21S-37E

SURVEY — COUNTY LEA COUNTY, NEW MEXICO

DATUM 3437' [DF] G.L. ELEV. 3425' TD 8130' PBTD 7460' [CMT RETAINER]



PBTD = 8130'

CASING RECORD *CALCULATED AT 50% EFFICIENCY

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE
13 3/8"	48#	216'	250 sx	SURF	CIRC
8 5/8"	32#	2874'	1900 sx	SURF	CIRC
5 1/2" LINER	15.5#	2682'-8058'	800 sx	2890'	TEMP SVY

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
SA		
GLOR	5104'	
DRINK	6350'	
McKEE	7472'	
ELLEN	7898'	
GRANITE	8129'	
GOC		
OWC		

PERFORATIONS AND/OR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
11-30-51	HARE*	7517-7860	720 HOLES
1-25-63	BIII-IV*	5724-5847	17 HOLES
6-5-74	BI-II, V*	5474-5619, 5878-5928	22 HOLES
10-27-86	ABO *	7037'-7250'	108 HOLES
3-25-87	ABO A-C	7105'-7212'	72 HOLES
4-14-87	ABO D	7288'-7332'	92 HOLES

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
1/63	7410'	SET CIBP CAPPED w/ 1 SK CMT TO ABAN HARE
10-21-86	BI-V	SQZ'D w/ 200 SX CLASS 'C'
10-27-86	HARE	PUSHED CIBP TO 7635 AND SQZ'D HARE w/ 75 SX (CMT RETAINER AT 7460')
3-18-87	ABO	SQZ w/ 160 SX CMT

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
3-5-56	HARE	FT w/ 20,000 GAL GLC	PLUS 20,000# SAND	DEAD	26 BOPD ON PUMP
1-30-63	BIII-IV	AT w/ 3000 GAL THEN FT w/ 20,000 GAL GLC + 20,000# SD		NEW	OP: 140+527
6-6-74	BI-V	AT w/ 13,100 GAL 15% NEA			10+0+45?
10-28-86	ABO	AF w/ 30,000 GAL 28% HCl + 42,500 GAL GEL		NEW	11+11+128
3-26-87	ABO	AT w/ 7500 GAL 20% HCl DIVERTING w/ 2500# RS		2+2+60	3+84+66
4-14-87	ABO	AT w/ 6800 GAL 20% HCl DIVERTING w/ 2000# RS		3+84+66	2+12+60

OPT HARE: F 134 BO w/ GOR = 1782 (12/51) | ABO: 11+11+128 (11-13-63)
BIII-IV: F 140 BO - OBW, GOR = 3727

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS: HARE ABANDONED IN 1/63 AFTER 47 MBO CUM. B INEBRY ABANDONED IN 10/86 AFTER CUM. PROD OF 134 MBO + 2.0 BCF. ABO SQZ'D, RE-PERF'D & RE-TREATED IN MAR-APR '87 — NO SUCCESS. DONATED TO NEDU IN 4/88 AS SA WSW.

DATE: 4/88, V31

SWEP-0698B

2 of 2

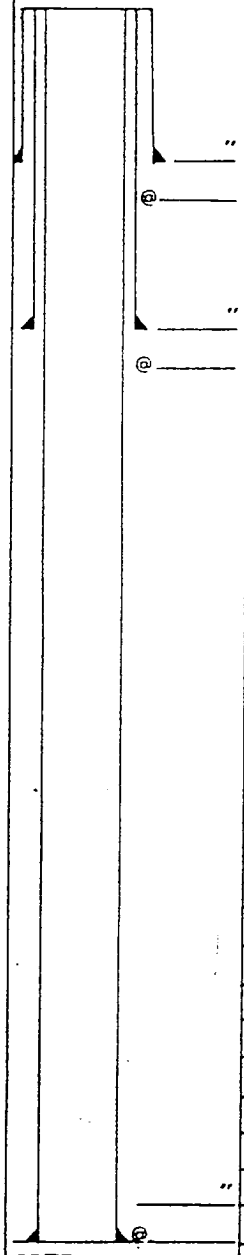
COMPLETION DATE _____ NEDU 8195 COMPLETION INTERNAL: _____

RECOMPLETION DATE _____

LOCATION _____ SECTION _____ BLOCK _____

SURVEY _____ COUNTY _____

DATUM _____ [ ] G.L. ELEV. _____ TD _____ PBTD _____ [ ]



CASING RECORD *CALCULATED AT 50% EFFICIENCY

SIZE	WT.	DEPTH	CMT.	TOC	HOLE SIZE

LOGGING RECORD

DATE	CO.	TYPE	INTERVAL

LOG TOPS

ZONE	TOP	SUBSEA
GOC		
OWC		

PERFORATIONS AND/CR OPEN HOLE * NOT OPEN NOW

DATE	ZONE	DEPTHS	DENS & SIZE
5/88	SA	4013'-4700'	260 holes

SQUEEZE & REPAIR

DATE	DEPTH	WORK DONE
5/88	6995'	SET CIBP @ 6995' & DUMP'D W/35' CMT
	5400'	SET CIBP @ 5400' & DUMP'D W/35' CMT

STIMULATION

DATE	ZONE	AMOUNT & TYPE	METHOD	BEFORE	AFTER
5/88	SA	AT W/500 BBLS 15% HCL W/ 10-50 BBL STAGES			
		USING RS AS DIVERT			

PBTD

OPT

DATA AVAILABLE DST ☐ CORE ☐ PVT ☐ OTHER

REMARKS:

DATE:

Shell Western E&P Inc.
An affiliate of Shell Oil Company

P.O. Box 576
Houston, TX 77001

January 3, 1992

Ms. Judith Espinosa
Secretary
New Mexico Health and Environment Department
P. O. Box 26110
Santa Fe, New Mexico 87502

Dear Ms. Espinosa:

SUBJECT: NATURALLY OCCURRING RADIOACTIVE MATERIAL (NORM) - LEA COUNTY

Attached, for your information, is a copy of a letter and Form C-103 sent to the New Mexico Oil Conservation Division requesting approval to plug and abandon a well in the Northeast Drinkard Unit - Drinkard Northeast Field - Lea County.

We have searched various New Mexico agency records and can find no rule that governs NORM. However, we understand that your department is in the process of possibly developing regulations for NORM. Therefore, we are forwarding a copy of our proposed abandonment plan for your information.

If you have any questions, please contact Bill Kelldorf (713) 870-3426.

Very truly yours,

B. S. Jacobs
Division Health, Safety & Environment Manager
Western Division

WFNK:rlb

Attachments

cc: Mr. William J. LeMay, Director
Oil Conservation Division
State of New Mexico
Energy, Minerals and Natural Resources Department
P. O. Box 2088
Santa Fe, New Mexico 87504

Mr. Jerry Sexton
Supervisor, District I
Oil Conservation Division
State of New Mexico
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P. O. Box 1980
Hobbs, New Mexico 88240

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