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District I - (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II - (575) 748-1283
811 S. First St., Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV - (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

Form C-103
Revised August 1, 2011

HOBBS OCD

OIL CONSERVATION DIVISION

JAN 04 2013

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

RECEIVED

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Oil Well ☐ Gas Well ☐ Other INJECTOR

2. Name of Operator
CHEVRON U.S.A. INC.

3. Address of Operator
15 SMITH ROAD, MIDLAND, TEXAS 79705

4. Well Location

Unit Letter H : 1656 feet from the NORTH line and 990 feet from the EAST line
Section 5 Township 25-S Range 38-E NMPM County LEA

11. Elevation (Show whether DR, RKB, RT, GR, etc.)

WELL API NO.
30-025-12382

5. Indicate Type of Lease
STATE ☒ FEE ☐

6. State Oil & Gas Lease No.

7. Lease Name or Unit Agreement Name
WEST DOLLARHIDE DRINKARD UNIT

8. Well Number 84

9. OGRID Number 4323

10. Pool name or Wildcat
DOLLARHIDE TUBB DRINKARD

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐
DOWNHOLE COMMINGLE ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS. ☐ P AND A ☐
CASING/CEMENT JOB ☐

OTHER: REACTIVATE INJECTOR

☒

OTHER:

☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

CHEVRON U.S.A. INC. INTENDS TO RETURN SUBJECT WELL TO ACTIVE INJECTOR.

PLEASE FIND ATTACHED , THE INTENDED PROCEDURE, WELL BORE DIAGRAM & C-144 INFORMATION.

Spud Date:

Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE

Scott Haynes

TITLE PERMIT SPECIALIST

DATE 01/03/2013

Type or print name SCOTT HAYNES
For State Use Only

E-mail address: TOXO@CHEVRON.COM

PHONE: 432-687-7198

APPROVED BY:

[Signature]

TITLE

Dist MGR

DATE 1-8-2013

Conditions of Approval (if any):

Chm

WELL DATA SHEET

FIELD: Drinkard
 LOC: 1650' FNL & 990' FEL
 TOWNSHIP: 25S
 RANGE: 38E
 Unit Letter: H

WELL NAME: West Dollarhide Drinkard Unit # 84
 SEC: 5
 COUNTY: Lea
 STATE: NM
 GE:
 KB:
 DF: 3171'

FORMATION: Drinkard

CURRENT STATUS: TA'd Wtr Injector

API NO: 30-025-12382

CHEVNO: FB3319

Well Data

Spud: 4-12-54

Initial completion date: 5-24-54

Initial Formation: Drinkard

FROM: 6420'

TO: 6880'

Initial: Production

223 BOPD, 223 MCFPD

Completion data:

Originally Skelly's Mexico "L" # 18

Formation - Drinkard

Acadz w/4000 gals XM-38

Subsequent Workover or Reconditioning:

06/57 Set CIBP @ 6350', Perf 5-1/2" csg, 6109'-6320'. Acadz w/500 gals Mud Acid. Frac 6109'-6320' w/10,000 gals Petrofrac 1# 20/40 mesh sd per gal.

10/67 removed CIBP opening. OH section 6420'-6880', in additions to 6109' - 6320'. Test before 45 BOPD, After 150 BOPD.

09/69 Convert to injection: POH w/ rods & tbgs. Ran 2-3/8" tbgs, set Pkr @ 5905'. Begin injection into 6109-6320' & OH section 01/16/1970.

10/70: Set RBP @ 4958' w/ 15' sd on top. Tested csg, held OK. Tested btl 8-5/8" & 5-1/2" and found packoff around 5-1/2" leaking. Release RBP & re-set @ 5980' w/ 15' sd on top. Tested csg, held OK. Replaced csg ring gasket & pack off. Perforated @ 3900' w/ 2 shots. Sqzd 580 sx cmt & circ cmt to surface. D/O cmt. Tested cmt job-held OK. Rel RBP @ 5980'.

12/71: CO 6855'-6880'. Ran 4" liner, 5774' to 6877'. Pumped 200 sx in tbgs before pressure rose, pumped 106 sx behind liner, leaving 51 sx cmt in liner & 25 sx in tbgs. Rev out 25 sx in tbgs plus 18 sx that had come past the top of the liner. DO cmt. Perf 6436-6650'. Ran tbgs & Pkr. Set Pkr @ 5896'. Acadz w/1500 gals 15% NE & 30 ball sealers. RTI.

02/76 Perf 4" Ln w/ thru-tbgs guns @ 6444 - 6652'. Acadz w/7000 gals 15% NE, w/45 ball sealers & 1800 # salt.

04/84 Plug Back: Tagged scale build up @ 5958'. C/O to 6580'. Set EZ drill plug @ 6550' & pkr @ 6000'. Test csg - held OK. TIH w/ 2-3/8" X 4" (Baker?) model AD-1 pkr & set @ 5922'. Likely unable to set pkr lower - bad csg??

02/02: Submitted plans to drill horizontal lateral; no record of work being done.

03/05: "Well is SI due to flowline failure. It has a NMOCD deadline. It is recommended to be TA'd with CIBP." Had trouble pulling pkr out - tag @ 5928', jar pkr lose & drag out of liner 12 pts over wt. Tag pkr rubber @ 5865' & push down to 5930'. Set CIBP @ 5922'. Dump 50' of cmt on top of plug due to bad csg (?).

8-5/8" 24 & 32# set @
 3150' w/ 2000 sx; circ cmt
 to surface

Perf & Sqz Queen
 @ 3900' (2 holes)
 circ cmt to surface

TOC in 5-1/2" @ 4260'

TOL @ 5774'
 CIBP @ 5922' w/ 50' cmt on top
 Pkr Rubber pushed to 5930'

5-1/2" 14 & 15.5# J-55 csg
 set @ 6420' w/450 sx; TOC
 @ 4260' by TS

4" 11.34# J-55 flush jt liner
 5774-6877', cmt w/ 175 sx,
 circ 18 sx through TOL.

Perf 06/57: 6109', 76-80', 84-86', 98-6204', 10-14', 20-24', 40-44', 70-73',
 78-82', 98-6302', 13-20' (52') Behind Liner

Tubby/Drinkard (12/71): 6436', 59', 66', 74', 6505', 29', 40' (7 shots)
 Re-Perf (02/76): 6444'-50', 72'-77', 86'-93', 6506', 39' w/ 1 JSPF (20 shots)
 EZ Drill plug @ 6550' (04/84)
 Abo (12/71): 6596', 6606', 21', 28', 50 (5 shots)
 Re-perf (02/76): 6560'-63', 68'-71', 94'-6603', 30'-36', 47'-52' w/ 1 JSPF (26 shots)

PBTD: 6877'

Orig. TD @ 6880'

FILE: WDDU 84WB.XLS

jpxf 09/25/12

CASING RECORD

CASING RECORD									
SIZE	WT.	THDS	JTS.	WHERE SET	AMOUNT RUN L.T.M. PULLED L.T.M.	TYPE	COND.	SX. CEMENT	
5 1/2"		CS Hydril	1	5774-5782'	7.40	Texas Iron Works Packer	A		
5 1/2"		Hydril	1	5782'-5787'	4.65	" " " Hanger	A		
4"	11.34	"	25	608332	1046.55	Wilson F. H. R-3 J-55	A	200 SX	
4"		"		608332-608343	.90	T. I. W. Landing Collar	A	106 Left	
4"	11.34	"	1	608343-60875	41.94	Wilson F. H. R-3 J-55	A	behind	
4"	MUD TESTS "			1	60875-77 SLOPE TESTS	6.65	T. I. W. FLT BIT DATA	A	Line

**Workover Procedure
West Dollarhide Drinkard Unit
Dollarhide Field**

WBS # UWDOL – R2421
WDDU 84

API No: 30-025-12382
CHEVNO: FB3319

10/12/12

Description of Work: Reactive Injector

Current Hole Condition:

Total Depth: 6880' PBTD: 5872' (CIBP w/ 50' cmt) GL: 3171' KB: +12'

Casing Record:

8-5/8" 24 & 32# set @ 3150' w/ 2000 sx; circ cmt to surface
5-1/2" 14 & 15.5# J-55 csg set @ 6420' w/450 sks cmt TOC @ 4260' by TS
4" 11.34# J-55 flush jt liner 5774-6877', cmt w/ 175 sx, circ 18 sx through TOL.

Existing Perforations:

CIBP @ 5922' w/ 50' cmt on top
Drinkard: 6436-6540'
EZ Drill Plug @ 6550
Abo: 6560-6652'

CONTACT INFORMATION:

Jamie Castagno	Production Engineer	Cell: 432-530-5194
Femi Esan	Geologist	Ph: 432-687-7731
Hector Cantu	D&C Engineer	Cell: 432-557-1464
Reinaldo Bruzual	D&C Superintendent	Cell: 432-741-9271
Phillip R Minchew	ALCR	Cell: 432-208-3677
Aaron Dobbs	Production Specialist	Cell: 505-631-9071

REGULATORY COMMENTS:

560 psi pressure test was good on 4/4/12 to verify TA status. See attached chart.

Prepared by: Jamie Castagno (10/11/12)

Reviewed by: Hector Cantu (10/25/12)

PRE-WORK:

1. Notify NMOCD 48 hours prior to RU.
2. Complete the rig move checklist.
3. Ensure location is in appropriate condition, anchors have been tested within the last 24 months, power line distance has been verified to determine if variance and RUMS are needed.
4. When NU anything over and open wellhead (EPA, etc) ensure the hole is covered to avoid anything downhole.
5. Review H2S calculations in H2S tab included.
6. Any equipment installed at the wellbore, including wellhead (Inside Diameter), is to be visually inspected by the WSM to insure no foreign debris or other restrictions are present.

PROCEDURE:

1. Check and record SICP on wellview (well is currently TA'd). Bleed well down or kill as needed. Notify Engineering if well has pressure influx.
2. MIRU pulling unit and surface equipment.
- **Caliper elevators and tubular EACH DAY prior to handling tubing/tools. Note in JSA when and what items are callipered within the task step that includes that work.**
3. ND WH. NU 5K BOP with blinds in bottom and 2-3/8" pipe rams in top. Test BOP against CIBP to 250/500 psi. Perform a 500 psi test for 30 minutes to verify integrity of casing above plugback cement. If casing pressure test is bad, continue to step 4; otherwise, skip to step 5.
4. **Caliper elevators and tubular EACH DAY prior to handling tubing/tools.** PU/RIH with 5-1/2" packer and set it @ ~25', test pipe rams to 250/500 psi. Release packer. Continue downhole above top of liner @ ~5770'. Pressure test to 500 psi and isolate leak (s) inside 5-1/2" and record on wellview report. POOH and LD packer.

Note: Records shown possible bad casing spot at 5922' inside 4" liner. CIBP @ 5922' with 50' cement cap (5872' – 5992').

Note: On 4/2005, the packer was sheared and dragged out of the hole. The remaining rubber was pushed down to 5930' while running CIBP on wireline. The "AD-1" tension packer is designed to drop down the cone, packing element and guide to the bottom sub when sheared. See attached packer information.

Note: During the wellwork on 2005, the well was killed with 13.5 ppg mud. Prepare to circulate kill mud if needed below CIBP.

5. **Caliper elevators and tubular EACH DAY prior to handling tubing/tools.** PU/RIH with 5-1/2" packer and set it @ ~ 25', test pipe rams to 250/500 psi. Release and LD packer. PU/RIH with 3-1/4" MT bit, 6 x 2-3/8" DC's on 2-3/8" L80 4.7# WS. RIH to expected top of cement @ ~ 5872'. PU power swivel. **Caliper elevators and swivel bail prior to handling swivel. Note in JSA when and what items are callipered within the task step that includes that work.** Drill out cement, CIBP @ 5922', possible rubber @ 5930' and C/O to EZ Drill plug @ 6550'. **DO NOT drill out plug @ 6550'.** Tag plug to verify depth and record on wellview.

6. Circulate hole clean. POOH and LD bit and DC's.

7. Plan to run Apollo casing inspection log. MIRU wireline, use full lubricator for pressure control. **Make a gauge ring run prior to running logging tools and perforating guns with plug assembly. The Gauge ring must be the same OD, or larger, than the logging tools.** Run casing inspection log from surface to 6550' (PBTD). RDMO wireline.

Note: Correlate to cased hole logs.

8. Send results of casing inspection log for evaluation. Discuss plan forward with Engineering.

9. If casing integrity is in good condition, continue to step 10; otherwise, skip to step A1 at the end of procedure.

10. PU/RIH with 4" treating packer 2-3/8" L80 4.7# WS hydrotesting to 6000 psi and set it @ ~ 6386' (50' above top perforations).

Note: treating packer depth might vary depending on casing inspection log. Consult with Engineering.

11. Load and pressure test casing to 500 psi for 30 minutes. If casing test fails, reset packer ~ 6246' (~ 100' above perforations). Retest casing to 500 psi for 30 minutes. If second pressure test fails, notify Engineering and discuss plan forward. Release packer, POOH and LD packer. If decision is made to TA well, skip to step A1 at the end of procedure.

12. MIRU wireline with full lubricator for pressure control. Make a gauge ring run prior to running logging tools and perforating guns with plug assembly. **The Gauge ring must be the same OD, or larger, than the gun assembly.** RIH with 2-1/2" perforating guns. Perforate the CLFK with 3 SPF, 120 degree phasing. RDMO wireline.

Proposed CLFK perforation: 6471'-6477', 6486'-6493', 6504'-6532', 6537'-6541'

Note: Correlate to cased hole logs.

13. PU/RIH with 4" treating packer 2-3/8" L80 4.7# WS and set it @ ~ 6386' (50' above top perforations) or different depth depending on casing test on step 11. Load and pressure test casing to 500 psi for 30 minutes.

14. MIRU acid contractor. RU choke manifold to flowback tank. Test lines and equipment to 6000 psi. Pressure up backside to 500 psi. Monitor casing pressure throughout acid job. Bleed off if casing pressure exceeds 500 psi. **Set pop-off valve to less than 5500 psi. Maximum surface pumping pressure of 5500 psi.**
15. Acidize perforations with 8000 gals NEFe 15% HCl dropping 4 stages of GRS to divert at 1-2 PPG. Flush tubing to bottom perforations. SI well for 2 hours allowing acid to spend. Record ISIP, 5, 10, & 15 minute SIP's.
16. Flow back well to relief pressure. Kill tubing if necessary. Report acid volumes and pressures on morning wellview report.
17. Release treating packer, POOH and LD treating packer. PU/RIH with notched collar and C/O any rock salt to PBSD (6550'). POOH/LD WS.
18. PU/RIH with new 4" AS-1X nickel-coated IPC injection packer (with pump-out plug rated for 1500#), with 1.78" 'F' stainless-steel profile nipple, on/off tool on 2-3/8" TK-15 IPC injection tubing, space out packer ~ 5' above where the treating packer depth was previously set. Set packer. Load tubing and pressure as needed to equalize pressure at on/off tool and avoid damaging seals. Release on/off, circulate well with packer fluid.
19. Perform preliminary test. Pressure test casing to 500 psi for 30 minutes.
20. ND BOP. NU WH. Pump out plug.
21. Conduct MIT. Pressure test casing to 500 psi and chart-record for 30 minutes.

Notify NMOCD of MIT with 4 hours in advance notice with rig on the well. Test for H-5.

22. RDMO. Clean location. Turn over well to operations (contacts on front page).

TEMPORARILY ABANDON ALTERNATIVE:

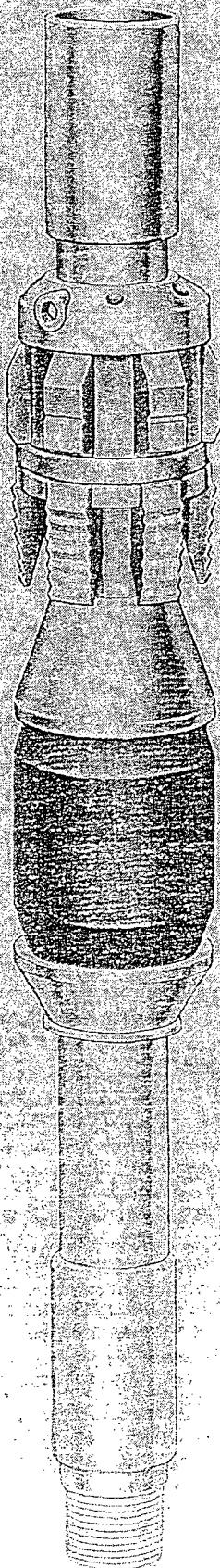
A1 - PU/RIH with 4" CIBP on tubing and set above perforations @ 6400'. Circulate mud out and condition hole with packer fluid. Monitor well for flow. POOH/LD WS.

A2 - MIRU wireline, use full lubricator for pressure control. **Make a gauge ring run prior to running logging tools and plug assembly. The Gauge ring must be the same OD, or larger, than the plug assembly and dump bail.** Dump bail ~ 20' of cement on top of CIBP. POOH. PU/RIH with 5-1/2" TS RBP and set inside the 5-1/2" above liner ~ 5700'. Test casing to 500 psi for 5 minutes. RDMO wireline.

A3 - Monitor well for flow. ND BOP. NU WH with 2" valve on top and pressure gauge.

A4 - RDMO pulling unit. Clean location. Ensure well information is up to date on wellview. See contacts on front page.

WATERFLOOD SYSTEMS



MODEL "AD-1" TENSION PACKER

Product No. 739-08

The "AD-1" Tension Packer is a compact, economical, retrievable packer. Primarily used in waterflood applications, this packer can also be used for production and/or treating operations. It is used where a set-down packer is impractical. Because the "AD-1" is tension set, it is ideally suited for shallow wells where set-down weight is not available.

FEATURES/BENEFITS

- Utilizes Baker's rugged rocker-type slips
- Bore through the packer mandrel is larger than drilt
- Simple, low-cost packer for fluid injection
- Three release methods insure retrievability
- Uses proven one-piece packing element

ACCESSORIES

Model "C-1" Tandem Tension Packer, (p. 698)
 Cup-Type Packer with Unloader, (p. 701)
 Unloading Subs, (p. 578)
 Flow Regulators, (p. 702)

MODEL "ADL-1" LARGE-BORE TENSION PACKER

Product No. 739-12

The "ADL-1" Tension Packer is a large-bore version of the Model "AD-1". The packer offers the same features and benefits as the Model "AD-1" and running and retrieving operations are the same.

TO SET PACKER:

Run packer to desired setting depth making the last movement downward. Rotate the tubing to the left one-quarter turn at the tool. Then pick up and pack off.

TO RETRIEVE PACKER:

Lower the tubing at least one foot (0.31 m) more than is needed to remove applied tension so that the I-pin will move fully to the top of the I-slot. Rotate the tubing to the right one-quarter turn at the packer so slips will now be in the running position.

Packer can be moved to a new position and reset or it can be retrieved.

TO SHEAR RELEASE PACKER:

As an alternate release method, the Tension Packer has shear rings designed to part at tensions varying from 13,000-100,000 lbs. (5,89-45,35 t). The cone, packing element and guide drop down and are carried out of hole by the bottom sub.

TO RELEASE IN EMERGENCY:

Left-hand square threads on the top sub of the packer allow the tubing to be retrieved when the packer will not otherwise release.

REQUIRED UPSTRAIN TO SET PACKER

Packer Size	Upstrain	
	Lbs.	Kgs.
41	2,000	907
43 & 45	5,000	2268
47	7,500	3402
49-55	15,000	6804

ORDERING EXAMPLE:

PRODUCT NO. 739-08
 SIZE: 45-47 (5-1/2" OD) 15,520 lbs./ft. casing
 MODEL "AD-1" TENSION PACKER w/2-3/8" O.D. E.U.
 8 Rd Box 1/4-55 4.7 lbs/ft tubing x 2-5/8" O.D.
 NU-10 Rd Pin 1/4-55 3.6 lbs/ft tubing

ORDERING EXAMPLE:

PRODUCT NO. 739-12
 SIZE: 45B x 2-9/16" (5-1/2" OD) 13-17 lbs/ft casing
 MODEL "ADL-1" LARGE-BORE TENSION PACKER w/3-1/2" O.D. E.U. 8 Rd Box Pin 1/4-55 9.3 lbs/ft tubing

L Rubber Liner Packer

The type L is a versatile liner packer which can be used in a number of different applications. It is most often placed at the top of a liner which is to be cemented. Setting the type L Packer after cementing allows the operator to reverse excess cement out of the hole without exerting pressure on formations below the top of the liner.

This rubber liner packer prevents gas migration through the cement as it is setting up — migration which can cause cement failure. The type L Packer is also useful in squeeze cementing of liners.

When running a patch liner to isolate a damaged section of casing, the type L Packer has given excellent performance. When the well is to be gravel-packed, the type L can also be used to set the screen or as an isolation packer.

The type L Packer is available with or without hold-down slips, with standard reinforced synthetic rubber packoff or with special high-temperature packoffs. TIW Gold Seal Packoffs are also available for this packer.

The type L Packer is run with a type L Setting Tool screwed into its barrel using a left-hand thread and floating nut. When setting the packer, the setting tool is released by right-hand rotation and pick-up, allowing the setting dogs to expand and catch the top sleeve of the packer. Then the setting tool is lowered, forcing the sleeve downward and expanding the packoff to set the packer. A ratchet ring in the sleeve holds the packoff in the expanded position.

When used to set a screen, the type L Packer (without hold-down slips) may be retrieved by running a spear to catch the inner barrel.

HLP Hydraulic-Set Liner Packer

The HLP Liner Packer features a high flow rate resistant packoff that will tolerate high flow rate clean-up before cementing, and then it can be easily set with hydraulic pressure to provide a dependable seal at the top of the liner. This seal protects against gas migration and provides a gas-tight seal for gas lift. The HLP Liner Packer is equipped with hold-down slips to prevent the liner from moving up hole.

- Dual piston setting — Allows for lower setting pressures
- Hydraulic set
- High flow rate packoff/maximum displacement rate
- Field adjustable setting pressure
- Easily adjustable setting feature at well site
- Can be run with liner hanger or as separate unit



HLP
Hydraulic-
Set Liner
Packer

L Rubber Liner Packer Specifications

LINER SIZE O.D.		CASING SIZE				MAXIMUM BODY O.D.	
		O.D.		WEIGHT RANGE			
In.	Mm.	In.	Mm.	Lb./Ft.	Kg./M.	In.	Mm.
1.900	48.3	2 1/2	63.5	6.4	9.5	2 1/2	63.5
1.900	48.3	3	76.2	9.2-10.2	13.7-15.2	2 1/2	63.5
2 1/2	63.5	4	101.6	9.5-11.5	14.1-17.3	3 1/4	70.4
2 1/2	63.5	4 1/2	114.3	9.5-13.5	14.1-20.1	3 1/4	70.4
2 1/2	63.5	4 1/2	114.3	11.6-18.6	17.3-24.7	3 1/4	70.4
2 1/2	63.5	4 1/2	114.3	9.5-18.0	14.1-26.0	3 1/4	70.4
2 1/2	63.5	5	127.0	13.0-18.0	19.3-26.0	4 1/4	101.6
3 1/2	88.9	5	127.0	11.5-13.0	17.1-19.3	4 1/4	101.6
3 1/2	88.9	5 1/2	141.3	13.0-18.0	19.3-26.0	4 1/4	101.6
3 1/2	88.9	5 1/2	141.3	14.0-20.0	20.8-29.8	4 1/4	101.6
3 1/2	88.9	6	152.4	15.0-23.0	22.3-34.2	5	127.0
4	101.6	5 1/2	141.3	14.0-17.0	20.8-25.3	4 1/4	101.6
4	101.6	5 1/2	141.3	17.0-20.0	25.3-29.8	4 1/4	101.6
4 1/2	114.3	6	152.4	17.0-22.5	25.3-33.5	4 1/4	101.6
4 1/2	114.3	6 1/2	165.1	17.0-23.0	25.3-34.2	5	127.0
4 1/2	114.3	6 1/2	165.1	19.0-24.0	28.3-35.7	5 1/4	138.1
4 1/2	114.3	7	177.8	20.0-26.0	29.8-38.7	5 1/4	138.1
4 1/2	114.3	7	177.8	26.0-32.0	38.7-47.6	5 1/4	138.1
5	127.0	6 1/2	165.1	19.0-24.0	28.3-35.7	5 1/4	138.1
5	127.0	7	177.8	17.0-24.0	25.3-35.7	6	152.4
5	127.0	7	177.8	20.0-26.0	29.8-38.7	6 1/4	162.7
5	127.0	7 1/2	193.7	25.0-32.0	38.7-47.6	6 1/4	162.7
5 1/2	141.3	7 1/2	193.7	32.0-38.0	47.6-55.6	6 1/4	162.7
5 1/2	141.3	7 1/2	193.7	20.0-26.0	29.8-38.7	6 1/4	162.7
5 1/2	141.3	7 1/2	193.7	26.0-33.0	39.3-50.2	6 1/4	162.7
5 1/2	141.3	8	203.2	17.0-25.0	25.3-35.7	6 1/4	162.7
5 1/2	141.3	8	203.2	20.0-26.0	29.8-38.7	6 1/4	162.7
5 1/2	141.3	8	203.2	26.0-33.0	39.3-50.2	6 1/4	162.7
5 1/2	141.3	8 1/2	215.9	24.0-32.0	35.7-47.6	7 1/4	182.9
5 1/2	141.3	8 1/2	215.9	32.0-40.0	47.6-55.6	7 1/4	182.9
6	152.4	9	228.6	29.0-40.0	43.6-59.5	8 1/4	210.0
6	152.4	9 1/2	241.3	43.5-53.5	64.7-79.6	8 1/4	210.0
6 1/2	165.1	8 1/2	215.9	24.0-32.0	35.7-47.6	7 1/4	182.9
6 1/2	165.1	8 1/2	215.9	32.0-40.0	47.6-55.6	7 1/4	182.9
6 1/2	165.1	9	228.6	29.0-40.0	43.6-59.5	8 1/4	210.0
6 1/2	165.1	9 1/2	241.3	43.5-53.5	64.7-79.6	8 1/4	210.0
7	177.8	9 1/2	241.3	29.0-40.0	43.6-59.5	8 1/4	210.0
7	177.8	9 1/2	241.3	40.0-50.0	59.5-69.9	9 1/4	238.1
7 1/2	193.7	10 1/2	266.7	32.0-45.0	48.7-67.7	9 1/4	238.1
7 1/2	193.7	10 1/2	266.7	45.0-55.0	67.7-82.6	9 1/4	238.1
7 1/2	193.7	10 1/2	266.7	32.0-40.0	47.6-55.6	8 1/4	210.0
7 1/2	193.7	10 1/2	266.7	49.0-57.0	71.4-89.3	10 1/4	266.7
8 1/2	215.9	11 1/2	291.5	32.0-45.0	48.7-67.7	9 1/4	238.1
8 1/2	215.9	11 1/2	291.5	45.0-55.0	67.7-82.6	9 1/4	238.1
8 1/2	215.9	11 1/2	291.5	55.0-65.0	82.6-97.5	10 1/4	266.7
9 1/2	241.3	12 1/2	317.5	40.0-51.0	59.5-74.5	11 1/4	291.5
9 1/2	241.3	12 1/2	317.5	51.0-72.0	74.5-107.1	11 1/4	291.5
10 1/2	266.7	13 1/2	342.9	62.0-85.0	90.7-125.5	12 1/4	315.1
10 1/2	266.7	13 1/2	342.9	74.0-91.0	107.1-132.5	12 1/4	315.1
10 1/2	266.7	13 1/2	342.9	61.0-69.0	90.7-101.6	11 1/4	291.5



L Rubber
Liner Packer
with
Hold-Down
Slips



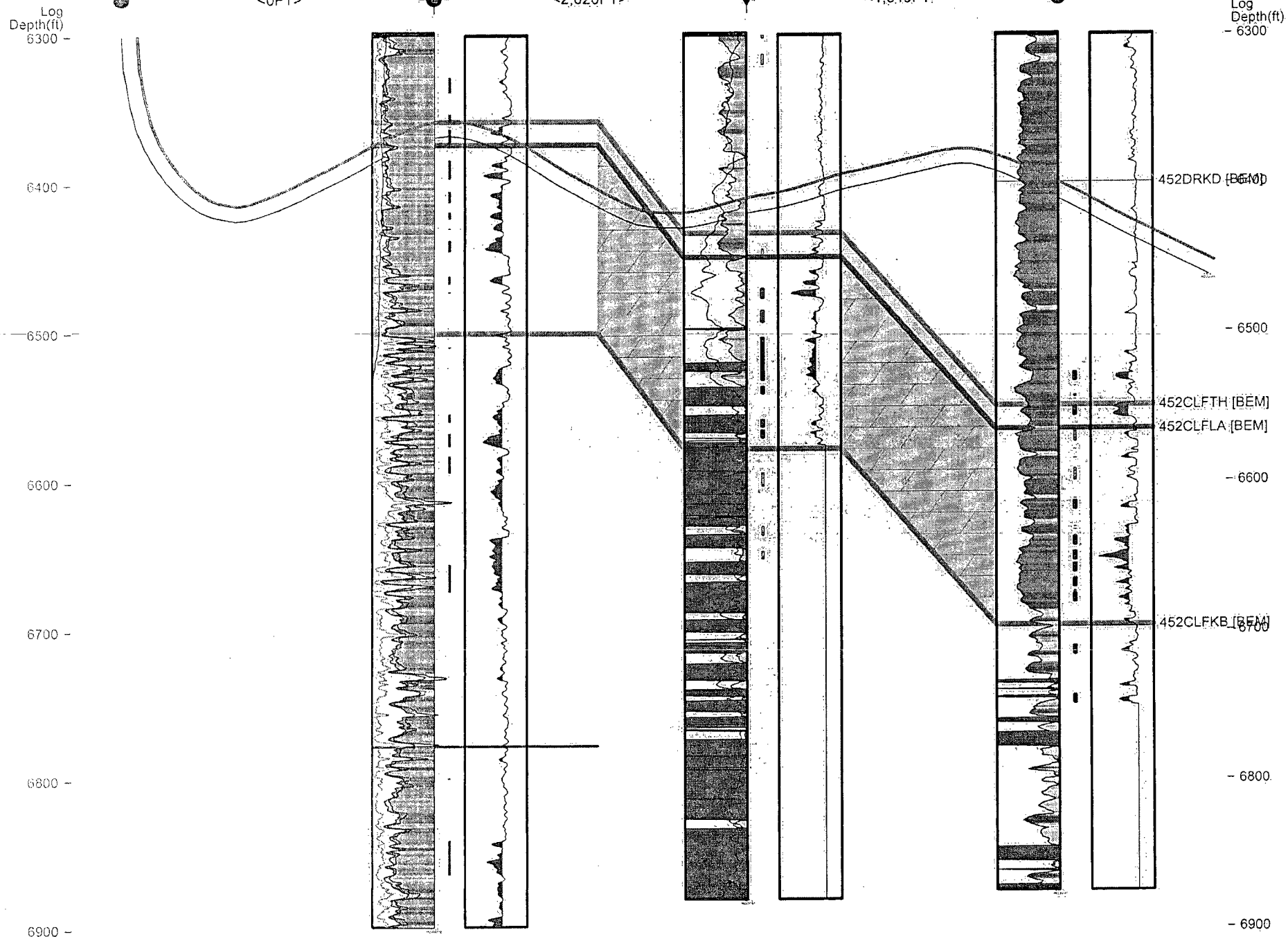
L Rubber
Liner Packer

PROIL
WDDU-118

PILOT
WDDU-118

TAWINJ
WDDU-84

PROIL
WDDU-87



H₂S Radius of Exposure Calculations

Expected H₂S ROE that could be encountered while working on a well

Example: 100 PPM ROE = $0.001589 \times 250 \text{ PPM} \times 275 \text{ MCF}^{0.6258} = 19 \text{ FEET}$

Example: 500 PPM ROE = $0.0004546 \times 250 \text{ PPM} \times 275 \text{ MCF}^{0.6258} = 9 \text{ FEET}$

Well:

WDDU 84 Inj Reactivation

Enter H₂S Concentration:

1,000 PPM

0.1 % H₂S

Enter Max. Escape Volume:

5 MCF/D

5,000 CF/D

100 PPM Radius of Exposure:

4

Feet (only for H₂S concentrations less than 10%)

500 PPM Radius of Exposure:

2

Feet (only for H₂S concentrations less than 10%)

H₂S in lbs/day:

0

lb/day

H₂S in lbs/hr:

0.0

lb/hr

SO₂ in lbs/hr:

0.0

lb./hr

SO₂ in 2000-lb tons/day:

0.00

tons/day

SO₂ in 2000-lb tons/yr:

0

tons/yr

These radius of exposures are possible only if the well bore is evacuated of fluid and there is an uncontrolled release of gas at the surface.