GEOLOGIC TOPS:

QUATERNARY	Star Point	Chinle 7352'	Molas
Alluvium	Wahweap	Shinarump 7464'	Manning Canyon
Lake beds	Masuk	Moenkopi 7643'	Mississippian
Pleistocene	Colorado	Sinbad	Humbug
Lake beds	Sego	PERMIAN	Brazer
TERTIARY	Buck Tongue	Kaibab	Pilot Shale
Pliocene	Castlegate	Coconino	Madison
Salt Lake	Mancos	Cutler	Leadville
Oligocene	Upper	Hoskinnini	Redwall
Norwood	Middle	DeChelly	DEVONIAN
Eocene	Lower	White Rim	Upper
Duchesne River	Emery	Organ Rock	Middle
Uinta	Blue Gate	Cedar Mesa	Lower
Bridger	Ferron 2450'	Halgaite Tongue	Ouray
Green River	Frontier	Phosphoria	Elbert
	Dakota 3280'	Park City	McCracken
	Burro Canyon	Rico (Goodridge)	Aneth
	Cedar Mountain 3374'	Supai	Simonson Dolomite
	Buckhorn	Wolfcamp	Sevy Dolomite
	JURASSIC	CARBONIFEROUS	North Point
Wasatch	Morrison 4054'	Pennsylvanian	SILURIAN
Stone Cabin	Salt Wash 3880'	Oquirrh	Laketown Dolomite
Colton	San Rafeal Gr.	Weber	ORDOVICIAN
Flagstaff	Summerville 4228'	Morgan	Eureka Quartzite
North Horn	Bluff Sandstone	Hermosa	Pogonip Limestone
Almy	Curtis 4650'		CAMBRIAN
Paleocene	Entrada 4851'	Pardox	Lynch
Current Creek	Moab Tongue	Ismay	Bowman
North Horn	Carmel 5594'	Desert Creek	Tapeats
CRETACEOUS	Glen Canyon Gr.	Akah	Ophir
Montana	Navajo 6406'	Barker Creek	Tintic
Mesaverde	Kayenta 6904'		PRE - CAMBRIAN
Price River	Wingate 7028'	Cane Creek	
Blackhawk	TRIASSIC		

UTAH OIL AND GAS CONSERVATION COMMISSION

REMARKS: WELL LOG ____ ELECTRIC LOGS ✓ X WATER SANDS ____ LOCATION INSPECTED ____ SUB. REPORT/abd ____

DATE FILED: OCTOBER 19, 1995

LAND: FEE & PATENTED FEE STATE LEASE NO. PUBLIC LEASE NO. INDIAN

DRILLING APPROVED: NOVEMBER 1, 1995

SPUDDED IN: December 8, 1995

COMPLETED: February 21, 1996 PUT TO PRODUCING: WDW Commenced 06-08-96

INITIAL PRODUCTION:

GRAVITY A.P.I.

GOR:

PRODUCING ZONES:

TOTAL DEPTH: 7760'

WELL ELEVATION: 5988' GR

DATE ABANDONED:

FIELD: UNDESIGNATED

UNIT: N/A

COUNTY: EMERY

WELL NO. SWD-1 API NO. 43-015-30272

LOCATION 2095 FNL FT. FROM (N) (S) LINE. 310 FWL FT. FROM (E) (W) LINE. SW NW 1/4 — 1/4 SEC. 24

TWP.	RGE.	SEC.	OPERATOR	TWP.	RGE.	SEC.	OPERATOR
18S	7E	24	TEXACO E&P, INC				

CERTIFICATE OF ANALYSIS

STANDARD LABORATORIES, INC.
P.O. Box 1140, Huntington, Utah 84528 801-653-2314

Lab. No. W-1847

FOR Utah Power & Light Co.
Mining & Exploration
Field Office

Date Rec. 05/26/81

Date Sampled 05/26/81 ?

Sample ID SR-2 400 min pump Test

pH	7.4 Units	Arsenic	mg/l
Alkalinity, Total	mg/l $CaCo_3$	Beryllium	mg/l
Alkalinity, Bicarbonate	233.1 mg/l $CaCo_3$	Boron	0.143 mg/l
Calcium	82.0 mg/l	Cadmium	mg/l
Chloride	9.0 mg/l	Chromium	mg/l
Conductivity	860 µmhos/cm	Copper	mg/l
Dissolved Oxygen	mg/l	Iron	2.15 mg/l
Hardness	521.8 mg/l $CaCo_3$	Lead	mg/l
Magnesium	76.00 mg/l	Manganese (diss.)	0.07 mg/l
Nitrogen, Nitrate	< 0.002 mg/l	Mercury	µg/l
Phosphorus, Total	mg/l	Nickel	mg/l
Phosphorus, Ortho	< 0.002 mg/l	Selenium	< 0.002 mg/l
Potassium	26.0 mg/l	Zinc	mg/l
Sodium	52.0 mg/l	Barium (diss.)	0.94 mg/l
Solids, Total Dissolved	524.0 mg/l	Strontium	0.26 mg/l
Solids, Total Suspended	6.5 mg/l	Iron (diss.)	1.90 mg/l
Sulfate	329.2 mg/l		
Flouride	0.93 mg/l		
Bicarb. Alk.	284.4 mg/l HCO_3		

Respectfully submitted

Certified Environmental Laboratory

CERTIFICATE OF ANALYSIS

STANDARD LABORATORIES, INC.
P.O. Box 1140, Huntington, Utah 84528 801-653-2314

FOR Utah Power & Light Co.
Mining & Exploration
Field Office

Lab. No. W-1848

Date Rec. 05/26/81

Date Sampled 05/26/81

Sample ID SR-2 1000 min Pump Test

pH	7.4 Units	Arsenic	____ mg/l
Alkalinity, Total	____ mg/l $CaCO_3$	Beryllium	____ mg/l
Alkalinity, Bicarbonate	232.1 mg/l $CaCO_3$	Boron	0.151 mg/l
Calcium	86.0 mg/l	Cadmium	____ mg/l
Chloride	9.1 mg/l	Chromium	____ mg/l
Conductivity	900 umhos/cm	Copper	____ mg/l
Dissolved Oxygen	____ mg/l	Iron	1.26 mg/l
Hardness	526.1 mg/l $CaCO_3$	Lead	____ mg/l
Magnesium	75.0 mg/l	Manganese (diss.)	0.09 mg/l
Nitrogen, Nitrate	< 0.002 mg/l	Mercury	____ µg/l
Phosphorus, Total	____ mg/l	Nickel	____ mg/l
Phosphorus, Ortho	< 0.002 mg/l	Selenium	< 0.002 mg/l
Potassium	27.0 mg/l	Zinc	____ mg/l
Sodium	56.0 mg/l	Barium (diss.)	0.92 mg/l
Solids, Total Dissolved	562.0 mg/l	Strontium	0.21 mg/l
Solids, Total Suspended	1.5 mg/l	Iron (diss.)	1.16 mg/l
Sulfate	370.4 mg/l		
Flouride	0.93 mg/l		
Bicarb. Alk.	283.2 mg/l HCO_3		

Respectfully submitted

Certified Environmental Laboratory

CERTIFICATE OF ANALYSIS

STANDARD LABORATORIES, INC.
P.O. Box 1140, Huntington, Utah 84528 801-653-2314

Lab. No. W-1855

FOR Utah Power & Light Co.
Mining & Exploration
Field Office

Date Rec. 05/27/81

Date Sampled 05/26/81

Sample ID SR-1 End of Pump Test

pH	7.4 Units	Arsenic	____ mg/l
Alkalinity, Total	____ mg/l $CaCo_3$	Beryllium	____ mg/l
Alkalinity, Bicarbonate	245.7 mg/l $CaCo_3$	Boron	0.188 mg/l
Calcium	53.0 mg/l	Cadmium	____ mg/l
Chloride	13.1 mg/l	Chromium	____ mg/l
Conductivity	510 umhos/cm	Copper	____ mg/l
Dissolved Oxygen	____ mg/l	Iron	0.03 mg/l
Hardness	298.3 mg/l $CaCo_3$	Lead	____ mg/l
Magnesium	40.0 mg/l	Manganese (diss.)	0.05 mg/l
Nitrogen, Nitrate	0.003 mg/l	Mercury	____ µg/l
Phosphorus, Total	____ mg/l	Nickel	____ mg/l
Phosphorus, Ortho	< 0.002 mg/l	Selenium	< 0.002 mg/l
Potassium	15.0 mg/l	Zinc	____ mg/l
Sodium	39.0 mg/l	Barium (diss.)	0.21 mg/l
Solids, Total Dissolved	310.0 mg/l	Strontium	1.03 mg/l
Solids, Total Suspended	3.0 mg/l	Iron (diss.)	0.02 mg/l
Sulfate	123.5 mg/l		
Flouride	0.94 mg/l		
Bicarb. Alk.	299.8 mg/l HCO_3		

Respectfully submitted [signature]

Certified Environmental Laboratory

CERTIFICATE OF ANALYSIS

STANDARD LABORATORIES, INC.
P.O. Box 1140, Huntington, Utah 84528 801-653-2314

FOR Utah Power & Light Co.
Mining & Exploration
Field Office

Lab. No. W-1854

Date Rec. 05/27/81

Date Sampled 05/26/81

Sample ID SR-1 60 min Pump Test

pH	7.4 Units	Arsenic	mg/l
Alkalinity, Total	mg/l $CaCo_3$	Beryllium	mg/l
Alkalinity, Bicarbonate	251.0 mg/l $CaCo_3$	Boron	0.143 mg/l
Calcium	62.0 mg/l	Cadmium	mg/l
Chloride	12.0 mg/l	Chromium	mg/l
Conductivity	720 µmhos/cm	Copper	mg/l
Dissolved Oxygen	mg/l	Iron	0.94 mg/l
Hardness	334.3 mg/l $CaCo_3$	Lead	mg/l
Magnesium	43.0 mg/l	Manganese (diss.)	0.05 mg/l
Nitrogen, Nitrate	0.003 mg/l	Mercury	µg/l
Phosphorus, Total	~~0.002~~ mg/l	Nickel	mg/l
Phosphorus, Ortho	< 0.002 mg/l	Selenium	< 0.002 mg/l
Potassium	31.0 mg/l	Zinc	mg/l
Sodium	49.0 mg/l	Barium (diss.)	0.36 mg/l
Solids, Total Dissolved	400.0 mg/l	Strontium	0.62 mg/l
Solids, Total Suspended	1.1 mg/l	Iron (diss.)	0.92 mg/l
Sulfate	148.1 mg/l		
Flouride	0.96 mg/l		
Bicarb. Alk.	306.2 Mg/l HCO_3		

Respectfully submitted

Certified Environmental Laboratory

Texaco Exploration and Production Inc.
3300 N Butler
Farmington, NM 87401

Oct. 17, 1995

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: **Application for Permit to Drill (APD)**
SWD No. 1, Surf Loc: 2095' FNL, 310' FWL, Unit E
Sec. 24-T18S-R7E
Emery County, Utah

Gentlemen:

Texaco Exploration and Production Inc. seeks approval to drill a Water Disposal well to the Navajo formation. Texaco requests confidential status of this well and all information pertaining to it.

Your attention to this matter is greatly appreciated. If you have any questions concerning this matter please contact me at 505-325-4397, ext. 20.

Sincerely,

Rachael Heindel for TAT

Ted A. Tipton
Operating Unit Manager
RSD/s, Attachments

Form 3

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

RECEIVED
OCT 19 1995
DIV. OF OIL, GAS & MINING

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. Type of Work DRILL ☒ DEEPEN ☐

1b. Type of Well
OIL WELL ☐ GAS WELL ☐ OTHER DISPOSAL WELL
SINGLE ZONE ☒ MULTIPLE ZONE ☐

2. Name of Operator
TEXACO EXPLORATION & PRODUCTION, INC.

3. Address and Telephone No.
3300 N. Butler Ave., Suite 100 Farmington NM 87401 325-4397

4. Location of Well (Report location clearly and in accordance with any State requirements.*)
At Surface
Unit Letter E : 2095 Feet From The NORTH Line and 310 Feet From The WEST Line
At proposed prod. zone
SW¼ NW¼

5. Lease Designation and Serial No.

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

8. Well Name and Number
FEE
SWD-1

9. API Well No.
43015-30277

10. Field and Pool, Exploratory Area
WILDCAT

11. SEC., T., R., M., or BLK. and Survey or Area
Sec. 24, Township T18S, Range R7E

14. Distance In Miles and Direction from Nearest Town or Post Office*
2.5 MI. - ORANGEVILLE, UTAH

12. County or Parish
EMERY

13. State
UT

15. Distance From Proposed* Location to Nearest Property or Lease Line, Ft. (also to nearest drlg. unit line, if any)
310'

16. No. of Acres in Lease

17. No. of Acres Assigned To This Well

18. Distance From Proposed Location* to Nearest Well, Drilling, Completed or Applied For, On This Lease, Ft.

19. Proposed Depth
7295'

20. Rotary or Cable Tools
ROTARY

21. Elevations (Show whether DF,RT, GR, etc.)
KB DF 5988 GR

22. Approx. Date Work Will Start*
11/1/95

23. PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
	*** PLEASE SEE ATTACHED DRILLING PROGRAM ***			

Describe Proposed Program: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured true verticle depths. Give blowout preventer program, if any.

TEXACO EXPLORATION & PRODUCTION, INC. PROPOSES TO DRILL A WATER DISPOSAL WELL TO A DEPTH OF 7295'. IF THE WELL IS INCAPABLE OF WATER DISPOSAL, IT WILL BE PLUGGED AND ABANDONED AS PER STATE OF UTAH REQUIREMENTS.

PLEASE BE ADVISED THAT TEXACO EXPLORATION & PRODUCTION, INC. HAS BEEN AUTHORIZED BY PROPER LEASE INTEREST OWNERS TO CONDUCT OPERATIONS ON THE ABOVE MENTIONED LOCATION. TEXACO EXPLORATION & PRODUCTION, INC. AGREES TO BE RESPONSIBLE UNDER THE TERMS AND CONDITIONS OF THE LEASE FOR OPERATIONS CONDUCTED UPON THE LEASE LANDS.

BOND COVERAGE FOR THIS WELL IS PROVIDED BY BOND NO. CO-0058 (NATIONWIDE BOND). THE PRINCIPAL IS TEXACO EXPLORATION & PRODUCTION, INC. VIA SURETY CONSENT AS PROVIDED FOR IN 43 CFR-3104.2.

CONFIDENTIAL-TIGHT HOLE

24. (This space for State use only)

SIGNATURE Rocked Hinds for TAT TITLE Operating Unit Manager DATE 10/17/95

TYPE OR PRINT NAME Ted A. Tipton

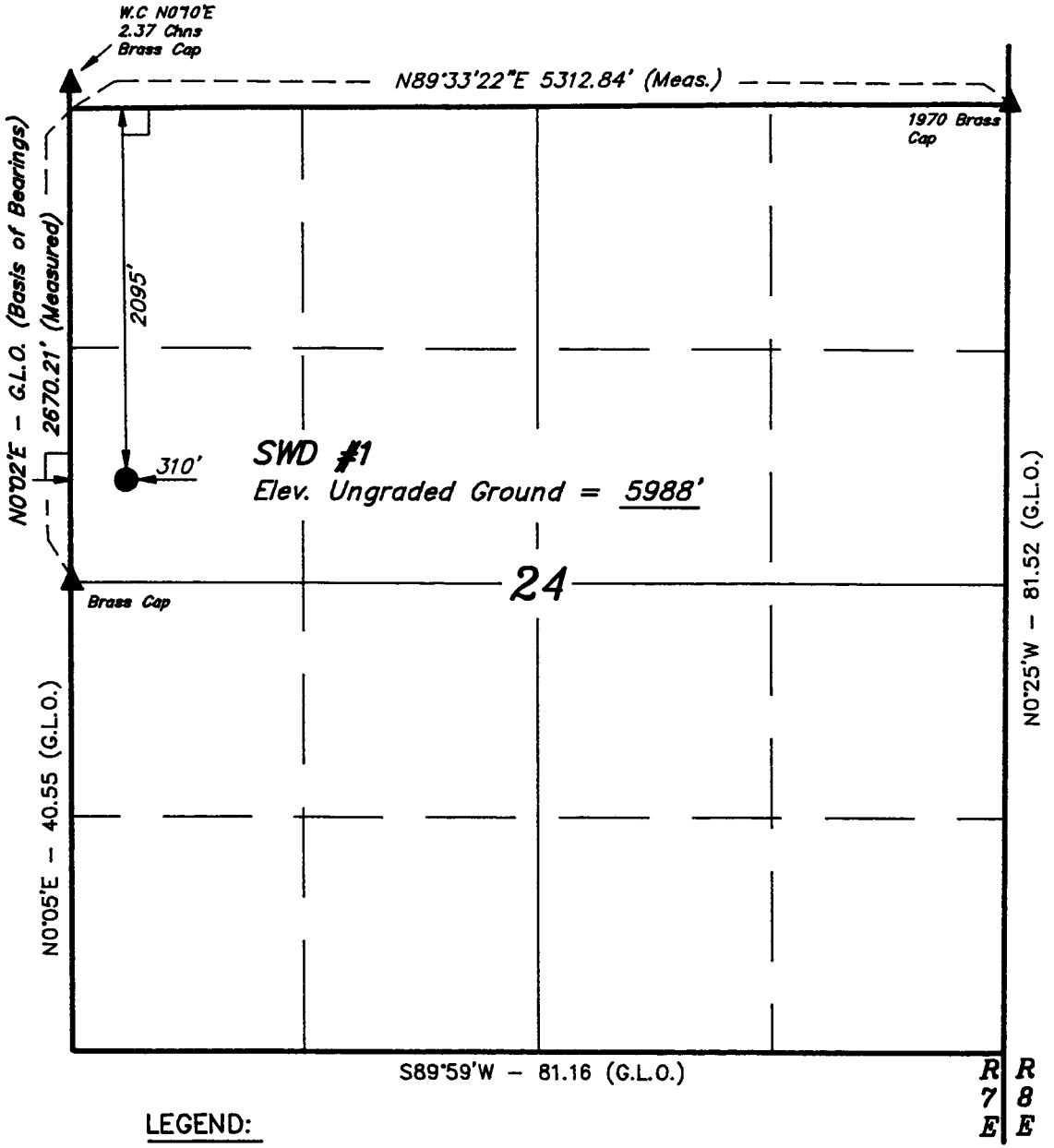
API Number Assigned 43-015-30277 APPROVAL

APPROVED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING
DATE: 11/1/95
BY: John Matthews

TEXACO EXPLR. & PROD., INC.

Well location, SWD #1, located as shown in the SW 1/4 NW 1/4 of Section 24, T18S, R7E, S.L.B.&M. Emery County, Utah.

T18S, R7E, S.L.B.&M.



LEGEND:

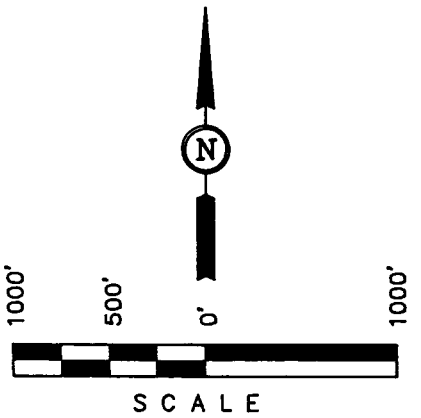
└ = 90° SYMBOL

● = PROPOSED WELL HEAD.

▲ = SECTION CORNERS LOCATED.

BASIS OF ELEVATION

SPOT ELEVATION LOCATED IN THE NW 1/4 OF SECTION 24, T18S, R7E, S.L.B.&M. TAKEN FROM THE CASTLE DALE QUADRANGLE, UTAH, EMERY COUNTY, 7.5 MINUTE QUAD. (TOPOGRAPHIC MAP) PUBLISHED BY THE UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY. SAID ELEVATION IS MARKED AS BEING 6024 FEET.



CERTIFICATE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED LAND SURVEYOR
REGISTRATION NO. 161319
STATE OF UTAH

STATE OF UTAH

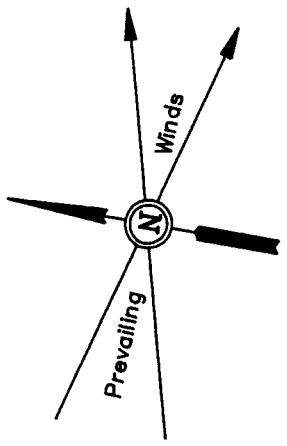
UINTAH ENGINEERING & LAND SURVEYING
85 SOUTH 200 EAST - VERNAL, UTAH 84078
(801) 789-1017

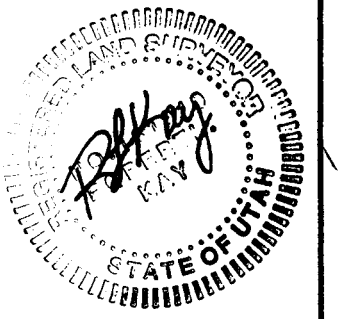
SCALE: 1" = 1000'	DATE SURVEYED: 10-6-95	DATE DRAWN: 10-7-95
PARTY: L.D.T. N.H. D.J.S.	REFERENCES: G.L.O. PLAT	
WEATHER: COOL	FILE: TEXACO EXPLR. & PROD., INC.	

TEXACO EXPLR. & PROD., INC.

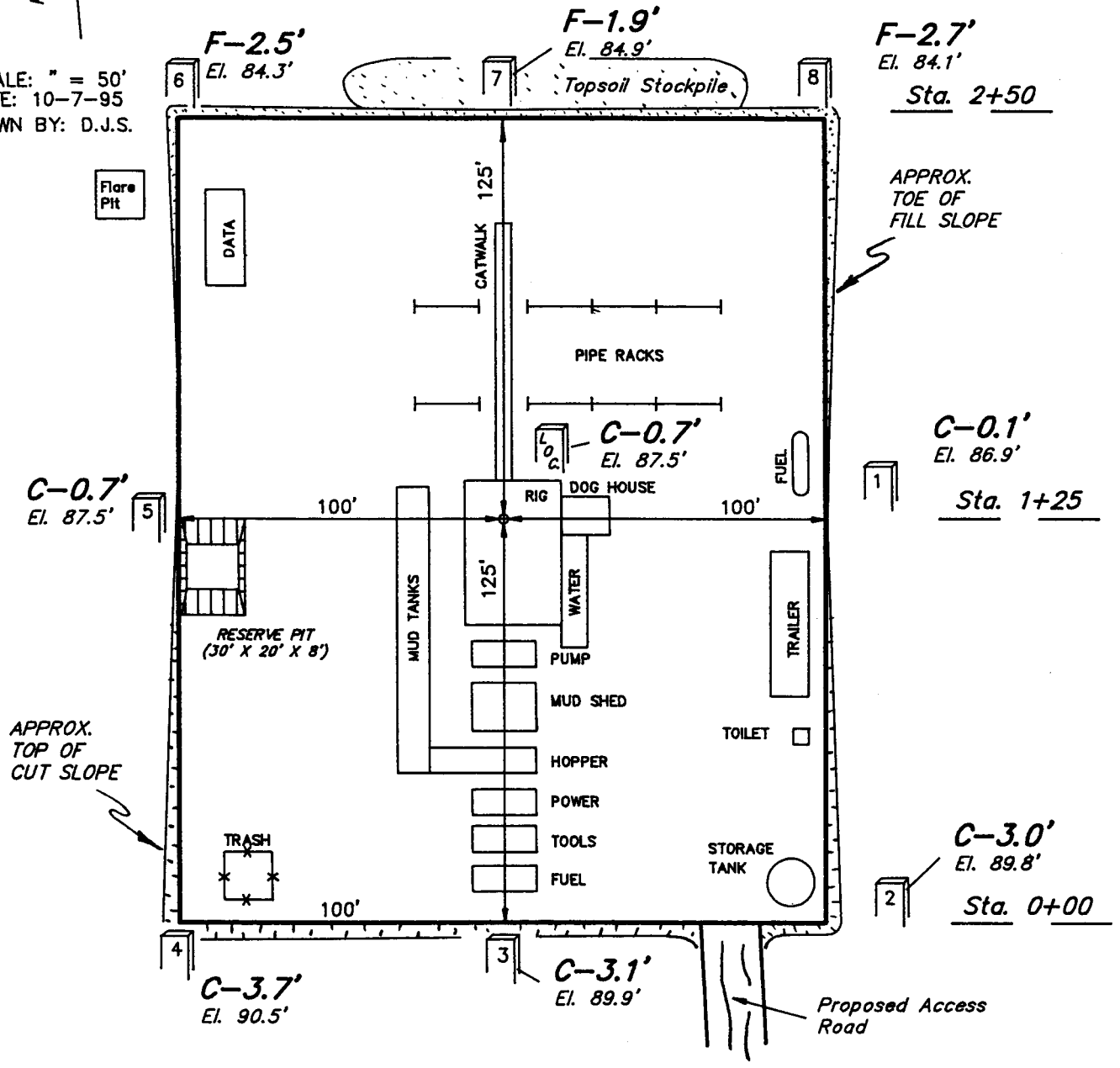
LOCATION LAYOUT FOR

SWD #1
SECTION 24, T18S, R7E, S.L.B.&M.
2095' FNL 310' FWL





SCALE: " = 50'
DATE: 10-7-95
DRAWN BY: D.J.S.



Elev. Ungraded Ground at Location Stake = 5987.5'
Elev. Graded Ground at Location Stake = 5986.8'

UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah (801) 789-1017

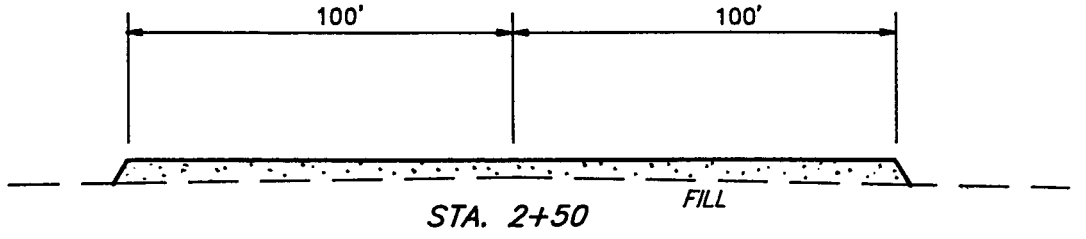
TEXACO EXPLR. & PROD., INC.

TYPICAL CROSS SECTIONS FOR

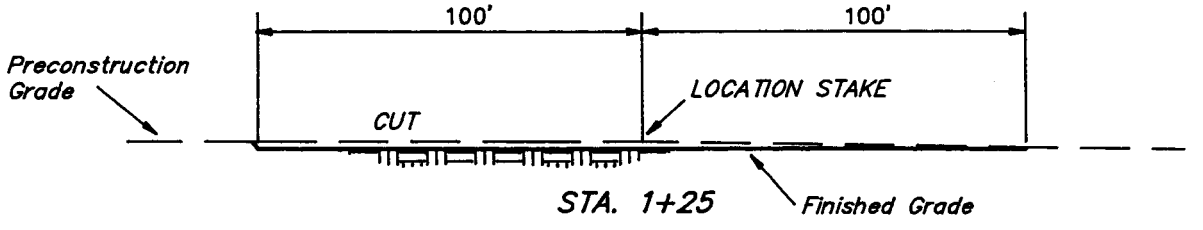
SWD #1
SECTION 24, T18S, R7E, S.L.B.&M.
2095' FNL 310' FWL

1" = 20'
X-Section Scale
1" = 50'
DATE: 10-7-95
DRAWN BY: D.J.S.

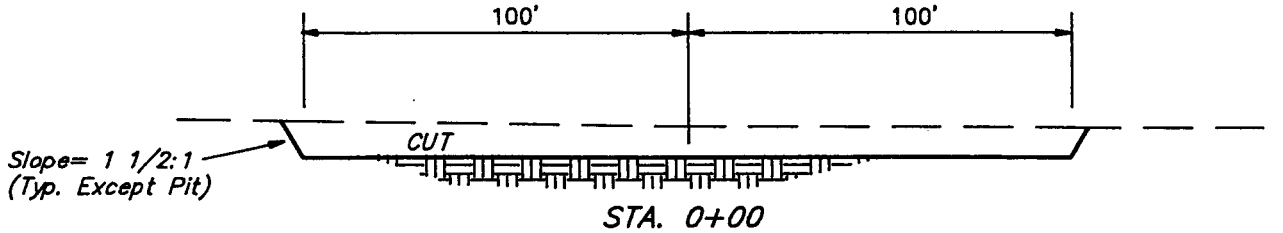
REGISTERED LAND SURVEYOR
NO. 161319
STATE OF UTAH



STA. 2+50



STA. 1+25



STA. 0+00

APPROXIMATE YARDAGES

CUT
(6") Topsoil Stripping = 930 Cu. Yds.
Remaining Location = 1,330 Cu. Yds.
TOTAL CUT = 2,260 CU.YDS.
FILL = 1,260 CU.YDS.

EXCESS MATERIAL AFTER 5% COMPACTION = 930 Cu. Yds.
Topsoil & Pit Backfill = 930 Cu. Yds.
EXCESS UNBALANCE (After Rehabilitation) = 0 Cu. Yds.

UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah (801) 789-1017

DRILLING PROGRAM

OPERATOR: TEXACO EXPLORATION & PRODUCTION, INC.
WELL NAME: SWD #1
LEASE NUMBER:
LOCATION: 2095' FNL - 310' FWL, SECTION 24, T18S/R7E SLPM, EMERY CO., UTAH

1. ESTIMATED TOPS OF GEOLOGIC MARKERS

THE ESTIMATED TOPS OF IMPORTANT GEOLOGIC MARKERS ARE AS FOLLOWS:

FORMATION	DEPTH	SUBSEA
EMERY SAND	200'	+5800
BLUEGATE SHALE	500'	+5550
FERRON FM	2220'	+3780
TUNUNK SHALE	2475'	+3525
DAKOTA FM	2965'	+3035
CEDAR MTN	3125'	+2875
BUCKHORN	3675'	+2325
MORRISON	3810'	+2190
SUMMERVILLE	4000'	+2000
CURTIS	4485'	+1515
ENTRADA	4690'	+1310
CARMEL	5450'	+550
NAVAJO	6295'	-295
T.D.	7295'	-1295

2. ESTIMATED DEPTHS OF ANTICIPATED OIL, GAS, WATER, OR OTHER MINERAL BEARING ZONES

SUBSTANCE	FORMATION	DEPTH
WATER, GAS	FERRON COALS	2220'
GAS	FERRON SANDSTONES	2220'
OIL	N/A	
OTHER MINERALS	N/A	

ALL FRESH WATER AND PROSPECTIVELY VALUABLE MINERALS ENCOUNTERED DURING DRILLING, WILL BE RECORDED BY DEPTH AND ADEQUATELY PROTECTED. ALL OIL AND GAS SHOWS WILL BE TESTED TO DETERMINE COMMERCIAL POTENTIAL.

ALL WATER SHOWS AND WATER-BEARING SANDS WILL BE REPORTED TO THE STATE OF UTAH, ON FORM OGC-8-X

3. CASING PROGRAM

THE PROPOSED CASING PROGRAM WILL BE AS FOLLOWS:

PURPOSE	DEPTH	HOLE SIZE	O.D.	WEIGHT	GRADE
SURFACE	0-300'	17-1/2"	13-3/8"	54.5#	K-55
INTERMED.	0-2500'	12-1/4"	9-5/8"	36#	K-55
PRODUC.	0-7295'	8-3/4"	7"	26#	K-55

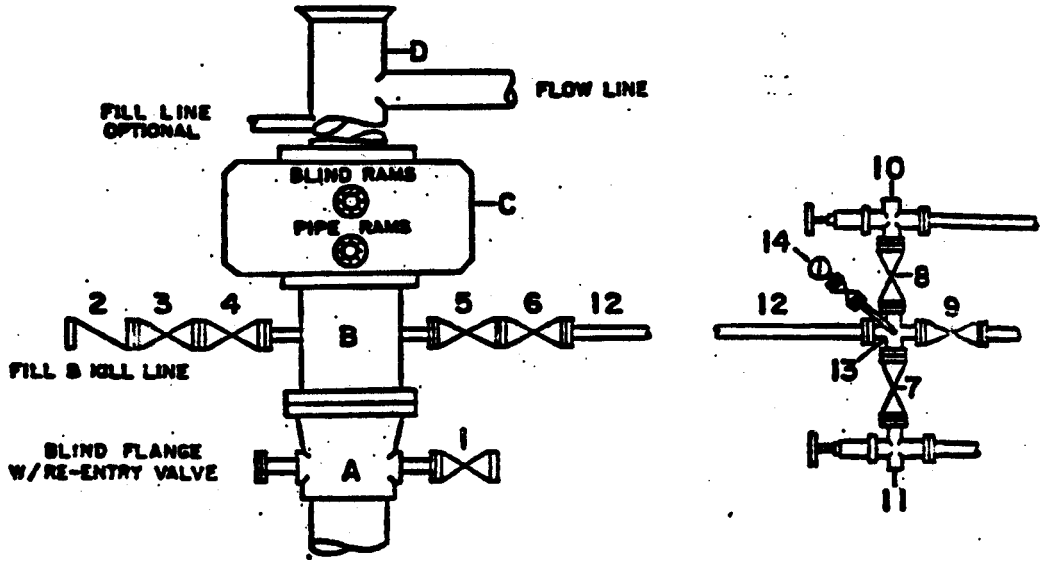
4. CEMENT PROGRAM

THE CEMENT PROGRAM WILL BE AS FOLLOWS:

SURFACE	TYPE AND AMOUNT
0-300'	CEMENT TO SURFACE WITH 400 SX CLASS "G" CEMENT.

DRILLING CONTROL

CONDITION II-3000 PSI WP



DRILLING CONTROL

MATERIAL LIST - CONDITION II

A	Texaco Wellhead
B	3000# W.P. drilling spool with a 2" minimum flanged outlet for kill-line and 3" minimum flanged outlet for choke line
C	3000# W.P. Dual ram type preventer, hydraulic operated with 1" steel. 3000# W.P. control lines (where sub-structure height is adequate, 2-3000# W.P. single ram type preventers may be utilized.)
D	Bell nipple with flowline and fill-up outlets. (Kill line may also be used for fill-up line.)
1,3,4, 7,8	2" minimum 3000# W.P. flanged full opening steel gate valve, or Halliburton Lo Torc Plug valve.
2	2" minimum 3000# W.P. back pressure valve
5,6,9	3" minimum 3000# W.P. flanged full opening steel gate valve, or Halliburton Lo Torc Plug valve.
12	3" minimum schedule 80, Grade "B", seamless line pipe
13	2" minimum x 3" minimum 3000# W.P. flanged cross
10, 11	2" minimum 3000# W.P. adjustable choke bodies
14	Cameron Mud Gauge or equivalent (location optional in choke line.)

TEXACO, INC.
MIDLAND DIVISION
MIDLAND, TEXAS

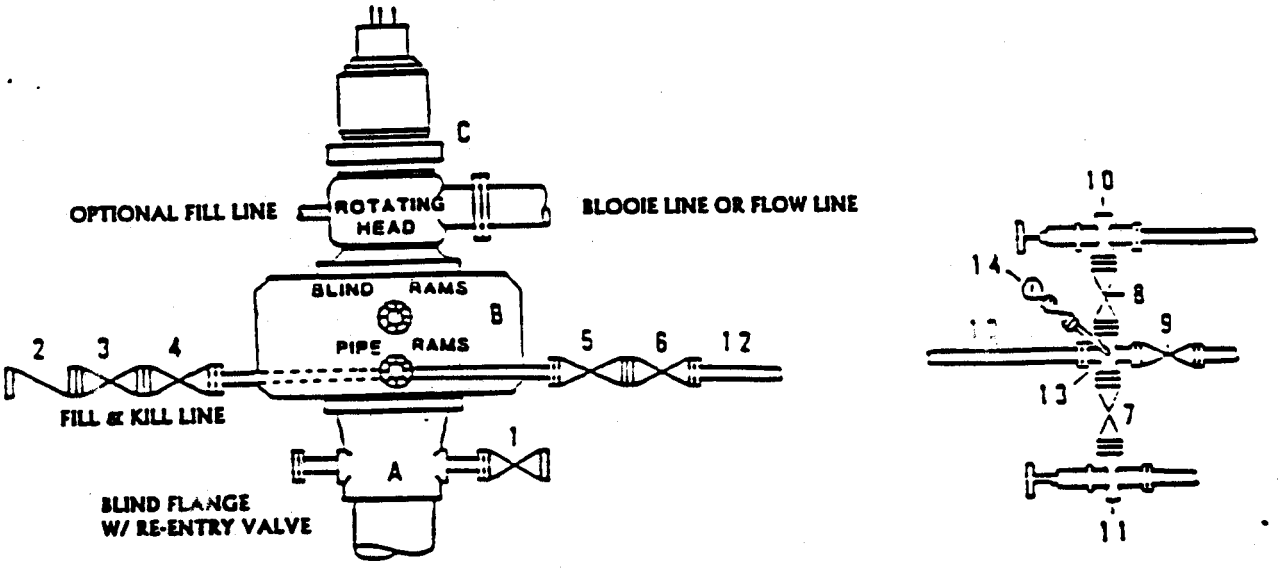
SCALE	DATE		
DRAWN BY			
CHECKED BY			

EXHIBIT B

TEXACO EXPLORATION & PRODUCTION, INC.

Texaco

TYPICAL 2000 p.s.i.
BLOWOUT PREVENTER SCHEMATIC
FOR AIR DRILLING



DRILLING CONTROL

MATERIAL LIST*

A	Texaco Wellhead.
B	2000# W.P. Dual ram type preventer, hydraulic operated with 1" steel, 2000# W.P. control lines (where sub-structure height is adequate, 2 - 2000# W.P. single ram type preventers may be utilized).
C	Rotating head with extended Blooie Line (optional fill up outlet).
1, 3, 4	2" minimum 2000# W.P. flanged full opening steel gate valve, or Halliburton Lo Torc Plug valve.
2	2" minimum 2000# W.P. back pressure valve.
5, 6, 9	2" minimum 2000# W.P. flanged full opening steel gate valve, or Halliburton Lo Torc Plug valve.
12	2" minimum schedule 80, Grade "B", seamless line pipe.
13	2" minimum x 2" minimum 2000# W.P. flanged cross.
10, 11	2" minimum 2000# W.P. adjustable choke bodies.
14	Cameron Mud Gauge or equivalent (location optional in choke line).
15	2" minimum 2000# W.P. flanged or threaded full opening steel gate valve, or Halliburton Lo Torc Plug valve.

*(OR EQUIVALENT)

INTERMEDIATE	TYPE AND AMOUNT
0-2500'	LEAD: CEMENT FROM 1500' TO SURFACE WITH 175 SX CLASS "G" CEMENT TAIL: CEMENT FROM 2500' TO 1500' WITH 310 SX RFC 10-1 CEMENT
PRODUCTION	TYPE AND AMOUNT
0-7295'	CEMENT FROM 7295' TO 5500' WITH 275 SX RFC 10-0 CEMENT

5. **DRILLING FLUIDS**

THE PROPOSED CIRCULATING MEDIUMS TO BE EMPLOYED IN DRILLING ARE AS FOLLOWS:

INTERVAL	MUD TYPE	MUD WT.	VISC.
0-300'	AIR	--	--
300'-2500'	AIR	--	--
2500'-7295'	AIR	--	--

6. **TESTING, LOGGING AND CORING**

THE ANTICIPATED TYPE AND AMOUNT OF TESTING, LOGGING AND CORING ARE AS FOLLOWS:

A. NO DRILL STEM TESTS ARE PLANNED.

B. THE LOGGING PROGRAM WILL CONSIST OF A GR-LDT-CNL LOG FROM 1500' - 7295'. A HIGH RESOLUTION COAL LOG WILL BE RUN FROM 2200' - 2500'. AN SP-SFL-DIL LOG WILL BE RUN FROM T.D. TO THE BASE OF SURFACE CASING AT 300'.

C. ROTARY SIDEWALL CORES MAY BE TAKEN IN THE FERRON FM..

7. **SPUD DATE / DRILLING TIME**

A. DRILLING IS PLANNED TO COMMENCE ON APPROX. NOV. 1, 1995.

B. IT IS ANTICIPATED THAT THE DRILLING WILL TAKE APPROXIMATELY 6 DAYS.

8. **ROAD USE / WATER SOURCE**

A. ALL ACCESS IS LOCATED ON PRIVATE ROADS.

B. SINCE THE WELL IS BEING DRILLED PRIMARILY BY AIR, LIMITED QUANTITIES OF WATER WILL BE NECESSARY. WATER FOR DRILLING WILL BE OBTAINED FROM A LOCAL WATER HAULER, WHO WILL OBTAIN IT FROM A LOCAL SOURCE.

9. **BOP EQUIPMENT**

TEXACO'S MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL EQUIPMENT ARE AS FOLLOWS:

12-1/4" HOLE TO 2500' - RAM TYPE: 11" HYDRAULIC DOUBLE, 2000 PSI W.P.
8-3/4" HOLE TO 7295' - RAM TYPE: 11" HYDRAULIC DOUBLE, 3000 PSI W.P.

RAM TYPE PREVENTERS AND ASSOCIATED EQUIPMENT SHALL BE TESTED TO APPROVED STACK WORKING PRESSURE IF ISOLATED BY TEST PLUG OR TO 70 PERCENT OF INTERNAL YIELD PRESSURE OF CASING. PRESSURE SHALL BE MAINTAINED FOR AT LEAST 10 MINUTES OR UNTIL REQUIREMENTS OF TEST ARE MET, WHICHEVER IS LONGER. IF A TEST PLUG IS UTILIZED, NO BLEED-OFF PRESSURE IS ACCEPTABLE. FOR A TEST NOT UTILIZING A TEST PLUG, IF A DECLINE IN PRESSURE OF MORE THAN 10 PERCENT IN 30 MINUTES OCCURS, THE TEST SHALL BE CONSIDERED TO HAVE FAILED. VALVE ON CASING HEAD BELOW TEST PLUG SHALL BE OPEN DURING TEST OF BOP STACK.

AS A MINIMUM, THE ABOVE TEST SHALL BE PERFORMED:

A. WHEN INITIALLY INSTALLED;
B. WHENEVER ANY SEAL SUBJECT TO TEST PRESSURE IS BROKEN
C. FOLLOWING RELATED REPAIRS; AND
D. AT 30 DAY INTERVALS

VALVES SHALL BE TESTED FROM WORKING PRESSURE SIDE DURING BOPE TESTS WITH ALL DOWNSTREAM VALVES OPEN.

WHEN TESTING THE KILL LINE VALVE(S), THE CHECK VALVE SHALL BE HELD OPEN OR THE BALL REMOVED.

PIPE AND BLIND RAMS SHALL BE ACTIVATED EACH TRIP, HOWEVER, THIS FUNCTION NEED NOT BE PERFORMED MORE THAN ONCE A DAY.

A BOPE PIT LEVEL DRILL SHALL BE CONDUCTED WEEKLY FOR EACH DRILLING CREW.

PRESSURE TESTS SHALL APPLY TO ALL RELATED WELL CONTROL EQUIPMENT.

ALL OF THE ABOVE DESCRIBED TESTS AND/OR DRILLS SHALL BE RECORDED IN THE DRILLING LOG. TEST CHARTS, WITH INDIVIDUAL TEST RESULTS IDENTIFIED, SHALL BE MAINTAINED ON LOCATION WHILE DRILLING AND SHALL BE MADE AVAILABLE TO A BLM REPRESENTATIVE UPON REQUEST. PRESSURE TESTS SHALL APPLY TO ALL RELATED WELL CONTROL EQUIPMENT.

BOP SYSTEMS SHALL BE CONSISTENT WITH API RP53. PRESSURE TESTS WILL BE CONDUCTED BEFORE DRILLING OUT FROM UNDER CASING STRINGS WHICH HAVE BEEN SET AND CEMENTED IN PLACE. BLOWOUT PREVENTER CONTROLS WILL BE INSTALLED PRIOR TO DRILLING THE SURFACE CASING PLUG AND WILL REMAIN IN USE UNTIL THE WELL IS COMPLETED OR ABANDONED. PREVENTERS WILL BE INSPECTED AND OPERATED AT LEAST DAILY TO ENSURE GOOD MECHANICAL WORKING ORDER, AND THIS INSPECTION WILL BE RECORDED ON THE DAILY DRILLING REPORT. PREVENTERS WILL BE PRESSURE TESTED BEFORE DRILLING CASING CEMENT PLUGS.

A. THE SIZE AND RATING OF THE BOP STACK IS SHOWN ON THE ATTACHED DIAGRAM. ALTHOUGH A RIG HAS NOT BEEN CHOSEN TO DRILL THIS WELL, MOST OF THE EQUIPMENT FOR THIS DEPTH OF HOLE IN THE AREA USE A 11", 2000 PSI WORKING PRESSURE BLOWOUT PREVENTOR.

B. A CHOKE LINE AND A KILL LINE ARE TO BE PROPERLY INSTALLED. THE KILL LINE IS NOT TO BE USED AS A FILL UP LINE.

C. THE ACCUMULATOR SYSTEM SHALL HAVE A PRESSURE CAPACITY TO PROVIDE FOR REPEATED OPERATION OF HYDRAULIC PREVENTORS.

D. DRILL STRING SAFETY VALVE(S), TO FIT ALL TOOLS IN THE DRILL STRING, ARE TO BE MAINTAINED ON THE RIG FLOOR WHILE DRILLING OPERATIONS ARE IN PROGRESS.

10. ABNORMAL PRESSURES AND H2S GAS

A. NO ABNORMAL CONDITIONS ARE ANTICIPATED. NO ABNORMAL TEMPERATURES ARE ANTICIPATED.

B. NO HYDROGEN SULFIDE GAS IS ANTICIPATED.

11. **LESSEE'S OR OPERATOR'S REPRESENTATIVE**

PERMIT MATTERS
TEXACO E. & P., INC.
TED A. TIPTON
3300 N. BUTLER AVE.
FARMINGTON, NM 87401
(505) 325-4397

DRILLING AND COMPLETION MATTERS
TEXACO E. & P., INC.
P.O. BOX 46510
DENVER, CO 80201-6510
(303) 793-4000 MAIN NUMBER
(303) 793-4936 - (W) STEVE GODFREY
(303) 347-0737 - (H)

THIRTEEN POINT SURFACE USE PLAN

OPERATOR: TEXACO EXPLORATION & PRODUCTION, INC.
LEASE NAME: FEE
LEASE NUMBER:
LOCATION: 2095' FNL - 310' FWL, SECTION 24, T18S/R7E SLPM, EMERY CO.,UTAH

1. **EXISTING ROADS.**

   A. THE PROPOSED WELL SITE IS LOCATED APPROXIMATELY 3.5 MILES WEST OF ORANGEVILLE, UTAH.

   B. DIRECTIONS TO THE LOCATION FROM ORANGEVILLE, UTAH ARE AS FOLLOWS:

   FROM ORANGEVILLE, PROCEED WEST ON STATE HIGHWAY #29 APPROX. 3.0 MI, TO INTERSECTION WITH COAL HAUL RD.. TURN LEFT(SOUTH) ON COAL HAUL RD. TRAVEL APPROX. 1/2 MI., TURN RIGHT(WEST) ONTO LOCATION.

   C. THIS WELL WILL REQUIRE NO NEW ACCESS ROAD.

   D. THE LOCATION SURFACE IS OWNED OUTRIGHT BY TEXACO E. & P., INC.

2. **PLANNED ACCESS ROAD.**

   A. NO NEW ACCESS ROAD IS REQUIRED FOR THE SUBJECT WELL. CONSTRUCTION WILL NOT CHANGE EXISTING DRAINAGE.

   B. SURFACE DISTURBANCE AND VEHICULAR TRAVEL WILL BE LIMITED TO THE APPROVED LOCATION AND APPROVED ACCESS ROUTE. ANY ADDITIONAL AREA NEEDED WILL BE APPROVED IN ADVANCE.

3. **LOCATION OF EXISTING WELLS WITHIN A 1-MILE RADIUS OF THE PROPOSED LOCATION.**

   A. WATER WELLS - NONE

   B. INJECTION WELLS - NONE

   C. PRODUCING WELLS - TEXACO E. & P., INC #23-8 (SHUT-IN AWAITING COMPLETION)

   D. DRILLING WELLS - NONE

4. **LOCATION OF TANK BATTERIES AND PRODUCTION FACILITIES.**

   A. ALL PERMANENT STRUCTURES (ONSITE FOR SIX MONTHS OR LONGER) CONSTRUCTED OR INSTALLED (INCLUDING OIL WELL PUMP JACKS) WILL BE PAINTED A NEUTRAL COLOR TO BLEND WITH THE SURROUNDING ENVIRONMENT. FACILITIES REQUIRED TO COMPLY WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) WILL BE EXCLUDED.

   B. IF STORAGE FACILITIES/TANK BATTERIES ARE CONSTRUCTED ON THIS LEASE, THE FACILITY /BATTERY OR THE WELLPAD SHALL BE SURROUNDED BY A CONTAINMENT DIKE OF SUFFICIENT CAPACITY TO CONTAIN AT A MINIMUM, THE ENTIRE CONTENT OF THE LARGEST TANK WITHIN THE

FACILITY/BATTERY, UNLESS MORE STRINGENT PROTECTIVE REQUIREMENTS ARE DEEMED NECESSARY BY THE AUTHORIZED OFFICER.

C. ALL LOADING LINES WILL BE PLACED INSIDE THE BERM SURROUNDING THE TANK BATTERY.

D. GAS MEASUREMENT DEVICES WILL BE LOCATED IN ACCORDANCE WITH THE APPROPRIATE REGULATORY BODY.

E. ALL METER MEASUREMENT FACILITIES WILL CONFORM WITH ONSHORE OIL AND GAS ORDER NO. 4 FOR LIQUID HYDROCARBONS AND ONSHORE OIL AND GAS ORDER NO. 5 FOR NATURAL GAS MEASUREMENT.

F. ANY NECESSARY PITS WILL BE PROPERLY FENCED TO PREVENT ANY WILDLIFE ENTRY.

G. ALL OFF-LEASE STORAGE, OFF-LEASE MEASUREMENT, OR COMMINGLING ON-LEASE OR OFF-LEASE WILL HAVE PRIOR WRITTEN APPROVAL FROM THE AUTHORIZED OFFICER.

5. **LOCATION AND TYPE OF WATER SUPPLY.**

A. ALL WATER NEEDED FOR DRILLING PURPOSES WILL BE OBTAINED FROM A LOCAL WATER HAULER.

B. WATER WILL BE HAULED TO LOCATION OVER THE ROADS MARKED ON MAPS ATTACHED.

C. NO WATER WELL IS TO BE DRILLED ON THIS LEASE, WITHOUT PROPER APPROVAL OF DIVISION OF WATER RIGHTS IN PRICE, UTAH.

D. ALL APPROPRIATE PERMITS WILL BE FILED WITH THE DIVISION OF WATER RIGHTS IN PRICE, UTAH.

6. **SOURCE OF CONSTRUCTION MATERIALS.**

A. SURFACE AND SUBSOIL MATERIALS IN THE IMMEDIATE AREA WILL BE UTILIZED.

B. ANY GRAVEL USED WILL BE OBTAINED FROM A COMMERCIAL SOURCE.

7. **METHODS OF HANDLING WASTE DISPOSAL.**

A. SINCE THE PROPOSED WELL WILL BE AIR-DRILLED, ONLY A SMALL RESERVE PIT WILL BE NECESSARY. THE RESERVE PIT WILL BE CONSTRUCTED SO AS NOT TO LEAK, BREAK, OR ALLOW DISCHARGE. THE RESERVE PIT WILL BE LINED IF DETERMINED NECESSARY AT THE TIME OF CONSTRUCTION.

B. IF THE PIT IS LINED, A PLASTIC NYLON REINFORCED LINER WILL BE USED. IT WILL BE A MINIMUM OF 12 MIL THICKNESS WITH SUFFICIENT BEDDING (EITHER STRAW OR DIRT) TO COVER ANY ROCKS. THE LINER WILL OVERLAP THE PIT WALLS AND BE COVERED WITH DIRT AND/OR ROCKS TO HOLD IT IN PLACE. NO TRASH, SCRAP PIPE, ETC., THAT COULD PUNCTURE THE LINER WILL BE DISPOSED OF IN THE PIT.

C. ALL TRASH WILL BE CONTAINED IN A TRASH CAGE AND ITS CONTENTS REMOVED AT THE END OF DRILLING OPERATIONS AND HAULED TO AN APPROVED DISPOSAL SITE.

E. DRILL CUTTINGS ARE TO BE CONTAINED AND BURIED IN THE RESERVE PIT.

F. ANY SALTS AND/OR CHEMICALS WHICH ARE AN INTEGRAL PART OF THE DRILLING SYSTEM, WILL BE DISPOSED OF IN THE SAME MANNER AS THE DRILLING FLUID.

G. SEWAGE WILL BE PLACED IN A PORTABLE CHEMICAL TOILET OR HOLDING TANK AND DISPOSED OF IN ACCORDANCE WITH STATE AND COUNTY REGULATIONS.

H. THE PRODUCED FLUIDS WILL BE PRODUCED INTO A TEST TANK UNTIL SUCH TIME AS CONSTRUCTION OF PRODUCTION FACILITIES IS COMPLETED. ANY SPILLS OF OIL, GAS, SALT WATER OR OTHER PRODUCED FLUIDS WILL BE CLEANED UP.

8. **ANCILLARY FACILITIES.**

A. THERE ARE NO AIRSTRIPS, CAMPS, OR OTHER FACILITIES PLANNED DURING THE DRILLING OF THE PROPOSED WELL.

9. **WELL SITE LAYOUT.**

A. THE RESERVE PIT WILL BE LOCATED ON THE SOUTHEAST SIDE OF THE LOCATION.

B. THE STOCKPILED TOPSOIL (FIRST SIX INCHES) WILL BE STORED ALONG THE SOUTH SIDE OF THE WELLPAD AS SHOWN ON THE RIG LAYOUT.

C. SEE LOCATION LAYOUT FOR ORIENTATION OF RIG, CROSS SECTION OF DRILL PAD AND CUTS AND FILLS.

D. THE LOCATION OF MUD TANKS, RESERVE PIT, TRASH CAGE, PIPE RACKS, LIVING FACILITIES AND SOIL STOCKPILES ARE SHOWN ON THE LOCATION LAYOUT.

E. ALL PITS WILL BE FENCED TO PREVENT WILDLIFE ENTRY.

F. THE RESERVE PIT FENCING WILL BE ON THREE SIDES DURING OPERATIONS AND ON THE FOURTH SIDE WHEN THE RIG MOVES OFF LOCATION. PITS WILL BE FENCED AND MAINTAINED UNTIL CLEANUP.

10. **PLANS FOR RESTORATION OF SURFACE.**

DISPOSAL WELL LOCATION

A. IMMEDIATELY UPON WELL COMPLETION, THE LOCATION AND SURROUNDING AREA WILL BE CLEARED OF ALL UNUSED TUBING, EQUIPMENT, DEBRIS, MATERIALS, TRASH AND JUNK NOT REQUIRED FOR PRODUCTION.

B. IMMEDIATELY UPON WELL COMPLETION, ANY HYDROCARBONS ON THE PIT SHALL BE REMOVED IN ACCORDANCE WITH 43 CFR 3162.7-1.

C. IF A PLASTIC NYLON REINFORCED LINER IS USED, IT SHALL BE TORN AND PERFORATED BEFORE BACKFILLING OF THE RESERVE PIT.

D. ONCE THE RESERVE PIT IS DRY, THE RESERVE PIT AND THAT PORTION OF THE LOCATION NOT NEEDED FOR PRODUCTION FACILITIES/OPERATIONS WILL BE RECONTOURED TO THE APPROXIMATE NATURAL CONTOURS.

DRY HOLE

F. AT SUCH TIME AS THE WELL IS PLUGGED AND ABANDONED, THE OPERATOR SHALL SUBMIT A SUBSEQUENT REPORT OF ABANDONMENT AND WILL RECLAIM LANDS AS PER GUIDELINES PURSUANT TO AO.

11. **SURFACE OWNERSHIP.**

A. ACCESS ROADS - ALL EXISTING IMPROVED ROADS ARE COUNTY MAINTAINED AND ENCROACHMENT IS BEING APPLIED FOR.

B. WELLPAD - THE WELLPAD IS LOCATED ON LANDS OWNED BY TEXACO E. & P., INC. - THE OPERATOR.

12. **OTHER INFORMATION.**

13. **LESSEE'S OR OPERATOR'S REPRESENTATIVE AND CERTIFICATION.**

PERMIT MATTERS
TEXACO E. & P., INC.
TED A. TIPTON
3300 N. BUTLER AVE.
FARMINGTON, NM 87401
(505) 325-4397

DRILLING AND COMPLETION MATTERS
TEXACO E. & P., INC.
P.O. BOX 46510
DENVER, CO 80201-6510
(303) 793-4000 MAIN NUMBER
(303) 793-4936 - (W) STEVE GODFREY
(303) 347-0737 - (H)

CERTIFICATION

I HEREBY CERTIFY THAT I, OR PERSONS UNDER MY DIRECT SUPERVISION, HAVE INSPECTED THE PROPOSED DRILLSITE AND ACCESS ROUTE; THAT I AM FAMILIAR WITH THE CONDITIONS WHICH PRESENTLY EXIST; THAT THE STATEMENTS MADE IN THIS PLAN ARE, TO THE BEST OF MY KNOWLEDGE, TRUE AND CORRECT; AND, THAT THE WORK ASSOCIATED WITH THE OPERATIONS PROPOSED HEREIN WILL BE PERFORMED BY TEXACO EXPLORATION & PRODUCTION, INC. AND ITS CONTRACTORS AND SUBCONTRACTORS IN CONFORMITY WITH THE PLAN AND THE TERMS AND CONDITIONS UNDER WHICH IT IS APPROVED.

THIS STATEMENT IS SUBJECT TO THE PROVISIONS OF 18.U.S.C. 1001 FOR THE FILING OF A FALSE STATEMENT.

DATE:

TED A. TIPTON
OPERATING UNIT MANAGER
TEXACO E. & P., INC.

Form 3

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

RECEIVED
OCT 19 1995
DIV. OF OIL, GAS & MINING

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. Type of Work: DRILL ☒ DEEPEN ☐

1b. Type of Well: OIL WELL ☐ GAS WELL ☐ OTHER DISPOSAL WELL — SINGLE ZONE ☒ MULTIPLE ZONE ☐

2. Name of Operator: TEXACO EXPLORATION & PRODUCTION, INC.

3. Address and Telephone No.: 3300 N. Butler Ave., Suite 100 Farmington NM 87401 325-4397

4. Location of Well (Report location clearly and in accordance with any State requirements.*)
At Surface
Unit Letter E : 2095 Feet From The NORTH Line and 310 Feet From The WEST Line
At proposed prod. zone
SW¼NW¼

5. Lease Designation and Serial No.

6. If Indian, Alottee or Tribe Name

7. If Unit or CA, Agreement Designation

8. Well Name and Number: FEE

SWD-1

9. API Well No.: 43015-30272

10. Field and Pool, Exploratory Area: WILDCAT

11. SEC., T., R., M., or BLK. and Survey or Area: Sec. 24, Township T18S, Range R7E

14. Distance In Miles and Direction from Nearest Town or Post Office*: 2.5 MI. - ORANGEVILLE, UTAH

12. County or Parish: EMERY

13. State: UT

15. Distance From Proposed* Location to Nearest Property or Lease Line, Ft. (also to nearest drlg. unit line, if any): 310'

16. No. of Acres in Lease:

17. No. of Acres Assigned To This Well:

18. Distance From Proposed Location* to Nearest Well, Drilling, Completed or Applied For, On This Lease, Ft.:

19. Proposed Depth: 7295'

20. Rotary or Cable Tools: ROTARY

21. Elevations (Show whether DF,RT, GR, etc.): KB [ ] DF [ ] 5988 GR

22. Approx. Date Work Will Start*: 11/1/95

23. PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
	*** PLEASE SEE ATTACHED DRILLING PROGRAM ***			

Describe Proposed Program: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured true verticle depths. Give blowout preventer program, if any.

TEXACO EXPLORATION & PRODUCTION, INC. PROPOSES TO DRILL A WATER DISPOSAL WELL TO A DEPTH OF 7295'. IF THE WELL IS INCAPABLE OF WATER DISPOSAL, IT WILL BE PLUGGED AND ABANDONED AS PER STATE OF UTAH REQUIREMENTS.

PLEASE BE ADVISED THAT TEXACO EXPLORATION & PRODUCTION, INC. HAS BEEN AUTHORIZED BY PROPER LEASE INTEREST OWNERS TO CONDUCT OPERATIONS ON THE ABOVE MENTIONED LOCATION. TEXACO EXPLORATION & PRODUCTION, INC. AGREES TO BE RESPONSIBLE UNDER THE TERMS AND CONDITIONS OF THE LEASE FOR OPERATIONS CONDUCTED UPON THE LEASE LANDS.

BOND COVERAGE FOR THIS WELL IS PROVIDED BY BOND NO. CO-0058 (NATIONWIDE BOND). THE PRINCIPAL IS TEXACO EXPLORATION & PRODUCTION, INC. VIA SURETY CONSENT AS PROVIDED FOR IN 43 CFR-3104.2.

CONFIDENTIAL-TIGHT HOLE

24. (This space for State use only)

SIGNATURE Rocked Hindi for TAT TITLE Operating Unit Manager DATE 10/17/95

TYPE OR PRINT NAME Ted A. Tipton

API Number Assigned: 43-015-30272

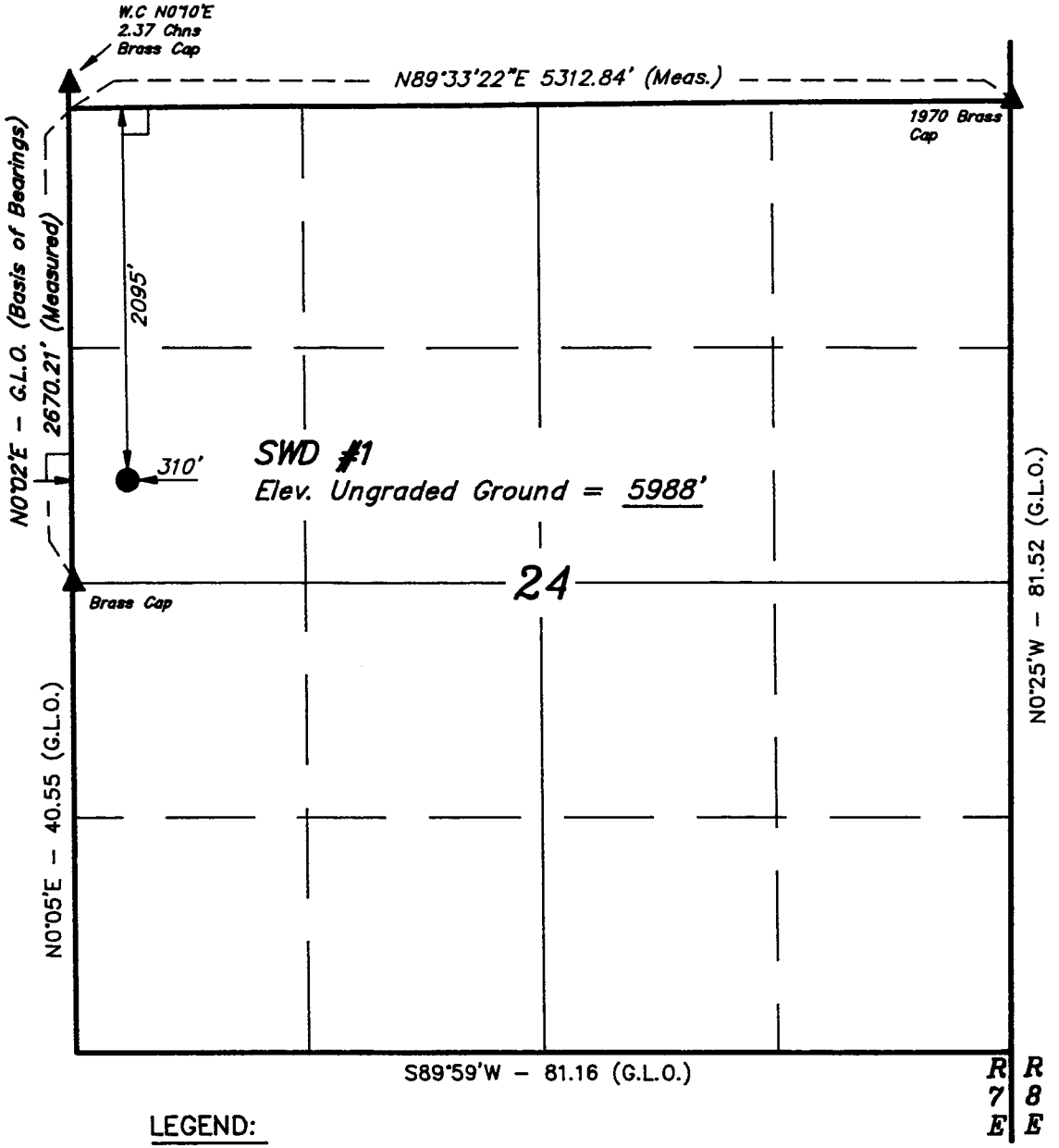
APPROVAL

APPROVED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING
DATE: 11/1/95
BY: John Baza

TEXACO EXPLR. & PROD., INC.

Well location, SWD #1, located as shown in the SW 1/4 NW 1/4 of Section 24, T18S, R7E, S.L.B.&M. Emery County, Utah.

T18S, R7E, S.L.B.&M.

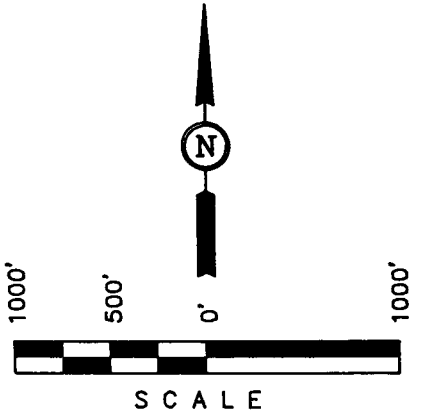


LEGEND:

- └ = 90° SYMBOL
- ● = PROPOSED WELL HEAD.
- ▲ = SECTION CORNERS LOCATED.

BASIS OF ELEVATION

SPOT ELEVATION LOCATED IN THE NW 1/4 OF SECTION 24, T18S, R7E, S.L.B.&M. TAKEN FROM THE CASTLE DALE QUADRANGLE, UTAH, EMERY COUNTY, 7.5 MINUTE QUAD. (TOPOGRAPHIC MAP) PUBLISHED BY THE UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY. SAID ELEVATION IS MARKED AS BEING 6024 FEET.



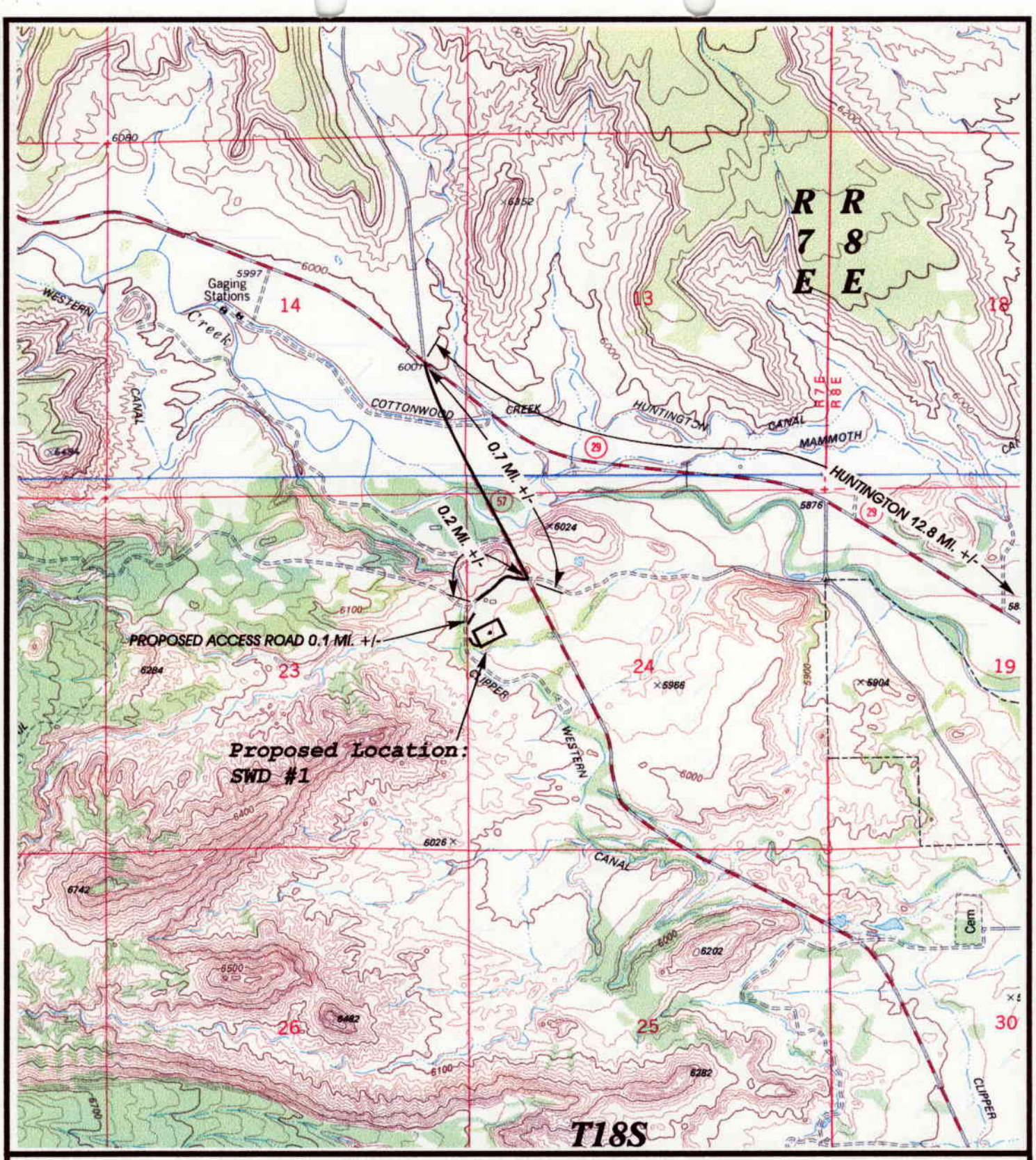
CERTIFICATE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED LAND SURVEYOR
REGISTRATION NO. [illegible]
STATE OF UTAH

UINTAH ENGINEERING & LAND SURVEYING
85 SOUTH 200 EAST - VERNAL, UTAH 84078
(801) 789-1017

SCALE	DATE SURVEYED:	DATE DRAWN:
1" = 1000'	10-6-95	10-7-95
PARTY: L.D.T. N.H. D.J.S.	REFERENCES: G.L.O. PLAT	
WEATHER: COOL	FILE: TEXACO EXPLR. & PROD., INC.	



TOPOGRAPHIC MAP "B"

DATE: 10-8-95 D.COX

UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East • Vernal, Utah 84078 • (801) 789-1017

N

SCALE: 1" = 2000'

TEXACO EXPLR. & PROD., INC.

SWD#1
SECTION 24, T18S,R7E, S.L.B.&M.
2095' FNL 310' FWL

State of Utah
Division of Oil, Gas & Mining (OGM)

ON-SITE PREDRILL EVALUATION AND REVIEW FOR APPLICATION FOR PERMIT TO DRILL (APD)

OPERATOR TEXACO EXPLORATION & PRODUCTION INC.	
WELL NO. ~~SDW~~ SWD - 1	LEASE NO. FEE
API No. 43-015-30272	LEASE TYPE State [ ] Fee [X]

PROPOSED LOCATION

¼/¼	SECTION	TOWNSHIP	RANGE
~~SE~~ SW NW	24	T 18 S	R 7 E

COUNTY EMERY	FIELD UNDESIGNATED (002)
SURFACE 2095 FNL 310 FWL	
BOTTOM HOLE SAME AS ABOVE	
GPS COORDINATES 491922 E 4343566 N	
SURFACE OWNER TEXACO EXPL & PROD INC.	
SURFACE AGREEMENT Yes [X] No [ ]	CONFIDENTIAL Yes [X] No [ ]

LOCATING AND SITING

- [ ] UAC R649-2-3. Unit
- [ ] UAC R649-3-2. General
- [X] UAC R649-3-3. Exception
- [ ] UCA 40-6-6. Drilling Unit -- Cause No.

DRILLING PROGRAM

The following information should be included in the Application for Permit to Drill submitted.

1 Surface Formation and Estimated Tops/Geologic Markers

2 Estimated Depths and Names of Anticipated Water, Oil, Gas or other Mineral Bearing Formations

(All fresh water sands encountered during drilling shall be recorded and reported to the Division on Form 7.)

3 Well Control Equipment & Testing Procedures

4 Proposed Casing and Cementing Program

5 Mud Program, Circulating Medium, and Monitoring equipment

6 Coring, Testing, and Logging Program

7 Expected Bottom Hole Pressures and any anticipated Abnormal Pressures, Temperatures or Potential Hazards such as hydrogen sulfide, expectations and contingency plans for mitigating identified hazards

8 Any other information relative to the proposed operation.

Onsite Participants:
Rashed Hindi Texaco Expl & Prod Inc., Mike Hebertson DOGM

Regional Setting/Topography:
Northwest flank of the San Rafael Swell and east of the Wasatch Thrust Belt. This is a valley setting between the major uplift areas. It is dominated by sandstone cliffs, and steep talus slopes leading to high mountain plateaus.

SURFACE USE PLAN:

Current Surface Use: None, probably an old field that was once used for a hay operation. Minor wildlife use.

Proposed Surface Disturbance: The disturbed area for this site is a location pad of 250' X 200' and an access road 140' by 25', for a total involved area of 1.5 acres.

1. Existing Roads State Highway 29 from Orangeville northwest 3.0 miles to coal mining road state 57 turn left .75 miles south to access road.

2. Planned Access Roads - include length of new road, length of existing road to be upgraded, maximum disturbed and travel surface widths, maximum grades, turnouts, surface materials, drainage, cattleguards This road will be 140' long by 25' running surface in width,

3. Location of existing wells within one-mile radius of proposed location, include water, injection, producing, drilling with present status of each well See the map for other wells of oil field origins within a one mile radius

4. Location of Production Facilities and Pipelines Any permanent production facilities will be placed on the location at the time of completion.

5. Location and Type of Water Supply (include Division of Water Rights approval or identifying number) Water will be from a local source and appropriate permits will be obtained prior to commencement of operations

6. Source of Construction Material Subsoils will be utilized from the construction of the location, however the location is nearly flat.

7. Waste Management Plan The waste management plan as filed with the APD is sufficient for this site.

8. Ancillary Facilities None are needed.

9. Well Site Layout See the attached plat Titled Location Layout Plat filed with the APD.

10. Surface Restoration Plans See part 10 of the Surface use plan filed with the APD. Lands will be restored as found at the time of abandonment.

ENVIRONMENTAL PARAMETERS:

Affected Floodplain and/or Wetlands:

A 404 dredge and fill permit may be required if this site is in or adjacent to a wetland or other established drainage or floodplain. (Contact the Army Corps of Engineers if there are concerns of this nature) None. A secondary drainage ditch runs parallel to the location on the South Side, but causes no immediate problem.

Flora/Fauna:

Briefly describe the flora found on the proposed site and the fauna evidenced or sighted on or near the proposed location The entire location is dominated by cheat grass and weeds.

SURFACE GEOLOGY

Soil Type and Characteristics: The soils are predominately a clay matrix with sand inclusions. possibly underlain by gravel lenses.

Surface Formation & Characteristics: Mancos shale which weathers to a light tan or buff color.

Erosion/Sedimentation/Stability: There are no erosion, sedimentation or stability on this location.

Paleontological Potential Observed: none observed. The entire area has been a ploughed field sometime in the past.

RESERVE PIT

Characteristics: 30 X 20 X 8 feet

Lining (Site ranking form attached): pit is ranked as a I on the ranking form however possible subsurface sands and gravels may change this ranking.

OTHER OBSERVATIONS

Cultural Resources/Archaeology (if proposed location is on State land, has an archaeology clearance been obtained?): None are required.

Comments:

K. Michael Hebertson
OGM Representative

23-Oct-1995 12:00 PM
Date and Time

STATEMENTS OF BASIS

OGM Review of Application for Permit to Drill (APD)

Company: Texaco Expl & Prod Inc. **Well Name:** SWD - 1

ENGINEERING/LOCATING and SITING:

The proposed location meets the location and siting requirements of R649-3-3. The application and proposed casing and drilling plan appear to be consistent with accepted industry standards of practice and sound engineering design. A casing design safety check is attached. Blow out prevention and monitoring/contingency plans are adequate.

Signature: F. R. Matthews **Date:** 11/01/95

GEOLOGY/GROUND WATER:

The well will be spud in the Emery Sandstone and water may be encountered in the first 200 feet of drilling. Surface casing will be set at 300 feet and cemented to surface. This will adequately protect the shallow aquifers. A 9 5/8" intermediate casing will be set at 2500 feet and cemented to surface to isolate any water encountered in the Ferron Sands. A 7 " production casing will be set at a total depth of 7295 feet. It was proposed to circulate cement to 5500 feet. Considering that the estimated top of the Entrada is at 4690 feet and may contain fresh water, it is recommended that cement be either circulated or 2 staged above the top of the Entrada.

Signature: D. Jarvis **Date:** 11-1-95

SURFACE:

An on-site investigation was preformed on the date specified with personnel from Texaco and DOGM present. It was determined that the site is safe for the operation that is to be preformed at this site. Some concern exists for a secondary drainage on the south side of the well pad that is within 150 feet of the location. Because of the nature of the soils in the area it is possible that the location could have sand and gravel lenses in association with the site. At the time of the setting of the surface casing it may be necessary to line the pit. Texaco is the owner of the surface and the minerals, so no arch or paleo surveys are necessary. The location appears to be environmentally sound and stable for this operation. If the Nugget is tested the pit will require a pit liner or closed testing system.

Signature: K. Michael Hebertson **Date:** 30-Oct-1995

STIPULATIONS for APD Approval:

1. A visual inspection of the pit is required after the pit is constructed.

2. The location will be bermed on all sides to contain any possible spill.

3. Testing of the Nugget formation will require a closed system or lined pit.

4. Circulate or 2 Stage cement above top of Entrada Sandstone.

5. An emergency pit will be constructed adjacent to the blooie pit of sufficient size to contain water that may be produced from the Nuggett. This pit is to be lined with a plastic liner of at least 12 Mils.

6. Dust supression in the Blooie line will be used while air drilling.

ATTACHMENTS:

1. Photos will be placed on file.

Evaluation Ranking Criteria and Ranking Score
For Reserve and Onsite Pit Liner Requirements

Site-Specific Factors	Ranking Score	Final Ranking Score
Distance to Groundwater (feet)		0
>200	0	
100 to 200	5	
75 to 100	10	
25 to 75	15	
<25 or recharge area	20	
Distance to Surf. Water (feet)		2
>1000	0	
300 to 1000	2	
200 to 300	10	
100 to 200	15	
< 100	20	
Distance to Nearest Municipal Well (feet)		0
>5280	0	
1320 to 5280	5	
500 to 1320	10	
<500	20	
Distance to Other Wells (feet)		0
>1320	0	
300 to 1320	10	
<300	20	
Native Soil Type		10
Low permeability	0	
Mod. permeability	10	
High permeability	20	

Fluid Type Air/mist Fresh Water TDS >5000 and <10000 TDS >10000 or Oil Base Mud Fluid containing significant levels of hazardous constituents	 0 5 10 15 20	0
Drill Cuttings Normal Rock Salt or detrimental	 0 10	0
Annual Precipitation (inches) <10 10 to 20 >20	 0 5 10	0
Affected Populations <10 10 to 30 30 to 50 >50	 0 6 8 10	0
Presence of Nearby Utility Conduits Not Present Unknown Present	 0 10 15	15

Final Score	27

The summation of all of the above ranking scores will yield one value which shall be used to determine the appropriate type of containment, on a case-by-case basis. The sensitivity levels are as follows:

Level I Sensitivity: For scores totaling ≥20
Level II Sensitivity: For scores totaling 15 to 19
Level III Sensitivity: For scores totaling <15

Containment Requirements According to Sensitivity Level

Level I: Requires total containment by synthetic liner, concrete structure or other type of total containment structure or material.

Level II: Bentonite or other compatible lining is discretionary depending on the fluid to be contained and environmental sensitivity.

Level III: No specific lining requirements.

OTHER GUIDELINES FOR PITS

1. Unlined pits shall not be constructed on areas of fill materials.

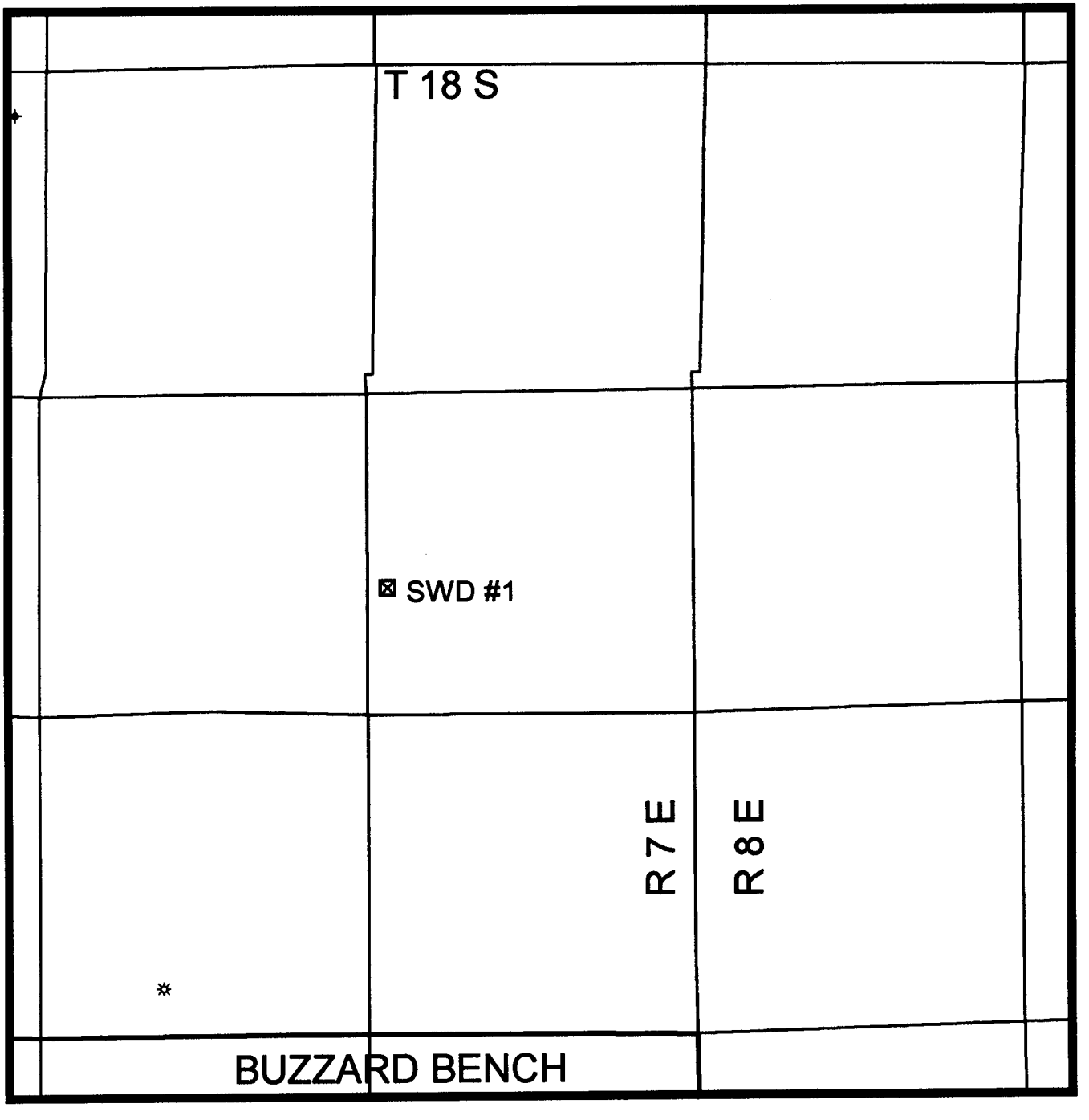
2. A pit shall not be constructed in a drainages or floodplain of flowing or intermittent streams.

3. Synthetic liners used for lining reserve pits, shall be of 12 mil thickness or greater and shall be compatible with the fluid to be contained. Synthetic liners used for lining onsite pits with a longer expected life shall be a minimum of 30 mil thickness or as approved by the Division.

4. Synthetic liners shall be installed over smooth fill material which is free of pockets, loose rocks or other materials which could damage the liner.

5. Monitoring systems for pits or closed mud systems may be required for drilling in sensitive areas.

TEXACO COALBED METHANE DEVELOPMENT
WATER DISPOSAL WELL SWD #1
SEC. 24, T18S, R7E,
EMERY COUNTY, UAC R649-3-3



STATE SPACING
UAC R649-3-3
EXCEPTION LOCATION

PREPARED:
DATE: 10/27/95

STATE OF UTAH, DIV OF OIL, GAS & MINERALS

Operator: TEXACO EXPL & PROD INC	Well Name: SWD - 1
Project ID: 43-015-30272	Location: SEC. 24 - T18S - R07E

Design Parameters:

Mud weight (8.33 ppg) : 0.433 psi/ft
Shut in surface pressure : 2657 psi
Internal gradient (burst) : 0.069 psi/ft
Annular gradient (burst) : 0.000 psi/ft
Tensile load is determined using air weight
Service rating is "Sweet"

Design Factors:

Collapse : 1.125
Burst : 1.00
8 Round : 1.80 (J)
Buttress : 1.60 (J)
Other : 1.50 (J)
Body Yield : 1.50 (B)

	Length (feet)	Size (in.)	Weight (lb/ft)	Grade	Joint	Depth (feet)	Drift (in.)	Cost
1	2,500	9.625	36.00	K-55	ST&C	2,500	8.765	

	Collapse Load (psi)	Collapse Strgth (psi)	Collapse S.F.	Burst Load (psi)	Min Int Yield Strgth (psi)	Burst S.F.	Tension Load (kips)	Tension Strgth (kips)	Tension S.F.
1	1082	2020	1.867	2828	3520	1.24	90.00	423	4.70 J

Prepared by : MATTHEWS, Salt Lake City, Utah
Date : 11-01-1995
Remarks :

Minimum segment length for the 2,500 foot well is 1,500 feet.
SICP is based on the ideal gas law, a gas gravity of 0.69, and a mean gas temperature of 125°F (Surface 74°F , BHT 176°F & temp. gradient 1.400°/100 ft.)
String type: Intermediate - Drlg
Next string will set at 7,295 ft. with 8.33 ppg mud (pore pressure of 3,157 psi.) The frac gradient of 1.000 psi/ft at 7,295 feet results in an injection pressure of 7,295 psi Effective BHP (for burst) is 2,828 psi.
The minimum specified drift diameter is 8.750 in.

NOTE: The design factors used in this casing string design are as shown above. As a general guideline, Lone Star Steel recommends using minimum design factors of 1.125 - collapse (with evacuated casing), 1.0 - (uniaxial) burst, 1.8 - API 8rd tension, 1.6 - buttress tension, 1.5 - body yield tension, and 1.6 - EUE 8rd tension. Collapse strength under axial tension was calculated based on the Westcott, Dunlop and Kemler curve. Engineering responsibility for use of this design will be that of the purchaser.
Costs for this design are based on a 1987 pricing model. (Version 1.07)

STATE OF UTAH, DIV OF OIL, GAS & MINERALS

Operator: TEXACO EXPL & PROD INC	Well Name: SWD - 1
Project ID: 43-015-30272	Location: SEC. 24 - T18S - R07E

Design Parameters:

Mud weight (8.33 ppg)	: 0.433	psi/ft
Shut in surface pressure	: 4176	psi
Internal gradient (burst)	: 0.108	psi/ft
Annular gradient (burst)	: 0.000	psi/ft

Tensile load is determined using air weight

Service rating is "Sweet"

Design Factors:

Collapse	: 1.125	
Burst	: 1.00	
8 Round	: 1.80	(J)
Buttress	: 1.60	(J)
Other	: 1.50	(J)
Body Yield	: 1.50	(B)

	Length (feet)	Size (in.)	Weight (lb/ft)	Grade	Joint	Depth (feet)	Drift (in.)	Cost
1	7,295	7.000	26.00	K-55	LT&C	7,295	6.151	

	Collapse Load (psi)	Collapse Strgth (psi)	Collapse S.F.	Burst Load (psi)	Min Int Yield Strgth (psi)	Burst S.F.	Tension Load (kips)	Tension Strgth (kips)	Tension S.F.
1	3157	4320	1.368	4961	4980	1.00	189.67	401	2.11 J

Prepared by : MATTHEWS, Salt Lake City, Utah
Date : 11-01-1995
Remarks :

Minimum segment length for the 7,295 foot well is 1,500 feet.

SICP is based on the ideal gas law, a gas gravity of 0.69, and a mean gas temperature of 125°F (Surface 74°F , BHT 176°F & temp. gradient 1.400°/100 ft.)

String type: Production - Frac

The frac gradient of 0.680 psi/ft results in an injection pressure of 4,961 psi.

The mud gradient and bottom hole pressures (for burst) are 0.433 psi/ft and 4,961 psi, respectively.

NOTE: The design factors used in this casing string design are as shown above. As a general guideline, Lone Star Steel recommends using minimum design factors of 1.125 - collapse (with evacuated casing), 1.0 - (uniaxial) burst, 1.8 - API 8rd tension, 1.6 - buttress tension, 1.5 - body yield tension, and 1.6 - EUE 8rd tension. Collapse strength under axial tension was calculated based on the Westcott, Dunlop and Kemler curve. Engineering responsibility for use of this design will be that of the purchaser.
Costs for this design are based on a 1987 pricing model. (Version 1.07)

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

November 1, 1995

Texaco Exploration & Production, Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401

Re: SWD-1 Well, 2095' FNL, 310' FWL, SW NW, Sec. 24, T. 18 S., R. 7 E., Emery County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann. 40-6-1 et seq., Utah Administrative Code R649-3-1 et seq., and the attached Conditions of Approval, approval to drill the referenced well is granted.

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-015-30272.

Sincerely,

R.J. Firth
Associate Director

lwp
Enclosures
cc: Emery County Assessor
Bureau of Land Management, Moab District Office
WAPD

Operator: Texaco Exploration & Production, Inc.

Well Name & Number: SWD-1

API Number: 43-015-30272

Lease: Fee

Location: SW NW **Sec.** 24 **T.** 18 S. **R.** 7 E.

Conditions of Approval

1. General
   Compliance with the requirements of Utah Admin. R. 649-1 et seq., the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for Permit to Drill.

2. Notification Requirements
   Notify the Division within 24 hours following spudding the well or commencing drilling operations. Contact Jimmie Thompson at (801)538-5340.

   Notify the Division prior to commencing operations to plug and abandon the well. Contact Frank Matthews or Mike Hebertson at (801)538-5340.

3. Reporting Requirements
   All required reports, forms and submittals shall be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

4. On-site Predrill Evaluation and Review
   Compliance with all requirements and stipulations developed during the onsite evaluation and review.

CONFIDENTIAL

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

Name of Company: TEXACO E & P

Well Name: TEXACO SWD-1

Api No. 43-015-30272

Section 24 Township 18S Range 7E County EMERY

Drilling Contractor Caza

Rig # 16

SPUDDED: Date 12/8/95

Time 11:00 pm

How dry hole

Drilling will commence

Reported by Rick

Telephone #

Date: 12/11/95 SIGNED: JLT

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING
CEMENTING OPERATIONS

WELL NAME: TEXACO SWD # 1 API NO: 43-015-30272

QTR/QTR: SW/NW SECTION: 24 TOWNSHIP: 18S RANGE: 7E

COMPANY NAME: TEXACO E & P COMPANY MAN RICK BRINDLE

INSPECTOR: JLT DATE: 12/12/95

CASING INFORMATION: SURFACE CASING: X RAN JOINTS

SIZE: 13 3/8" GRADE: 54.5# K-55 HOLE SIZE: 17 1/2" DEPTH: 330'

PIPE CENTRALIZED: YES- used 3

CEMENTING COMPANY: DOWELL

CEMENTING STAGES: 1

SLURRY INFORMATION:

1.CLASS: "G" ADDITIVES: 2% S-1 (FLAKE)- .25 SX D-29

LEAD : 10 bbls water TAIL: 44 bbls water

2.SLURRY WEIGHT LBS. PER GALLON:

LEAD 78 bbls 15.8#'s TAIL:

3.WATER (GAL/SX)

LEAD: TAIL:

CEMENT TO SURFACE: YES LOST RETURNS: NO

1 INCH INFORMATION: WEIGHT: CEMENT TO SURFACE:

FEET: SX: CLASS: CACL%: RETURNS:

ADDITIONAL COMMENTS: SET 35' OF CONDUCTOR PIPE. HIT WATER AT APPROXIMATELY 46'.

CEMENTING SERVICE REPORT

[redacted]

TREATMENT NUMBER 0501 | DATE 12-12-95

DS-496-A PRINTED IN U.S.A.

DOWELL SCHLUMBERGER INCORPORATED

AGE 15-03 | DS DISTRICT Vernal, Utah

WELL NAME AND NO. S.W.D. Well #1	LOCATION (LEGAL) Sec 24 T18S R7E
FIELD-POOL Wildcat	FORMATION
COUNTY/PARISH Emery	STATE Utah / API. NO.

NAME Texaco

AND

ADDRESS

ZIP CODE

RIG NAME: Bill Jr. Rathole

WELL DATA:		BOTTOM	TOP	TOTAL
BIT SIZE 17½	(CSG)/Liner Size	13⅜		
TOTAL DEPTH 330	WEIGHT	61-54.5-48		
☒ ROT ☐ CABLE	FOOTAGE	329.55		
MUD TYPE	GRADE			
☐ SHST ☐ BHCT	THREAD	8rd.		
MUD DENSITY	LESS FOOTAGE SHOE JOINT(S)	284.20		
MUD VISC.	Disp. Capacity	44.4		44.4

NOTE: Include Footage From Ground Level To Head In Disp. Capacity

Float	TYPE	Insert Float	Stage Tool	TYPE	
	DEPTH	284.70		DEPTH	
SHOE	TYPE	C-wide		TYPE	
	DEPTH	330.55		DEPTH	

SPECIAL INSTRUCTIONS

Cement 329.55' 13⅜ Surface Casing With 380 sks Class "G" Cement + Add. Disp. Fresh Water As Per To Rep Instr.

IS CASING/TUBING SECURED? ☒ YES ☐ NO

LIFT PRESSURE 870 PSI | CASING WEIGHT + SURFACE AREA (3.14 x R²)

PRESSURE LIMIT 900 PSI | BUMP PLUG TO 580 PSI

ROTATE RPM | RECIPROGATE FT | No. of Centralizers 3

Head & Plugs	☐ TBG ☐ D.P.	SQUEEZE JOB	
☐ Double	SIZE	TOOL	TYPE
☒ Single	☐ WEIGHT		DEPTH
☐ Swage	☐ GRADE	TAIL PIPE: SIZE	DEPTH
☐ Knockoff	☐ THREAD	TUBING VOLUME	Bbls
TOP ☒R ☐W	☐ NEW ☐ USED	CASING VOL. BELOW TOOL	Bbls
BOT ☐R ☐W	DEPTH	TOTAL	Bbls
		ANNUAL VOLUME	Bbls

JOB SCHEDULED FOR TIME: 09:00 DATE: 12-12-95 | ARRIVE ON LOCATION TIME: 08:00 DATE: 12-12-95 | LEFT LOCATION TIME: 11:00 DATE: 12-12-95

TIME (0001 to 2400)	PRESSURE TBG OR D.P.	PRESSURE CASING	VOLUME PUMPED Bbl. INCREMENT	VOLUME PUMPED Bbl. CUM	INJECT RATE	FLUID TYPE	FLUID DENSITY	SERVICE LOG DETAIL
09:00								PRE-JOB SAFETY MEETING Yes
09:17						H20	8.34	Pressure Test Lines 1170
09:18		40	10	0	4.0	1	1	Start Water Ahead
09:20		30	78	10	4.0	Cmt	15.8	Start Cement Slurry
09:42		0		88	—	1	1	Shut Down Drop Plug
09:43		0	44	88	2.0	H20	8.34	Start Displacement
09:47		80	—	105	4.0			Cement To Surface
09:55		890	—	[redacted]	1.0			Lower Pump Rate
09:55		580	—	132.4	—			Bump Plug
09:57								Bleed off Check Float (Not Holding)
10:01								Job Complete

REMARKS

SYSTEM CODE	NO. OF SACKS	YIELD CU. FT/SK	COMPOSITION OF CEMENTING SYSTEMS	SLURRY MIXED BBLS	SLURRY MIXED DENSITY
1.	380	1.15	Class "G" Cement + 2% S-1 .25#/sk D-29	78	15.8
2.					
3.					
4.					
5.					
6.					

BREAKDOWN FLUID TYPE	VOLUME	DENSITY	PRESSURE MAX. 590 MIN: 0
☐ HESITATION SQ. ☐ RUNNING SQ.	CIRCULATION LOST	☐ YES ☒ NO	Cement Circulated To Surf. ☒ YES ☐ NO 27 Bbls.
BREAKDOWN PSI FINAL PSI	DISPLACEMENT VOL.	44.4 Bbls	TYPE OF WELL ☐ OIL ☐ GAS ☐ STORAGE ☒ INJECTION ☐ BRINE WATER ☐ WILDCAT
Washed Thru Perfs ☐ YES ☐ NO TO FT.	MEASURED DISPLACEMENT ☒	☐ WIRELINE	
PERFORATIONS TO TO TO TO	CUSTOMER REPRESENTATIVE Kirk Brindle		DS SUPERVISOR Kirk Stringham

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
DEC 20 [illegible]
DIV OF OIL, GAS & MINING

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT --" for such proposals

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.

6. If Indian, Alottee or Tribe Name

7. If Unit or CA, Agreement Designation

1. Type of Well: ☐ OIL WELL ☐ GAS WELL ☐ OTHER DISPOSAL WELL

8. Well Name and Number
FEE
SWD-1

2. Name of Operator
TEXACO EXPLORATION & PRODUCTION, INC.

3. Address and Telephone No.
3300 N. Butler Ave., Suite 100 Farmington NM 87401 325-4397

9. API Well No.
4301530272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Unit Letter E : 2095 Feet From The NORTH Line and 310 Feet From The WEST Line Section 24 Township T18S Range R7E

10. Field and Pool, Exploratory Area
WILDCAT

11. County or Parish, State
EMERY , UT

12. Check Appropriate Box(s) To Indicate Nature of Notice, Report, or Other Data

TYPE OF SUBMISSION	TYPE OF ACTION	
☒ Notice of Intent	☐ Abandonment	☒ Change of Plans
☐ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ OTHER: CHANGE TOTAL DEPTH	☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log Form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*.

TEXACO E. & P., INC. REQUESTS APPROVAL TO CHANGE THE TOATL DEPTH OF THE SUBJECT WELL. THE NEW T.D. WILL BE 7700'. (CHANGE FROM THE PREVIOUSLY APPROVED A.P.D. DEPTH OF 7295'. YOUR PROMPT ATTENTION TO THIS MATTER IS APPRECIATED.

CONFIDENTIAL

14. I hereby certify that the foregoing is true and correct

SIGNATURE Ted A. Tipton TITLE Operating Unit Manager DATE 12/14/95

TYPE OR PRINT NAME Ted A. Tipton

(This space for Federal or State Office use)

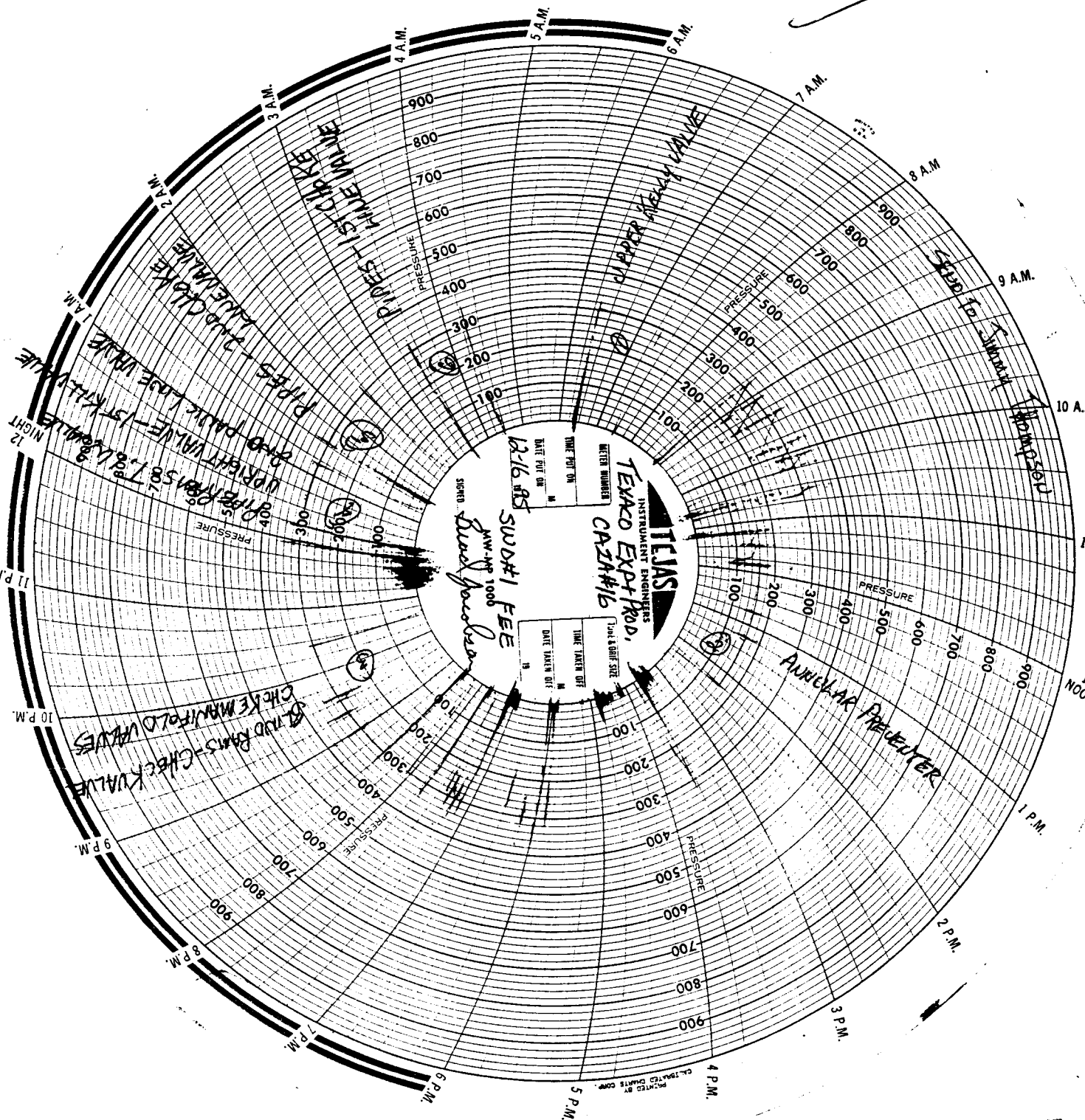
APPROVED R. Matthews TITLE Petroleum Engineer DATE 12/20/95
CONDITIONS OF APPROVAL, IF ANY:

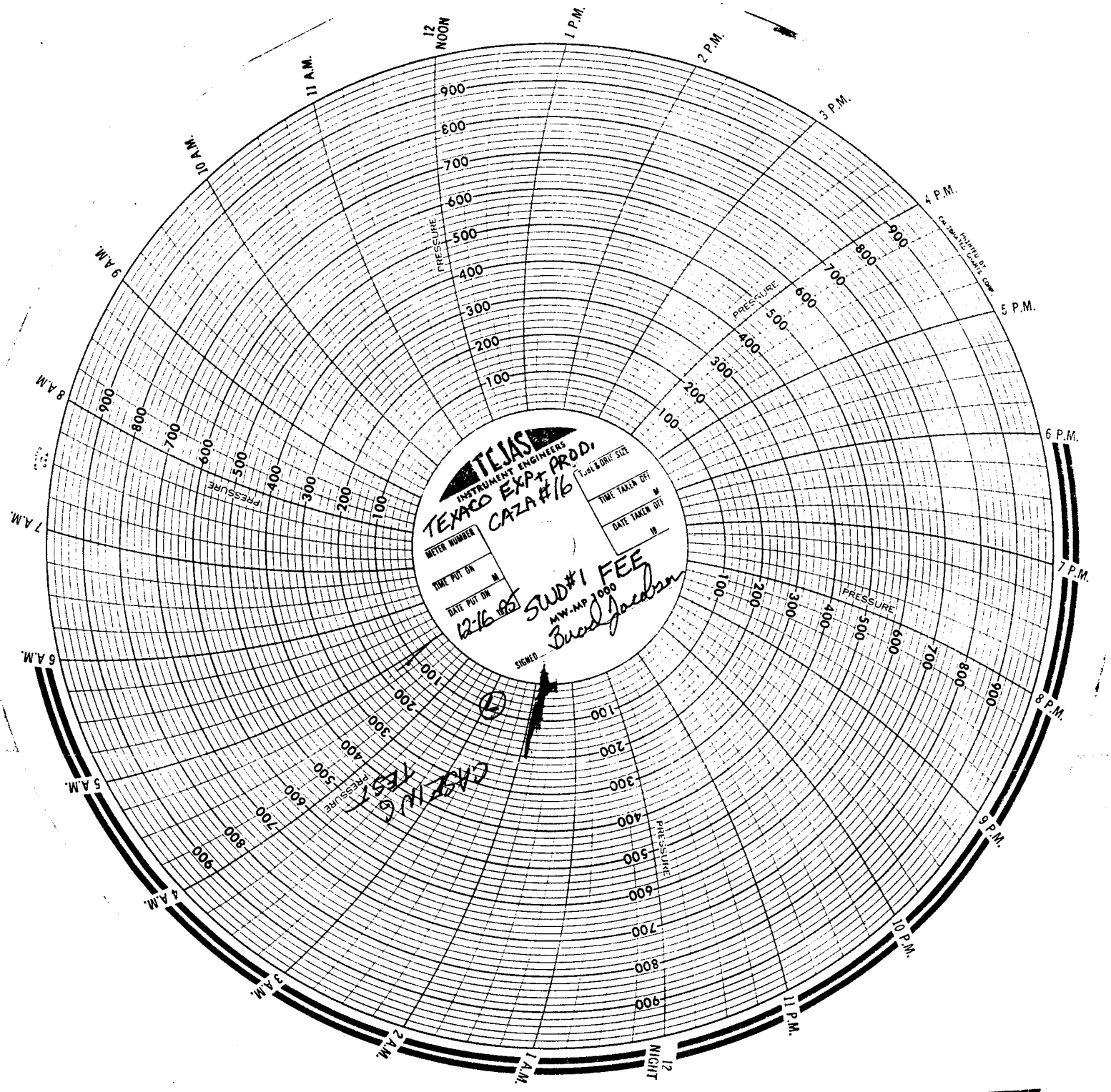
Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

43-015-30272

BOP Test

Well File





Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
DEC 22 1995
DIV OF OIL, GAS & MINING

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

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Use "APPLICATION FOR PERMIT - " for such proposals

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.

6. If Indian, Alottee or Tribe Name

7. If Unit or CA, Agreement Designation

1. Type of Well: ☐ OIL WELL ☐ GAS WELL ☐ OTHER DISPOSAL WELL

8. Well Name and Number
FEE
SWD-1

2. Name of Operator
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3. Address and Telephone No.
3300 N. Butler Ave., Suite 100 Farmington NM 87401 325-4397

9. API Well No.
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WILDCAT

11. County or Parish, State
EMERY , UT

12. Check Appropriate Box(s) To Indicate Nature of Notice, Report, or Other Data

TYPE OF SUBMISSION	TYPE OF ACTION	
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☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ OTHER: SPUD & SURFACE CASING	☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log Form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work,)*.

TEXACO E. & P., INC. HAS COMPLETED THE FOLLOWING ON THE SUBJECT WELL:

1. 12/16/95 DRILL 17-1/2" HOLE TO 329'. SET 8 JTS 13-3/8" SURFACE CASING AT 329'.
2. CEMENT WITH 380 SX CLASS 'G' (15.8 PPG). CIRCULATE 27 BBL. TO SURFACE.
3. RIG UP ROTARY RIG. TEST BOP'S, VALVES, CHOKE AND KILL LINES TO 3000 PSI. TEST CASING TO 1500 PSI FOR 30 MINS. ALL O.K.
4. DRILL CEMENT & SHOE TO 329' WITH 12" BIT.

14. I hereby certify that the foregoing is true and correct

SIGNATURE Ted A. Tipton TITLE Operating Unit Manager DATE 12/19/95

TYPE OR PRINT NAME Ted A. Tipton

(This space for Federal or State office use)

APPROVED

CONDITIONS OF APPROVAL, IF ANY: ____ TITLE ____ DATE ____

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
6 1995 Budget Bureau No. 1004-0135
Expires: March 31, 1993

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9. API Well No.
4301530272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Unit Letter E : 2095 Feet From The NORTH Line and 310 Feet From The WEST Line Section 24 Township T18S Range R7E

10. Field and Pool, Exploratory Area
WILDCAT

11. County or Parish, State
EMERY , UT

12. Check Appropriate Box(s) To Indicate Nature of Notice, Report, or Other Data

TYPE OF SUBMISSION	TYPE OF ACTION	
☒ Notice of Intent	☐ Abandonment	☒ Change of Plans
☐ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ OTHER: CHANGE INT. CASING	☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log Form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*.

TEXACO E. & P., INC. REQUESTS APPROVAL ON THE FOLLOWING WORK:

TEXACO PROPOSES TO CHANGE THE INTERMEDIATE CASING DEPTH ON THE SUBJECT WELL. DUE TO THE FERRON FM. BEING 200 FEET DEEPER THAN ANTICIPATED, IT IS NECESSARY TO SET THE 9-5/8" CASING AT 2700 FEET. THE PREVIOUSLY APPROVED DEPTH WAS 2500 FEET (A.P.D.).

MR. FRANK MATHEWS (UTAH DIVISION OF OIL, GAS & MINING) GAVE MR. KEVIN THOMPSON (TEXACO - DENVER DIVISION) VERBAL APPROVAL 12/21/95.

CONFIDENTIAL

14. I hereby certify that the foregoing is true and correct

SIGNATURE [signature] TITLE Operating Unit Manager DATE 12/21/95

TYPE OR PRINT NAME Ted A. Tipton

(This space for Federal or State office use)

APPROVED [signature] TITLE Petroleum Engineer DATE 12/27/95

CONDITIONS OF APPROVAL, IF ANY:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

CONFIDENTIAL

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT –" for such proposals

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.

6. If Indian, Alottee or Tribe Name

7. If Unit or CA, Agreement Designation

1. Type of Well: ☐ OIL WELL ☐ GAS WELL ☐ OTHER DISPOSAL WELL

8. Well Name and Number
FEE
SWD-1

2. Name of Operator
TEXACO EXPLORATION & PRODUCTION, INC.

3. Address and Telephone No.
3300 N. Butler Ave., Suite 100 Farmington NM 87401 325-4397

9. API Well No.
4301530272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Unit Letter E : 2095 Feet From The NORTH Line and 310 Feet From The WEST Line Section 24 Township T18S Range R7E

10. Field and Pool, Exploratory Area
WILDCAT

11. County or Parish, State
EMERY , UT

12. Check Appropriate Box(s) To Indicate Nature of Notice, Report, or Other Data

TYPE OF SUBMISSION	TYPE OF ACTION	
☒ Notice of Intent	☐ Abandonment	☒ Change of Plans
☐ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ OTHER: CHANGE T.D.	☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log Form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*.

TEXACO E. & P., INC. REQUESTS APPROVAL ON THE FOLLOWING WORK:

TEXACO PROPOSES TO CHANGE THE TOTAL DEPTH OF THE SUBJECT WELL. THE NEW T.D. WILL BE 7800'. (CHANGE FROM THE PREVIOUSLY APPROVED DEPTH OF 7700').

MR. MIKE HEBERTSON (UTAH DIVISION OF OIL, GAS & MINING) GAVE MR. KEVIN THOMPSON (TEXACO - DENVER DIVISION) VERBAL APPROVAL 1/24/96.

14. I hereby certify that the foregoing is true and correct

SIGNATURE _____ TITLE Operating Unit Manager DATE 1/24/96

TYPE OR PRINT NAME Ted A. Tipton

(This space for Federal or State office use)

APPROVED _____ TITLE _____ DATE 1/29/96

CONDITIONS OF APPROVAL, IF ANY:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FEB 3 1

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT --" for such proposals

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.

6. If Indian, Alottee or Tribe Name

7. If Unit or CA, Agreement Designation

1. Type of Well: ☐ OIL WELL ☐ GAS WELL ☒ OTHER DISPOSAL WELL

8. Well Name and Number
FEE
SWD-1

2. Name of Operator
TEXACO EXPLORATION & PRODUCTION, INC.

3. Address and Telephone No.
3300 N. Butler Ave., Suite 100 Farmington NM 87401 325-4397

9. API Well No.
4301530272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Unit Letter E : 2095 Feet From The NORTH Line and 310 Feet From The WEST Line Section 24 Township T18S Range R7E

10. Field and Pool, Exploratory Area
WILDCAT

11. County or Parish, State
EMERY , UT

12. **Check Appropriate Box(s) To Indicate Nature of Notice, Report, or Other Data**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Abandonment	☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ OTHER: CASING SET AT T.D.	☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log Form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*.

TEXACO E. & P., INC. HAS COMPLETED THE FOLLOWING ON THE SUBJECT WELL:

DRILL 12-1/4" HOLE TO 2700'. LOG COMPENSATED NEUTRON, LITHO-DENSITY, PHASOR INDUCTION, GAMMA RAY FROM 345' TO 2700' (2 RUNS). SET 65 JTS. 9-5/8", 36#, K-55, LTC CASING. SET AT 2700'. CEMENT IN 2 STAGES WITH: LEAD - 200 SX CLASS 'G' CEMENT WITH ADDITIVES. 12% GEL, 2% EXTENDER, 1% SALT, 5# GILSONITE. TAIL - 310 SX RFC CEMENT. CIRCULATE 21 BBLS. TO PIT.

AIR DRILL 8-3/4" HOLE TO 6426'. PIPE STUCK IN HOLE. NO LUCK RETRIEVING JUNK. LEAVE JUNK IN HOLE. CEMENT BACK TO 3260' WITH 200 SX CLASS 'G' CEMENT. CONDITION HOLE TO KICK-OFF. KICK-OFF AND DRILL 8-3/4" HOLE TO 7760' (T.D.). REACHED T.D. ON 2/4/96. LOG DIL/LDT/CNT/GR/CAL FROM 7754' TO 2500'. LOG CMR FROM 7450' TO 6300'. CUT AND RECOVER 12 SIDEWALL CORES. SET 191 JTS. 7", 26#, C-95 & K-55 CASING. SET AT 7746'. CEMENT WITH 236 SX "HI-LIFT" AND 460 SX "RFC" CEMENT.

RIG DOWN, RELEASE RIG 2:30 A.M. 2/7/96. PREP TO COMPLETE.

14. I hereby certify that the foregoing is true and correct

SIGNATURE _____ TITLE Operating Unit Manager DATE 2/9/96

TYPE OR PRINT NAME Ted A. Tipton

(This space for Federal or State office use)

APPROVED

CONDITIONS OF APPROVAL, IF ANY: ____ TITLE _____ DATE _____

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Navajo Formation

INORGANIC ANALYSIS REPORT

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Fax (801) 263-8687

Client: State of Utah- Oil, Gas, and Mining
Date Sampled: February 15, 1996
Lab Sample ID.: 25073-01
Field Sample ID.: Texaco SWD 1 Sample #1

Contact: Dan Jarvis
Date Received: February 16, 1996
Received By: Sherlyn Lewis
Set Description: Two Waste Samples

Analytical Results

	Method Used:	Detection Limit: mg/L	Amount Detected: mg/L
TOTAL METALS			
Sodium	6010	5.0	**4,500.**
OTHER CHEMISTRIES			
Chloride	4500 CLB	0.5	**12,000.**
†Conductivity	120.1	10.	**24,000.**
TDS	160.1	1.0	**24,000.**

† Conductivity reported in µmhos/cm @ 25 C.

Released by: _____
Laboratory Supervisor

Report Date 2/27/96

Navajo Formation

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Fax (801) 263-8687

INORGANIC ANALYSIS REPORT

Client: State of Utah- Oil, Gas, and Mining
Date Sampled: February 15, 1996
Lab Sample ID.: 25073-02
Field Sample ID.: Texaco SWD 1 Sample #2

Contact: Dan Jarvis
Date Received: February 16, 1996
Received By: Sherlyn Lewis
Set Description: Two Waste Samples

Analytical Results

TOTAL METALS	Method Used:	Detection Limit: mg/Kg	Amount Detected: mg/Kg
Calcium	6010	5.0	**2,700.**
Magnesium	6010	5.0	**700.**
Potassium	6010	5.0	**280.**
Sodium	6010	5.0	**4,600.**
OTHER CHEMISTRIES			
Bicarbonate (as $CaCO_3$)	310.1	10.	**460.**
Bromide	320.1/405.0	0.05/0.1	**1.8**
Carbonate (as $CaCO_3$)	310.1	10.	<10.
Chloride	4500 CLB	0.5	**11,000.**
†Conductivity	120.1	10.	**24,000.**
Nitrate (as N)	353.2	0.01	<0.01
pH	150.1	0.1	**6.6**
Sulfate	375.4	5.0	**3,600.**
TDS	160.1	1.0	**23,000.**

† Conductivity reported in µmhos/cm @ 25 C.

Released by: _____
Laboratory Supervisor

Report Date 2/27/96

Texaco Exploration and Production Inc 3300 N Butler
Farmington, NM 87401

Certified: P 195 081 820

March 1, 1996

Utah Power & Light
1407 West North Temple
Salt Lake City, Utah 84140

Subject: **Application for Injection Well - UIC Form 1**
Texaco E&P Inc. Salt Water Disposal Well - SWD #1
SW/NW Section 24, Township 18 West, Range 7 East
R649-5-2-2.12

Dear Ms. / Mr.:

As required by State of Utah Oil and Gas Conservation regulations, R649-5-2.2.12, the enclosed permit application, for the proposed captioned salt water disposal well, must be provided to all operators, owners, and surface owners located within a one-half mile radius of exposure.

If you have any questions in regards to this notice, please call me at (505) 325-4397 or contact Mr. Dan Jarvis of the Division of Oil, Gas, and Mining in Salt Lake City, Utah.

Sincerely,

Richard Hunde for TAT

Ted A. Tipton
Operations Manager
Farmington Operating Unit

LNS/s

Enclosure

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR TEXACO EXPLORATION AND PRODUCTION, INC.
ADDRESS 3300 NORTH BUTLER, SUITE 100
FARMINGTON, NEW MEXICO 87401

Well name and number: SWD #1

Field or Unit name: Buzzard Bench Lease No. FEE

Well location: QQ SW/NW section 24 township 18S range 7E county Emery

Is this application for expansion of an existing project?		Yes [ ]	No [X]
Well the proposed well be used for:	Enhanced Recovery? . . .	Yes [ ]	No [X]
	Disposal ?	Yes [X]	No [ ]
	Storage ?	Yes [ ]	No [X]
Is this application for a new well to be drilled ?		Yes [X]	No [ ]
If this application is for an existing well, has a casing test been performed on the well?		Yes [ ]	No [ ]

Date of Test: _____
API Number: _____

Proposed injection interval: from 6295 to 7295

Proposed maximum injection: rate 15,000 BWPD pressure 1,500 psig

Proposed injection zone contains [ ] oil , [ ] gas , and/or [ ] fresh water within 1/2 mile of the well.

IMPORTANT: Additional information as required by R649-5-2 should accompany this form.

List of Attachments _____

I certify that this report is true and complete to the best of my knowledge.

Name Ted A. Tipton
Title Operations Manager
Phone No. (505) 325-4397

Signature Richard Hinds for TAT
Date 3/4/96

(State Use Only)
Application approved by _____ Title _____
Approval Date _____
Comments:

(3/89)

[redacted]

Texaco Exploration and Production Inc
3300 N Butler
Farmington NM 87401

Certified Mail: P 195 081 821

March 1, 1996

Mr. Lyman Jack Curtis
P.O. Box 143
Orangeville, Utah 84537

Subject: **Application for Injection Well - UIC Form 1**
Texaco E&P Inc. Salt Water Disposal Well - SWD #1
SW/NW Section 24, Township 18 West, Range 7 East
R649-5-2-2.12

Dear Ms. / Mr.:

As required by State of Utah Oil and Gas Conservation regulations, R649-5-2.2.12, the enclosed permit application, for the proposed captioned salt water disposal well, must be provided to all operators, owners, and surface owners located within a one-half mile radius of exposure.

If you have any questions in regards to this notice, please call me at (505) 325-4397 or contact Mr. Dan Jarvis of the Division of Oil, Gas, and Mining in Salt Lake City, Utah.

Sincerely,

Rachael Hinds for TAT

Ted A. Tipton
Operations Manager
Farmington Operating Unit

LNS/s

Enclosure

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR TEXACO EXPLORATION AND PRODUCTION, INC.
ADDRESS 3300 NORTH BUTLER, SUITE 100
FARMINGTON, NEW MEXICO 87401

Well name and number: SWD #1

Field or Unit name: Buzzard Bench Lease No. FEE

Well location: QQ SW/NW section 24 township 18S range 7E county Emery

Is this application for expansion of an existing project?		Yes [ ]	No [X]
Well the proposed well be used for:	Enhanced Recovery? . . .	Yes [ ]	No [X]
	Disposal ?	Yes [X]	No [ ]
	Storage ?	Yes [ ]	No [X]
Is this application for a new well to be drilled ?		Yes [X]	No [ ]
If this application is for an existing well, has a casing test been performed on the well?		Yes [ ]	No [ ]

Date of Test: _____
API Number: _____

Proposed injection interval: from 6295 to 7295

Proposed maximum injection: rate 15,000 BWPD pressure 1,500 psig

Proposed injection zone contains [ ] oil , [ ] gas , and/or [ ] fresh water within 1/2 mile of the well.

IMPORTANT: Additional information as required by R649-5-2 should accompany this form.

List of Attachments _____

I certify that this report is true and complete to the best of my knowledge.

Name Ted A. Tipton
Title Operations Manager
Phone No. (505) 325-4397

Signature Richard Hinds for TAT
Date 3/4/96

(State Use Only)
Application approved by _____ Title _____
Approval Date _____
Comments:

Texaco Exploration and Production Inc
3300 N Butler
Farmington NM 87401

Certified Mail: P 195 081 822

March 1, 1996

Ms. Virginia Huntington Petty
50 West 100 North
Orangeville, Utah 84537

Subject: **Application for Injection Well - UIC Form 1**
Texaco E&P Inc. Salt Water Disposal Well - SWD #1
SW/NW Section 24, Township 18 West, Range 7 East
R649-5-2-2.12

Dear Ms. / Mr.:

As required by State of Utah Oil and Gas Conservation regulations, R649-5-2.2.12, the enclosed permit application, for the proposed captioned salt water disposal well, must be provided to all operators, owners, and surface owners located within a one-half mile radius of exposure.

If you have any questions in regards to this notice, please call me at (505) 325-4397 or contact Mr. Dan Jarvis of the Division of Oil, Gas, and Mining in Salt Lake City, Utah.

Sincerely,

Rachael Hinds for TAT

Ted A. Tipton
Operations Manager
Farmington Operating Unit

LNS/s

Enclosure

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR TEXACO EXPLORATION AND PRODUCTION, INC.
ADDRESS 3300 NORTH BUTLER, SUITE 100
FARMINGTON, NEW MEXICO 87401

Well name and number: SWD #1

Field or Unit name: Buzzard Bench Lease No. FEE

Well location: QQ SW/NW section 24 township 18S range 7E county Emery

Is this application for expansion of an existing project?		Yes [ ]	No [X]
Well the proposed well be used for:	Enhanced Recovery? . . .	Yes [ ]	No [X]
	Disposal ?	Yes [X]	No [ ]
	Storage ?	Yes [ ]	No [X]
Is this application for a new well to be drilled ?		Yes [X]	No [ ]
If this application is for an existing well, has a casing test been performed on the well?		Yes [ ]	No [ ]

Date of Test: _____
API Number: _____

Proposed injection interval: from 6295 to 7295

Proposed maximum injection: rate 15,000 BWPD pressure 1,500 psig

Proposed injection zone contains [ ] oil , [ ] gas , and/or [ ] fresh water within 1/2 mile of the well.

IMPORTANT: Additional information as required by R649-5-2 should accompany this form.

List of Attachments _____

I certify that this report is true and complete to the best of my knowledge.

Name Ted A. Tipton
Title Operations Manager
Phone No. (505) 325-4397

Signature Richard Hinds for TAT
Date 3/4/96

(State Use Only)
Application approved by _____ Title _____
Approval Date _____
Comments:

(3/89)

Texaco Exploration and Production Inc 3300 A Butler
Farmington NM 87401

Certified Mail: P 195 081 823

March 1, 1996

Ms. Bertie Huntington
90 West Center
Orangeville, Utah 84537

Subject: **Application for Injection Well - UIC Form 1**
Texaco E&P Inc. Salt Water Disposal Well - SWD #1
SW/NW Section 24, Township 18 West, Range 7 East
R649-5-2-2.12

Dear Ms. / Mr.:

As required by State of Utah Oil and Gas Conservation regulations, R649-5-2.2.12, the enclosed permit application, for the proposed captioned salt water disposal well, must be provided to all operators, owners, and surface owners located within a one-half mile radius of exposure.

If you have any questions in regards to this notice, please call me at (505) 325-4397 or contact Mr. Dan Jarvis of the Division of Oil, Gas, and Mining in Salt Lake City, Utah.

Sincerely,

Rachael Hunell for TAT

Ted A. Tipton
Operations Manager
Farmington Operating Unit

LNS/s

Enclosure

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR TEXACO EXPLORATION AND PRODUCTION, INC.
ADDRESS 3300 NORTH BUTLER, SUITE 100
FARMINGTON, NEW MEXICO 87401

Well name and number: SWD #1

Field or Unit name: Buzzard Bench Lease No. FEE

Well location: QQ SW/NW section 24 township 18S range 7E county Emery

Is this application for expansion of an existing project?		Yes [ ]	No [X]
Well the proposed well be used for:	Enhanced Recovery? . . .	Yes [ ]	No [X]
	Disposal ?	Yes [X]	No [ ]
	Storage ?	Yes [ ]	No [X]
Is this application for a new well to be drilled ?		Yes [X]	No [ ]
If this application is for an existing well, has a casing test been performed on the well?		Yes [ ]	No [ ]

Date of Test: _____
API Number: _____

Proposed injection interval: from 6295 to 7295

Proposed maximum injection: rate 15,000 BWPD pressure 1,500 psig

Proposed injection zone contains [ ] oil , [ ] gas , and/or [ ] fresh water within 1/2 mile of the well.

IMPORTANT: Additional information as required by R649-5-2 should accompany this form.

List of Attachments _____

I certify that this report is true and complete to the best of my knowledge.

Name Ted A. Tipton
Title Operations Manager
Phone No. (505) 325-4397

Signature Richard Hinds for TAT
Date 3/4/96

(State Use Only)
Application approved by _____ Title _____
Approval Date _____
Comments:

Texaco Exploration and Production Inc
3300 N Butler
Farmington NM 87401

Certified Mail: P 195 081 824

March 1, 1996

Bureau of Land Management
324 South State Street, Suite 300
Salt Lake City, Utah 84101

Subject: **Application for Injection Well - UIC Form 1**
Texaco E&P Inc. Salt Water Disposal Well - SWD #1
SW/NW Section 24, Township 18 West, Range 7 East
R649-5-2-2.12

Dear Ms. / Mr.:

As required by State of Utah Oil and Gas Conservation regulations, R649-5-2.2.12, the enclosed permit application, for the proposed captioned salt water disposal well, must be provided to all operators, owners, and surface owners located within a one-half mile radius of exposure.

If you have any questions in regards to this notice, please call me at (505) 325-4397 or contact Mr. Dan Jarvis of the Division of Oil, Gas, and Mining in Salt Lake City, Utah.

Sincerely,

Rachael Heinecke for TAT

Ted A. Tipton
Operations Manager
Farmington Operating Unit

LNS/s

Enclosure

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR TEXACO EXPLORATION AND PRODUCTION, INC.
ADDRESS 3300 NORTH BUTLER, SUITE 100
FARMINGTON, NEW MEXICO 87401

Well name and number: SWD #1

Field or Unit name: Buzzard Bench Lease No. FEE

Well location: QQ SW/NW section 24 township 18S range 7E county Emery

Is this application for expansion of an existing project?		Yes [ ]	No [X]
Well the proposed well be used for:	Enhanced Recovery? . . .	Yes [ ]	No [X]
	Disposal ?	Yes [X]	No [ ]
	Storage ?	Yes [ ]	No [X]
Is this application for a new well to be drilled ?		Yes [X]	No [ ]
If this application is for an existing well, has a casing test been performed on the well?		Yes [ ]	No [ ]

Date of Test: _____
API Number: _____

Proposed injection interval: from 6295 to 7295

Proposed maximum injection: rate 15,000 BWPD pressure 1,500 psig

Proposed injection zone contains [ ] oil , [ ] gas , and/or [ ] fresh water within 1/2 mile of the well.

IMPORTANT: Additional information as required by R649-5-2 should accompany this form.

List of Attachments _____

I certify that this report is true and complete to the best of my knowledge.

Name Ted A. Tipton
Title Operations Manager
Phone No. (505) 325-4397

Signature Richard Hinds for TAT
Date 3/4/96

(State Use Only)
Application approved by _____ Title _____
Approval Date _____
Comments:

(3/89)

Texaco Exploration and Production Inc
3300 N Butler
Farmington NM 87401

Certified Mail: P 195 081 825

March 1, 1996

Savage Industries
5250 South 300 West
Salt Lake City, Utah 84107

Subject: **Application for Injection Well - UIC Form 1**
Texaco E&P Inc. Salt Water Disposal Well - SWD #1
SW/NW Section 24, Township 18 West, Range 7 East
R649-5-2-2.12

Dear Ms. / Mr.:

As required by State of Utah Oil and Gas Conservation regulations, R649-5-2.2.12, the enclosed permit application, for the proposed captioned salt water disposal well, must be provided to all operators, owners, and surface owners located within a one-half mile radius of exposure.

If you have any questions in regards to this notice, please call me at (505) 325-4397 or contact Mr. Dan Jarvis of the Division of Oil, Gas, and Mining in Salt Lake City, Utah.

Sincerely,

Rachael Hinch for TAT

Ted A. Tipton
Operations Manager
Farmington Operating Unit

LNS/s

Enclosure

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR TEXACO EXPLORATION AND PRODUCTION, INC.
ADDRESS 3300 NORTH BUTLER, SUITE 100
FARMINGTON, NEW MEXICO 87401

Well name and number: SWD #1

Field or Unit name: Buzzard Bench Lease No. FEE

Well location: QQ SW/NW section 24 township 18S range 7E county Emery

Is this application for expansion of an existing project?		Yes [ ]	No [X]
Well the proposed well be used for:	Enhanced Recovery? . . .	Yes [ ]	No [X]
	Disposal ?	Yes [X]	No [ ]
	Storage ?	Yes [ ]	No [X]
Is this application for a new well to be drilled ?		Yes [X]	No [ ]
If this application is for an existing well, has a casing test been performed on the well?		Yes [ ]	No [ ]

Date of Test: _____
API Number: _____

Proposed injection interval: from 6295 to 7295

Proposed maximum injection: rate 15,000 BWPD pressure 1,500 psig

Proposed injection zone contains [ ] oil , [ ] gas , and/or [ ] fresh water within 1/2 mile of the well.

IMPORTANT: Additional information as required by R649-5-2 should accompany this form.

List of Attachments _____

I certify that this report is true and complete to the best of my knowledge.

Name Ted A. Tipton
Title Operations Manager
Phone No. (505) 325-4397

Signature Richard Hinds for TAT
Date 3/4/96

(State Use Only)
Application approved by _____ Title _____
Approval Date _____
Comments:

(3/89)

Texaco Exploration and Production Inc 3300 N Butler
Farmington NM 87401

Certified Mail: P 195 081 826

March 1, 1996

Colton Properties, Ltd.
8005 Greentree Road
Bethesda, Maryland 20817

Subject: **Application for Injection Well - UIC Form 1**
Texaco E&P Inc. Salt Water Disposal Well - SWD #1
SW/NW Section 24, Township 18 West, Range 7 East
R649-5-2-2.12

Dear Ms. / Mr.:

As required by State of Utah Oil and Gas Conservation regulations, R649-5-2.2.12, the enclosed permit application, for the proposed captioned salt water disposal well, must be provided to all operators, owners, and surface owners located within a one-half mile radius of exposure.

If you have any questions in regards to this notice, please call me at (505) 325-4397 or contact Mr. Dan Jarvis of the Division of Oil, Gas, and Mining in Salt Lake City, Utah.

Sincerely,

Ted A. Tipton
Operations Manager
Farmington Operating Unit

LNS/s

Enclosure

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR TEXACO EXPLORATION AND PRODUCTION, INC.
ADDRESS 3300 NORTH BUTLER, SUITE 100
FARMINGTON, NEW MEXICO 87401

Well name and number: SWD #1

Field or Unit name: Buzzard Bench Lease No. FEE

Well location: QQ SW/NW section 24 township 18S range 7E county Emery

Is this application for expansion of an existing project?		Yes [ ]	No [X]
Well the proposed well be used for:	Enhanced Recovery? . . .	Yes [ ]	No [X]
	Disposal ?	Yes [X]	No [ ]
	Storage ?	Yes [ ]	No [X]
Is this application for a new well to be drilled ?		Yes [X]	No [ ]
If this application is for an existing well, has a casing test been performed on the well?		Yes [ ]	No [ ]

Date of Test: _____
API Number: _____

Proposed injection interval: from 6295 to 7295

Proposed maximum injection: rate 15,000 BWPD pressure 1,500 psig

Proposed injection zone contains [ ] oil , [ ] gas , and/or [ ] fresh water within 1/2 mile of the well.

IMPORTANT: Additional information as required by R649-5-2 should accompany this form.

List of Attachments _____

I certify that this report is true and complete to the best of my knowledge.

Name Ted A. Tipton
Title Operations Manager
Phone No. (505) 325-4397

Signature Richard Hinds for TAT
Date 3/4/96

(State Use Only)
Application approved by _____ Title _____
Approval Date _____
Comments:

(3/89)

Texaco Exploration and Production Inc
3300 N Butler
Farmington NM 87401

Certified Mail: P 195 081 827

March 1, 1996

Ms. Whitney D. Hammond and Verda D. Hammond
P.O. Box 568
Vernal, Utah 84078

Subject: **Application for Injection Well - UIC Form 1**
Texaco E&P Inc. Salt Water Disposal Well - SWD #1
SW/NW Section 24, Township 18 West, Range 7 East
R649-5-2-2.12

Dear Ms. / Mr.:

As required by State of Utah Oil and Gas Conservation regulations, R649-5-2.2.12, the enclosed permit application, for the proposed captioned salt water disposal well, must be provided to all operators, owners, and surface owners located within a one-half mile radius of exposure.

If you have any questions in regards to this notice, please call me at (505) 325-4397 or contact Mr. Dan Jarvis of the Division of Oil, Gas, and Mining in Salt Lake City, Utah.

Sincerely,

Rachael Henkel for TAT

Ted A. Tipton
Operations Manager
Farmington Operating Unit

LNS/s

Enclosure

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR TEXACO EXPLORATION AND PRODUCTION, INC.
ADDRESS 3300 NORTH BUTLER, SUITE 100
FARMINGTON, NEW MEXICO 87401

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Field or Unit name: Buzzard Bench Lease No. FEE

Well location: QQ SW/NW section 24 township 18S range 7E county Emery

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Well the proposed well be used for:	Enhanced Recovery? . . .	Yes [ ]	No [X]
	Disposal ?	Yes [X]	No [ ]
	Storage ?	Yes [ ]	No [X]
Is this application for a new well to be drilled ?		Yes [X]	No [ ]
If this application is for an existing well, has a casing test been performed on the well?		Yes [ ]	No [ ]

Date of Test: _____
API Number: _____

Proposed injection interval: from 6295 to 7295

Proposed maximum injection: rate 15,000 BWPD pressure 1,500 psig

Proposed injection zone contains [ ] oil , [ ] gas , and/or [ ] fresh water within 1/2 mile of the well.

IMPORTANT: Additional information as required by R649-5-2 should accompany this form.

List of Attachments _____

I certify that this report is true and complete to the best of my knowledge.

Name Ted A. Tipton
Title Operations Manager
Phone No. (505) 325-4397

Signature Richard Hinds for TAT
Date 3/4/96

(State Use Only)
Application approved by _____ Title _____
Approval Date _____
Comments:

(3/89)

Texaco Exploration and Production Inc
3300 N Butler
Farmington NM 87401

Certified Mail: P 195 081 828

March 1, 1996

Ms. Alice Fox
390 Center Street
Orangeville, Utah 84537

Subject: **Application for Injection Well - UIC Form 1**
Texaco E&P Inc. Salt Water Disposal Well - SWD #1
SW/NW Section 24, Township 18 West, Range 7 East
R649-5-2-2.12

Dear Ms. / Mr.:

As required by State of Utah Oil and Gas Conservation regulations, R649-5-2.2.12, the enclosed permit application, for the proposed captioned salt water disposal well, must be provided to all operators, owners, and surface owners located within a one-half mile radius of exposure.

If you have any questions in regards to this notice, please call me at (505) 325-4397 or contact Mr. Dan Jarvis of the Division of Oil, Gas, and Mining in Salt Lake City, Utah.

Sincerely,

Rachael Hindi for TAT

Ted A. Tipton
Operations Manager
Farmington Operating Unit

LNS/s

Enclosure

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR TEXACO EXPLORATION AND PRODUCTION, INC.
ADDRESS 3300 NORTH BUTLER, SUITE 100
FARMINGTON, NEW MEXICO 87401

Well name and number: SWD #1

Field or Unit name: Buzzard Bench Lease No. FEE

Well location: QQ SW/NW section 24 township 18S range 7E county Emery

Is this application for expansion of an existing project?		Yes [ ]	No [X]
Well the proposed well be used for:	Enhanced Recovery? . . .	Yes [ ]	No [X]
	Disposal ?	Yes [X]	No [ ]
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Is this application for a new well to be drilled ?		Yes [X]	No [ ]
If this application is for an existing well, has a casing test been performed on the well?		Yes [ ]	No [ ]

Date of Test: _____
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Proposed injection zone contains [ ] oil , [ ] gas , and/or [ ] fresh water within 1/2 mile of the well.

IMPORTANT: Additional information as required by R649-5-2 should accompany this form.

List of Attachments _____

I certify that this report is true and complete to the best of my knowledge.

Name Ted A. Tipton
Title Operations Manager
Phone No. (505) 325-4397

Signature Richard Hinds for TAT
Date 3/4/96

(State Use Only)
Application approved by _____ Title _____
Approval Date _____
Comments:

(3/89)

Texaco Exploration and Production Inc
3300 N Butler
Farmington NM 87401

Certified Mail: P 195 081 829

March 1, 1996

Mr. Walter K. McAlister and Charolette Rose McAlister
5075 West 4700 South
Kearns, Utah 84118

Subject: **Application for Injection Well - UIC Form 1**
Texaco E&P Inc. Salt Water Disposal Well - SWD #1
SW/NW Section 24, Township 18 West, Range 7 East
R649-5-2-2.12

Dear Ms. / Mr.:

As required by State of Utah Oil and Gas Conservation regulations, R649-5-2.2.12, the enclosed permit application, for the proposed captioned salt water disposal well, must be provided to all operators, owners, and surface owners located within a one-half mile radius of exposure.

If you have any questions in regards to this notice, please call me at (505) 325-4397 or contact Mr. Dan Jarvis of the Division of Oil, Gas, and Mining in Salt Lake City, Utah.

Sincerely,

Ted A. Tipton
Operations Manager
Farmington Operating Unit

LNS/s

Enclosure

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR TEXACO EXPLORATION AND PRODUCTION, INC.
ADDRESS 3300 NORTH BUTLER, SUITE 100
FARMINGTON, NEW MEXICO 87401

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	Disposal ?	Yes [X]	No [ ]
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If this application is for an existing well, has a casing test been performed on the well?		Yes [ ]	No [ ]

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IMPORTANT: Additional information as required by R649-5-2 should accompany this form.

List of Attachments _____

I certify that this report is true and complete to the best of my knowledge.

Name Ted A. Tipton
Title Operations Manager
Phone No. (505) 325-4397

Signature Richard Hinds for TAT
Date 3/4/96

(State Use Only)
Application approved by _____ Title _____
Approval Date _____
Comments:

(3/89)

Texaco Exploration and Production Inc
3300 N Butler
Farmington NM 87401

Certified Mail
Return Receipt P 195 081 831

March 4, 1996

Mr. Gil Hunt
State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: **APPLICATION FOR INJECTION WELL - UIC Form 1**
Texaco Exploration and Production, Inc. Well - SWD #1
SW/NW Section 24, T18S, R7E, Emery County, Utah

Dear Mr. Hunt:

As discussed on 2/29/96, at the Oil and Gas Operators Meeting in Price, enclosed for your review is an injection application for the above captioned well. Some of the information is still being compiled and will be forwarded to you as soon as possible. Please proceed with the public notice announcements.

If you have any questions or require additional assistance, please contact Larry Schlotterback at (505) 325-4397 ext.17.

Sincerely,

Rocked Hinds for TAT

Ted A. Tipton
Operations Manager

LNS/s

Enclosures

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR TEXACO EXPLORATION AND PRODUCTION, INC.
ADDRESS 3300 NORTH BUTLER, SUITE 100
FARMINGTON, NEW MEXICO 87401

Well name and number: SWD #1

Field or Unit name: Buzzard Bench Lease No. FEE

Well location: QQ SW/NW section 24 township 18S range 7E county Emery

Is this application for expansion of an existing project?		Yes [ ]	No [X]
Well the proposed well be used for:	Enhanced Recovery? . . .	Yes [ ]	No [X]
	Disposal ?	Yes [X]	No [ ]
	Storage ?	Yes [ ]	No [X]
Is this application for a new well to be drilled ?		Yes [X]	No [ ]
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Proposed injection zone contains [ ] oil , [ ] gas , and/or [ ] fresh water within 1/2 mile of the well.

IMPORTANT: Additional information as required by R649-5-2 should accompany this form.

List of Attachments _____

I certify that this report is true and complete to the best of my knowledge.

Name Ted A. Tipton
Title Operations Manager
Phone No. (505) 325-4397

Signature Richard Hinds for TAT
Date 3/4/96

(State Use Only)
Application approved by _____ Title _____
Approval Date _____
Comments:

(3/89)

Texaco E&P Inc.
Salt Water Disposal Well Application
SWD#1

Regulatory Compliance Record

R649-5-2-

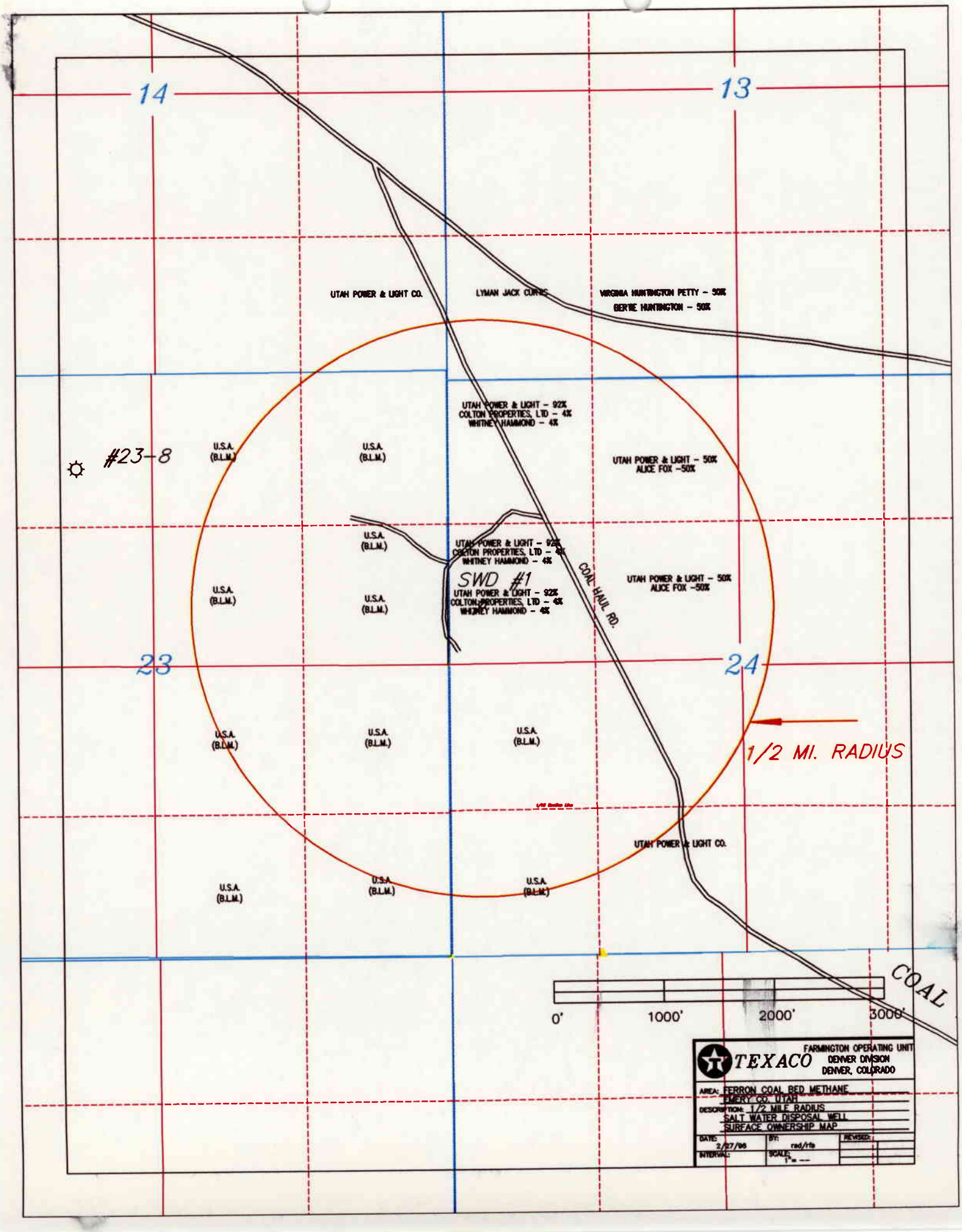
2	Application Form 1	Attached form
2.1	Plat showing the location of well & 1/2 mile radius of exposure	Attached map
2.2	Copies of logs (radioactive & electrical)	Submitted to DOGM under separate cover from Dowell / Schlumberger (APD stipulations)
2.3	Copy of cement bond logs	Submitted to DOGM under separate cover from Dowell / Schlumberger (APD stipulations)
2.4	Copies of existing logs	Attached comments
2.5	Description of casing	Attached table
2.6	Type of fluid, source and estimated volumes / daily	Attached comments
2.7	Standard lab analysis of fluid ***Compatibility of the fluids***	Attached lab analysis ***To be submitted later***
2.8	***Proposed pressures***	***To be submitted later***
2.9	Evidence and data to support that the well will not initiate fractures to enter fresh water	Attached comments
2.10	Geological data	Attached report
2.11	Review of mechanical conditions	Attached comments
2.12	Affidavit certifying copies have been sent to all owners, operators and surface owners within a 1/2 mile radius ***Affidavit***	Attached list of affected individuals and copies of Letters mailed 3/1/96 ***To be submitted later***

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397

SWD #1

Requirements R649 - 5 - 2 - 2.1

Plat showing the location of the well, all abandoned or active wells within 1/2 mile radius of proposed well, and the surface owner and the operator of any lands or producing leases, respectively, within a 1/2 mile radius of the proposed injection well.


14
13
23
24
UTAH POWER & LIGHT CO.
LYMAN JACK CURTIS
VIRGINIA HUNTINGTON PETTY – 50%
BERTIE HUNTINGTON – 50%
UTAH POWER & LIGHT – 92%
COLTON PROPERTIES, LTD – 4%
WHITNEY HAMMOND – 4%
#23-8
U.S.A. (B.L.M.)
UTAH POWER & LIGHT – 50%
ALICE FOX –50%
SWD #1
COAL HAUL RD.
1/2 MI. RADIUS
UTAH POWER & LIGHT CO.
COAL
0'
1000'
2000'
3000'
TEXACO
FARMINGTON OPERATING UNIT
DENVER DIVISION
DENVER, COLORADO
AREA: FERRON COAL BED METHANE
EMERY CO. UTAH
DESCRIPTION: 1/2 MILE RADIUS
SALT WATER DISPOSAL WELL
SURFACE OWNERSHIP MAP
DATE: 2/27/96
BY: rad/rfs
REVISED:
INTERVAL:
SCALE: 1" = ---

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397

SWD #1

Requirements R649 - 5 - 2 - 2.2

Copies of electrical or radioactive logs, including gamma ray logs, for the proposed well run prior to the installation of casing and indicating resistivity, spontaneous potential, caliper, and porosity.

Submitted under separate cover from Dowell / Schlumberger

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397

SWD #1

Requirements R649 - 5 - 2 - 2.3

Copy of a cement bond or comparable log run for the proposed injection well after casing was set and cemented.

Submitted under separate cover from Dowell / Schlumberger

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397

SWD #1

Requirements R649 - 5 - 2 - 2.4

Copies of logs already on file with DOGM

Research completed; no logs found

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397

SWD #1

Requirements R649 - 5 - 2 - 2.5

Description of the casing and proposed testing procedure

Proposed Casing Program

TUBULAR PROGRAM

String Type	Hole Size	Depth	Feet	Casing Diameter	Weight	Grade	Connection Type
Surface	17 1/2"	300'	300'	13 3/8"	54.5#	K-55	BT&C
Intermediate	12 1/4"	2500'	2500'	9 5/8"	36#	K-55	LT&C
Production	8-3/4"	7295'	7295'	7"	26#	K-55	LT&C

PRODUCTION PROGRAM

String Type	DV Depth	Stage Lead/Tail	Cement Bottom	Cement Top	No Sacks	Cement Type	Cement Yield	Cement Weight
Surface	NONE		300'	Surface	400	"g"	1.15	15.8
Intermediate	NONE	Lead	1500'	Surface	175	See(1)	3.98	11
		Tail	2500'	1500'	310		1.61	14.2
Production	NONE		7295'	5500'	275	RFC 10-0	1.62	14

(1) Class "G" w/12% gel, 2% extender, 0.25% fluid loss additive, 1% salt, and 5 lb/sk gilsonite

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397

SWD #1

Requirements R649 - 5 - 2 - 2.6

A statement as to the type of fluid to be used for injection, its source and estimated amounts to be injected daily.

The fluid to be injected into SWD #1 will be a composite of waters gathered from gas wells that extract water from the Ferron coal seams. These wells are located within the following leases:

Federal "A" , "B" , "C" and State of Utah Leases

It is estimated that up to approximately 15,000 barrels of water will be injected daily.

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397

SWD #1

Requirements R649 - 5 - 2 - 2.7

Standard laboratory analyses of the fluid to be injected,
the fluid in the formation into which the fluid is being injected,
and the compatibility of the fluids.

ANALYTICA
ENVIRONMENTAL LABORATORY

API Suite

Texaco E & P, Inc.

Project ID:	Ferron	Date Reported:	01/15/96
Sample ID:	State 36-10	Date Sampled:	01/10/96
Laboratory ID:	2409	Time Sampled:	NA
Sample Matrix:	Water	Date Received:	01/11/96

Parameter		Analytical Result	Units
General	Lab pH	7.2	s.u.
	Lab Conductivity @ 25° C	9,360	µmhos/cm
	Total Dissolved Solids @ 180°C	7,010	mg/L
	Total Dissolved Solids (Calc)	6,200	mg/L
	Specific Gravity	1.007	***
Anions	Total Alkalinity as $CaCO_3$	3,370	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	3,370	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	1,450	mg/L
	Sulfate	274	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	303	mg/L
	Calcium	121	mg/L
	Magnesium	<0.1	mg/L
	Potassium	30	mg/L
	Sodium	2,300	mg/L
	Iron	40.4	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	3.22	+/- 5 %
	TDS (180):TDS (calculated)	1.1	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 1983.
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397

SWD #1

Requirements R649 - 5 - 2 - 2.8

Proposed average and maximum injection pressures.

To be submitted later

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397

SWD #1

Requirements R649 - 5 - 2 - 2.9

Evidence and data to support a finding that the proposed injection well will not initiate fractures through the overlying strata or a confining interval that could enable the injected fluid or formation fluid to enter the fresh water strata.

The Navajo is overlain by 812 feet of Carmel Formation with some shale , minor salt and anhydrite and abundant sandstone with very low porosity which undoubtedly has very low permeability. The Carmel is too tight to transmit fluid through it and any fractures that might be initiated in the Navajo will not continue up through the Carmel to the overlying formations.

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397

SWD #1

Requirements R649 - 5 - 2 - 2.10

Appropriate geological data on the injection interval and confining beds, including

(1) geological name
(2) lithological description
(3) thickness
(4) depth
(5) lateral extent
(6) information relative to geologic structure near the proposed well which may effect the conveyance and/or storage of the injected fluids.

2/28/96

SWD-1
Current Completion

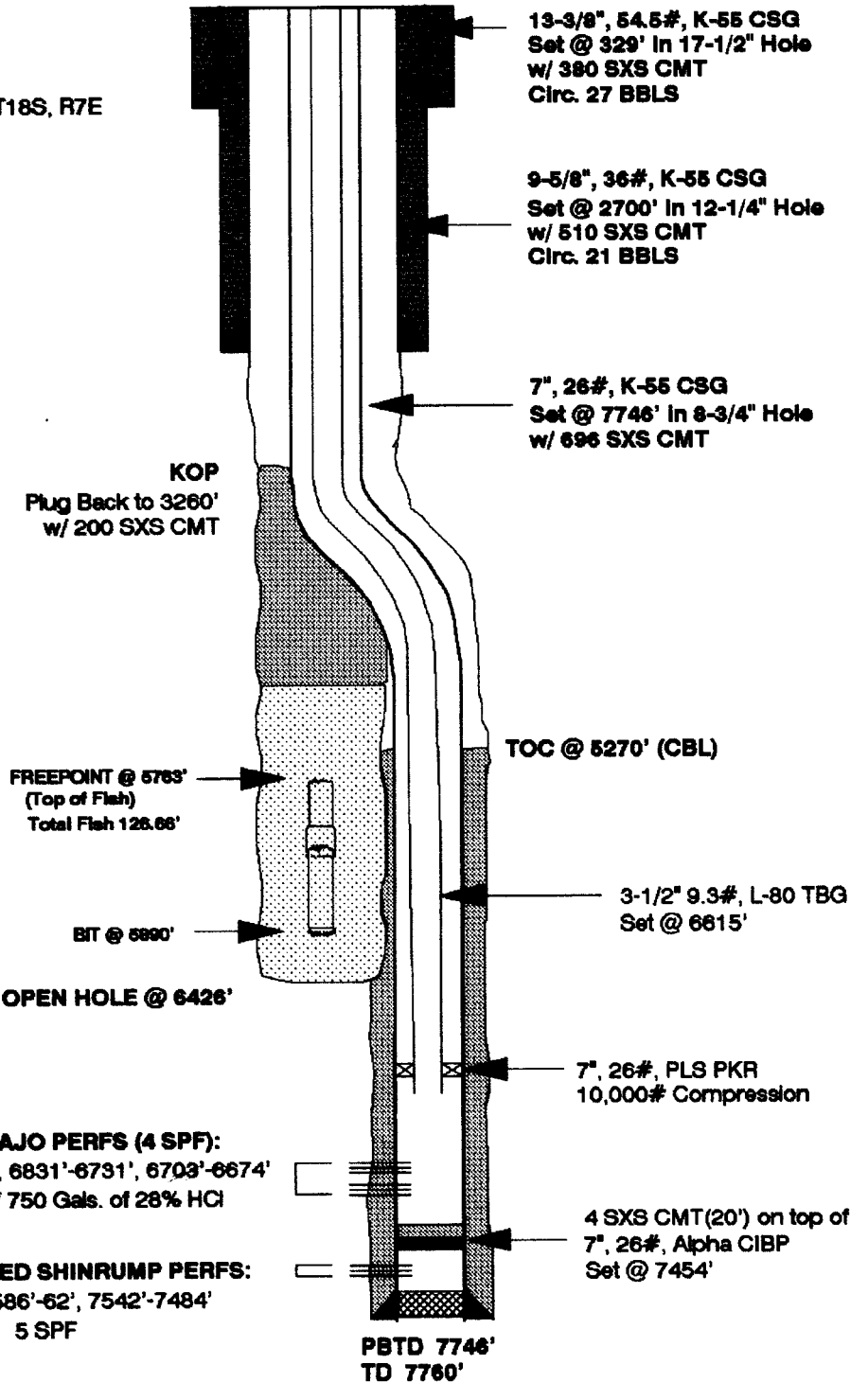
API No. 43-015-30272

LOCATION:
2095' FNL & 310' FWL
SW/4, NW/4, Sec. 24, T18S, R7E
Emery County, Utah

SPUD DATE: 12/16/95
RDMOL: 2/21/96

ELEVATION: 6003' KB
5987' GR

FORMATION TOPS:
2450' Ferron
2718' Tununk
3280' Dakota
3374' Cedar Mtn.
3880' Salt Wash
4054' Morrison
4228' Summerville
4650' Curtis
4851' Entrada
5594' Carmel
6406' Navajo
6904' Kayenta
7028' Wingate
7357' Chinle
7464' Shinarump
7643' Moenkopi



ANALYTICA
ENVIRONMENTAL LABORATORY

API Suite
Texaco E & P

Project ID:	NA		Date Reported:	03/01/96
Sample ID:	SWD - 1	(Navajo SS Formation)	Date Sampled:	02/15/96
Laboratory ID:	2767		Time Sampled:	6:00
Sample Matrix:	Water		Date Received:	02/28/96

Parameter		Analytical Result	Units
General	Lab pH	5.8	s.u.
	Lab Conductivity @ 25° C	29,300	µmhos/cm
	Total Dissolved Solids @ 180°C	21,600	mg/L
	Total Dissolved Solids (Calc)	20,600	mg/L
	Specific Gravity	1.022	***
Anions	Total Alkalinity as $CaCO_3$	478	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	478	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	10,370	mg/L
	Sulfate	3,030	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	11,100	mg/L
	Calcium	1,920	mg/L
	Magnesium	1,530	mg/L
	Potassium	250	mg/L
	Sodium	3,250	mg/L
	Iron	227	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	0.63	+/- 5 %
	TDS (180):TDS (calculated)	1.0	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 1983.
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

[redacted]

API Suite

Quality Control Report

Texaco E & P

Report Date: 03/01/96

Parameter	Analytical Result	Certified Value	Acceptance Range	Units
Laboratory pH	NA	NA	NA	s.u.
Conductivity	894	1020	760 - 1030	µmhos/cm
Total Dissolved Solids	675	667	580 - 754	mg/L
Total Alkalinity	NA	NA	NA	mg/L
Chloride	NA	NA	NA	mg/L
Sulfate	82.3	88	75.9 - 101	mg/L
Total Hardness	257	254	218 - 290	mg/L
Calcium	56.7	54.6	47.0 - 62.2	mg/L
Magnesium	NA	NA	NA	mg/L
Potassium	NA	NA	NA	mg/L
Sodium	NA	NA	NA	mg/L
Iron	1.04	1.00	0.90 - 1.10	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Comments:

Review

MONTGOMERY WATSON

December 14, 1995

Texaco Exploration and Production
P.O. Box 2100, Room 532
Denver, Colorado 80201

ATTN: Mr. R.A. Lamarre

Subject: Hydrogeologic Assessment in the Vicinity of the Proposed Texaco Ferron Coalbed Methane Water-Disposal Well No. 1

Dear Mr. Lamarre:

This letter-report is a summary of findings of an evaluation of general groundwater quality and hydrogeologic conditions in the vicinity of the proposed Texaco Ferron Coalbed Methane project in Emery County, Utah.

Project Background and Scope

It is our understanding that Texaco proposes to drill water-disposal well SWD #1 in Section 24, Township 18 South, Range 7 East, in Emery County, Utah. It is anticipated that the well will be drilled to a depth of approximately 7,300 feet, and be completed in the Navajo Sandstone. The proposed well will be used to dispose of water removed from nearby proposed coalbed methane production wells completed in the Ferron Sandstone.

The purpose of this evaluation is to provide Texaco with an independent evaluation of hydrogeologic conditions in the area of the proposed well, specifically those in the Navajo Sandstone. The scope of our services included the collection and analysis of available information for permitted water-supply and oil and gas wells within a minimum five-mile radius of the proposed disposal well site, and review and interpretation of available geologic maps and reports for the area. Data sources included:

- Utah Department of Natural Resources Division of Water Rights database, files, and reports
- Utah Division of Oil, Gas and Mining (UDOGM) files
- Utah Geological Survey reports and maps
- U.S. Geological Survey (USGS) database, reports, and maps

4525 South Wasatch Blvd.
Suite 200
Salt Lake City, Utah
84124-4799

Tel: 801 272 1900
Fax: 801 272 0430

Geology of the Navajo Sandstone

The Lower Jurassic Navajo Sandstone is a light-brown to light-gray, thick-bedded to massive, cross-bedded quartzose sandstone. The Navajo is generally fine-grained, clean and friable. The formation contains a few thin lenticular, light-gray limestone beds in the upper part (Witkind, 1995). Navajo exposures range from steep cliffs to rounded knolls and nearly flat terrain. The Navajo Sandstone ranges in thickness from 400 to 1,000 feet along the west flank of the San Rafael Swell, and is 450 to 500 feet thick in the vicinity of the proposed disposal well (Hood and Patterson, 1984, Plate 6; attached Figure 1). On the portion of the San Rafael Swell east of Castle Dale, the Navajo Sandstone strikes generally northeast and dips from 3 to 7 degrees west (Witkind, 1988).

Groundwater Occurrence

Groundwater in the northern San Rafael Swell area occurs under confined, unconfined, and perched conditions. Most water in the unconsolidated surficial deposits is unconfined and saline, due to the solution of evaporite minerals. Perched conditions occur in partially or fully-saturated strata underlain by less-permeable, unsaturated rocks. Water in consolidated strata such as the Navajo Sandstone is unconfined in and near outcrops around the perimeter of the Swell where recharge to the aquifer occurs (see attached Figure 2). Downgradient and downdip from the recharge areas, the water level in the confined aquifer intersects the contact with an overlying confining layer, and groundwater is under confined conditions. In the San Rafael Swell, the Carmel Formation serves as the confining layer above the Navajo Sandstone.

Groundwater Movement

According to Hood and Patterson (1984, Plate 5) the piezometric surface of groundwater in the Navajo Sandstone is approximately 5,350 feet above mean sea level in the vicinity of SWD #1 (about 640 feet below ground level). Groundwater in the Navajo Sandstone is recharged by infiltration into exposures of the formation around the flanks of the San Rafael Swell. Recharge along the west flank flows downdip (westerly) toward Castle Valley (Figure 2). Approximately 20 miles south of Castle Dale, the west-flank groundwater flow in the Navajo splits into north and south components (Hood and Patterson, 1984, Plate 5; Weiss, 1987, Figure 7). The direction of groundwater movement in the Navajo north of the groundwater divide (in the area of Castle Dale) is north-northeast; Navajo groundwater flow continues clockwise around the north end of the San Rafael Swell, and generally southwest along the east flank of the Swell, until it intercepts and discharges to the Green River.

Based on analysis of shallow (less than 5 feet in depth) bedrock cores and outcrop samples, the porosity of the Navajo Sandstone in the northern San Rafael Swell area ranges

from 3.6 to 26.8 percent (averaging 17.7 percent), and hydraulic conductivities range from 0.0037 to 5.1 feet per day (Hood and Patterson, 1984). As calculated from Hood and Patterson's piezometric contour map (1984, Plate 5; attached Figure 2), the hydraulic gradient of groundwater in the Navajo near Castle Dale is northerly, at 0.030 feet per feet.

The horizontal rate of groundwater flow (or average linear velocity) can be calculated using a modified form of the Darcy Equation (Freeze and Cherry, 1979):

$v = (K/n)\ (dh/dl)$

where:

v	=	average linear velocity (feet per day)
K	=	hydraulic conductivity (feet per day)
n	=	porosity (fraction)
dh/dl	=	hydraulic gradient (feet/foot)

Using the published range of values for K and n and the calculated dh/dl discussed above, the calculated average linear velocity of groundwater in the Navajo Sandstone in the northern San Rafael area may range from 0.1527 feet per year (low conductivity, high porosity) to 1,567 feet per year (high conductivity, low porosity). It should be noted that these velocities are not based on site-specific data, but are calculated using hydraulic characteristics of near-surface, weathered samples. It is probable that the velocity of groundwater flow in the formation as a whole, and particularly in the unweathered formation at depth, is more in line with the lower velocity.

Near Caineville (approximately 60 miles due south of Castle Dale), cores of Navajo Sandstone from 1,000 to 2,000 feet below ground surface had an average horizontal hydraulic conductivity (K) of 0.5 feet per day (Hood and Danielson, 1979, pg. 36). Assuming that the K value of these cores is more representative of the hydraulic conductivity of the Navajo at depth in the Castle Dale area, and assuming the 17.7 percent average porosity and 0.0303 hydraulic gradient of Hood and Patterson (1984), an average linear velocity of 31.2 feet per year is derived.

Groundwater Use

Deep-source groundwater use in Emery County is apparently very limited. A review of recorded water rights for the 120 sections within an approximate 5-mile radius of SWD #1 revealed a total of 394 water rights. Of these, 389 are surface rights on creeks, three rights are for underground drains installed in the 1970s, and two are underground water rights for wells 20 and 60 feet deep installed in 1927 and 1877, respectively. According to the Utah Division of Water Rights regional engineer, no water is currently withdrawn from the Navajo Sandstone in Castle Valley, and communities rely on surface water and spring flow collected from the Wasatch Plateau.

Five test wells were installed in 1981 by Utah Power and Light (UP&L) in Section 1, Township 19 South, Range 9 East and Section 7, Township 19 South, Range 10 East (12 miles east-southeast of SWD #1, see Figure 2). The wells were drilled to the top of the Kayenta Formation and completed in the Navajo at depths ranging from 575 to 882 feet. Navajo thickness ranged from 340 to 404 feet.

Groundwater Quality

In general, groundwater is saline in much of the northern San Rafael Swell area. Most formations in the Swell contain fresh water only near the recharge areas. Fresh water occurs in the Navajo Sandstone near outcrop areas on the perimeter of the Swell where infiltration of meteoric water flushes out dissolved solids. In most other areas of the northern San Rafael Swell, with increasing distance from recharge areas, water in the Navajo shows degradation by interformational leakage and mixing with saline water from adjacent formations (e.g., the overlying Carmel Formation) which contain gypsum, halite, and other evaporite minerals (Hood and Patterson, 1984).

Water samples collected by UP&L from the Navajo at various depths in the above-mentioned wells were submitted for laboratory analyses of water quality. The analytical results indicate total dissolved solids (TDS) concentrations from 600 to 6,799 milligrams per liter (mg/l). These wells are only 5 miles downdip from numerous narrow canyon-bottom exposures of the Navajo, and only 8 miles downdip of broad Navajo exposures with little relief. The relative "freshness" of some of the samples of Navajo groundwater from the UP&L wells is probably a function of shallow depth and the proximity of the wells to this recharge area.

The salinity of groundwater typically increases with depth of burial and distance from the area of recharge (Freeze and Cherry, 1979, pg. 241-243). This degradation in quality is primarily related to the distance the groundwater has traveled (allowing more time for dissolution of minerals in the formation).

Although there are no deep-aquifer water-quality data available for the immediate vicinity of the proposed disposal well, it is reasonable to expect that water quality in the Navajo Sandstone degrades westward with increasing depth and distance from the outcrop; the Navajo at SWD #1 is under 6,300 feet of cover and approximately 20 miles downgradient from the nearest recharge area.

According to information provided by Texaco, the total dissolved solids concentration of groundwater collected from the Navajo Sandstone at the River Gas Corporation Drunkard's Wash injection well D-1 (immediately southwest of Price, Utah, see attached Figure 1) was analyzed at approximately 172,000 milligrams per liter (parts per million [ppm]), an extremely saline brine. The Navajo Sandstone at well D-1 is under approximately 5,700 feet of cover, and is about 28 miles north-northwest of the nearest outcrop (recharge area) of the Navajo in the San Rafael Swell. The TDS concentration of water removed from the Ferron Sandstone coal beds at Drunkard's Wash and injected in the Navajo Sandstone at

well D-1 is approximately 15,000 ppm; thus, the injection of Ferron water actually decreases the salinity of groundwater in the Navajo.

In December, 1994, Texaco drilled a test well to the Ferron Sandstone in southwest Section 26, Township 18 South, Range 7 East, approximately 1.5 miles southwest of proposed SWD #1. Groundwater collected from this test well at depths of 2,970 and 3,090 feet had a combined TDS concentration of 11,000 ppm, somewhat less saline than the water injected at Drunkard's Wash..

Potential Effects of Water-Disposal on Water Quality in the Navajo Aquifer

The effect of Ferron Sandstone groundwater disposal on water quality in the Navajo Sandstone in the vicinity of proposed disposal well SWD #1 will depend primarily on the quality of water removed from the Ferron during dewatering and gas production, and the quality of groundwater in the Navajo prior to injection of the Ferron water. The distance from the recharge area and the depth of burial of the Navajo Sandstone at the proposed SWD #1 site suggest that groundwater quality conditions similar to those at Drunkard's Wash may be encountered, and that injection of saline water from the Ferron may improve groundwater quality in the Navajo.

Hood and Patterson (1984, pg. 40) note that the relatively low transmissivity of the Navajo Sandstone results in a restricted cone of depression and large drawdown under pumping. Because groundwater injection and groundwater withdrawal in confined aquifers have equivalent but inverse effects on the potentiometric surface surrounding the injection or withdrawal point (Freeze and Cherry, 1979, pg. 454), it is reasonable to expect that injection will result in a high, but relatively restricted groundwater mound in the Navajo Sandstone. Considering the upgradient distance to fresher, more usable water in the Navajo (closer to the formation's recharge area 20 miles east of proposed SWD #1), it seems unlikely that the proposed injection of Ferron groundwater will adversely affect groundwater quality in the vicinity of future potential water-production sites.

Because deep groundwater-quality information is not currently available for the vicinity of the proposed SWD #1 well site, and because the quality of groundwater to be removed from the proposed production wells in the Ferron Sandstone is known from only one test well, the effects of water disposal at SWD #1 cannot be predicted with certainty. Additional data, including analysis of groundwater in both the Ferron and Navajo formations, and tests of Navajo Sandstone aquifer characteristics in well SWD #1 itself, will be needed to confidently predict the effects of water disposal on Navajo water quality.

It has been a pleasure to work with you on this project. If you have any questions or require additional information or services, please do not hesitate to call me at (801) 273-2416.

Sincerely,

MONTGOMERY WATSON

John D. Garr, R.G.
Senior Hydrogeologist

Attachments: Figure 1
Figure 2

REFERENCES CITED

Freeze, R.A., and Cherry, J.A., 1979. Groundwater: Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 604 p.

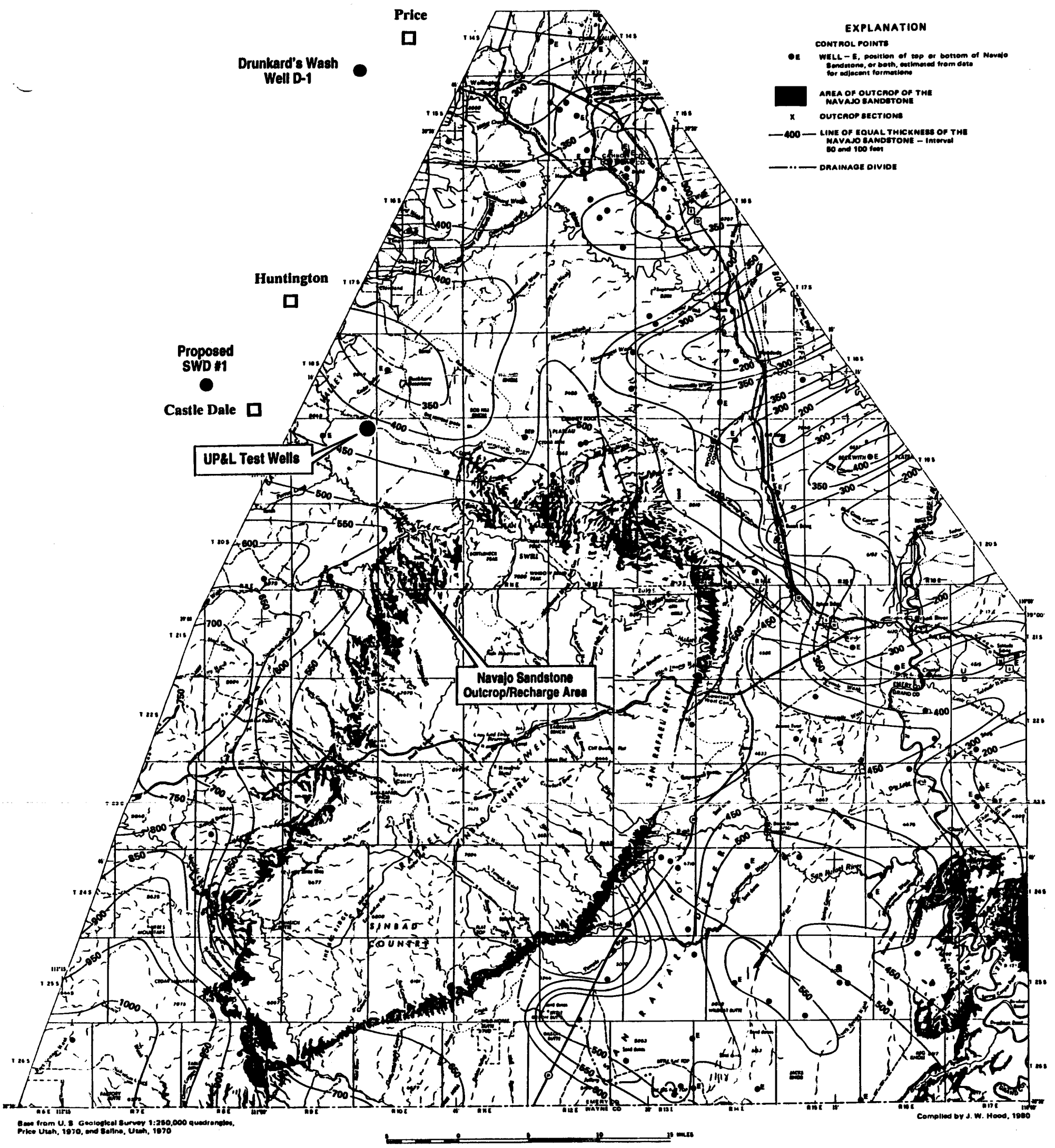
Hood, J.W., and Danielson, T.W., 1979. Aquifer tests of the Navajo Sandstone near Caineville, Wayne County, Utah: State of Utah Department of Natural Resources Division of Water Rights Technical Publication No. 66, 69 p.

Hood, J.W., and Patterson, D.J., 1984. Bedrock aquifers in the northern San Rafael Swell area, Utah, with special emphasis on the Navajo Sandstone: State of Utah Department of Natural Resources Division of Water Rights Technical Publication No. 78, 128 p. text, 5 plates.

Weiss, E., 1987. Groundwater flow in the Navajo Sandstone in parts of Emery, Grand, Carbon, Wayne, Garfield, and Kane counties, southeast Utah: U.S. Geological Survey Water-Resources Investigations Report 86-4012, 41 p.

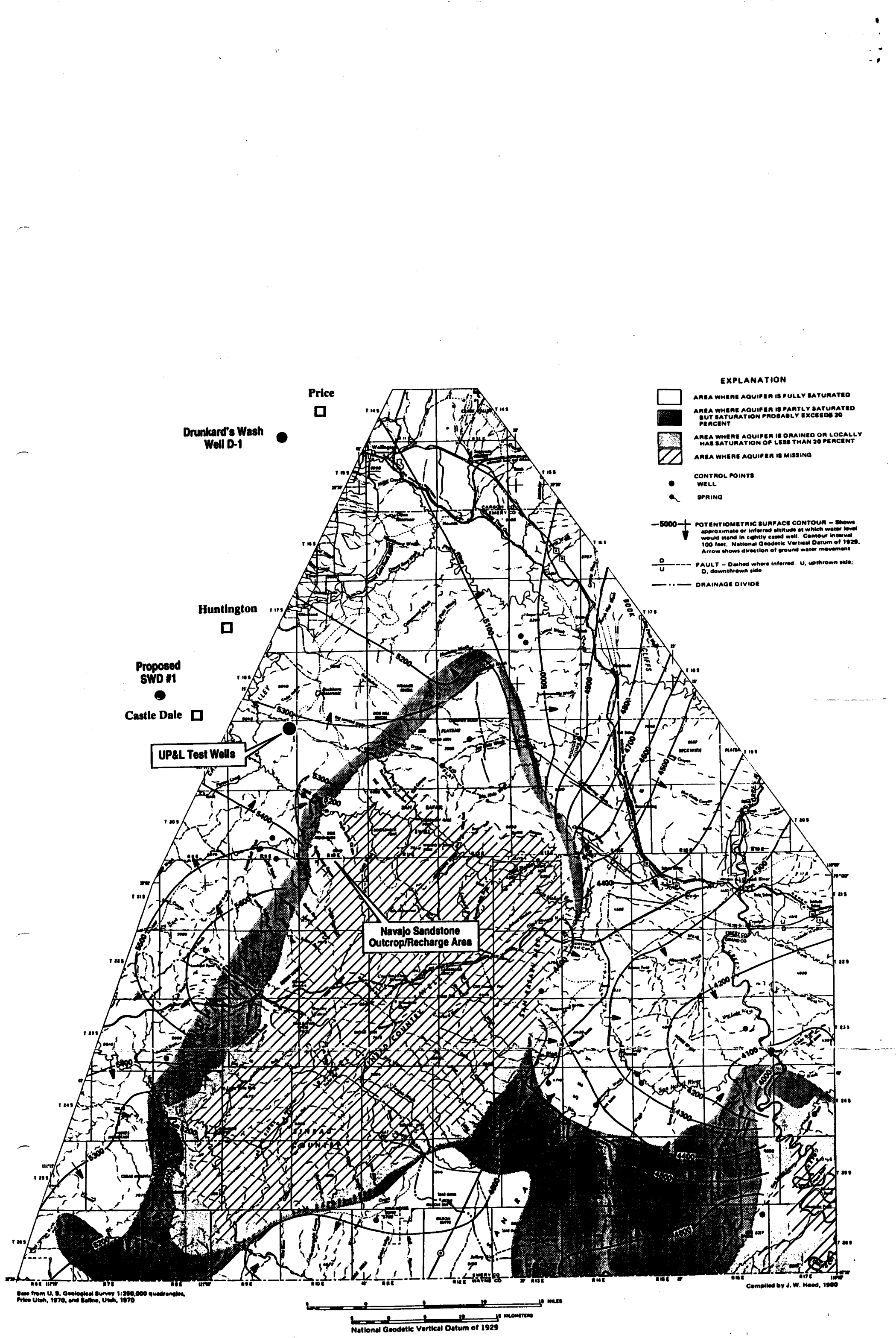
Witkind, I.J., 1988. Geologic map of the Huntington 30' x 60' quadrangle, Carbon, Emery, Grand, and Uintah Counties, Utah: U.S. Geological Survey Miscellaneous Investigations Series Map I-1764. 1:100,000-scale.

Witkind, I. J., 1995. Geologic map of the Price 1° x 2° quadrangle, Utah: U.S. Geological Survey Miscellaneous Investigations Series Map I-2462. 1:250,000-scale.



MAP SHOWING THICKNESS OF THE NAVAJO SANDSTONE IN THE NORTHERN SAN RAFAEL SWELL AREA, UTAH.

FIGURE 1



MAP SHOWING THE APPROXIMATE POTENTIOMETRIC SURFACE FOR THE NAVAJO SANDSTONE AQUIFER IN THE NORTHERN SAN RAFAEL SWELL AREA, UTAH.

FIGURE 2

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397

SWD #1

Requirements R649 - 5 - 2 - 2.11

A review of the mechanical condition of each well within a 1/2 mile radius of the proposed injection well to assure that no conduit exists that could enable fluids to migrate up or down the wellbore and enter improper intervals.

There are no other wells located within the 1/2 mile radius of exposure.

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397

SWD #1

Requirements R649 - 5 - 2 - 2.12

An affidavit certifying that a copy of the application has been provided to all operators, owners, and surface owners within a one-half mile radius of the proposed injection well.

Affidavit will be submitted later

DOLAR OIL PROPERTIES

Spectrum Mineral Services

The Dolar LLC

Utah Units and Permits

The Cherokee LLC

935 East South Union Avenue, Suite D-202
Salt Lake City, Utah 84047
Phone (801) 561 3121 • Fax (801) 561-3133

January 18, 1996

Robert Shawshist!e
Texaco Exploration & Production
Farmington, New Mexico

Re: Salt Water Disposal ownership
Township 18 South, Range 7 East, SLM
Sec 24: Sec 24: SW¼NW¼ (2095 feet from N line, 310 feet from W line)

The following is a detailed ownership report indicating mineral and surface ownership for the lands surrounding the Texaco salt water disposal well located as referenced above.

TRACT 1 -

Township 18 South, Range 7 East, SLM
Section 13: Tract in SW¼SW¼
Section 14: S½SE¼

Containing 81.42 acres, more or less

NAME	SURFACE INT	MINERAL INT
Utah Power & Light 1407 West North Temple SLC UT 84140	100%	100%

TRACT 2 -

Township 18 South, Range 7 East, SLM
Section 13: SW¼SW¼, except 1.42 acre tract

Containing 38.56 acres, more or less

NAME	SURFACE INT	MINERAL INT
Lyman Jack Curtis and Mary Alice Curtis P.O. Box 143 Orangeville, Utah 84537	100%	100%

TRACT 3-

Township 18 South, Range 7 East, SLM
Section 13: SW¼SE¼, SE¼SW¼

Containing 80.00 acres, more or less

NAME	SURFACE INT	MINERAL INT
Virginia Huntington Petty Trustee of the Virginia L. Huntington Family Living Trust dated February 17, 1983 Orangeville, UT 84537	100% 50 W 100 N	50%
Bertie Huntington, a widow 90 West Center Orangeville, Utah 84537	----	50%

*- Interest is unleased

TRACT 4-

Township 18 South, Range 7 East, SLM
Section 23: NE¼NE¼, N 1/3rd of SE¼NE¼

Containing 66.40 acres, more or less

NAME	SURFACE INT	MINERAL INT
Utah Power & Light 1407 West North Temple Salt Lake City, UT 84140	100%	-----
United States of America Utah BLM Office 324 South State Street Suite 300 Salt Lake City, UT 84101	-----	100%

TRACT 5 -

Township 18 South, Range 7 East, SLM
Section 23: S 2/3rd of SE¼NE¼

Containing 33.60 acres, more or less

NAME	SURFACE INT	MINERAL INT
Savage Industries 5250 South 300 West Salt Lake City, Utah 84107	100%	---
United States of America Utah BLM Office 324 South State Street, Suite 300 Salt Lake City, Utah 84101	----	100%

TRACT 6 -

Township 18 South, Range 7 East, SLM
Section 23: SE¼, W½
Section 24: SW¼SW¼
Containing 520.00 acres, more or less

TRACT 6 (contd)

NAME	SURFACE INT	MINERAL INT
United State of America Utah BLM Office 324 South State Street SLC UT 84101		100%

TRACT 7 -

Township 18 South, Range 7 East, SLM
Section 24: A 17.56 ac tract in NE¼NW¼ and NW¼NE¼

Containing 17.56 acres, more or less

NAME	SURFACE INT	MINERAL INT
Utah Power & Light 1407 West North Temple Salt Lake City, Utah 84140	100%	100%

TRACT 8 -

Township 18 South, Range 7 East, SLM
Section 24: NW¼NW¼ , except tract; ALSO a tract in E½SW¼NW¼, ALSO a tract in NW¼SW¼NW¼

Containing 46.00 acres, more or less

NAME	SURFACE INT	MINERAL INT
Utah Power & Light 1407 West North Temple Salt Lake City, Utah 84140	100%	92%
Colton Properties, Ltd 8005 Greentree Road Bethesda, Maryland, 20817	-----	4%

TRACT 8 (contd)

Whitney D. Hammond and Verda D. Hammond, husband and wife P.O. Box 568 Vernal, Utah 84078	------	4%

TRACT 9 -

Township 18 South, Range 7 East, SLM
Section 24: A 9.98 acre tract in N½SW¼NW¼ and S½NW¼NW¼

Containing 9.98 acres, more or less

NAME	SURFACE INT	MINERAL INT
Savage Industries 5260 South 300 West Salt Lake City, Utah 84107	100%	----
Utah Power & Light 1407 West North Temple SLC UT 84140	------	92%
Colton Properties, Ltd 8005 Greentree Road Bethesda, Maryland, 20817	-----	4%
Whitney D. Hammond and Verda D. Hammond, husband and wife P.O. Box 568 Vernal, Utah 84078	------	4%

TRACT 10 -

Township 18 South, Range 7 East, SLM
Section 24: A 9.278 acre tract in SW¼NW¼

Containing 9.278 acres, more or less

TRACT 10 - (contd)

NAME	SURFACE INT	MINERAL INT
Texaco Exploration and Production Inc. P.O. Box 2100 Denver, CO 80201	100%	----
Utah Power & Light 1407 West North Temple Salt Lake City Utah 84140	------	92%
Colton Properties, Ltd 8005 Greentree Road Bethesda, Maryland, 20817	-----	4%
Whitney D. Hammond and Verda D. Hammond, husband and wife P.O. Box 568 Vernal, Utah 84078	------	4%

TRACT 11 -

Township 18 South, Range 7 East, SLM

Section 24: NW¼SW¼, All lands in SW¼NW¼ lying south of Tract 10 and west of Highway #50.

Containing 54.742 acres, more or less

NAME	SURFACE INT	MINERAL INT
Savage Industries 5260 South 300 West Salt Lake City, Utah 84107	100%	----
Utah Power & Light 1407 West North Temple SLC UT 84140	------	92%

TRACT 11 (contd)

NAME	SURFACE INT	MINERAL INT
Colton Properties, Ltd 8005 Greentree Road Bethesda, Maryland, 20817	-----	4%
Whitney D. Hammond and Verda D. Hammond, husband and wife P.O. Box 568 Vernal, Utah 84078	------	4%

TRACT 12 -

Township 18 South, Range 7 East, SLM
Section 24: A 83.38 acre tract in E½NW¼ and W½NE¼

Containing 83.38 acres, more or less

NAME	SURFACE INT	MINERAL INT
Utah Power & Light 1407 West North Temple SLC UT 84140	100%	50%
Alice Fox 390 Center Street Orangeville, Utah 84537	------	50%

TRACT 13 -

Township 18 South, Range 7 East, SLM
Section 24: A 91.00 acre tract in SW¼NE¼, all of NW¼SE¼NE¼, SW¼NE¼ & NW¼SE¼. A 4.406 acre tract in SW¼SE¼, S½SE¼SW¼

Containing 115.406 acres, more or less

NAME	SURFACE INT	MINERAL INT
Utah Power & Light 1407 W. North Temple Salt Lake City, Utah 84140	100%	92%

TRACT 13 - (Contd)

NAME	SURFACE INT	MINERAL INT
Colton Properties, Ltd 8005 Greentree Road Bethesda, Maryland, 20817	-----	4%
Whitney D. Hammond and Verda D. Hammond, husband and wife P.O. Box 568 Vernal, Utah 84078	------	4%

TRACT 14 -

Township 18 South, Range 7 East, SLM
Section 24: A 18.55 acre tract in NE¼SE¼

Containing 18.55 acres, more or less

NAME	SURFACE INT	MINERAL INT
Savage Industries 5250 South 300 West Salt Lake City, Utah 84107	100%	----
Utah Power & Light 1407 W. North Temple Salt Lake City, Utah 84140	-----	92%
Colton Properties, Ltd 8005 Greentree Road Bethesda, Maryland, 20817	-----	4%
Whitney D. Hammond and Verda D. Hammond, husband and wife P.O. Box 568 Vernal, Utah 84078	------	4%

TRACT 15 -

Township 18 South, Range 7 East, SLM
Section 24: N½SE¼SW¼

Containing 20.00 acres, more or less

NAME	SURFACE INT	MINERAL INT
Utah Power & Light 1407 West North Temple Salt Lake City, Utah 84140	100%	100%

TRACT 16 -

Township 18 South, Range 7 East, SLM
Section 24: SW¼SE¼

Containing 40.00 more or less

NAME	SURFACE INT	MINERAL INT
Walter Karl McAlister and Charolette Rose McAlister, Trustees 5075 West 4700 South Kearns, Utah 84118	100%	92%
Colton Properties, Ltd 8005 Greentree Road Bethesda, Maryland, 20817	-----	4%
Whitney D. Hammond and Verda D. Hammond, husband and wife P.O. Box 568 Vernal, Utah 84078	------	4%

If any further information be required, please advise at your convienence.

Sincerely yours,
DOLAR OIL PROPERTIES

Mark S. Dolar, CPL/ESA

Texaco Exploration and Production Inc
3300 N Butler
Farmington NM 87401

Certified Mail
Return Receipt P 195 081 831

March 4, 1996

Mr. Gil Hunt
State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: **APPLICATION FOR INJECTION WELL - UIC Form 1**
Texaco Exploration and Production, Inc. Well - SWD #1
SW/NW Section 24, T18S, R7E, Emery County, Utah

Dear Mr. Hunt:

As discussed on 2/29/96, at the Oil and Gas Operators Meeting in Price, enclosed for your review is an injection application for the above captioned well. Some of the information is still being compiled and will be forwarded to you as soon as possible. Please proceed with the public notice announcements.

If you have any questions or require additional assistance, please contact Larry Schlotterback at (505) 325-4397 ext.17.

Sincerely,

Rocked Hinds for TAT

Ted A. Tipton
Operations Manager

LNS/s

Enclosures

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR TEXACO EXPLORATION AND PRODUCTION, INC.
ADDRESS 3300 NORTH BUTLER, SUITE 100
FARMINGTON, NEW MEXICO 87401

Well name and number: SWD #1

Field or Unit name: Buzzard Bench Lease No. FEE

Well location: QQ SW/NW section 24 township 18S range 7E county Emery

Is this application for expansion of an existing project?		Yes [ ]	No [X]
Well the proposed well be used for:	Enhanced Recovery? . . .	Yes [ ]	No [X]
	Disposal ?	Yes [X]	No [ ]
	Storage ?	Yes [ ]	No [X]
Is this application for a new well to be drilled ?		Yes [X]	No [ ]
If this application is for an existing well, has a casing test been performed on the well?		Yes [ ]	No [ ]

Date of Test: _____
API Number: _____

Proposed injection interval: from 6295 to 7295

Proposed maximum injection: rate 15,000 BWPD pressure 1,500 psig

Proposed injection zone contains [ ] oil , [ ] gas , and/or [ ] fresh water within 1/2 mile of the well.

IMPORTANT: Additional information as required by R649-5-2 should accompany this form.

List of Attachments _____

I certify that this report is true and complete to the best of my knowledge.

Name Ted A. Tipton
Title Operations Manager
Phone No. (505) 325-4397

Signature Richard Hinds for TAT
Date 3/4/96

(State Use Only)
Application approved by _____ Title _____
Approval Date _____
Comments:

(3/89)

FORM G-400(3-86)

TEXACO E&P INC.

FAX TRANSMITTAL COVER SHEET

NOTE: DO NOT USE BLUE OR RED INK OR PENCIL ON THIS FORM. THEY WILL NOT REPRODUCE

DATE: 3/15/96 [X] URGENT [ ] ROUTINE NO. OF PAGES C+2

MESSAGE TO : Attn: Mr. Dan Jarvis

TELEPHONE NO. (801) 538-5340 FAX MACHINE NO. (801) 359-3940

DEPT./DIV./SUBS. The State of Utah Division of Oil, Gas and Mining

LOCATION Salt Lake City, Utah ROOM NO.

MESSAGE FROM : Larry Schlotterback

TELEPHONE NO. (505) 325-4397 ext. 17 FAX MACHINE NO. (505) 325-5398

DEPT./DIV./SUBS. Denver Division

LOCATION Farmington Operating Unit ROOM NO.

[ ] RETURN ORIGINAL VIA INTER-OFFICE MAIL [ ] RETURN ORIGINAL CALL SENDER TO PICK UP

ADDITIONAL COMMENTS:

PRIVILEDGED:

This message and any documents accompanying it are intended only for the use of the addressee and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If you are not the intended recipient, or the person responsible for delivering it to the intended recipient, you are hearby notified that any dissemination, distribution or copying of it, or the taking of any action in reliance on it, is strictly prohibited. If you received this communication in error, please call us immediately.

Attached: Affidavit of Notification of Injection for Texaco's SWD #1,

SW/NW, Section 24, Township 18S, Range 7E

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397
FAX (505) 325-5398

SWD #1
2095 feet from North Line, 310 feet from West Line
SW/NW of Section 24, Township 18 South, Range 7 East

I, Larry N. Schlotterback, Environmental, Health and Safety Coordinator for Texaco Exploration and Production Inc., hereby certify the following:

A copy of the permit application for the above captioned salt water disposal well, has been provided to all owners, surface owners and operators (See attached list) located within a 1/2 mile radius exposure of the location:

Larry N. Schlotterback
EH&S Coordinator
Farmington Operating Unit
Rocky Mountain Business Unit
Texaco E&P Inc.

Subscribed and sworn before me this 15 th day of March, 1996.

Witness my hand and official seal.

(SEAL)

Notary Public Residing at:

600 E 20th

Farmington NM 87401

My Commission Expires: 9-10-97

Attachment to Affidavit

For Disposal Well - SWD #1
2095 feet from North Line, 310 feet from West Line
SW/NW of Section 24, Township 18 South, Range 7 East

The list of owners, operators and surface owners located within 1/2 mile from the above captioned location that were notified by certified mail on 3/1/96 are:

Utah Power & Light
1407 West North Temple
Salt Lake City, Utah 84140

Mr. Lyman Jack Curtis
P.O. Box 143
Orangeville, Utah 84537

Ms. Virginia Huntington Petty
50 West 100 North
Orangeville, Utah 84537

Ms. Bertie Huntington
90 West Center
Orangeville, Utah 84537

Bureau of Land Management
324 South State Street, Suite 300
Salt Lake City, Utah 84101

Savage Industries
5250 South 300 West
Sal Lake City, Utah 84107

Colton Properties, Ltd.
8005 Greentree Road
Bethesda, Maryland 20817

Ms. Whitney D. Hammond and Verda D. Hammond
P.O. Box 568
Vernal, Utah 84078

Ms. Alice Fox
390 Center Street
Orangeville, Utah 84537

Mr. Walter K. McAlister and Charolette Rose McAlister
5075 West 4700 South
Kearns, Utah 84118

FORM G-400(3-86)

TEXACO E&P INC.

FAX TRANSMITTAL COVER SHEET

NOTE: DO NOT USE BLUE OR RED INK OR PENCIL ON THIS FORM THEY WILL NOT REPRODUCE

DATE: 3/15/96 [X] URGENT [ ] ROUTINE NO. OF PAGES C+2

MESSAGE TO : Attn: Mr. Dan Jarvis

TELEPHONE NO. (801) 538-5340 FAX MACHINE NO. (801) 359-3940

DEPT./DIV./SUBS. The State of Utah Division of Oil, Gas and Mining

LOCATION Salt Lake City, Utah ROOM NO.

MESSAGE FROM : Larry Schlotterback

TELEPHONE NO. (505) 325-4397 ext. 17 FAX MACHINE NO. (505) 325-5398

DEPT./DIV./SUBS. Denver Division

LOCATION Farmington Operating Unit ROOM NO.

[ ] RETURN ORIGINAL VIA INTER-OFFICE MAIL [ ] RETURN ORIGINAL CALL SENDER TO PICK UP

ADDITIONAL COMMENTS:

PRIVILEDGED:

This message and any documents accompanying it are intended only for the use of the addressee and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If you are not the intended recipient, or the person responsible for delivering it to the intended recipient, you are hearby notified that any dissemination, distribution or copying of it, or the taking of any action in reliance on it, is strictly prohibited. If you received this communication in error, please call us immediately.

Attached: Affidavit of Notification of Injection for Texaco's SWD #1,

SW/NW, Section 24, Township 18S, Range 7E

Texaco Exploration and Production Inc.
3300 North Butler, Suite 100
Farmington, New Mexico 87401
(505) 325-4397
FAX (505) 325-5398

SWD #1
2095 feet from North Line, 310 feet from West Line
SW/NW of Section 24, Township 18 South, Range 7 East

I, Larry N. Schlotterback, Environmental, Health and Safety Coordinator for Texaco Exploration and Production Inc., hereby certify the following:

A copy of the permit application for the above captioned salt water disposal well, has been provided to all owners, surface owners and operators (See attached list) located within a 1/2 mile radius exposure of the location:

Larry N. Schlotterback
EH&S Coordinator
Farmington Operating Unit
Rocky Mountain Business Unit
Texaco E&P Inc.

Subscribed and sworn before me this 15 th day of March, 1996.

Witness my hand and official seal.

Notary Public Residing at:
600 E. 20th
Farmington NM 87401

(SEAL)

My Commission Expires: 9-10-97

Attachment to Affidavit

For Disposal Well - SWD #1
2095 feet from North Line, 310 feet from West Line
SW/NW of Section 24, Township 18 South, Range 7 East

The list of owners, operators and surface owners located within 1/2 mile from the above captioned location that were notified by certified mail on 3/1/96 are:

Utah Power & Light
1407 West North Temple
Salt Lake City, Utah 84140

Mr. Lyman Jack Curtis
P.O. Box 143
Orangeville, Utah 84537

Ms. Virginia Huntington Petty
50 West 100 North
Orangeville, Utah 84537

Ms. Bertie Huntington
90 West Center
Orangeville, Utah 84537

Bureau of Land Management
324 South State Street, Suite 300
Salt Lake City, Utah 84101

Savage Industries
5250 South 300 West
Sal Lake City, Utah 84107

Colton Properties, Ltd.
8005 Greentree Road
Bethesda, Maryland 20817

Ms. Whitney D. Hammond and Verda D. Hammond
P.O. Box 568
Vernal, Utah 84078

Ms. Alice Fox
390 Center Street
Orangeville, Utah 84537

Mr. Walter K. McAlister and Charolette Rose McAlister
5075 West 4700 South
Kearns, Utah 84118

cc: Emery County Commission
95 East Main
Castle Dale, UT 84513

Miles Moretti
State of Utah Division of Wildlife Resources
455 W Railroad Ave.
Price, UT 84501

Mark Page
State of Utah Division of Water Rights
453 S Carbon Ave.
Price, UT 84501

Robert Schaffitzel
Texaco Exploration and Production
3300 N Butler
Farmington, NM 87401

Ted Tipton
Texaco Exploration and Production
3300 N Butler
Farmington, NM 87401

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

March 19, 1996

Emery County Progress
76 West Main Street
P. O. Box 870
Price, Utah 84501

Re: Notice of Agency Action - Cause No. UIC-167

Gentlemen:

Enclosed is a copy of the referenced Notice of Agency Action. Please publish the Notice, once only, as soon as possible. Please send proof of publication and billing to the Division of Oil, Gas and Mining, 355 West North Temple, 3 Triad Center, Suite 350, Salt Lake City, Utah 84180-1203.

Sincerely,

Lisha Cordova

Lisha Cordova
Administrative Analyst

Enclosure

Texaco Exploration & Production Inc.
SWD #1 Well
Cause No. UIC-167

Publication Notices were sent to the following:

Newspaper Agency Corporation
Legal Advertising
Tribune Building, Front Counter
143 South Main
Salt Lake City, Utah 84111

Sun Advocate
P. O. Box 870
76 West Main
Price, Utah 84501

Emery County Progress
76 West Main Street
P. O. Box 870
Price, Utah 84501

Bureau of Land Management
P. O. Box 7004
125 South 600 West
Price, Utah 84501

Texaco Exploration & Production Inc.
3300 North Butler
Farmington, New Mexico 87401

Dan Jackson
U.S. Environmental Protection Agency
Region VIII
999 18th Street
Denver, Colorado 80202-2466

Lisha Cordova
Administrative Analyst
March 19, 1996

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

March 19, 1996

Sun Advocate
P. O. Box 870
76 West Main
Price, Utah 84501

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Lisha Cordova

Lisha Cordova
Administrative Analyst

Enclosure

Michael O. Leavitt
Governor
Ted Stewart
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James W. Carter
Division Director

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
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Sincerely,

Lisha Cordova

Lisha Cordova
Administrative Analyst

Enclosure

BEFORE THE DIVISION OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH

---ooOoo---

IN THE MATTER OF THE APPLICATION OF TEXACO EXPLORATION & PRODUCTION INC. FOR ADMINISTRATIVE APPROVAL OF THE SWD #1 WELL LOCATED IN SECTION 24, TOWNSHIP 18 SOUTH, RANGE 7 EAST, S.L.M., EMERY COUNTY, UTAH, AS A CLASS II INJECTION WELL	:	NOTICE OF AGENCY ACTION CAUSE NO. UIC-167

---ooOoo---

THE STATE OF UTAH TO ALL PERSONS INTERESTED IN THE ABOVE ENTITLED MATTER.

Notice is hereby given that the Division of Oil, Gas and Mining (the "Division") is commencing an informal adjudicative proceeding to consider the application of Texaco Exploration & Production Inc. for administrative approval of the SWD #1 well, located in Section 24, Township 18 South, Range 7 East, Emery County, Utah, for conversion to a Class II injection well. The proceeding will be conducted in accordance with Utah Admin. R.649-10, Administrative Procedures.

The interval from 6295 feet to 7295 feet (Navajo Formation) will be selectively perforated for water injection. The maximum requested injection pressure will be limited to 1500 PSIG with a maximum rate of 15,000 BWPD.

Any person desiring to object to the application or otherwise intervene in the proceeding, must file a written protest or notice of intervention with the Division within fifteen days following publication of this notice. If such a protest or notice of intervention is received, a hearing will be scheduled before the Board of Oil, Gas and Mining. Protestants and/or intervenors should be prepared to demonstrate at the hearing how this matter affects their interests.

Dated this 19th day of March 1996.

STATE OF UTAH
DIVISION OF OIL, GAS & MINING

R. J. Firth
Associate Director, Oil & Gas

143 SOUTH MAIN ST.
P.O. BOX 45838
SALT LAKE CITY, UTAH 84145
FED. TAX I.D. # 87-0217663

Newspaper Agency Corporation

The Salt Lake Tribune (NA) DESERET NEWS

CUSTOMER'S COPY

PROOF OF PUBLICATION

CUSTOMER NAME AND ADDRESS	ACCOUNT NUMBER	
DIV OF OIL, GAS & MINING 355 WEST NORTH TEMPLE 3 TRIAD CENTER #350 SLC, UT 84180	D5385340L-07	03/25/96

ACCOUNT NAME	
DIV OF OIL, GAS & MINING	
TELEPHONE	INVOICE NUMBER
801-538-5340	TL3L8201061
SCHEDULE	
START 03/25/96 END 03/25/96	
CUST. REF. NO.	
UIC-167	
CAPTION	
NOTICE OF AGENCY ACTIONCAUSE N	
SIZE	
72 LINES 1.00 COLUMN	
TIMES	RATE
1	1.64
MISC. CHARGES	AD CHARGES
.00	118.08
	TOTAL COST
	118.08

OFFICE COPY

NOTICE OF AGENCY ACTION
CAUSE NO. UIC-167
BEFORE THE DIVISION OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES, STATE OF UTAH

IN THE MATTER OF THE APPLICATION OF TEXACO EXPLORATION & PRODUCTION INC. FOR ADMINISTRATIVE APPROVAL OF THE SWD #1 WELL LOCATED IN SECTION 24, TOWNSHIP 18 SOUTH, RANGE 7 EAST, S.L.M., EMERY COUNTY, UTAH, AS A CLASS II INJECTION WELL

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DATED this 19th day of March, 1996.

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING
R. J. Firth
Associate Director, Oil and Gas
3L820100

AFFIDAVIT OF PUBLICATION

EWSPAPER AGENCY CORPORATION LEGAL BOOKKEEPER, I CERTIFY THAT THE ATTACHED
RTISEMENT OF NOTICE OF AGENCY ACTIONCAUSE N FOR
DIV OF OIL, GAS & MINING WAS PUBLISHED BY THE NEWSPAPER AGENCY
ORATION, AGENT FOR THE SALT LAKE TRIBUNE AND DESERET NEWS, DAILY NEWSPAPERS
TED IN THE ENGLISH LANGUAGE WITH GENERAL CIRCULATION IN UTAH, AND PUBLISHED
ALT LAKE CITY, SALT LAKE COUNTY IN THE STATE OF UTAH.

[SHED ON START 03/25/96 END 03/25/96

ATURE [signature]

03/25/96

THIS IS NOT A STATEMENT BUT A "PROOF OF PUBLICATION"
PLEASE PAY FROM BILLING STATEMENT.

143 SOUTH MAIN ST.
P.O. BOX 45838
SALT LAKE CITY, UTAH 84145
FED. TAX I.D. # 87-0217663

Newspaper Agency Corporation
The Salt Lake Tribune (NA) DESERET NEWS

CUSTOMER'S COPY

PROOF OF PUBLICATION

CUSTOMER NAME AND ADDRESS	ACCOUNT NUMBER	
DIV OF OIL, GAS & MINING 355 WEST NORTH TEMPLE 3 TRIAD CENTER #350 SLC, UT 84180	D5385340L-07	03/25/96

RECEIVED
MAR 28 1996
DIV OF OIL, GAS & MINING

ACCOUNT NAME	
DIV OF OIL, GAS & MINING	
TELEPHONE	INVOICE NUMBER
801-538-5340	TL3L8201061
SCHEDULE	
START 03/25/96 END 03/25/96	
CUST. REF. NO.	
UIC-167	
CAPTION	
NOTICE OF AGENCY ACTIONCAUSE N	
SIZE	
72 LINES 1.00 COLUMN	
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1	1.64
MISC. CHARGES	AD CHARGES
.00	118.08
	TOTAL COST
	118.08

OFFICE COPY

AFFIDAVIT OF PUBLICATION

AS NEWSPAPER AGENCY CORPORATION LEGAL BOOKKEEPER, I CERTIFY THAT THE ATTACHED ADVERTISEMENT OF NOTICE OF AGENCY ACTIONCAUSE N FOR DIV OF OIL, GAS & MINING WAS PUBLISHED BY THE NEWSPAPER AGENCY CORPORATION, AGENT FOR THE SALT LAKE TRIBUNE AND DESERET NEWS, DAILY NEWSPAPERS PRINTED IN THE ENGLISH LANGUAGE WITH GENERAL CIRCULATION IN UTAH, AND PUBLISHED IN SALT LAKE CITY, SALT LAKE COUNTY IN THE STATE OF UTAH.

PUBLISHED ON START 03/25/96 END 03/25/96

SIGNATURE Joanne Mooney

DATE 03/25/96

NOTARY PUBLIC
JOANNE MOONEY

THIS IS NOT A STATEMENT BUT A "PROOF OF PUBLICATION"
PLEASE PAY FROM BILLING STATEMENT.

EMERY COUNTY
A Great Place to Live and Work

EMERY COUNTY PLANNING AND ZONING

Bryant Anderson, Administrator

April 2, 1996

Mr R. J. Firth
Utah Division of Oil, Gas and Mining
3 Triad Cent #350 355 W No Temple
Salt Lake City, Utah 84180

Dear Mr. Firth,

Several concerns have surfaced concerning the final permitting of Texaco injection well #SWD 1 located approximately 2.5 miles NW Orangeville --Section 24 T18S R7E SWNW.

The listed amount of water and the pressures applied gives reason for real concern as to where the water will go. This injection well is also in close proximity to the Cottonwood waterway, which is our local culinary water sources. Finally, we are keenly aware that any damage done to our underground water sources is virtually not fixable and irreversible.

It is important that a public hearing be scheduled **in the Emery County area** to work through these and any other concerns. Permitting of this well should not take place until legitimate concerns are resolved. Sufficent time to prepare our concerns is needed.

Your cooperation and support in this matter is needed. If you have any questions, please call. My telephone number is (801) 381-5374.

Sincerely,

Bryant Anderson

Bryant Anderson
Planning and Zoning Administrator

Emery County Courthouse (Upstairs) 95 East Main Street - PO Box 417 Castle Dale, Utah 84513
Telephone: (801) 381-5374 FAX: (801) 381-5183

1407 W. North Temple, Suite 110
Salt Lake City, Utah 84140
(801) 220-2000

PACIFICORP
UTAH POWER PACIFIC POWER

April 3, 1996

ATTN: Dan Jarvis
State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84160-1203

RE: **Notice of Protest or Intervention of the**
Administrative Approval of Cause No. UIC-167
Proposed Texaco Salt Water Disposal Well in -
SW/NW Section 24, T.18S., R.7E., S.L.M.
Notice of Permit Application - Public Notice - Notice of Agency Action

Dear Mr. Jarvis,

PacifiCorp has reviewed the application for the above noted "Salt Water Disposal Well" and hereby requests that DOGM consider the following prior to granting administrative approval of permits for a Class II Injection Wells into the Navajo Sandstone:

- There are applications pending with the State Engineer for water rights allocation from the Navajo Sandstone at well sites which were tested in the Fuller's Bottom area (see attached maps and test results).
- Water quality test results from the Fuller's Bottom area indicate that the water in the Navajo Sandstone meet the standards for USDW, and all efforts should be made to protect this aquifer from degradation (R649-5).
- A report published by the State of Utah, Department of Natural Resources (Technical Publication No. 78), indicates that the potentiometric level of the Navajo Sandstone at the proposed injection well site is about 5,400 feet. The wells drilled 12 miles to the southeast by Utah Power and Light Co. in 1981 showed the potentiometric surface to be at 5,300 feet. This indicates a fairly flat gradient with water movement from the west to east and northeast (see attached map).
- The injection of saline waters into the Navajo Sandstone at the proposed injection well site would likely have an adverse effect on the quality of the groundwater in the Navajo Sandstone to the east likely rendering it unsuitable for drinking water.

PacifiCorp is willing to meet with you or before your board to discuss these items. We are also willing to enter into discussion with Texaco to resolve these issues. Please call me at (801) 220-2238 if I can be of further assistance.

Sincerely,

BRENT G. ARNOLD
PacifiCorp Property Management

attachments

DIVISION OF OIL, GAS AND MINING
UNDERGROUND INJECTION CONTROL PROGRAM

PERMIT
STATEMENT OF BASIS

Applicant: Texaco E&P Inc. **Well:** SWD #1

Location: Sec. 24, T18S, R7E, Emery County **API:** 43-015-30272

Ownership Issues:

The well is located on private surface owned by Texaco Exploration and Production Incorporated. All operators, owners and surface owners within a one-half mile radius of the well were given notice. An affidavit of notification is included in the application. Utah Power and Light, one of the surface and mineral interest owners in the area filed an objection to the application with the Division.

Well Integrity:

Conductor pipe was set at 35 feet. A 17-1/2" hole was drilled to 329 feet, 13-3/8" casing was set at 329 feet and cemented to surface with 380 sacks of cement. A 12-1/4" hole was drilled to 2700 feet, 9-5/8" casing was set at 2700 feet and cemented to surface with 510 sacks of cement. After some problems the well was side tracked and a 8-3/4" hole was drilled to total depth of 7760 feet and plugged back to 7746 feet. A 7" casing was set at 7746 feet and cemented with 696 sacks. A cement bond log was run and showed excellent to fair bonding up to the cement top at about 5270 feet. This should be adequate to prevent any upward migration of fluid between the 7" casing and the borehole wall. The Shinarump Sandstone was tested through perforations from 7484 to 7586 feet. These perforations were isolated with a bridge plug set at 7454 feet with 4 sacks of cement on top. A 3-1/2" tubing string was run in the well and packer set at 6615 feet. A casing-tubing annular pressure test will be required prior to commencement of injection.

Ground Water Protection:

High quality ground water in the vicinity of the subject well is apparently very scarce. Any which does exist is probably in surficial deposits of talus or colluvium along stream valleys and of very limited extent and use. This is reflected in the fact that local communities rely on surface water and spring flow collected in the Wasatch Plateau area. Water contained in subsurface strata in the vicinity is of poor quality, as would be predicted, mostly due to distance from recharge and the presence of evaporites in adjacent and intervening formations. Samples taken from the Ferron Sandstone at approximately 3,000 feet depth show total dissolved solids levels of up to 11,000 mg/l. This zone (and coal beds) is also the source of water to be injected.

The quality of water in the Navajo Sandstone at the subject well location is in excess of 20,000 mg/l total dissolved solids. This was determined via swab samples taken February 15, 1996. The Navajo is a known fresh water aquifer at many locations in the state. In the general San Rafael Swell area, the quality of water in the Navajo is generally of higher quality nearer the outcrop and recharge areas and poorer with increased depth and distance from recharge (DNR Tech. Pub. 78). This premise has been verified with samples taken from the subject well and other wells several miles further along the flow path to the north. The planned injection of Ferron production water into the Navajo at this location will result in dilution of the more saline water contained in the Navajo.

Injection of produced water into the Navajo Sandstone at this location is predicted to have little effect on the overall hydrology of the aquifer because of its great extent compared to the volume of fluid that will likely be injected. According to USGS investigation (Tech. Pub. 78), the Navajo contains in the neighborhood of 94,000,000 acre-feet of water in transient storage. Injection at a rate of 15,000 barrels per day for 10 years would result in 6506 acre-feet of water being injected. This equates to about .007% of the water already in storage in the Navajo. At the Drunkards Wash Unit located approximately 25 miles northeast of the subject well, experience has shown that after injection into the Navajo for almost three years (~ 3,000,000 barrels) a well drilled approximately 3 miles away (south) showed negligible pressure increase in the Navajo attributable to the injection.

It is our conclusion after reviewing applicable information including the application submitted by Texaco, that injection into the Navajo Sandstone at this location would result in some dilution of the saline water present in the aquifer and a pressure increase near the well which would dissipate after injection ceases. No long term negative impacts are anticipated as a result of injection of produced water into the subject well.

Oil/Gas & Other Mineral Resources Protection:

The Ferron coal/gas zone is protected by tubing, two strings of casing and cement. No other known potentially producible zones were encountered by the well. The injection zone is isolated some 4000 feet below the productive interval.

Bonding:

Texaco has an $80,000 surety bond in place which provides coverage for this well.

Actions Taken and Further Approvals Needed:

Notice of this application was published in the Salt Lake Tribune, Deseret News, Sun Advocate, and the Emery County Progress. The notice stated the proposed interval 6295 to 7295 feet which covers Navajo, Kayenta, and Wingate Formations. Any future injection into a formation other than the Navajo will require administrative approval after appropriate sampling and testing.

Objections were received from PacifiCorp (UP&L), Emery County Board of Commissioners, Emery County Public Lands Council, Emery County Planning and Zoning, and Emery Water Conservancy District. All objections were based on concerns of speculated adverse impacts to ground and surface water resources in the area.

A step-rate test was conducted to determine the fracture extension pressure (4050 psi) of the Navajo formation. Any approval issued should include a maximum authorized injection pressure which is below this pressure. Evidence of a casing-tubing annular pressure test must be provided prior to commencing injection into the well.

A properly designed and constructed disposal or injection well , combined with periodic mechanical integrity tests, poses no threat to fresh or usable groundwater supplies. The Division staff recommends approval of this application pending no additional or unforeseen information presented at the hearing which changes our evaluation.

Reviewer(s): G. Hunt & D. Jarvis Date: 4/22/96

INJECTION/FALLOFF AND STEP RATE ANALYSIS

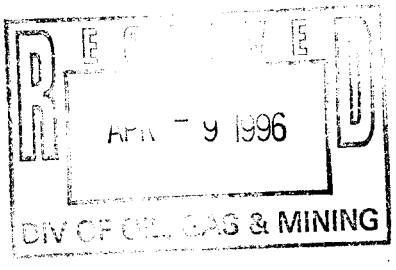
TEXACO E & P INC.

Well : SWD #1
Field : Wildcat
Formation : Navajo

INJECTION/FALLOFF AND STEP RATE ANALYSIS

TEXACO E & P INC.

Well : SWD #1
Field : Wildcat
Formation : Navajo
Emery County, Utah



Injection / Falloff and Step Rate Analysis

Operator	: Texaco E & P Inc.	Well	: SWD #1
County	: Emery	Field	: Wildcat
State	: Utah	Formation	: Navajo
Prepared for	: Will Jones	Location	: Texaco - Denver Division
Proposal No.	: March 25, 1996	Service Point	: Vernal, Ut.
Date Prepared	: 3/25/96	Business Phone	: (801) 789-0411
		FAX No.	: (801) 789-0138

Prepared by : Tim Waite
Phone : (303) 793-4958
Fax : (303) 793-4970
E-Mail Address : waite@englewood.dowell.slb.com

Schlumberger
Dowell

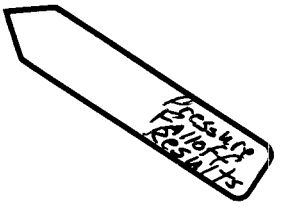
Client : xaco E & P Inc.
Well : SWD #1
Formation : Navajo
District : Vernal, Ut.
County : Emery

Treatment Summary:

Injection / Pressure Falloff Test:

This test was conducted by injecting water at an average rate less than 0.5 Bbls per minute for a 3 hour time period (see attachment 1). The well was then shut in for a 24 hour pressure falloff test (see attachment 2). The results of the test are as follow:

Reservoir Pressure (psi):	2,690 @ 6,900 ft.
Effective Permeability (md):	12.4
Skin Factor:	25
Radius of Investigation (ft)	770



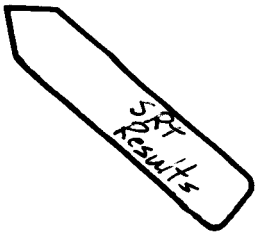
Step Rate Test:

This test was conducted by injecting water into the formation initially at matrix rates for a constant time period, then in steady time increments increasing the rate to 20 Bbls per minute (see attachment 3). The stabilized pressure at each rate was plotted against injection rate to get fracture extension pressure. The pressure vs. rate plot shows two distinct slopes, the intersection of which indicates fracture extension pressure (see attachment 4). At the end of the test, falloff was monitored at surface for 45 minutes to obtain closure pressure. Closure pressure was derived by analysing the square root of time since shutin (see attachment 5), and verified using the G Function plot (see attachment 6). Experience indicates that the square root plot provides a good indication for closure for fluids that to not permit effective fluid loss control from wallbuilding behavior.

Results of this test are as follows:

Fracture Extension Pressure (psi):	4,050 (from graphical analysis)
Closure Pressure (Surface Gauge)(psi):	814
Closure Pressure (Bottom Hole) (psi):	814 + (6775 x 8.34 x 0.052) = 3,752 (corrected to Bottom Hole)
Frac Gradient (psi/ft):	3,752/6,775 = 0.554

The difference in fracture extension pressure and closure pressure is due to fracture toughness and fluid friction along the fracture.



Schlumberger
Dowell

Client : Vaco E & P Inc.
Well : SWD #1
Formation : Navajo
District : Vernal, Ut.
County : Emery

(Attachment 1):

Pump In - Falloff Procedure

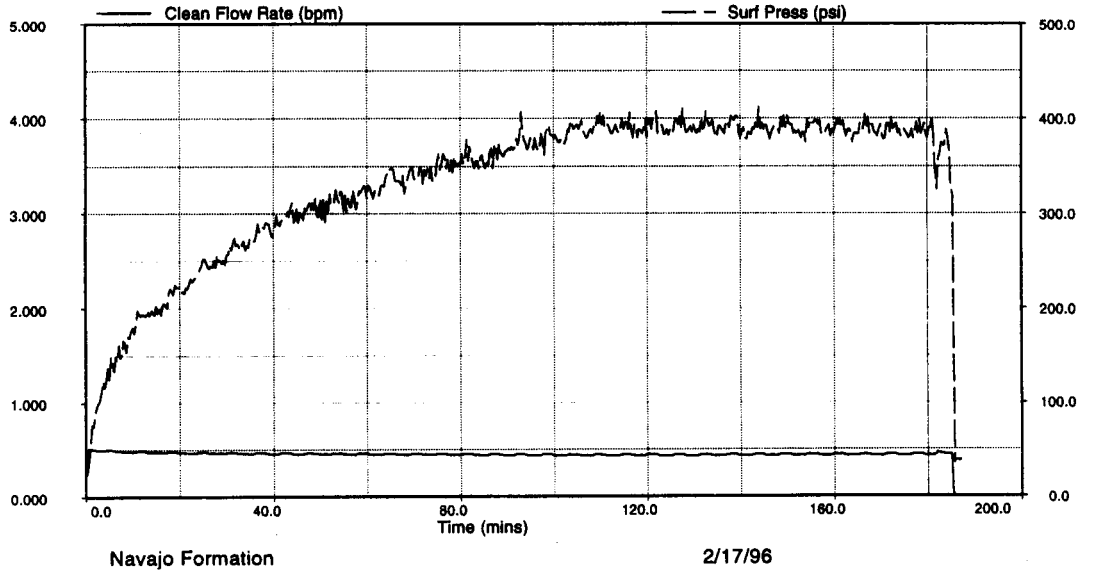
1. MIRU Dowell Pump Truck

2. After ensuring hole is full of filtered fluid, begin pumpping filtered injection water at lowest possible rate (e.g. 1/4 bpm). Ensure that rate is maintained as constant as possible for 3 hours of pumping. Record rate and pressure via PACR and e-mail ASCII file to Denver Drilling Office (waite@englewood.dowell.slb.com)

3. After pumping filtered water for 3 hours, shut down, pressure will be monitored for additional 24 hours by bottom hole gauges.

Pump In Below - Falloff data is include at the end of this document:

SWD #1
Matrix Pump In



Navajo Formation 2/17/96

Dowell

Client : Texaco E & P Inc.
Well : SWD #1
Formation : Navajo
District : Vernal, Ut.
County : Emery

(Attachment 3):

Step Rate Test Procedure:

The primary information gained from this test will be closure pressure. Injection will be initiated at a very low rate (as low as possible) and increased at constant time intervals (3 minutes). Pressure data will be recorded during surface pumping and with bottomhole gauges. It is very important that rates are kept constant during each time interval, not necessarily at an even amount, just constant. If for instance, the pumping schedule states going from 3 to 4 bpm, and realistically you can only get 3.8 bpm without changing gears on the pump truck, then go to 3.8 bpm. Use this thought process throughout the step rate falloff test.

The pressure vs. rate response will be plotted and from this "Closure Pressure" will be defined. There should be a distinct change in slope on the plot arising from matrix leakoff and fracture extension at the higher rates. As a general rule, we will use a 400 psi safety factor below this extension pressure to account for fracture toughness and fluid friction in the fracture. At the end of the test, we should monitor surface pressure for a minimum of 45 minutes, as the bottomhole gauges will be left in overnight.

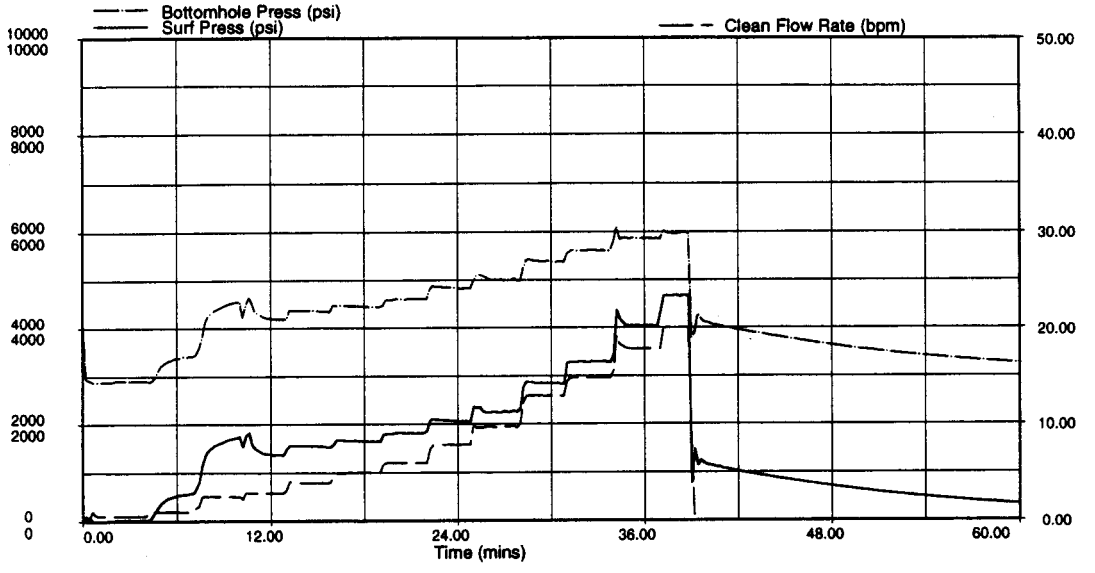
Rate (bpm)	Stage Time (min)	Stage Vol. (bbls)	Cumm. Vol (bbls)	Cumm. Time (min)
1/4	3	0.75	0.75	3
1/2	3	1.5	3	6
1	3	3	6	9
2	3	6	12	12
3	3	9	21	15
4	3	12	33	18
5	3	15	48	21
6	3	18	66	24
8	3	24	90	27
10	3	30	120	30
13	3	39	159	33
15	3	45	204	36
18	3	54	258	39
20	3	60	318	42

After pumping the above treatment, the ASCII data file should be e-mailed to waite@englewood.dowell.slb.com for analysis as soon as possible.

Schlumberger
Dowell

Client : Jaco E & P Inc.
Well : SWD #1
Formation : Navajo
District : Vernal, Ut.
County : Emery

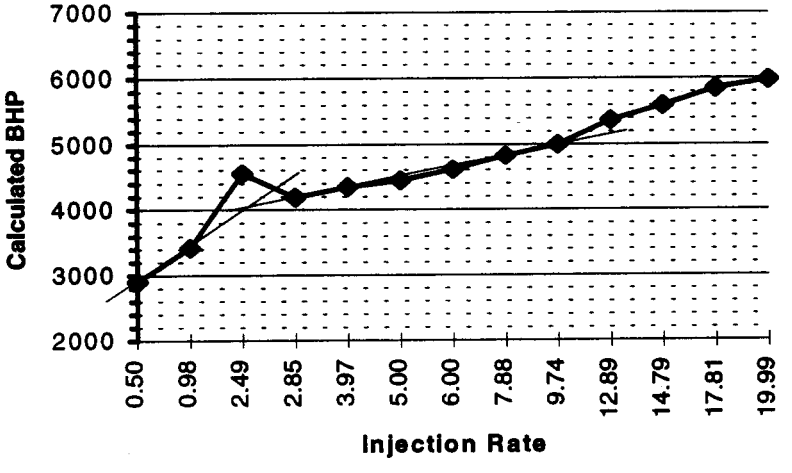
SWD #1
Step Rate Test / Falloff



Navajo Formation 2/19/96

(Attachment 4):

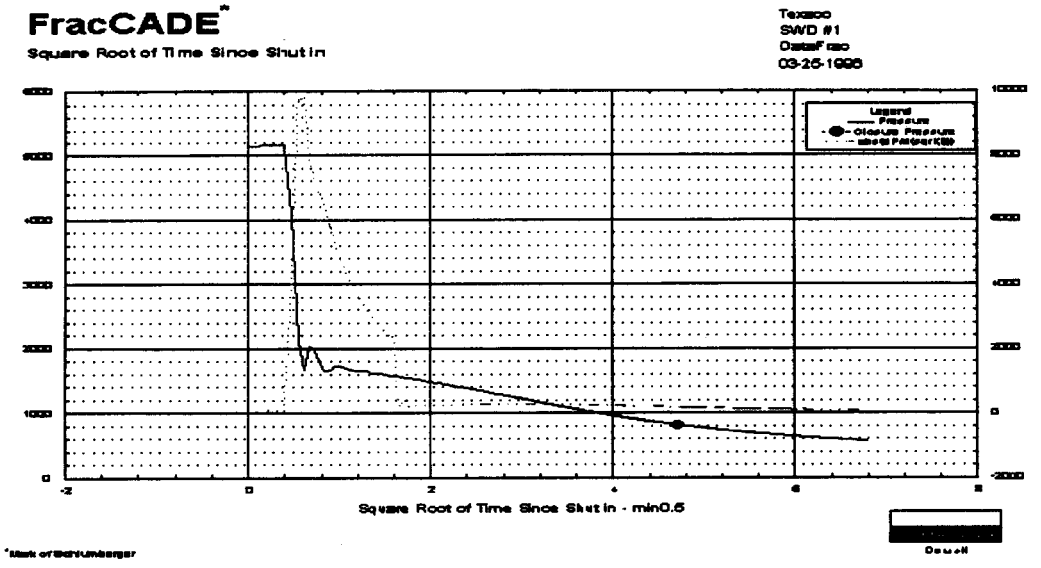
Calculated BHP vs. Rate

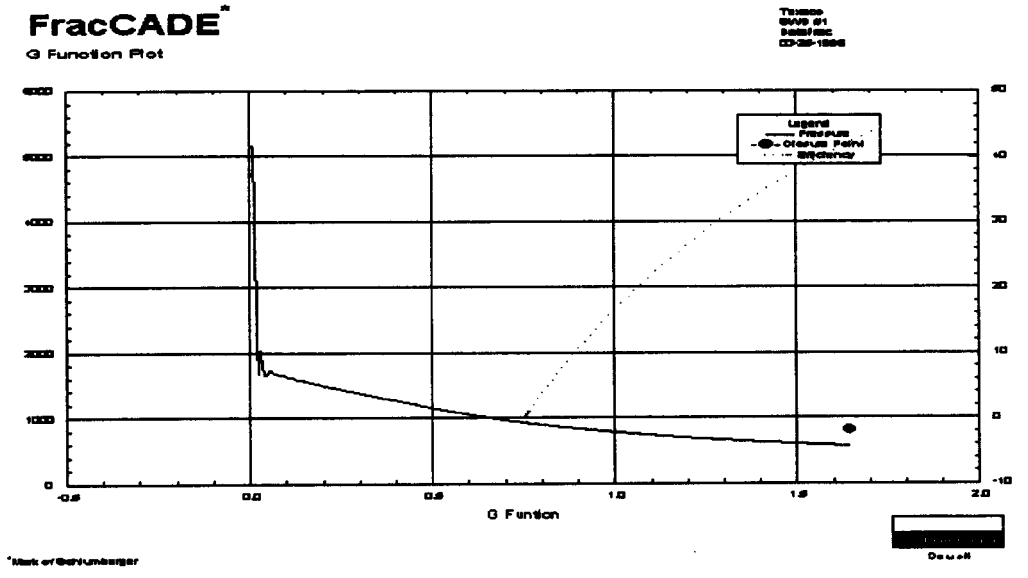


Dowell

Client : Texaco E & P Inc.
Well : SWD #1
Formation : Navajo
District : Vernal, Ut.
County : Emery

Falloff Data (Attachment 5,6):



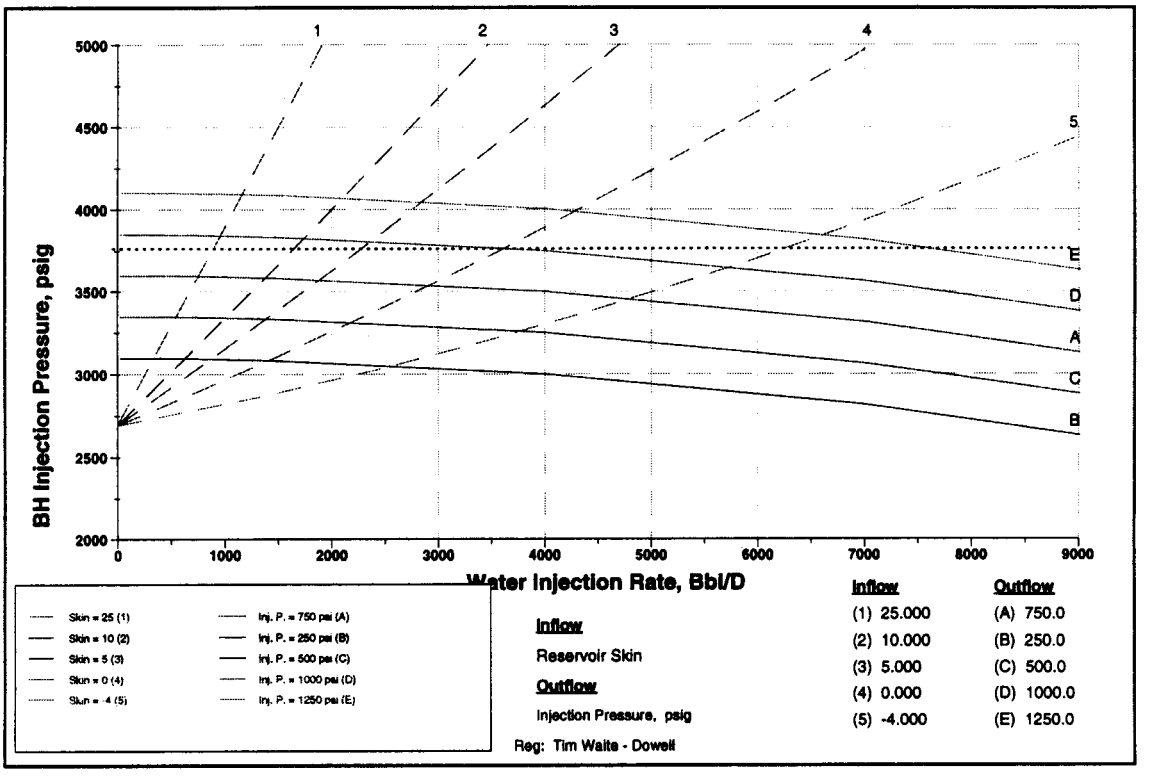


Dowell

Client : Texaco E & P Inc.
Well : SWD #1
Formation : Navajo
District : Vernal, Ut.
County : Emery

Discussion:

Based on the information from the previous analysis, this information was used to analyze the injection system to be used for this well. Nodal Analysis was used for this. The graph below shows a relationship between Surface Injection Pressure and Water Injection Rate in Bbls per day and how the Skin factor effects these parameters. The most effective way to mitigate the influence of Skin damage would be with a hydraulic fracturing treatment.



Prepared by: Tim Waite

Dowell DESC - Texaco Denver Drilling Division

Verified by: Hemanta Mukherjee

Reservoir Specialist (PhD) Dowell Western Area

(Attachment 2):

REPORT NO. 142602
PAGE NO. 1
TEST DATE: 17-FEB-1996

S T A R

Schlumberger Transient Analysis Report

Based on Model Verified Interpretation
Of a Schlumberger Well Test

Schlumberger

COMPANY: TEXACO | **WELL: FERRON SWD #1**

TEST IDENTIFICATION

Test Type	PFOT
Test No.	ONE
Formation	NAVAJO SAND
Gross Test Interval (ft)	6674 to 6900

WELL LOCATION

County	EMERY
State	UTAH
Sec/Twn/Rng	24 T18S R7E

COMPLETION CONFIGURATION

Hole Size (in)	7.875
Perforated Interval (ft)	6674 to 6703
(ft)	6731 to 6831
(ft)	6841 to 6877
Shot Density (shots/ft)	4 spf
Net Pay (ft)	165

TEST STRING CONFIGURATION

Tubing Size O.D./I.D. (in)	3.5 / 2.995
Gauge Depth (ft)/Type	6900/8017

TEST CONDITIONS

Tbg/Wellhead Pressure (psi)	100
Injection Time (hrs)	3.07

INTERPRETATION RESULTS

Model of Behavior	HOMOGENEOUS
Fluid Type Used for Analysis	WATER
Reservoir Pressure (psi)	2690 @ 6900 Ft
Transmissibility (md.ft/cp)	4738
Effective Permeability (md)	12.4
Skin Factor	25
Radius of Const.P. Circle (ft)	453
Radius of Investigation (ft)	770

ROCK/FLUID/WELLBORE PROPERTIES

Water Cut (%)	100
Gas/Liquid Ratio (scf/STB)	0
Viscosity (cp)	0.4309
Total Compressibility (1/psi)	5.098E-06
Porosity (%)	19.1
Reservoir Temperature (F)	152
Form.Vol.Factor (bbl/STB)	1.010
Res.Saturations, Sw/So/Sg (%)	1.0/0/0

PRODUCTION RATE DURING TEST: 633.6 BWIPD = Q-Avg

COMMENTS:

AN INJECTION/PRESSURE FALL-OFF TEST WAS CONDUCTED FROM 17-JAN-1996 TO 18-JAN-1996 ON THE NAVAJO SANDSTONE FORMATION. THE TEST WAS CONDUCTED BY INJECTING WATER AT AN AVERAGE RATE OF 0.44 BBLS PER MINUTE OVER A 3-Hr INJECTION PERIOD, THEN SHUTTING THE WELL IN FOR A 24-hr PRESSURE FALL-OFF TEST. ANALYSIS OF THE DIAGNOSTIC LOG-LOG PLOT OF PRESSURE AND DERIVATIVE INDICATES THE PRESENCE OF SKIN AND VARIABLE WELLBORE STORAGE EFFECTS AT EARLY TO MID TIMES, AND TRANSITIONAL FLOW REGIME AT LATE TIMES. WITH A SHARPLY DECREASING DERIVATIVE SLOPE AT THE END OF THE TEST. THIS CHARACTERISTIC IS NOT UNIQUE, AS SEVERAL RESERVOIR MODELS EXHIBIT SIMILAR BEHAVIOR; TWO-POROSITY SYSTEMS WHILE IN TRANSITION FROM BLOCKS TO FISSURES, OR A CONSTANT PRESSURE OUTER BOUNDARY, OR A CLOSED (NO-FLOW) CIRCLE OUTER BOUNDARY. THE TEST DATA WAS FIRST MATCHED WITH A HOMOGENEOUS SYSTEM MODEL WITH SKIN AND VARIABLE WELLBORE STORAGE AND A CONSTANT PRESSURE "OPEN" CIRCLE OUTER BOUNDARY (SEE ANALYSIS RESULTS AND PLOTS, PAGES 2-5). BASED ON THIS MATCH, THE FALL-OFF RESPONSE WAS DOMINATED BY SEVERELY DECREASING WELLBORE STORAGE AT VERY EARLY TIMES FOLLOWED BY AN INCREASING WELLBORE STORAGE EVENT AT 0.04-hrs, AND A CONSTANT PRESSURE BOUNDARY (i.e., PRESSURE SUPPORT) WAS OBSERVED AT A RADIAL DISTANCE OF 450-ft. THIS COULD BE DUE TO INJECTION INTO A WATER ZONE. THE SECOND MATCH USES A HOMOGENEOUS, INFINITE SYSTEM MODEL (SEE ANALYSIS RESULTS AND PLOTS, PAGES 6-9). THIS MODEL DOES NOT PROVIDE A GOOD FIT TO THE FALL-OFF DATA AT LATE TIMES, ALTHOUGH THE COMPUTED RESERVOIR PARAMETERS ARE SIMILAR. THE TESTED INTERVAL HAS THE CHARACTERISTICS OF GOOD PERMEABILITY EFFECTIVE TO WATER AND A BADLY DAMAGED WELLBORE CONDITION AT THE TIME OF THE TEST. FOR QUESTIONS ABOUT THIS REPORT, PLEASE CONTACT DEBORA HALLFORD AT (303) 843-9090.

CALCULATIONS
LIQUID WELL
LOG-LOG ANALYSIS

Schlumberger

LOG (DELTA P) VS. LOG (DELTA T) PLOT

HOMOGENEOUS SYSTEM
SKIN AND VARIABLE WELLBORE STORAGE
CONSTANT PRESSURE "OPEN" CIRCLE OUTER BOUNDARY
PD VS. TD/CD

DATA IDENTIFICATION

FLOW PERIOD = 2, FALL-OFF
P = 3320.0 PSI @ DELTA T=0
FLOW RATE CHANGE = 633.60 STB/D LIQUID

DOWNHOLE RATES (IN RESERVOIR BBL/D)

WATER ..... 639.94 (WITH Bw=1.010 BBL/STB)

COMPUTED WITH PRODUCING WATER CUT = 1.000
AND PRODUCING GAS/LIQUID RATIO = 0.000 SCF/STB

TYPE-CURVE MATCH

CURVE MATCH, CD*E(2S) = 1.000E+25
ReD/CD**0.5 = 32.8995
PRESSURE MATCH, PD/DELTA P = 0.05244 1/PSI
TIME MATCH, (TD/CD)/DELTA T = 41.000 1/HR

CALCULATIONS

K/MU (TOTAL) ..... 28.718 MD/CP
KH/MU (TOTAL) ..... 4738.4 MD.FT/CP
Kw (EFFECTIVE TO WATER) ... 12.374 MD
C ..... 0.03409 BBL/PSI
CD 1761.2
SKIN, S 25.045
RADIUS OF CONST. P CIRCLE . 452.8 FT

COMMENTS

USING HOMOGENEOUS, CONSTANT PRESSURE "OPEN" CIRCLE OUTER BOUNDARY : Ca/C=291.68 (1) 0.010 (2) 192.6 (3) 0.88 (4)
CoD=0.19 (1) 15.67 (2) 0.19 (3) 6.1 (4)

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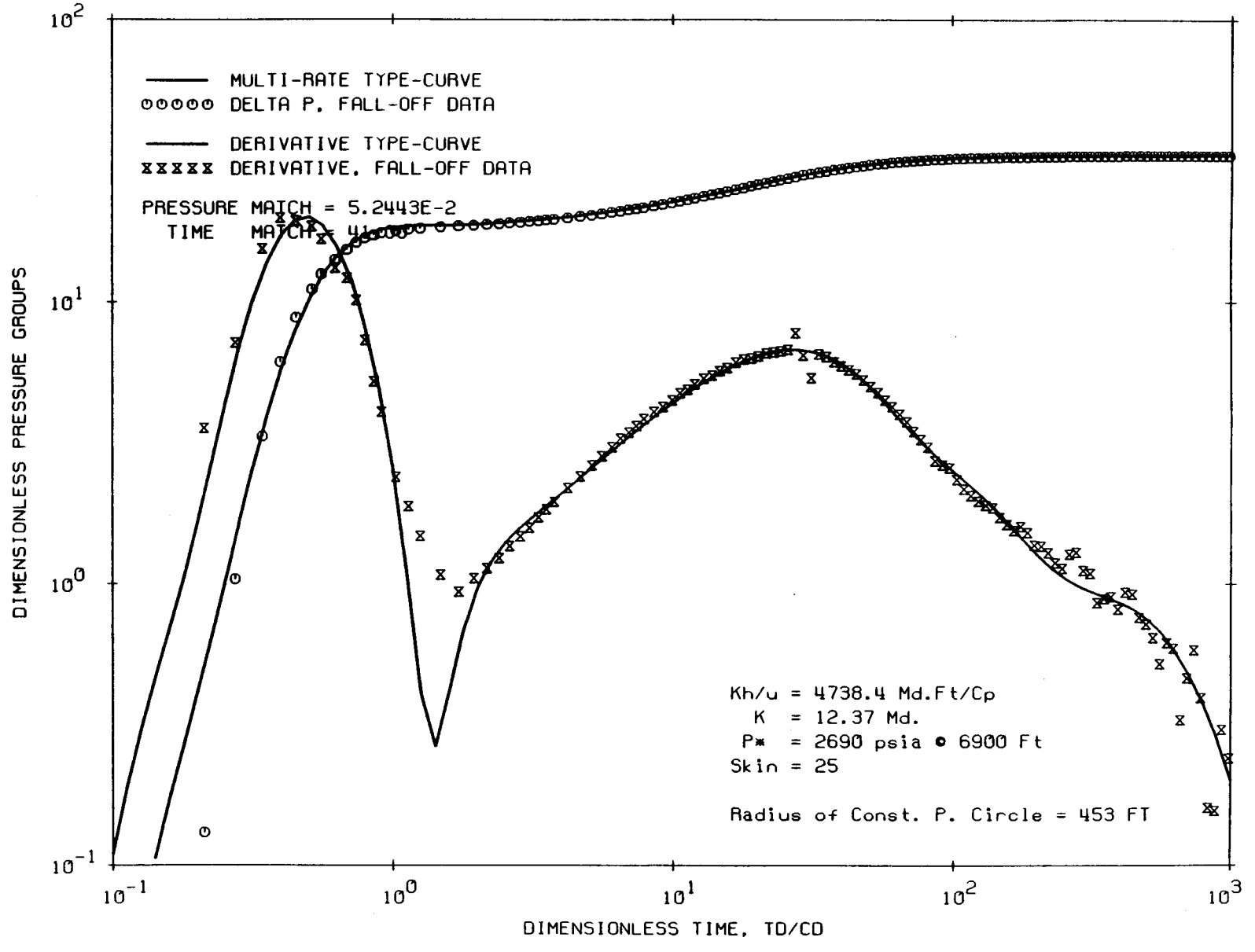
PAGE NO. 3

DIMENSIONLESS MULTI-RATE
PLOT: LOG-LOG MATCH WITH
CONST. PRESR. BOUNDARY



TYPE-CURVE : HOMOGENEOUS, CONSTANT PRESSURE (OPEN) CIRCLE
CD*E(2S) =4.78E+26 ReD/CD**.5=32.9 Ca/C=29 CoD=0.2

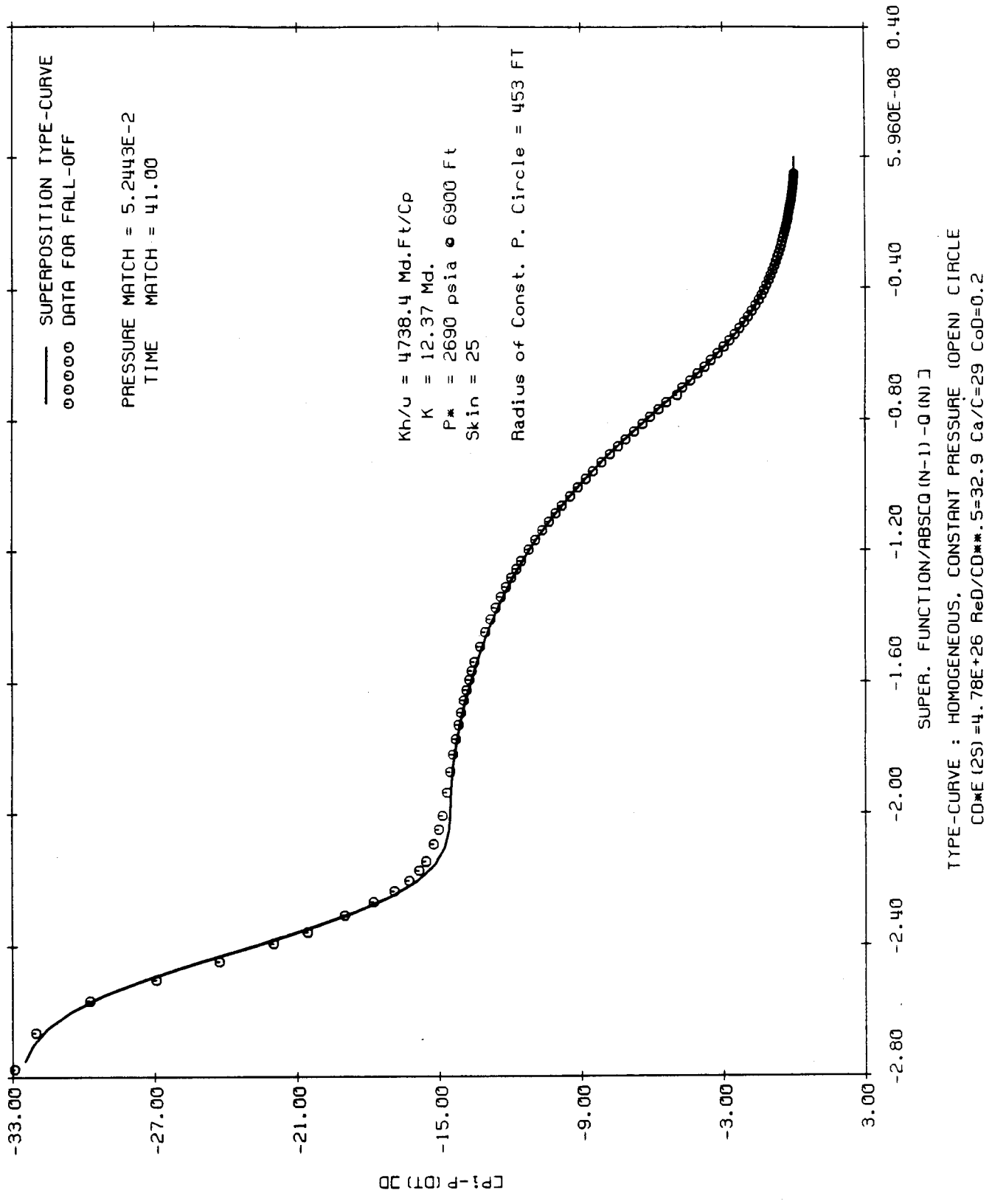
Schlumberger

REPORT NO.
142602

PAGE NO. 4

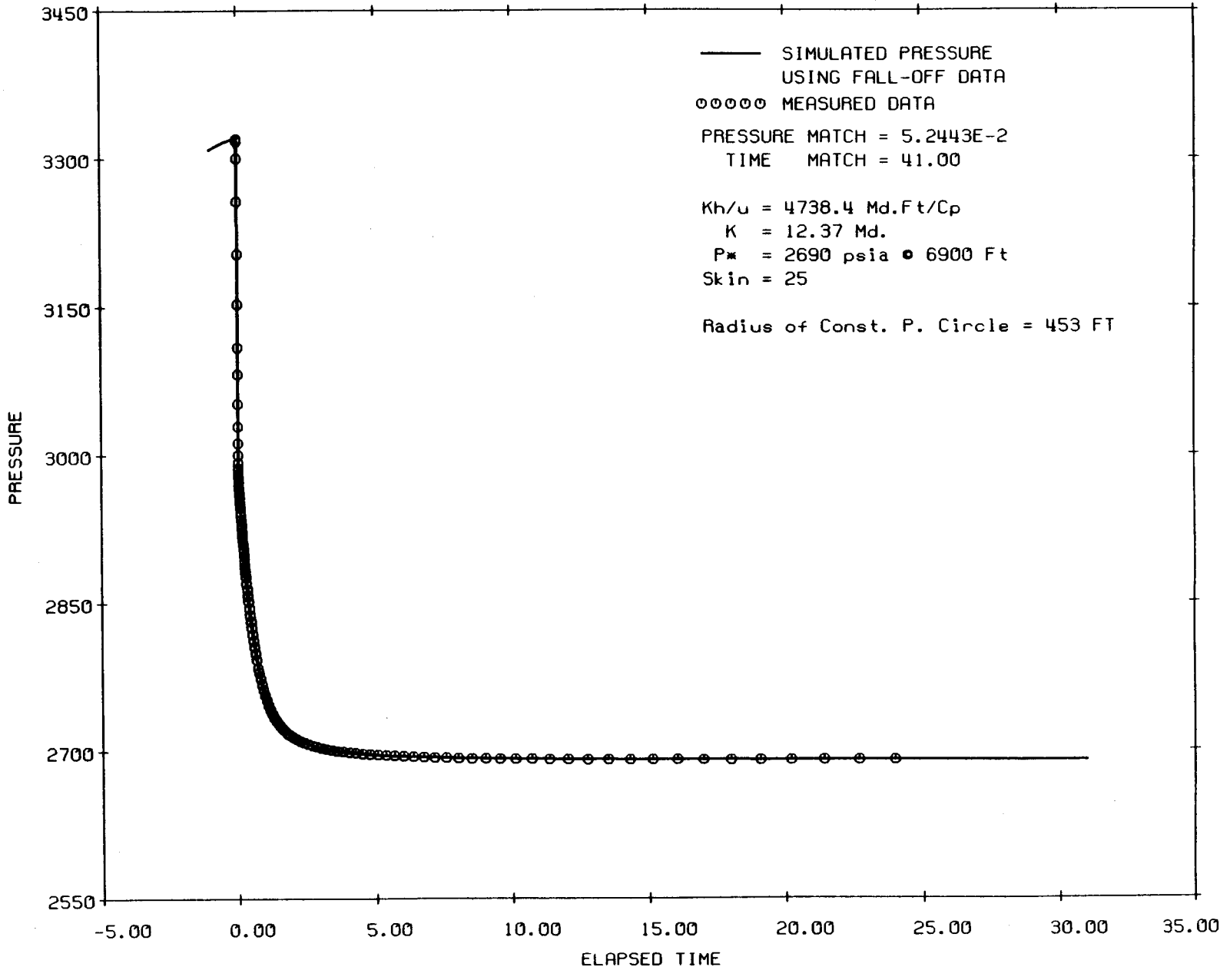
DIMENSIONLESS SUPERPOSITION PLOT WITH CONST. PRESR. BOUNDARY

Schlumberger



REPORT NO. 142602
PAGE NO. 5

PRESSURE HISTORY MATCH
CONST. PRESR. BOUNDARY



TYPE-CURVE : HOMOGENEOUS, CONSTANT PRESSURE (OPEN) CIRCLE
CD*E(2S) =4.78E+26 ReD/CD**.5=32.9 Ca/C=29 CoD=0.2

Schlumberger

CALCULATIONS
LIQUID WELL
LOG-LOG ANALYSIS

Schlumberger

LOG (DELTA P) VS. LOG (DELTA T) PLOT

HOMOGENEOUS, INFINITE SYSTEM
SKIN AND VARIABLE WELLBORE STORAGE
PD VS. TD/CD

DATA IDENTIFICATION

FLOW PERIOD * 2, FALL-OFF
P = 3320.0 PSI @ DELTA T=0
FLOW RATE CHANGE = 633.60 STB/D LIQUID

DOWNHOLE RATES (IN RESERVOIR BBL/D)

WATER ..... 639.94 (WITH B_w=1.010 BBL/STB)

COMPUTED WITH PRODUCING WATER CUT = 1.000
AND PRODUCING GAS/LIQUID RATIO = 0.000 SCF/STB

TYPE-CURVE MATCH

CURVE MATCH, CD*E(2S) = 1.000E+25
PRESSURE MATCH, PD/DELTA P = 0.05223 1/PSI
TIME MATCH, (TD/CD)/DELTA T = 52.682 1/HR

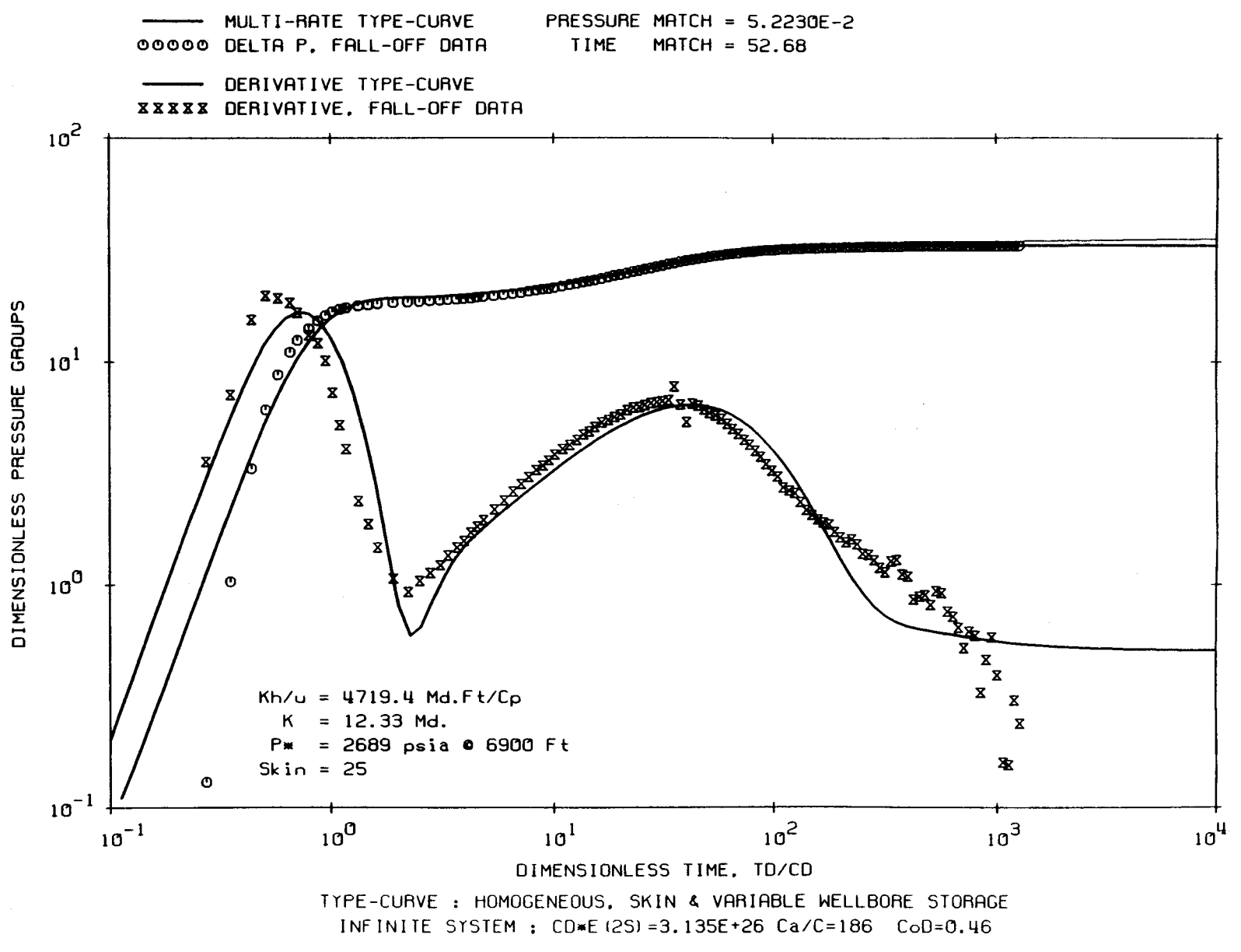
CALCULATIONS

K/MU (TOTAL)	28.603 MD/CP
KH/MU (TOTAL)	4719.4 MD.FT/CP
K_w (EFFECTIVE TO WATER) ...	12.325 MD
C	0.02643 BBL/PSI
CD	1365.2
SKIN, S	25.173
RADIUS OF INVESTIGATION ...	769.82 FT @ 23.989 HR)

COMMENTS

USING HOMOGENEOUS, INFINITE SYSTEM RESERVOIR MODEL WITH
SKIN AND VARIABLE WELLBORE STORAGE ;
Ca/C=186(1)0.020(2) CoD=0.46(1)18.5(2)

DIMENSIONLESS MULTI-RATE PLOT: LOG-LOG MATCH WITH HOMOGENEOUS MODEL



Schlumberger

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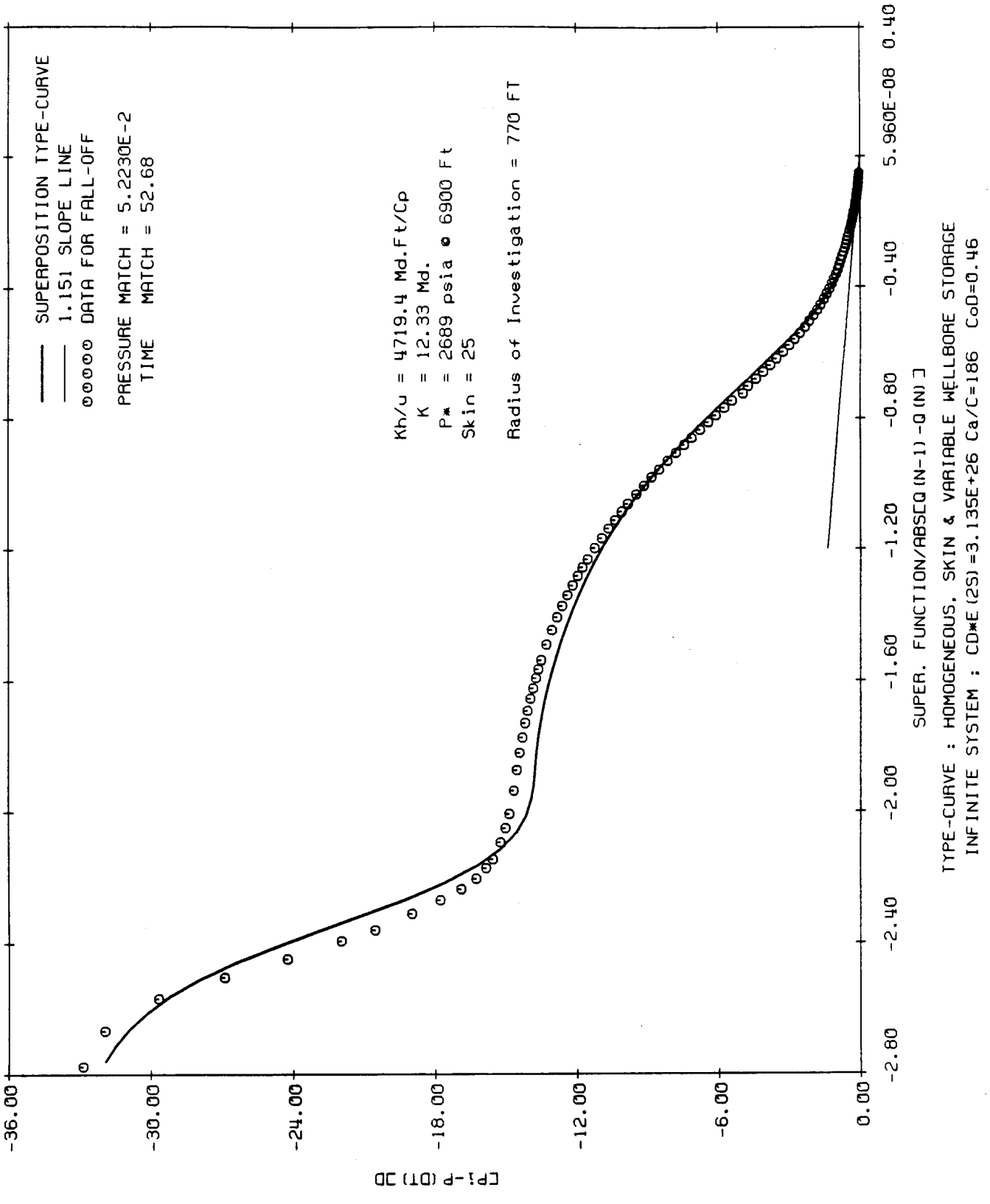
142602

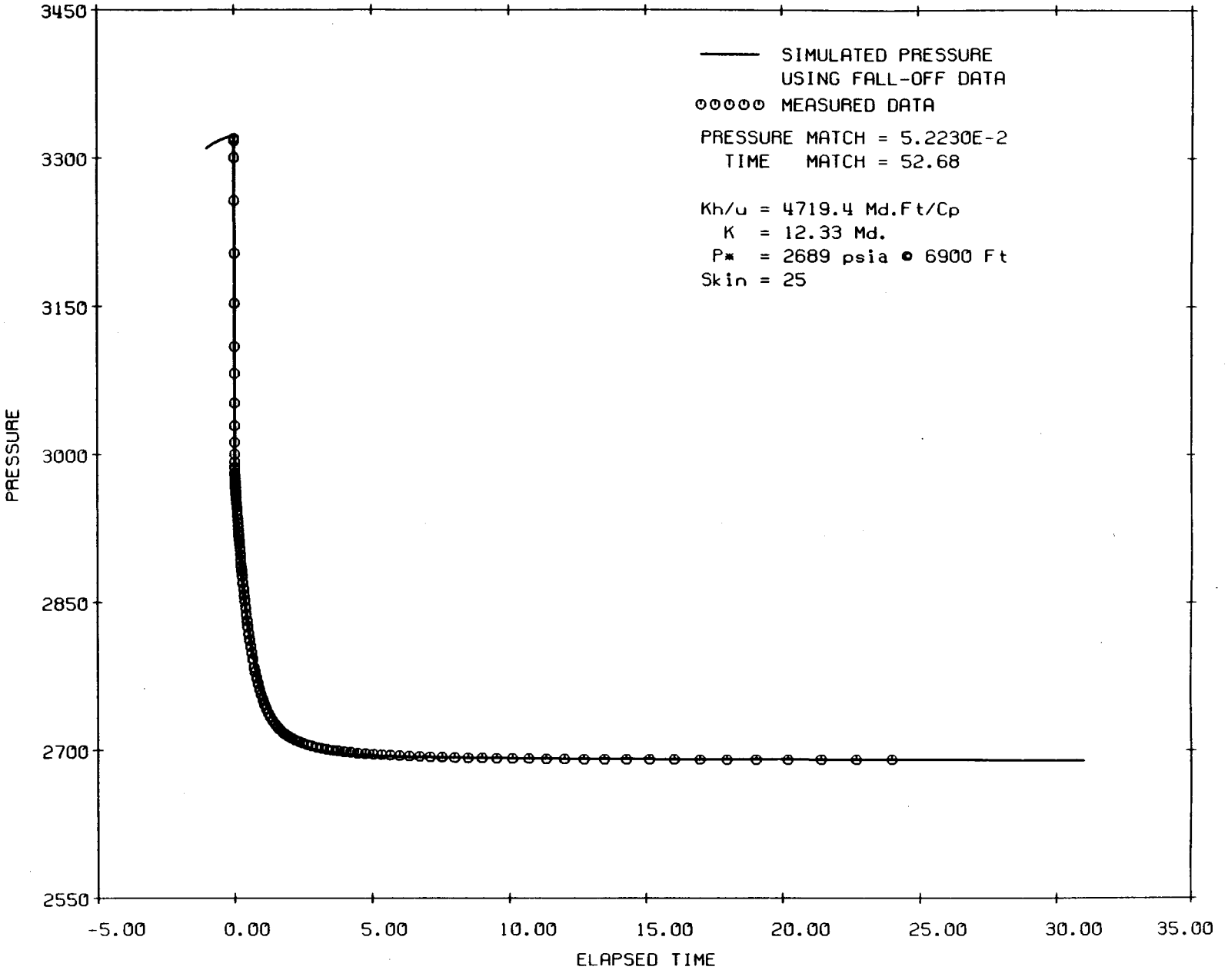
PAGE NO. 8

DIMENSIONLESS SUPERPOSITION PLOT WITH HOMOGENEOUS MODEL

Schlumberger



PRESSURE HISTORY MATCH
HOMOGENEOUS MODEL



TYPE-CURVE : HOMOGENEOUS, SKIN & VARIABLE WELLBORE STORAGE
INFINITE SYSTEM ; CD*E(2S) =3.135E+26 Ca/C=186 CoD=0.46

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FLOWRATE DATA
USED IN ANALYSIS
FERRON SWD #1

Schlumberger

ET VS. FLOWRATE

USING CALCULATED AVERAGE INJECTION RATE (REPORT 0.44 BIPM)
TEXACO - FERRON SWD #1 - WATER INJECTION/FALL-OFF TEST

	ET (hrs) PRIOR TO FALL-OFF TEST	WATER INJECTION RATE (BWIPD)
1	-3.0740	-633.60
2	0.00000E-01	0.00000E-01

MODEL-VERIFIED(tm) REPORT

Schlumberger

THIS IS SCHLUMBERGER'S MODEL-VERIFIED(tm) INTERPRETATION REPORT. WITH MODEL-VERIFIED(tm) INTERPRETATION, THE GOAL OF THE SCHLUMBERGER ANALYST IS TO CONSTRUCT A TOTAL SYSTEM RESERVOIR MODEL THAT MATCHES ALL OF YOUR WELL TEST DATA. THIS PROVIDES YOU WITH RELIABLE ANSWERS THAT YOU CAN HAVE CONFIDENCE IN.

FROM THE DIAGNOSTIC LOG-LOG PLOT OF PRESSURE AND PRESSURE DERIVATIVE, THE SCHLUMBERGER ANALYST IDENTIFIES THE FLOW REGIMES GOVERNED BY THE INNER BOUNDARY CONDITIONS, BASIC RESERVOIR BEHAVIOR, AND OUTER BOUNDARY CONDITIONS. A RESERVOIR MODEL IS THEN CONSTRUCTED AND THE TEST DATA ARE MATCHED TO IT. IN ORDER TO VERIFY THE QUALITY OF THE MATCH, THE THEORETICAL MODEL RESPONSE (TYPE CURVE) AND THE TEST DATA ARE PLOTTED TOGETHER. THE PRESENTATION OF THE MATCH CAN BE SHOWN IN ANY OF THREE DIFFERENT FORMS.

1) LOG-LOG PLOT (DELTA PRESSURE AND DERIVATIVE vs. DELTA TIME)
2) SEMI-LOG PLOT (PRESSURE vs. SUPERPOSITION TIME)
3) CARTESIAN PLOT (PRESSURE vs. TIME)

SCHLUMBERGER USES SUPERPOSITION TECHNIQUES (MULTI-RATE ANALYSIS) TO ACCOUNT FOR THE WELL'S PRIOR PRODUCTION HISTORY. ESPECIALLY IN CASES WHERE THE PRIOR PRODUCTION IS ERRATIC OR UNUSUAL, SUPERPOSITION IS THE ONLY MEANS OF PROVIDING AN ACCURATE TYPE CURVE MATCH OF THE WELL TEST DATA. FOR GAS WELLS, THE PSEUDO-PRESSURE TECHNIQUE IS USED TO ACCOUNT FOR THE CHANGE IN GAS PROPERTIES WITH CHANGING PRESSURE.

IN SOME INSTANCES, THE WELL TEST DATA WILL NOT BE UNIQUE, i.e., MORE THAN ONE RESERVOIR MODEL WILL MATCH THE TEST DATA. THE MOST APPROPRIATE MODEL CAN BE DETERMINED AS WE WORK WITH YOU AND DISCUSS THE AREA LITHOLOGY AND GEOLOGY.

THE RESERVOIR ANSWERS DERIVED FROM MODEL-VERIFIED(tm) INTERPRETATION CAN INCLUDE: EFFECTIVE PERMEABILITY (K), SKIN DAMAGE (s), RESERVOIR PRESSURE (P*), FRACTURE HALF-LENGTH (Xf), FRACTURE CAPACITY (Kfw), BOUNDARY CONDITIONS AND DISTANCE TO BOUNDARIES, AS WELL AS THE MODEL OF BASIC RESERVOIR BEHAVIOR.

USING THE RESERVOIR MODEL DETERMINED BY MODEL-VERIFIED(tm) INTERPRETATION, FLOWRATE PREDICTIONS CAN BE MADE FOR THE WELL. ADDITIONALLY, WE CAN HELP YOU OPTIMIZE WELL PERFORMANCE BY USING SCHLUMBERGER'S NODAL ANALYSIS SOFTWARE TO EXAMINE THE WELL'S SENSITIVITY TO DIFFERENT COMPLETION DESIGNS (e.g., FRACTURE HALF-LENGTH, TUBING SIZE, WELLHEAD PRESSURE, SKIN VALUE, SHOT DENSITY). THIS AFFORDS YOU THE OPPORTUNITY TO FORECAST PRODUCTION POTENTIAL FOR THE WELL BEFORE MAKING FINAL COMPLETION/RECOMPLETION DECISIONS.

WELL TEST MODELS

THE SCHLUMBERGER ANALYST CONSTRUCTS THE TOTAL SYSTEM RESERVOIR MODEL THAT BEST MATCHES YOUR TEST DATA BY CHOOSING THE INNER BOUNDARY CONDITION(S), A BASIC RESERVOIR MODEL, AND THE OUTER BOUNDARY CONDITION(S). THESE COMPONENTS ARE PUT TOGETHER INTO ONE RESERVOIR MODEL AND THE TEST DATA IS MATCHED BY ADJUSTING THE MODEL PARAMETERS (e.g., PERMEABILITY AND SKIN) TO OBTAIN THE BEST FIT. THE FOLLOWING IS A PARTIAL LIST OF THE MODEL COMPONENTS AVAILABLE TO THE SCHLUMBERGER ANALYST FOR MATCHING YOUR WELL TEST DATA.

INNER BOUNDARY CONDITION

- NO WELLBORE STORAGE
- CONSTANT WELLBORE STORAGE
- VARIABLE WELLBORE STORAGE
- FINITE CONDUCTIVITY VERTICAL FRACTURE
- INFINITE CONDUCTIVITY VERTICAL FRACTURE
- UNIFORM FLUX VERTICAL FRACTURE
- HORIZONTAL FRACTURE
- PARTIAL PENETRATION

BASIC RESERVOIR MODEL

- HOMOGENEOUS
- DUAL POROSITY, PSEUDO STEADY STATE INTERPOROSITY FLOW
- DUAL POROSITY, TRANSIENT INTERPOROSITY FLOW
- TRIPLE POROSITY
- DUAL PERMEABILITY
- RADIAL COMPOSITE

OUTER BOUNDARY CONDITION

- INFINITE SYSTEM
- SINGLE SEALING NO FLOW BOUNDARY
- PARTIALLY SEALING BOUNDARY
- SINGLE CONSTANT PRESSURE BOUNDARY
- TWO INTERSECTING NO FLOW BOUNDARIES (WEDGE GEOMETRY)
- PARALLEL NO FLOW BOUNDARIES (CHANNEL)
- GAS CAP/BOTTOM WATER DRIVE
- CLOSED (NO FLOW) CIRCLE
- CONSTANT PRESSURE CIRCLE
- CLOSED (NO FLOW) RECTANGLE
- CONSTANT PRESSURE RECTANGLE
- MIXED BOUNDARY RECTANGLE

FOR SOME APPLICATIONS, SUCH AS HORIZONTAL AND LAYERED RESERVOIR TESTS, ALL OF THE POSSIBLE COMBINATIONS ARE NOT AVAILABLE. REFERENCES ON MOST MODEL COMPONENTS CAN BE FOUND IN SPE PAPERS.

SEQUENCE OF EVENTS

Schlumberger

DATE	TIME (HR:MIN)	DESCRIPTION	ET (MINS)	BHP (PSIA)	WHP (PSIG)
17-FEB	08:26	PUMP PRESSURE	-189		
	08:30	START FLOW 0.44 BBLS PER MINUTE	-185	2996	
	11:35	END FLOW & START SHUT-IN	0	3320	
18-FEB	11:35	END SHUT-IN	1440	2690	
	11:45	GRADIENT STOP 6000'	1450	2304	
	11:54	GRADIENT STOP 5000'	1459	1874	
	12:04	GRADIENT STOP 3000'	1469	1013	
	12:13	GRADIENT STOP 1500'	1478	364	
	12:15	GRADIENT STOP LUBICATOR	1480	9	

DISTRIBUTION OF REPORTS

Schlumberger

SCHLUMBERGER has sent copies of this report to the following:

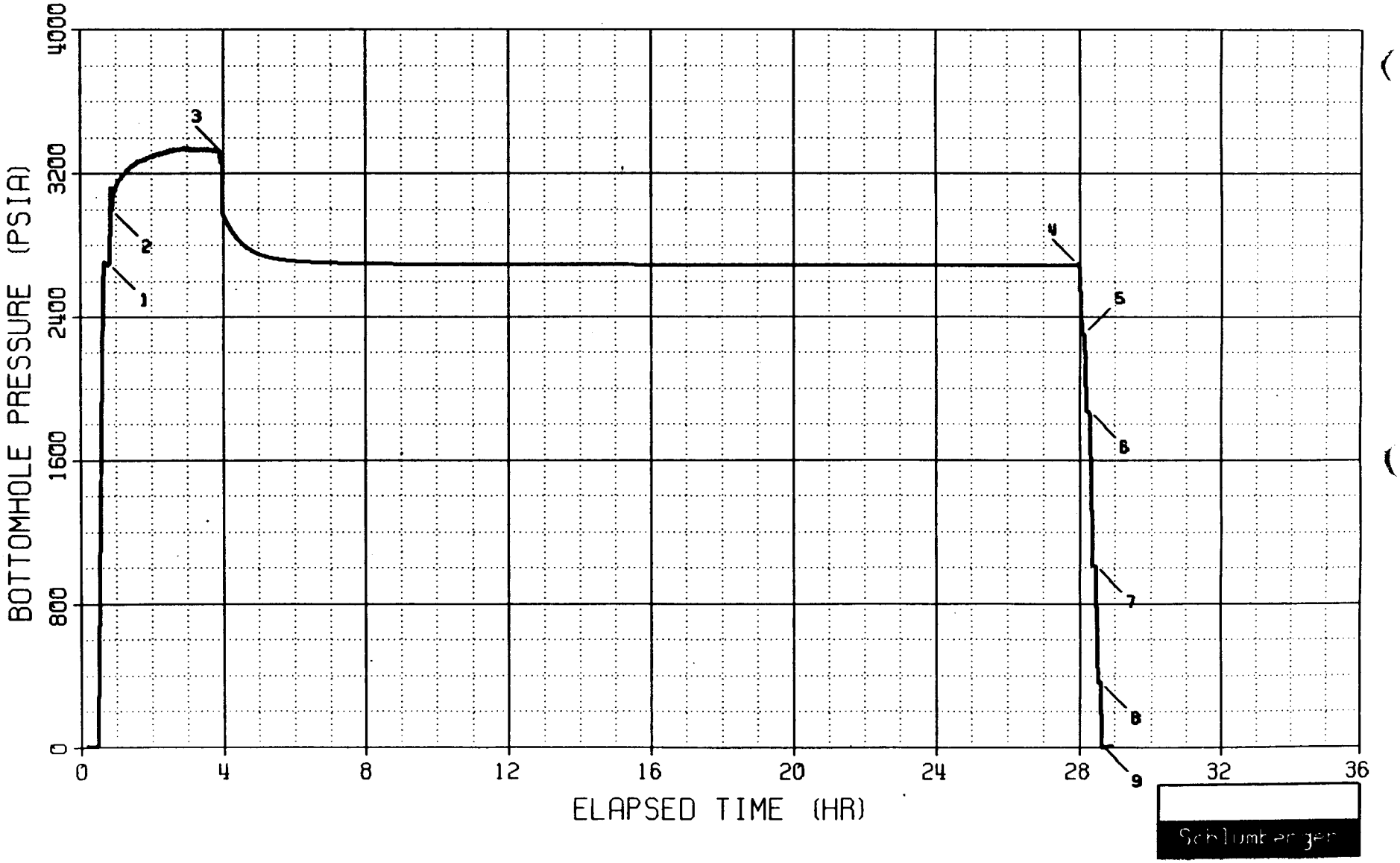
TEXACO
P. O. BOX 2100
DENVER, CO 80201
Attn: WILL JONES
(3 copies)

BOTTOMHOLE PRESSURE LOG

FIELD REPORT NO. 142602
INSTRUMENT NO. HPR-C8017
DEPTH : 6900 FT
CAPACITY : 20000 PSI
PORT OPENING : OUTSIDE

COMPANY : TEXACO
WELL : SWD #1

ELECTRONIC GAUGE PRESSURE DATA

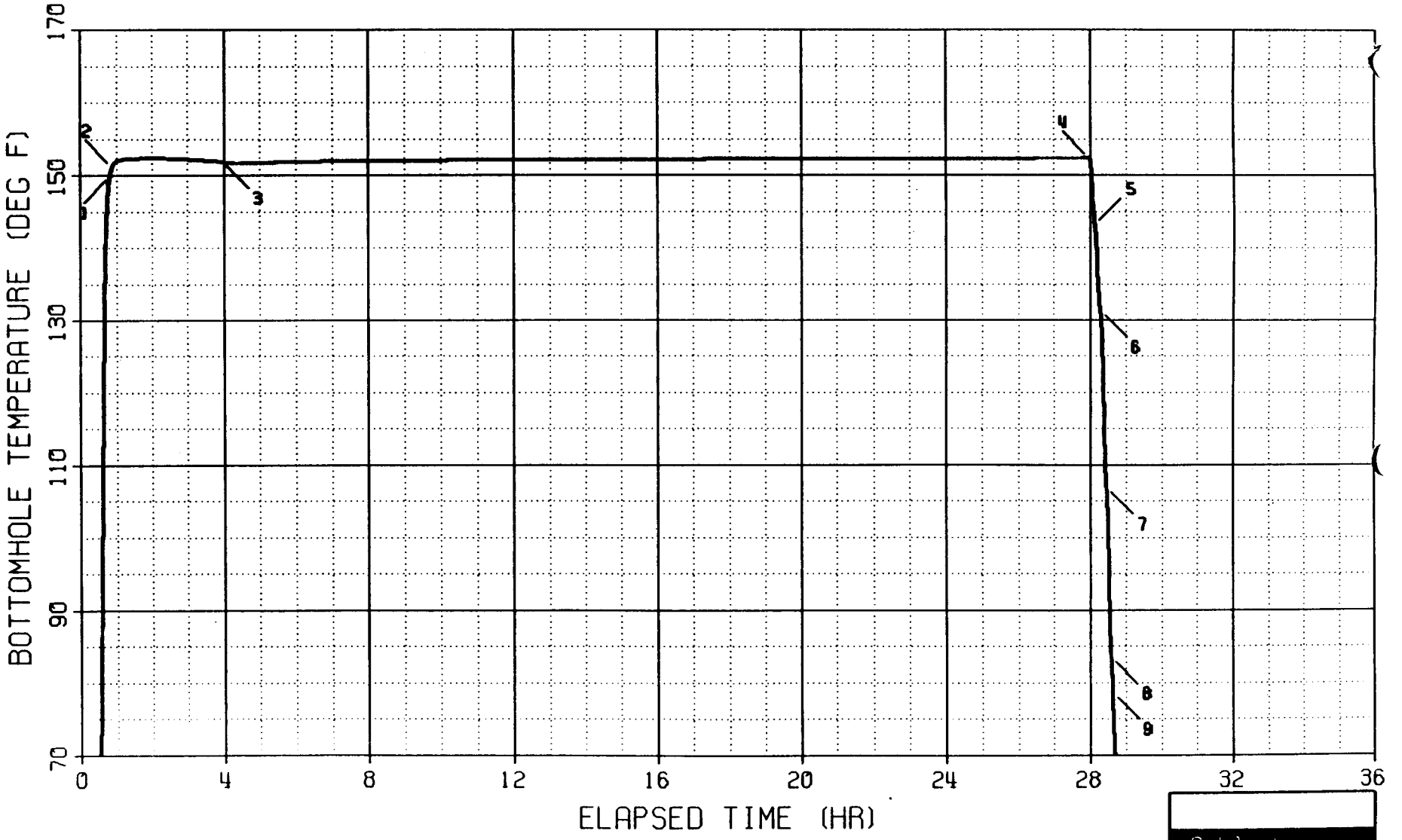


BOTTOMHOLE TEMPERATURE LOG

FIELD REPORT NO. 142602
INSTRUMENT NO. HPR-C8017
DEPTH : 6900 FT

COMPANY : TEXACO
WELL : SWD #1

ELECTRONIC GAUGE TEMPERATURE DATA

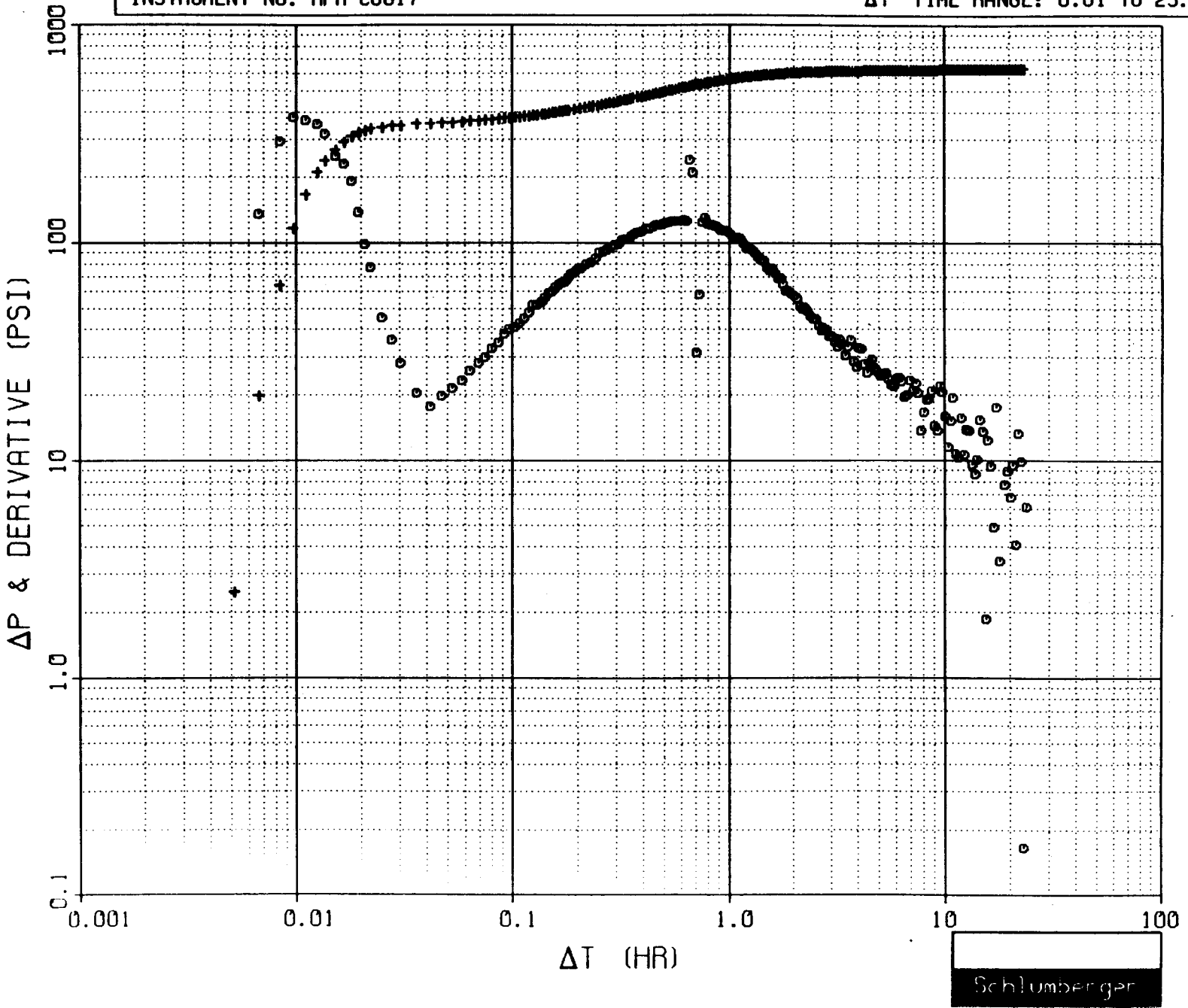


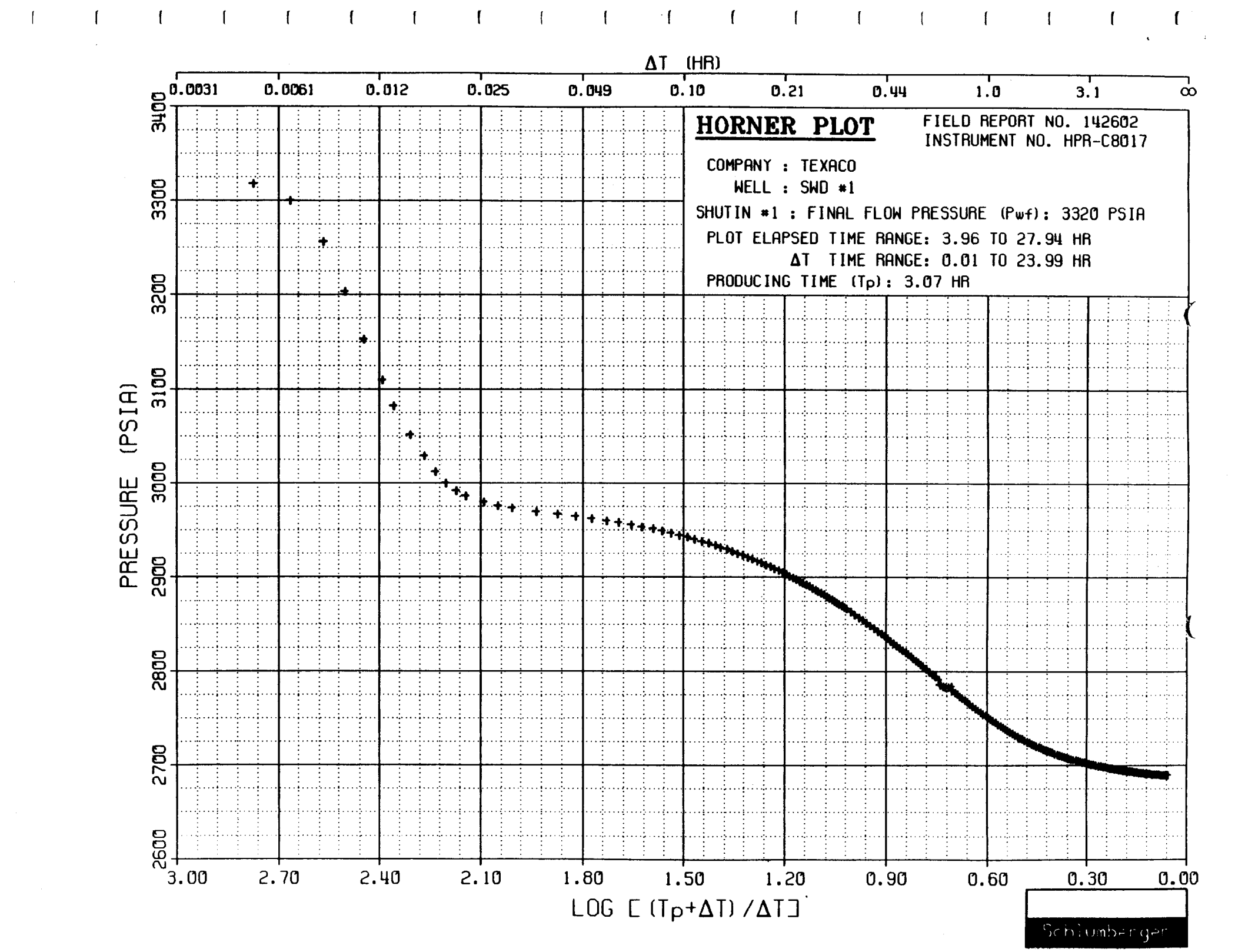
Schlumberger

LOG LOG PLOT

COMPANY : TEXACO
WELL : SWD #1
FIELD REPORT NO. 142602
INSTRUMENT NO. HPR-C8017

SHUTIN #1 : PRODUCING TIME (Tp): 3.07 HR
FINAL FLOW PRESSURE (Pwf): 3320 PSIA
PLOT ELAPSED TIME RANGE: 3.96 TO 27.94 HR
ΔT TIME RANGE: 0.01 TO 23.99 HR




ΔT (HR)
0.0031
0.0061
0.012
0.025
0.049
0.10
0.21
0.44
1.0
3.1
∞
HORNER PLOT
FIELD REPORT NO. 142602
INSTRUMENT NO. HPR-C8017
COMPANY : TEXACO
WELL : SWD #1
SHUTIN #1 : FINAL FLOW PRESSURE (Pwf): 3320 PSIA
PLOT ELAPSED TIME RANGE: 3.96 TO 27.94 HR
ΔT TIME RANGE: 0.01 TO 23.99 HR
PRODUCING TIME (Tp): 3.07 HR
PRESSURE (PSIA)
3400
3300
3200
3100
3000
2900
2800
2700
2600
3.00
2.70
2.40
2.10
1.80
1.50
1.20
0.90
0.60
0.30
0.00
LOG [(Tp+ΔT)/ΔT]
Schlumberger

****
** WELL TEST DATA PRINTOUT **
****

COMPANY: TEXACO
WELL: SWD #1

FIELD REPORT NO. 142602
INSTRUMENT NO. HPR-C8017

RECORDER CAPACITY: 20000 PSI PORT OPENING: OUTSIDE DEPTH: 6900 FT

LABEL POINT INFORMATION
****

#	TIME OF DAY HH:MM:SS	DATE DD-MMM	EXPLANATION	ELAPSED TIME, HR	BOT HOLE PRESSURE PSIA	BOT HOLE TEMP. DEG F	DEPTH FT
1	8:26:39	17-FEB	PUMP PRESSURE	0.816	2696.67	149.88	
2	8:30:34	17-FEB	START FLOW	0.882	2995.60	151.20	
3	11:34:59	17-FEB	END FLOW & START SHUT-IN	3.955	3319.97	151.88	
4	11:34:19	18-FEB	END SHUT-IN	27.944	2689.72	152.37	
5	11:45:29	18-FEB	GRADIENT STOP	28.130	2304.35	143.08	6000.0
6	11:53:59	18-FEB	GRADIENT STOP	28.272	1873.84	131.27	5000.0
7	12:04:04	18-FEB	GRADIENT STOP	28.440	1013.24	106.88	3000.0
8	12:12:24	18-FEB	GRADIENT STOP	28.579	364.18	83.48	1500.0
9	12:14:44	18-FEB	GRADIENT STOP	28.618	8.90	78.58	0.0

SUMMARY OF FLOW PERIODS
****

PERIOD	START ELAPSED TIME, HR	END ELAPSED TIME, HR	DURATION HR	START PRESSURE PSIA	END PRESSURE PSIA	INITIAL PRESSURE PSIA
1	0.882	3.955	3.074	2995.60	3319.97	2995.60

SUMMARY OF SHUTIN PERIODS
****

PERIOD	START ELAPSED TIME, HR	END ELAPSED TIME, HR	DURATION HR	START PRESSURE PSIA	END PRESSURE PSIA	FINAL FLOW PRESSURE PSIA	PRODUCING TIME, HR
1	3.955	27.944	23.989	3319.97	2689.72	3319.97	3.074

TEST PHASE: FLOW PERIOD # 1

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA
8:30:34	17-FEB	0.882	0.000	151.20	2995.60
8:36:39	17-FEB	0.983	0.101	151.93	3119.05
8:42:54	17-FEB	1.087	0.206	152.15	3164.17
8:49:04	17-FEB	1.190	0.308	152.22	3192.79
8:55:04	17-FEB	1.290	0.408	152.26	3215.92
9:01:04	17-FEB	1.390	0.508	152.28	3235.84
9:07:14	17-FEB	1.493	0.611	152.29	3253.13
9:13:19	17-FEB	1.594	0.712	152.33	3267.88
9:19:29	17-FEB	1.697	0.815	152.37	3274.23
9:25:39	17-FEB	1.800	0.918	152.40	3275.45
9:31:49	17-FEB	1.903	1.021	152.40	3284.83
9:37:59	17-FEB	2.005	1.124	152.40	3292.79
9:43:59	17-FEB	2.105	1.224	152.38	3298.76
9:50:09	17-FEB	2.208	1.326	152.37	3303.71
9:56:09	17-FEB	2.308	1.426	152.37	3306.38
10:02:09	17-FEB	2.408	1.526	152.35	3319.78
10:08:19	17-FEB	2.511	1.629	152.33	3331.44
10:14:19	17-FEB	2.611	1.729	152.31	3335.96
10:20:38	17-FEB	2.716	1.834	152.29	3340.49
10:26:49	17-FEB	2.819	1.937	152.26	3341.47
10:32:58	17-FEB	2.922	2.040	152.24	3337.07
10:39:14	17-FEB	3.026	2.145	152.20	3333.01
10:45:14	17-FEB	3.126	2.245	152.19	3331.09
10:51:24	17-FEB	3.229	2.347	152.15	3327.66
10:57:34	17-FEB	3.332	2.450	152.13	3328.29
11:03:44	17-FEB	3.435	2.553	152.10	3328.73
11:09:44	17-FEB	3.535	2.653	152.06	3326.27
11:15:54	17-FEB	3.637	2.755	152.02	3331.44
11:21:54	17-FEB	3.737	2.855	151.99	3333.12
11:28:14	17-FEB	3.843	2.961	151.93	3333.44
11:34:19	17-FEB	3.944	3.062	151.90	3317.71
11:34:59	17-FEB	3.955	3.074	151.88	3319.97

TEST PHASE: SHUTIN PERIOD # 1 FINAL FLOW PRESSURE = 3319.97 PSIA
PRODUCING TIME = 3.074 HR

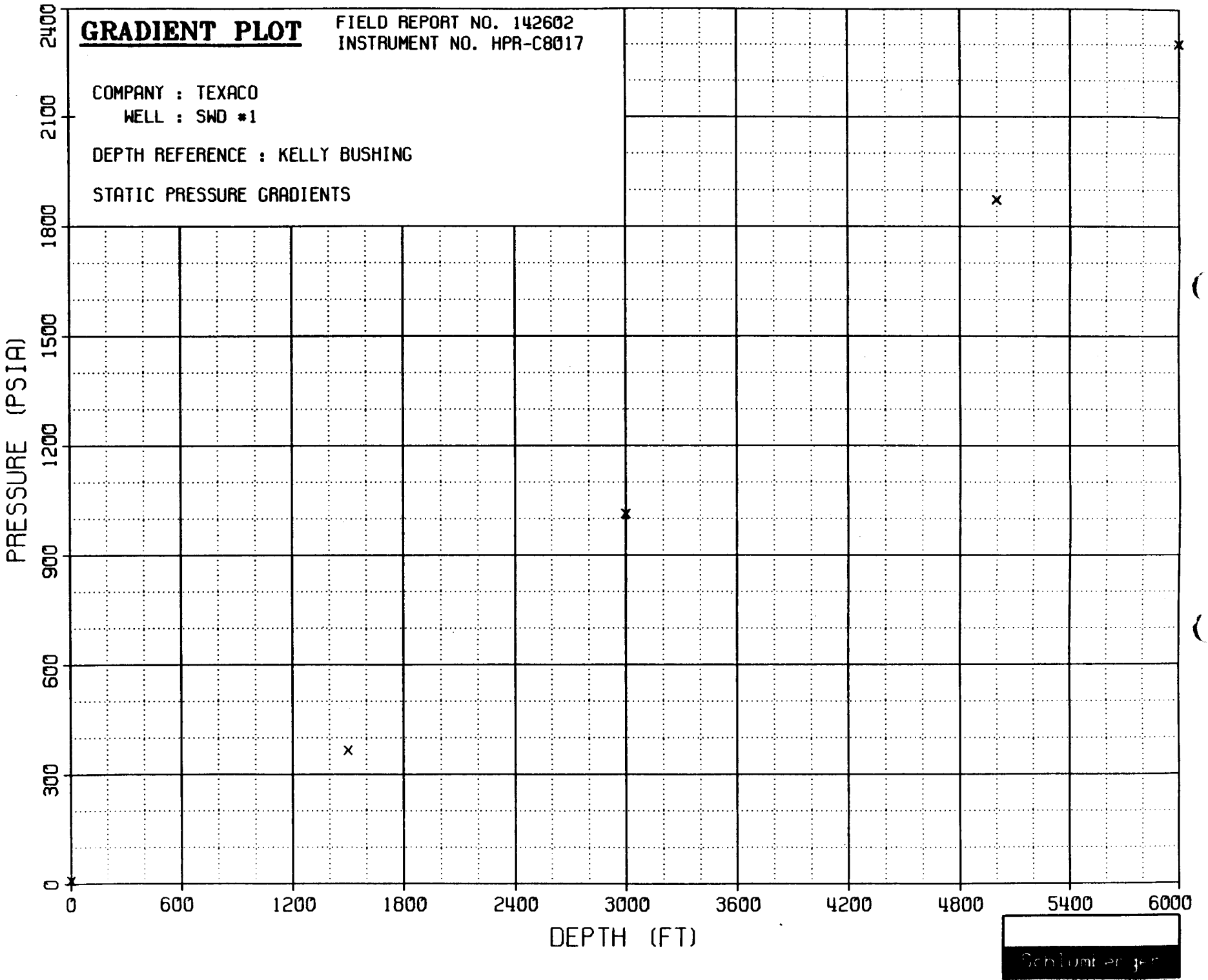
TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
11:34:59	17-FEB	3.955	0.000	151.88	3319.97	0.00	
11:35:39	17-FEB	3.966	0.011	151.88	3152.65	167.32	2.4478
11:36:19	17-FEB	3.977	0.022	151.86	2986.34	333.63	2.1451
11:37:09	17-FEB	3.991	0.036	151.83	2969.39	350.58	1.9364
11:37:49	17-FEB	4.003	0.047	151.81	2964.65	355.32	1.8206
11:38:29	17-FEB	4.014	0.058	151.79	2960.14	359.83	1.7299
11:39:09	17-FEB	4.025	0.069	151.77	2955.76	364.21	1.6564
11:39:49	17-FEB	4.036	0.080	151.75	2951.39	368.58	1.5931
11:40:29	17-FEB	4.047	0.092	151.75	2946.98	372.99	1.5382
11:41:09	17-FEB	4.058	0.103	151.74	2942.59	377.38	1.4905
11:42:29	17-FEB	4.080	0.125	151.74	2933.98	385.99	1.4081
11:43:49	17-FEB	4.102	0.147	151.72	2925.57	394.40	1.3402
11:45:09	17-FEB	4.125	0.169	151.72	2917.29	402.68	1.2822
11:46:29	17-FEB	4.147	0.192	151.72	2909.24	410.73	1.2314
11:47:48	17-FEB	4.169	0.213	151.70	2901.52	418.45	1.1874

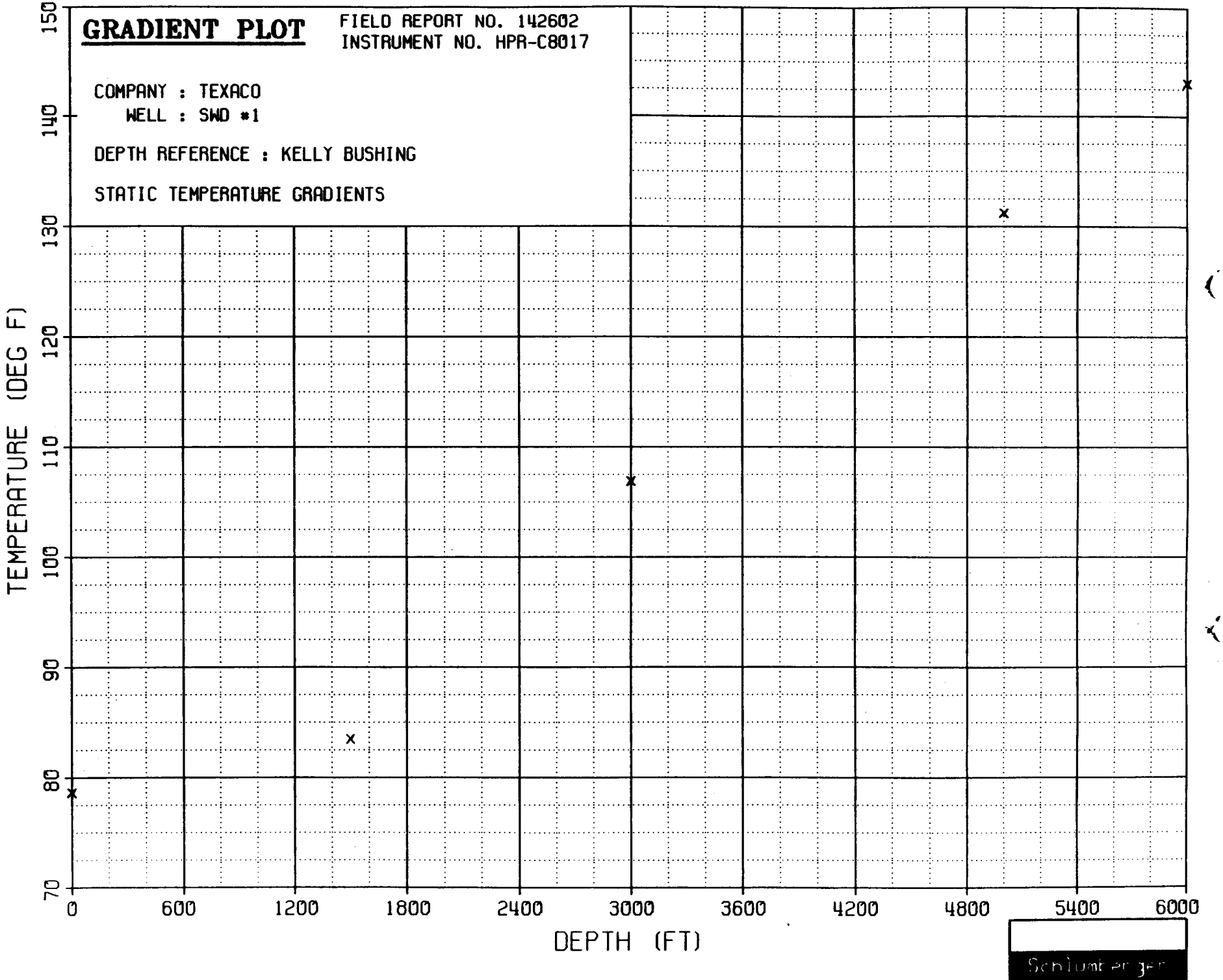
TEST PHASE: SHUTIN PERIOD # 1 FINAL FLOW PRESSURE = 3319.97 PSIA
PRODUCING TIME = 3.074 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
11:49:09	17-FEB	4.191	0.236	151.70	2893.97	426.00	1.1469
11:50:29	17-FEB	4.214	0.258	151.70	2886.76	433.21	1.1105
11:51:49	17-FEB	4.236	0.280	151.70	2879.74	440.23	1.0777
11:53:08	17-FEB	4.258	0.302	151.70	2873.08	446.89	1.0477
11:54:29	17-FEB	4.280	0.325	151.68	2866.54	453.43	1.0194
11:55:49	17-FEB	4.302	0.347	151.68	2860.34	459.63	0.9936
11:57:09	17-FEB	4.325	0.369	151.68	2854.23	465.74	0.9695
11:58:29	17-FEB	4.347	0.392	151.68	2848.48	471.49	0.9468
11:59:49	17-FEB	4.369	0.414	151.68	2842.82	477.15	0.9257
12:01:08	17-FEB	4.391	0.436	151.68	2837.50	482.47	0.9059
12:02:29	17-FEB	4.414	0.458	151.68	2832.31	487.66	0.8868
12:03:49	17-FEB	4.436	0.480	151.68	2827.29	492.68	0.8690
12:05:09	17-FEB	4.458	0.503	151.68	2822.62	497.35	0.8522
12:11:29	17-FEB	4.564	0.608	151.70	2802.29	517.68	0.7819
12:17:29	17-FEB	4.664	0.708	151.72	2783.39	536.58	0.7275
12:23:39	17-FEB	4.766	0.811	151.74	2772.93	547.04	0.6803
12:29:59	17-FEB	4.872	0.917	151.74	2761.33	558.64	0.6388
12:35:59	17-FEB	4.972	1.017	151.75	2752.41	567.56	0.6046
12:41:59	17-FEB	5.072	1.117	151.77	2744.91	575.06	0.5743
12:47:59	17-FEB	5.172	1.217	151.79	2738.71	581.26	0.5473
12:53:59	17-FEB	5.272	1.317	151.79	2733.46	586.51	0.5230
13:00:19	17-FEB	5.378	1.422	151.81	2728.82	591.15	0.4999
13:06:19	17-FEB	5.477	1.522	151.83	2725.05	594.92	0.4799
13:12:39	17-FEB	5.583	1.628	151.84	2721.71	598.26	0.4607
13:18:39	17-FEB	5.683	1.728	151.84	2719.02	600.95	0.4439
13:24:39	17-FEB	5.783	1.828	151.86	2716.61	603.36	0.4284
13:30:59	17-FEB	5.889	1.933	151.88	2714.52	605.45	0.4133
13:36:59	17-FEB	5.989	2.033	151.88	2712.79	607.18	0.4000
13:42:59	17-FEB	6.089	2.133	151.90	2711.19	608.78	0.3875
13:48:59	17-FEB	6.189	2.233	151.90	2709.91	610.06	0.3759
13:54:59	17-FEB	6.289	2.333	151.92	2708.57	611.40	0.3650
14:00:59	17-FEB	6.389	2.433	151.92	2707.51	612.46	0.3547
14:06:59	17-FEB	6.489	2.533	151.93	2706.45	613.52	0.3450
14:12:59	17-FEB	6.589	2.633	151.93	2705.59	614.38	0.3359
14:18:59	17-FEB	6.689	2.733	151.95	2704.74	615.23	0.3273
14:24:59	17-FEB	6.789	2.833	151.95	2703.97	616.00	0.3191
14:31:19	17-FEB	6.894	2.939	151.95	2703.20	616.77	0.3109
14:37:19	17-FEB	6.994	3.039	151.97	2702.58	617.39	0.3035
15:07:19	17-FEB	7.494	3.539	151.99	2700.01	619.96	0.2715
15:37:39	17-FEB	8.000	4.044	152.02	2698.20	621.77	0.2455
16:07:39	17-FEB	8.500	4.544	152.04	2696.72	623.25	0.2244
16:37:59	17-FEB	9.005	5.050	152.06	2695.70	624.27	0.2065
17:07:59	17-FEB	9.505	5.550	152.08	2694.86	625.11	0.1914
17:37:59	17-FEB	10.005	6.050	152.08	2694.10	625.87	0.1784
18:07:59	17-FEB	10.505	6.550	152.10	2693.50	626.47	0.1671
18:37:59	17-FEB	11.005	7.050	152.11	2693.04	626.93	0.1571
19:07:59	17-FEB	11.505	7.550	152.13	2692.58	627.39	0.1483
19:37:59	17-FEB	12.005	8.050	152.11	2692.25	627.72	0.1405
20:07:59	17-FEB	12.505	8.550	152.13	2691.98	627.99	0.1334
20:38:19	17-FEB	13.011	9.056	152.15	2691.69	628.28	0.1269
21:08:39	17-FEB	13.516	9.561	152.15	2691.43	628.54	0.1211
21:38:39	17-FEB	14.016	10.061	152.15	2691.26	628.71	0.1158
22:08:39	17-FEB	14.516	10.561	152.17	2691.04	628.93	0.1109
22:38:39	17-FEB	15.016	11.061	152.17	2690.93	629.04	0.1065

TEST PHASE: SHUTIN PERIOD # 1 FINAL FLOW PRESSURE = 3319.97 PSIA
PRODUCING TIME = 3.074 HR

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DELTA TIME, HR	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
23:08:59	17-FEB	15.522	11.567	152.19	2690.75	629.22	0.1023
23:38:59	17-FEB	16.022	12.067	152.19	2690.71	629.26	0.0985
0:08:59	18-FEB	16.522	12.567	152.20	2690.59	629.38	0.0950
0:39:19	18-FEB	17.028	13.072	152.20	2690.44	629.53	0.0917
1:09:19	18-FEB	17.528	13.572	152.22	2690.40	629.57	0.0887
1:39:19	18-FEB	18.028	14.072	152.22	2690.32	629.65	0.0858
2:09:38	18-FEB	18.533	14.577	152.24	2690.27	629.70	0.0831
2:39:39	18-FEB	19.033	15.078	152.24	2690.25	629.72	0.0806
3:09:39	18-FEB	19.533	15.578	152.24	2690.09	629.88	0.0782
3:39:39	18-FEB	20.033	16.078	152.26	2690.03	629.94	0.0760
4:09:39	18-FEB	20.533	16.578	152.26	2690.03	629.94	0.0739
4:39:58	18-FEB	21.038	17.083	152.28	2689.96	630.01	0.0719
5:09:59	18-FEB	21.539	17.583	152.28	2689.91	630.06	0.0700
5:39:59	18-FEB	22.039	18.083	152.29	2689.91	630.06	0.0682
6:09:59	18-FEB	22.539	18.583	152.29	2689.87	630.10	0.0665
6:39:59	18-FEB	23.039	19.083	152.29	2689.89	630.08	0.0649
7:09:59	18-FEB	23.539	19.583	152.31	2689.87	630.10	0.0633
7:39:59	18-FEB	24.039	20.083	152.31	2689.82	630.15	0.0618
8:09:59	18-FEB	24.539	20.583	152.31	2689.89	630.08	0.0604
8:39:59	18-FEB	25.039	21.083	152.33	2689.84	630.13	0.0591
9:10:18	18-FEB	25.544	21.588	152.33	2689.80	630.17	0.0578
9:40:19	18-FEB	26.044	22.089	152.33	2689.79	630.18	0.0566
10:10:19	18-FEB	26.544	22.589	152.35	2689.74	630.23	0.0554
10:40:19	18-FEB	27.044	23.089	152.35	2689.72	630.25	0.0543
11:10:19	18-FEB	27.544	23.589	152.35	2689.70	630.27	0.0532
11:34:19	18-FEB	27.944	23.989	152.37	2689.72	630.25	0.0524


GRADIENT PLOT
FIELD REPORT NO. 142602
INSTRUMENT NO. HPR-C8017
COMPANY : TEXACO
WELL : SWD #1
DEPTH REFERENCE : KELLY BUSHING
STATIC PRESSURE GRADIENTS
PRESSURE (PSIA)
0
300
600
900
1200
1500
1800
2100
2400
DEPTH (FT)
0
600
1200
1800
2400
3000
3600
4200
4800
5400
6000


GRADIENT PLOT
FIELD REPORT NO. 142602
INSTRUMENT NO. HPR-C8017
COMPANY : TEXACO
WELL : SWD #1
DEPTH REFERENCE : KELLY BUSHING
STATIC TEMPERATURE GRADIENTS
TEMPERATURE (DEG F)
150
140
130
120
110
100
90
80
70
0
600
1200
1800
2400
3000
3600
4200
4800
5400
6000
DEPTH (FT)
Schlumberger

****
** WELL TEST DATA PRINTOUT **
****

COMPANY: TEXACO
WELL: SWD #1

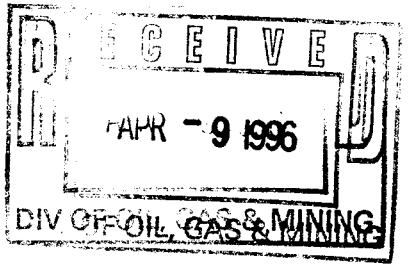
FIELD REPORT NO. 142602
INSTRUMENT NO. HPR-C8017

RECORDER CAPACITY: 20000 PSI
DEPTH REFERENCE: KELLY BUSHING

GRADIENT INFORMATION
****

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, HR	DEPTH FROM REF. FT	PRESSURE AT DEPTH PSIA	PRES. GRADIENT PSI/FT	TEMPERATURE AT DEPTH DEG F	TEMP. GRADIENT DEG F/FT
11:45:29	18-FEB	28.130	6000.0	2304.35		143.08	
11:53:59	18-FEB	28.272	5000.0	1873.84	0.431	131.27	0.0118
12:04:04	18-FEB	28.440	3000.0	1013.24	0.430	106.88	0.0122
12:12:24	18-FEB	28.579	1500.0	364.18	0.433	83.48	0.0156
12:14:44	18-FEB	28.618	0.0	8.90	0.237	78.58	0.00327

SCALING PREDICTION FOR CALCIUM CARBONATE, CALCIUM SULFATE, BARIUM SULFATE AND/OR STRONTIUM SULFATE
COMPUTED AT THE BELLAIRE LABORATORIES ON 04/08/96



SAMPLE ID: WATER "A" :NAVAJO SS FORMATION

CATION CONCENTRATIONS(MG/L)		ANION CONCENTRATIONS(MG/L)		OTHER PROPERTIES		
BARIUM------	0.	BICARBONATE-	478.	TEMPERATURE-	100.#	DEG F
CALCIUM-----	1920.	CARBONATE---	0.	=	38.#	DEG C
IRON--------	227.	CHLORIDE----	10370.	PH----------	5.80	
MAGNESIUM---	1530.	SULFATE-----	3030.	TDS---------	21600.	MG/L
POTASSIUM---	250.			" ---------	21055.#	
SODIUM------	3250.			SP.GR.------	1.0220	
STRONTIUM---	0.			IONIC STRENGTH----	0.5266	MOLAL

CALCIUM CARBONATE (CALCITE) SCALING PREDICTION:
THE STIFF-DAVIS INDEX IS -0.50.
CALCITE SCALE IS POSSIBLE AT THIS TEMPERATURE IF THE PH IS GREATER THAN 6.30.
CALCITE CAPACITIES SIGNIFICANTLY LESS THAN ZERO
INDICATE THAT A WATER COULD DISSOLVE CALCITE.
THIS WATER COULD DISSOLVE 1214. MG CALCITE/L (425. PTB).
EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
AND PH ARE 2405.MG CALCIUM/L AND 1218.MG BICARBONATE/L

CALCIUM SULFATE (GYPSUM) SCALING PREDICTION:
THE WATER ANALYSIS INDICATES A GYPSUM SCALING
CAPACITY OF 245. MG GYPSUM/L (86. PTB).
ANY POSITIVE GYPSUM CAPACITY MAY PRODUCE SEVERE SCALING
THE EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
WOULD BE 1863. MG CALCIUM/L AND 2893. MG SULFATE/L

BARIUM SULFATE (BARITE) SCALING PREDICTION:
NO PREDICTION CAN BE MADE WITHOUT A BARIUM ANALYSIS.

STRONTIUM SULFATE SCALING PREDICTION:
NO PREDICTION IS POSSIBLE WITHOUT STRONTIUM ANALYSIS

MOST SUITABLE THRESHOLD SCALE CONTROL CHEMICALS:(IN ORDER OF PREFERENCE)
"PHOSPHATE ESTER TYPE INHIBITORS"
TREATMENT LEVELS OF 5 TO 15+PPM NORMALLY REQUIRED
"PHOSPHONATE TYPE INHIBITORS"
TREATMENT LEVELS OF 5 TO 15+PPM NORMALLY REQUIRED

THESE TYPES OF INHIBITORS MAY NOT BE SUITABLE UNDER CERTAIN CONDITIONS
-BECAUSE OF INCOMPATIBILITIES WITH HIGH CALCIUM OR MAGNESIUM LEVELS.
"ORGANIC POLYMER TYPE INHIBITORS"(POLYACRYLATES,ETC.)
"PHOSPHONATE TYPE INHIBITORS"
"INORGANIC POLYPHOSPHATES"(CONTROLLED SOLUBILITY PHOSPHATES,ETC.)

NOTES:
* = QUANTITY NOT IN ACCEPTABLE RANGE
\# = DEFAULT VALUE ESTIMATED BY COMPUTER PROGRAM
? = QUANTITY CALCULATE BY PROGRAM DOES NOT AGREE WITH VALUE GIVEN
PTB = POUNDS PER 1000 BBL WATER
MG/L = MILLIGRAMS PER LITER WATER

SCALING PREDICTION FOR CALCIUM CARBONATE, CALCIUM SULFATE, BARIUM SULFATE AND/OR STRONTIUM SULFATE
COMPUTED AT THE BELLAIRE LABORATORIES ON 04/08/96

SAMPLE ID: MIX OF 90% "A" AND 10% "B"

CATION CONCENTRATIONS(MG/L)		ANION CONCENTRATIONS(MG/L)		OTHER PROPERTIES		
BARIUM------	0.	BICARBONATE-	536.	TEMPERATURE-	100.#	DEG F
CALCIUM-----	1845.	CARBONATE---	0.	=	38.#	DEG C
IRON--------	210.	CHLORIDE----	10173.	PH----------	5.84	
MAGNESIUM---	1399.	SULFATE-----	2780.	TDS---------	21160.	MG/L
POTASSIUM---	240.			" ---------	20589.#	
SODIUM------	3405.			SP.GR.------	1.0210	
STRONTIUM---	0.			IONIC STRENGTH----	0.5068	MOLAL

CALCIUM CARBONATE (CALCITE) SCALING PREDICTION:
THE STIFF-DAVIS INDEX IS -0.41.
CALCITE SCALE IS POSSIBLE AT THIS TEMPERATURE IF THE PH IS GREATER THAN 6.25.
CALCITE CAPACITIES SIGNIFICANTLY LESS THAN ZERO
INDICATE THAT A WATER COULD DISSOLVE CALCITE.
THIS WATER COULD DISSOLVE 978. MG CALCITE/L (342. PTB).
EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
AND PH ARE 2236.MG CALCIUM/L AND 1133.MG BICARBONATE/L

CALCIUM SULFATE (GYPSUM) SCALING PREDICTION:
NO GYPSUM SCALING POTENTIAL IS INDICATED.
THE WATER COULD DISSOLVE 54. MG GYPSUM/LITER (19. PTB).
THE EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
WOULD BE 1858. MG CALCIUM/L AND 2810. MG SULFATE/L

BARIUM SULFATE (BARITE) SCALING PREDICTION:
NO PREDICTION CAN BE MADE WITHOUT A BARIUM ANALYSIS.

STRONTIUM SULFATE SCALING PREDICTION:
NO PREDICTION IS POSSIBLE WITHOUT STRONTIUM ANALYSIS

MOST SUITABLE THRESHOLD SCALE CONTROL CHEMICALS:(IN ORDER OF PREFERENCE)
NO INHIBITOR REQUIREMENT INDICATED

NOTES:
* = QUANTITY NOT IN ACCEPTABLE RANGE
# = DEFAULT VALUE ESTIMATED BY COMPUTER PROGRAM
? = QUANTITY CALCULATE BY PROGRAM DOES NOT AGREE WITH VALUE GIVEN
PTB = POUNDS PER 1000 BBL WATER
MG/L = MILLIGRAMS PER LITER WATER

SCALING PREDICTION FOR CALCIUM CARBONATE, CALCIUM SULFATE, BARIUM SULFATE AND/OR STRONTIUM SULFATE
COMPUTED AT THE BELLAIRE LABORATORIES ON 04/08/96

SAMPLE ID: MIX OF 80% "A" AND 20% "B"

CATION CONCENTRATIONS(MG/L)		ANION CONCENTRATIONS(MG/L)		OTHER PROPERTIES		
BARIUM------	0.	BICARBONATE-	594.	TEMPERATURE-	100.#	DEG F
CALCIUM-----	1770.	CARBONATE---	0.	=	38.#	DEG C
IRON--------	194.	CHLORIDE----	9976.	PH----------	5.89	
MAGNESIUM---	1268.	SULFATE-----	2530.	TDS---------	20720.	MG/L
POTASSIUM---	230.			" ---------	20123.#	
SODIUM------	3560.			SP.GR.------	1.0200	
STRONTIUM---	0.			IONIC STRENGTH----	0.4870	MOLAL

CALCIUM CARBONATE (CALCITE) SCALING PREDICTION:
THE STIFF-DAVIS INDEX IS -0.31.
CALCITE SCALE IS POSSIBLE AT THIS TEMPERATURE IF THE PH IS GREATER THAN 6.20.
CALCITE CAPACITIES SIGNIFICANTLY LESS THAN ZERO
INDICATE THAT A WATER COULD DISSOLVE CALCITE.
THIS WATER COULD DISSOLVE 740. MG CALCITE/L (259. PTB).
EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
AND PH ARE 2066.MG CALCIUM/L AND 1046.MG BICARBONATE/L

CALCIUM SULFATE (GYPSUM) SCALING PREDICTION:
NO GYPSUM SCALING POTENTIAL IS INDICATED.
THE WATER COULD DISSOLVE 349. MG GYPSUM/LITER (122. PTB).
THE EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
WOULD BE 1851. MG CALCIUM/L AND 2725. MG SULFATE/L

BARIUM SULFATE (BARITE) SCALING PREDICTION:
NO PREDICTION CAN BE MADE WITHOUT A BARIUM ANALYSIS.

STRONTIUM SULFATE SCALING PREDICTION:
NO PREDICTION IS POSSIBLE WITHOUT STRONTIUM ANALYSIS

MOST SUITABLE THRESHOLD SCALE CONTROL CHEMICALS:(IN ORDER OF PREFERENCE)
NO INHIBITOR REQUIREMENT INDICATED

NOTES:
* = QUANTITY NOT IN ACCEPTABLE RANGE
# = DEFAULT VALUE ESTIMATED BY COMPUTER PROGRAM
? = QUANTITY CALCULATE BY PROGRAM DOES NOT AGREE WITH VALUE GIVEN
PTB = POUNDS PER 1000 BBL WATER
MG/L = MILLIGRAMS PER LITER WATER

SCALING PREDICTION FOR CALCIUM CARBONATE, CALCIUM SULFATE, BARIUM SULFATE AND/OR STRONTIUM SULFATE
COMPUTED AT THE BELLAIRE LABORATORIES ON 04/08/96

SAMPLE ID: MIX OF 70% "A" AND 30% "B"

CATION CONCENTRATIONS(MG/L)		ANION CONCENTRATIONS(MG/L)		OTHER PROPERTIES		
BARIUM------	0.	BICARBONATE-	653.	TEMPERATURE-	100.#	DEG F
CALCIUM-----	1695.	CARBONATE---	0.	=	38.#	DEG C
IRON--------	177.	CHLORIDE----	9779.	PH----------	5.95	
MAGNESIUM---	1137.	SULFATE-----	2280.	TDS---------	20280.	MG/L
POTASSIUM---	220.			" ---------	19657.#	
SODIUM------	3715.			SP.GR.------	1.0200	
STRONTIUM---	0.			IONIC STRENGTH----	0.4667	MOLAL

CALCIUM CARBONATE (CALCITE) SCALING PREDICTION:
THE STIFF-DAVIS INDEX IS -0.22.
CALCITE SCALE IS POSSIBLE AT THIS TEMPERATURE IF THE PH IS GREATER THAN 6.16.
CALCITE CAPACITIES SIGNIFICANTLY LESS THAN ZERO
INDICATE THAT A WATER COULD DISSOLVE CALCITE.
THIS WATER COULD DISSOLVE 502. MG CALCITE/L (176. PTB).
EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
AND PH ARE 1896.MG CALCIUM/L AND 959.MG BICARBONATE/L

CALCIUM SULFATE (GYPSUM) SCALING PREDICTION:
NO GYPSUM SCALING POTENTIAL IS INDICATED.
THE WATER COULD DISSOLVE 614. MG GYPSUM/LITER (215. PTB).
THE EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
WOULD BE 1838. MG CALCIUM/L AND 2623. MG SULFATE/L

BARIUM SULFATE (BARITE) SCALING PREDICTION:
NO PREDICTION CAN BE MADE WITHOUT A BARIUM ANALYSIS.

STRONTIUM SULFATE SCALING PREDICTION:
NO PREDICTION IS POSSIBLE WITHOUT STRONTIUM ANALYSIS

MOST SUITABLE THRESHOLD SCALE CONTROL CHEMICALS:(IN ORDER OF PREFERENCE)
NO INHIBITOR REQUIREMENT INDICATED

NOTES:
* = QUANTITY NOT IN ACCEPTABLE RANGE
# = DEFAULT VALUE ESTIMATED BY COMPUTER PROGRAM
? = QUANTITY CALCULATE BY PROGRAM DOES NOT AGREE WITH VALUE GIVEN
PTB = POUNDS PER 1000 BBL WATER
MG/L = MILLIGRAMS PER LITER WATER

SCALING PREDICTION FOR CALCIUM CARBONATE, CALCIUM SULFATE, BARIUM SULFATE AND/OR STRONTIUM SULFATE
COMPUTED AT THE BELLAIRE LABORATORIES ON 04/08/96

SAMPLE ID: MIX OF 60% "A" AND 40% "B"

CATION CONCENTRATIONS(MG/L)		ANION CONCENTRATIONS(MG/L)		OTHER PROPERTIES		
BARIUM------	0.	BICARBONATE-	711.	TEMPERATURE-	100.#	DEG F
CALCIUM-----	1620.	CARBONATE---	0.	=	38.#	DEG C
IRON--------	161.	CHLORIDE----	9582.	PH----------	6.01	
MAGNESIUM---	1006.	SULFATE-----	2030.	TDS---------	19840.	MG/L
POTASSIUM---	210.			" ---------	19190.#	
SODIUM------	3870.			SP.GR.------	1.0190	
STRONTIUM---	0.			IONIC STRENGTH----	0.4468	MOLAL

CALCIUM CARBONATE (CALCITE) SCALING PREDICTION:
THE STIFF-DAVIS INDEX IS -0.11.
CALCITE SCALE IS POSSIBLE AT THIS TEMPERATURE IF THE PH IS GREATER THAN 6.12.
CALCITE CAPACITIES SIGNIFICANTLY LESS THAN ZERO
INDICATE THAT A WATER COULD DISSOLVE CALCITE.
THIS WATER COULD DISSOLVE 262. MG CALCITE/L (92. PTB).
EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
AND PH ARE 1725.MG CALCIUM/L AND 871.MG BICARBONATE/L

CALCIUM SULFATE (GYPSUM) SCALING PREDICTION:
NO GYPSUM SCALING POTENTIAL IS INDICATED.
THE WATER COULD DISSOLVE 859. MG GYPSUM/LITER (301. PTB).
THE EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
WOULD BE 1820. MG CALCIUM/L AND 2510. MG SULFATE/L

BARIUM SULFATE (BARITE) SCALING PREDICTION:
NO PREDICTION CAN BE MADE WITHOUT A BARIUM ANALYSIS.

STRONTIUM SULFATE SCALING PREDICTION:
NO PREDICTION IS POSSIBLE WITHOUT STRONTIUM ANALYSIS

MOST SUITABLE THRESHOLD SCALE CONTROL CHEMICALS:(IN ORDER OF PREFERENCE)
NO INHIBITOR REQUIREMENT INDICATED

NOTES:
* = QUANTITY NOT IN ACCEPTABLE RANGE
# = DEFAULT VALUE ESTIMATED BY COMPUTER PROGRAM
? = QUANTITY CALCULATE BY PROGRAM DOES NOT AGREE WITH VALUE GIVEN
PTB = POUNDS PER 1000 BBL WATER
MG/L = MILLIGRAMS PER LITER WATER

SCALING PREDICTION FOR CALCIUM CARBONATE, CALCIUM SULFATE, BARIUM SULFATE AND/OR STRONTIUM SULFATE
COMPUTED AT THE BELLAIRE LABORATORIES ON 04/08/96

SAMPLE ID: MIX OF 50% "A" AND 50% "B"

CATION CONCENTRATIONS(MG/L)		ANION CONCENTRATIONS(MG/L)		OTHER PROPERTIES		
BARIUM------	0.	BICARBONATE-	769.	TEMPERATURE-	100.#	DEG F
CALCIUM-----	1545.	CARBONATE---	0.	=	38.#	DEG C
IRON--------	144.	CHLORIDE----	9385.	PH----------	6.08	
MAGNESIUM---	876.	SULFATE-----	1781.	TDS---------	19400.	MG/L
POTASSIUM---	200.			" ---------	18724.#	
SODIUM------	4025.			SP.GR.------	1.0180	
STRONTIUM---	0.			IONIC STRENGTH----	0.4270	MOLAL

CALCIUM CARBONATE (CALCITE) SCALING PREDICTION:
THE STIFF-DAVIS INDEX IS -0.00.
CALCITE SCALE IS POSSIBLE AT THIS TEMPERATURE IF THE PH IS GREATER THAN 6.09.
CALCITE CAPACITIES SIGNIFICANTLY LESS THAN ZERO
INDICATE THAT A WATER COULD DISSOLVE CALCITE.
THIS WATER COULD DISSOLVE 8. MG CALCITE/L (3. PTB).
EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
AND PH ARE 1548.MG CALCIUM/L AND 774.MG BICARBONATE/L

CALCIUM SULFATE (GYPSUM) SCALING PREDICTION:
NO GYPSUM SCALING POTENTIAL IS INDICATED.
THE WATER COULD DISSOLVE 1101. MG GYPSUM/LITER (385. PTB).
THE EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
WOULD BE 1801. MG CALCIUM/L AND 2395. MG SULFATE/L

BARIUM SULFATE (BARITE) SCALING PREDICTION:
NO PREDICTION CAN BE MADE WITHOUT A BARIUM ANALYSIS.

STRONTIUM SULFATE SCALING PREDICTION:
NO PREDICTION IS POSSIBLE WITHOUT STRONTIUM ANALYSIS

MOST SUITABLE THRESHOLD SCALE CONTROL CHEMICALS:(IN ORDER OF PREFERENCE)
NO INHIBITOR REQUIREMENT INDICATED

NOTES:
* = QUANTITY NOT IN ACCEPTABLE RANGE
# = DEFAULT VALUE ESTIMATED BY COMPUTER PROGRAM
? = QUANTITY CALCULATE BY PROGRAM DOES NOT AGREE WITH VALUE GIVEN
PTB = POUNDS PER 1000 BBL WATER
MG/L = MILLIGRAMS PER LITER WATER

SCALING PREDICTION FOR CALCIUM CARBONATE, CALCIUM SULFATE, BARIUM SULFATE AND/OR STRONTIUM SULFATE
COMPUTED AT THE BELLAIRE LABORATORIES ON 04/08/96

SAMPLE ID: MIX OF 40% "A" AND 60% "B"

CATION CONCENTRATIONS(MG/L)		ANION CONCENTRATIONS(MG/L)		OTHER PROPERTIES		
BARIUM------	0.	BICARBONATE-	827.	TEMPERATURE-	100.#	DEG F
CALCIUM-----	1470.	CARBONATE---	0.	=	38.#	DEG C
IRON--------	128.	CHLORIDE----	9188.	PH----------	6.17	
MAGNESIUM---	745.	SULFATE-----	1531.	TDS---------	18960.	MG/L
POTASSIUM---	190.			" ---------	18258.#	
SODIUM------	4180.			SP.GR.------	1.0170	
STRONTIUM---	0.			IONIC STRENGTH----	0.4071	MOLAL

CALCIUM CARBONATE (CALCITE) SCALING PREDICTION:
THE STIFF-DAVIS INDEX IS 0.12.
CALCITE SCALE IS POSSIBLE AT THIS TEMPERATURE IF THE PH IS GREATER THAN 6.05.
THE CAPACITY OF THE WATER TO DEPOSIT CALCITE IS 251. MG/L (OR 88.0 PTB).
CALCITE CAPACITIES OF 0 TO 100 PTB INDICATE THAT MILD TO MODERATE
CALCITE SCALE IS POSSIBLE BUT MAY NOT RAPIDLY FORM.
EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
AND PH ARE 1369.MG CALCIUM/L AND 674.MG BICARBONATE/L

CALCIUM SULFATE (GYPSUM) SCALING PREDICTION:
NO GYPSUM SCALING POTENTIAL IS INDICATED.
THE WATER COULD DISSOLVE 1338. MG GYPSUM/LITER (468. PTB).
THE EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
WOULD BE 1781. MG CALCIUM/L AND 2277. MG SULFATE/L

BARIUM SULFATE (BARITE) SCALING PREDICTION:
NO PREDICTION CAN BE MADE WITHOUT A BARIUM ANALYSIS.

STRONTIUM SULFATE SCALING PREDICTION:
NO PREDICTION IS POSSIBLE WITHOUT STRONTIUM ANALYSIS

MOST SUITABLE THRESHOLD SCALE CONTROL CHEMICALS:(IN ORDER OF PREFERENCE)
"PHOSPHONATE TYPE INHIBITORS"
TREATMENT LEVELS OF 5 TO 15+PPM NORMALLY REQUIRED
"PHOSPHATE ESTER TYPE INHIBITORS"
TREATMENT LEVELS OF 5 TO 15+PPM NORMALLY REQUIRED

NOTES:
* = QUANTITY NOT IN ACCEPTABLE RANGE
\# = DEFAULT VALUE ESTIMATED BY COMPUTER PROGRAM
? = QUANTITY CALCULATE BY PROGRAM DOES NOT AGREE WITH VALUE GIVEN
PTB = POUNDS PER 1000 BBL WATER
MG/L = MILLIGRAMS PER LITER WATER

SCALING PREDICTION FOR CALCIUM CARBONATE, CALCIUM SULFATE, BARIUM SULFATE AND/OR STRONTIUM SULFATE
COMPUTED AT THE BELLAIRE LABORATORIES ON 04/08/96

SAMPLE ID: MIX OF 30% "A" AND 70% "B"

CATION CONCENTRATIONS(MG/L)		ANION CONCENTRATIONS(MG/L)		OTHER PROPERTIES		
BARIUM------	0.	BICARBONATE-	885.	TEMPERATURE-	100.#	DEG F
CALCIUM-----	1395.	CARBONATE---	0.	=	38.#	DEG C
IRON--------	111.	CHLORIDE----	8991.	PH----------	6.28	
MAGNESIUM---	614.	SULFATE-----	1281.	TDS---------	18520.	MG/L
POTASSIUM---	180.			" ---------	17792.#	
SODIUM------	4335.			SP.GR.------	1.0160	
STRONTIUM---	0.			IONIC STRENGTH----	0.3872	MOLAL

CALCIUM CARBONATE (CALCITE) SCALING PREDICTION:
THE STIFF-DAVIS INDEX IS 0.27.
CALCITE SCALE IS POSSIBLE AT THIS TEMPERATURE IF THE PH IS GREATER THAN 6.02.
THE CAPACITY OF THE WATER TO DEPOSIT CALCITE IS 526. MG/L (OR 184.1 PTB).
CALCITE CAPACITIES OF APPROXIMATELY 100 TO 250 PTB INDICATE THAT CALCITE SCALING IS POSSIBLE AND MODERATE TO SEVERE SCALING WILL USUALLY BE ENCOUNTERED.
EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
AND PH ARE 1185.MG CALCIUM/L AND 565.MG BICARBONATE/L

CALCIUM SULFATE (GYPSUM) SCALING PREDICTION:
NO GYPSUM SCALING POTENTIAL IS INDICATED.
THE WATER COULD DISSOLVE 1571. MG GYPSUM/LITER (550. PTB).
THE EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
WOULD BE 1760. MG CALCIUM/L AND 2158. MG SULFATE/L

BARIUM SULFATE (BARITE) SCALING PREDICTION:
NO PREDICTION CAN BE MADE WITHOUT A BARIUM ANALYSIS.

STRONTIUM SULFATE SCALING PREDICTION:
NO PREDICTION IS POSSIBLE WITHOUT STRONTIUM ANALYSIS

MOST SUITABLE THRESHOLD SCALE CONTROL CHEMICALS:(IN ORDER OF PREFERENCE)
"PHOSPHONATE TYPE INHIBITORS"
TREATMENT LEVELS OF 5 TO 15+PPM NORMALLY REQUIRED
"PHOSPHATE ESTER TYPE INHIBITORS"
TREATMENT LEVELS OF 5 TO 15+PPM NORMALLY REQUIRED

NOTES: * = QUANTITY NOT IN ACCEPTABLE RANGE
= DEFAULT VALUE ESTIMATED BY COMPUTER PROGRAM
? = QUANTITY CALCULATE BY PROGRAM DOES NOT AGREE WITH VALUE GIVEN
PTB = POUNDS PER 1000 BBL WATER
MG/L = MILLIGRAMS PER LITER WATER

SCALING PREDICTION FOR CALCIUM CARBONATE, CALCIUM SULFATE, BARIUM SULFATE AND/OR STRONTIUM SULFATE
COMPUTED AT THE BELLAIRE LABORATORIES ON 04/08/96

SAMPLE ID: MIX OF 20% "A" AND 80% "B"

CATION CONCENTRATIONS(MG/L)		ANION CONCENTRATIONS(MG/L)		OTHER PROPERTIES		
BARIUM------	0.	BICARBONATE-	944.	TEMPERATURE-	100.#	DEG F
CALCIUM-----	1320.	CARBONATE---	0.	=	38.#	DEG C
IRON--------	95.	CHLORIDE----	8794.	PH----------	6.44	
MAGNESIUM---	483.	SULFATE-----	1031.	TDS---------	18080.	MG/L
POTASSIUM---	170.			" ---------	17326.#	
SODIUM------	4490.			SP.GR.------	1.0160	
STRONTIUM---	0.			IONIC STRENGTH----	0.3669	MOLAL

CALCIUM CARBONATE (CALCITE) SCALING PREDICTION:
THE STIFF-DAVIS INDEX IS 0.45.
CALCITE SCALE IS POSSIBLE AT THIS TEMPERATURE IF THE PH IS GREATER THAN 5.98.
THE CAPACITY OF THE WATER TO DEPOSIT CALCITE IS 820. MG/L (OR 287.1 PTB).
CALCITE CAPACITIES IN EXCESS OF 250 PTB NORMALLY
INDICATE THAT SEVERE CALCITE SCALING SHOULD BE EXPECTED
EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
AND PH ARE 992.MG CALCIUM/L AND 443.MG BICARBONATE/L

CALCIUM SULFATE (GYPSUM) SCALING PREDICTION:
NO GYPSUM SCALING POTENTIAL IS INDICATED.
THE WATER COULD DISSOLVE 1802. MG GYPSUM/LITER (631. PTB).
THE EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
WOULD BE 1739. MG CALCIUM/L AND 2036. MG SULFATE/L

BARIUM SULFATE (BARITE) SCALING PREDICTION:
NO PREDICTION CAN BE MADE WITHOUT A BARIUM ANALYSIS.

STRONTIUM SULFATE SCALING PREDICTION:
NO PREDICTION IS POSSIBLE WITHOUT STRONTIUM ANALYSIS

MOST SUITABLE THRESHOLD SCALE CONTROL CHEMICALS:(IN ORDER OF PREFERENCE)
"PHOSPHONATE TYPE INHIBITORS"
TREATMENT LEVELS OF 5 TO 15+PPM NORMALLY REQUIRED
"PHOSPHATE ESTER TYPE INHIBITORS"
TREATMENT LEVELS OF 5 TO 15+PPM NORMALLY REQUIRED

NOTES: * = QUANTITY NOT IN ACCEPTABLE RANGE
= DEFAULT VALUE ESTIMATED BY COMPUTER PROGRAM
? = QUANTITY CALCULATE BY PROGRAM DOES NOT AGREE WITH VALUE GIVEN
PTB = POUNDS PER 1000 BBL WATER
MG/L = MILLIGRAMS PER LITER WATER

SCALING PREDICTION FOR CALCIUM CARBONATE, CALCIUM SULFATE, BARIUM SULFATE AND/OR STRONTIUM SULFATE
COMPUTED AT THE BELLAIRE LABORATORIES ON 04/08/96

SAMPLE ID: MIX OF 10% "A" AND 90% "B"

CATION CONCENTRATIONS(MG/L)		ANION CONCENTRATIONS(MG/L)		OTHER PROPERTIES		
BARIUM------	0.	BICARBONATE-	1002.	TEMPERATURE-	100.#	DEG F
CALCIUM-----	1245.	CARBONATE---	0.	=	38.#	DEG C
IRON--------	78.	CHLORIDE----	8597.	PH----------	6.67	
MAGNESIUM---	352.	SULFATE-----	781.	TDS---------	17640.	MG/L
POTASSIUM---	160.			" ---------	16860.#	
SODIUM------	4645.			SP.GR.------	1.0150	
STRONTIUM---	0.			IONIC STRENGTH----	0.3470	MOLAL

CALCIUM CARBONATE (CALCITE) SCALING PREDICTION:
THE STIFF-DAVIS INDEX IS 0.72.
CALCITE SCALE IS POSSIBLE AT THIS TEMPERATURE IF THE PH IS GREATER THAN 5.95.
THE CAPACITY OF THE WATER TO DEPOSIT CALCITE IS 1143. MG/L (OR 400.0 PTB).
CALCITE CAPACITIES IN EXCESS OF 250 PTB NORMALLY
INDICATE THAT SEVERE CALCITE SCALING SHOULD BE EXPECTED
EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
AND PH ARE 788.MG CALCIUM/L AND 305.MG BICARBONATE/L

CALCIUM SULFATE (GYPSUM) SCALING PREDICTION:
NO GYPSUM SCALING POTENTIAL IS INDICATED.
THE WATER COULD DISSOLVE 2029. MG GYPSUM/LITER (710. PTB).
THE EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
WOULD BE 1717. MG CALCIUM/L AND 1913. MG SULFATE/L

BARIUM SULFATE (BARITE) SCALING PREDICTION:
NO PREDICTION CAN BE MADE WITHOUT A BARIUM ANALYSIS.

STRONTIUM SULFATE SCALING PREDICTION:
NO PREDICTION IS POSSIBLE WITHOUT STRONTIUM ANALYSIS

MOST SUITABLE THRESHOLD SCALE CONTROL CHEMICALS:(IN ORDER OF PREFERENCE)
"PHOSPHONATE TYPE INHIBITORS"
TREATMENT LEVELS OF 5 TO 15+PPM NORMALLY REQUIRED
"PHOSPHATE ESTER TYPE INHIBITORS"
TREATMENT LEVELS OF 5 TO 15+PPM NORMALLY REQUIRED

NOTES: * = QUANTITY NOT IN ACCEPTABLE RANGE
= DEFAULT VALUE ESTIMATED BY COMPUTER PROGRAM
? = QUANTITY CALCULATE BY PROGRAM DOES NOT AGREE WITH VALUE GIVEN
PTB = POUNDS PER 1000 BBL WATER
MG/L = MILLIGRAMS PER LITER WATER

SCALING PREDICTION FOR CALCIUM CARBONATE, CALCIUM SULFATE, BARIUM SULFATE AND/OR STRONTIUM SULFATE
COMPUTED AT THE BELLAIRE LABORATORIES ON 04/08/96

SAMPLE ID: WATER "B" :FEDERAL STATE 35-6

CATION CONCENTRATIONS(MG/L)		ANION CONCENTRATIONS(MG/L)		OTHER PROPERTIES		
BARIUM------	0.	BICARBONATE-	1060.	TEMPERATURE-	100.#	DEG F
CALCIUM-----	1170.	CARBONATE---	0.	=	38.#	DEG C
IRON--------	62.	CHLORIDE----	8400.	PH----------	7.20	
MAGNESIUM---	221.	SULFATE-----	531.	TDS---------	17200.	MG/L
POTASSIUM---	150.			" ---------	16394.#	
SODIUM------	4800.			SP.GR.------	1.0140	
STRONTIUM---	0.			IONIC STRENGTH----	0.3270	MOLAL

CALCIUM CARBONATE (CALCITE) SCALING PREDICTION:
THE STIFF-DAVIS INDEX IS 1.27.
CALCITE SCALE IS POSSIBLE AT THIS TEMPERATURE IF THE PH IS GREATER THAN 5.93.
THE CAPACITY OF THE WATER TO DEPOSIT CALCITE IS 1542. MG/L (OR 539.7 PTB).
CALCITE CAPACITIES IN EXCESS OF 250 PTB NORMALLY
INDICATE THAT SEVERE CALCITE SCALING SHOULD BE EXPECTED
EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
AND PH ARE 553.MG CALCIUM/L AND 119.MG BICARBONATE/L

CALCIUM SULFATE (GYPSUM) SCALING PREDICTION:
NO GYPSUM SCALING POTENTIAL IS INDICATED.
THE WATER COULD DISSOLVE 2254. MG GYPSUM/LITER (789. PTB).
THE EQUILIBRIUM CONCENTRATIONS AT THIS TEMPERATURE
WOULD BE 1694. MG CALCIUM/L AND 1789. MG SULFATE/L

BARIUM SULFATE (BARITE) SCALING PREDICTION:
NO PREDICTION CAN BE MADE WITHOUT A BARIUM ANALYSIS.

STRONTIUM SULFATE SCALING PREDICTION:
NO PREDICTION IS POSSIBLE WITHOUT STRONTIUM ANALYSIS

MOST SUITABLE THRESHOLD SCALE CONTROL CHEMICALS:(IN ORDER OF PREFERENCE)
"PHOSPHONATE TYPE INHIBITORS"
TREATMENT LEVELS OF 5 TO 15+PPM NORMALLY REQUIRED
"PHOSPHATE ESTER TYPE INHIBITORS"
TREATMENT LEVELS OF 5 TO 15+PPM NORMALLY REQUIRED

NOTES: * = QUANTITY NOT IN ACCEPTABLE RANGE
= DEFAULT VALUE ESTIMATED BY COMPUTER PROGRAM
? = QUANTITY CALCULATE BY PROGRAM DOES NOT AGREE WITH VALUE GIVEN
PTB = POUNDS PER 1000 BBL WATER
MG/L = MILLIGRAMS PER LITER WATER

EMERY COUNTY PUBLIC LANDS COUNCIL

95 EAST MAIN
CASTLE DALE, UT 84513

April 9, 1996

State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84160-1203

ATTENTION: Dan Jarvis, R. J. Firth

NOTICE OF PROTEST

In the matter of Administrative Approval of Cause No. UIC-167
Proposed Texaco Salt Water Disposal Well
Located in the SW/NW Section 24, T18S, R7E, SLM
Notice of Permit Application - Public Notice - Notice of Agency Action

The undersigned, on behalf of the Emery County Public Lands Council objects to the approval of the referenced permit, and requests that one or more public hearings be conducted on this matter. The proposed disposal well would inject salt water recovered from coal bed methane production into the Navajo Sandstone formation. Emery County has a number of private wells drawing water from this formation, which is a source of high quality ground water. We feel that it is incumbent on the applicant and the Division to prove to Emery County and its citizens that the proposed well will not adversely affect the water quality in this aquifer before any permit is granted to inject waste water into it.

Sincerely

Tracy Jeffs
Chairman

EMERY COUNTY
A Great Place to Live and Work

Board of Commissioners

April 8, 1996

Randy G. Johnson, Commissioner
Kent R. Petersen, Commissioner
Bevan K. Wilson, Commissioner

RECEIVED
APR 11 1996
DIV. OF OIL, GAS & MINING

Dept. of Natural Resources
Division of oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84160-1203

Attention: Dan Jarvis

Re: Notice of Protest or Intervention of the Administrative Approval of Cause No. UIC -167 Proposed Texaco Salt Water Disposal Well in SW/NW Section 24, T18S, R7E, SLM. Notice of Permit Application-Public Notice-Notice of Agency Action

Emery County protests the proposed injection well until we have had the opportunity to review all of the data pertaining to the well. We are requesting all of the data, ninety days for us to review the data, and a public hearing in Emery county to review everything at the end of the ninety day period.

There are producing fresh water wells in the Navajo sandstone on Buckhorn flat and on Fullers Bottom within twelve miles of the proposed injection well. Since the Navajo formation has proven to be a source of underground water we cannot afford to allow anything to contaminate this important water source.

We are concerned with the quality of the water in injection area of the proposed well, the depth of the well, the quality of the water being injected, the amount of water being injected, the ability of the well to handle the injected water, and the flow characteristics of the Navajo formation after the water is injected. We also want to be assured that Texaco will meet all Emery county ordinances with the well.

We look forward to working with DOGM in obtaining the desired information and after our 90 day review in holding a public hearing on the well in Emery county.

Sincerely,

EMERY COUNTY BOARD OF COMMISSIONERS

Kent R. Petersen, Chairman
EMERY COUNTY, STATE OF UTAH

P.O. Box 629 • Castle Dale, Utah 84513 • Telephone (801) 381-2119 • FAX (801) 381-5644

RS

COPY

FILED

APR 16 1996

SECRETARY, BOARD OF OIL, GAS & MINING

BEFORE THE BOARD OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH

IN THE MATTER OF THE APPLICATION OF TEXACO EXPLORATION & PRODUCTION INC. FOR ADMINISTRATIVE APPROVAL OF THE SWD #1 WELL LOCATED IN SECTION 24, TOWNSHIP 18 SOUTH, RANGE 7 EAST, S.L.M., EMERY COUNTY, UTAH, AS A CLASS II INJECTION WELL	**NOTICE OF APPEARANCE OF COUNSEL** **Docket No. 96-003** **Cause No. UIC-167**

Notice is hereby given that Frederick M. MacDonald and Thomas W. Bachtell of and for the law firm of Pruitt, Gushee & Bachtell enter their appearance as counsel of record for Texaco Exploration & Production Inc. in the above captioned matter.

DATED this 16th day of April, 1996.

PRUITT, GUSHEE & BACHTELL

By: _____

Frederick M. MacDonald
Thomas W. Bachtell
Attorneys for Texaco Exploration & Production, Inc.
1850 Beneficial Life Tower
Salt Lake City, Utah 84111
Telephone: (801)531-8446

Address of Texaco Exploration & Production Inc.

3300 N. Butler, Suite 100
Farmington, NM 87401

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing NOTICE OF APPEARANCE OF COUNSEL was mailed, via regular mail with postage prepaid, to each of the following this 16th day of April, 1996:

Emery County Board of Commissioners
P.O. Box 629
Castle Dale, UT 84513

Emery County Planning and Zoning
P.O. Box 417
Castle Dale, UT 84513

Emery County Public Lands Council
95 E. Main
Castle Dale, UT 84513

PacifiCorp
Attn: Brent G. Arnold
1407 W. North Temple, Suite 110
Salt Lake City, UT 84140

Emery Water Conservancy District
P.O. Box 998
Castle Dale, UT 84513

Chandler & Associates, Inc.
475 Seventeenth St., Suite 1000
Denver, CO 80202

Mr. Lyman Jack Curtis
P.O. Box 143
Orangeville, UT 84537

Ms. Virginia Huntington Petty
50 West 100 North
Orangeville, UT 84537

Ms. Bertie Huntington
90 West Center
Orangeville, UT 84537

Bureau of Land Management
324 South State Street, Suite 300
Salt Lake City, UT 84101

Savage Industries
5250 South 300 West
Salt Lake City, UT 84107

Colton Properties, Ltd.
8005 Greentree Road
Bethesda, Maryland 20817

Ms. Whitney D. Hammond and
Verda D. Hammond
P.O. Box 568
Vernal, UT 84078

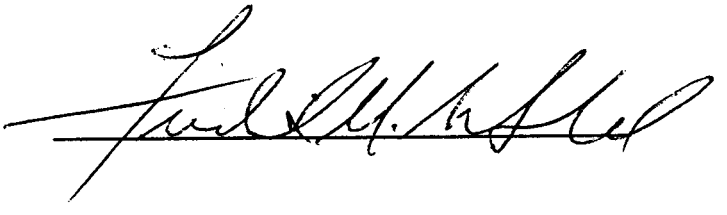
Ms. Alice Fox
390 Center Street
Orangeville, UT 84537

Mr. Walter K. McAlister and
Charlotte Rose McAlister
5075 West 4700 South
Kearns, UT 84118

St. Anselm Exploration Company, Inc.
1401 17th Street, Suite 1400
Denver, CO 80202

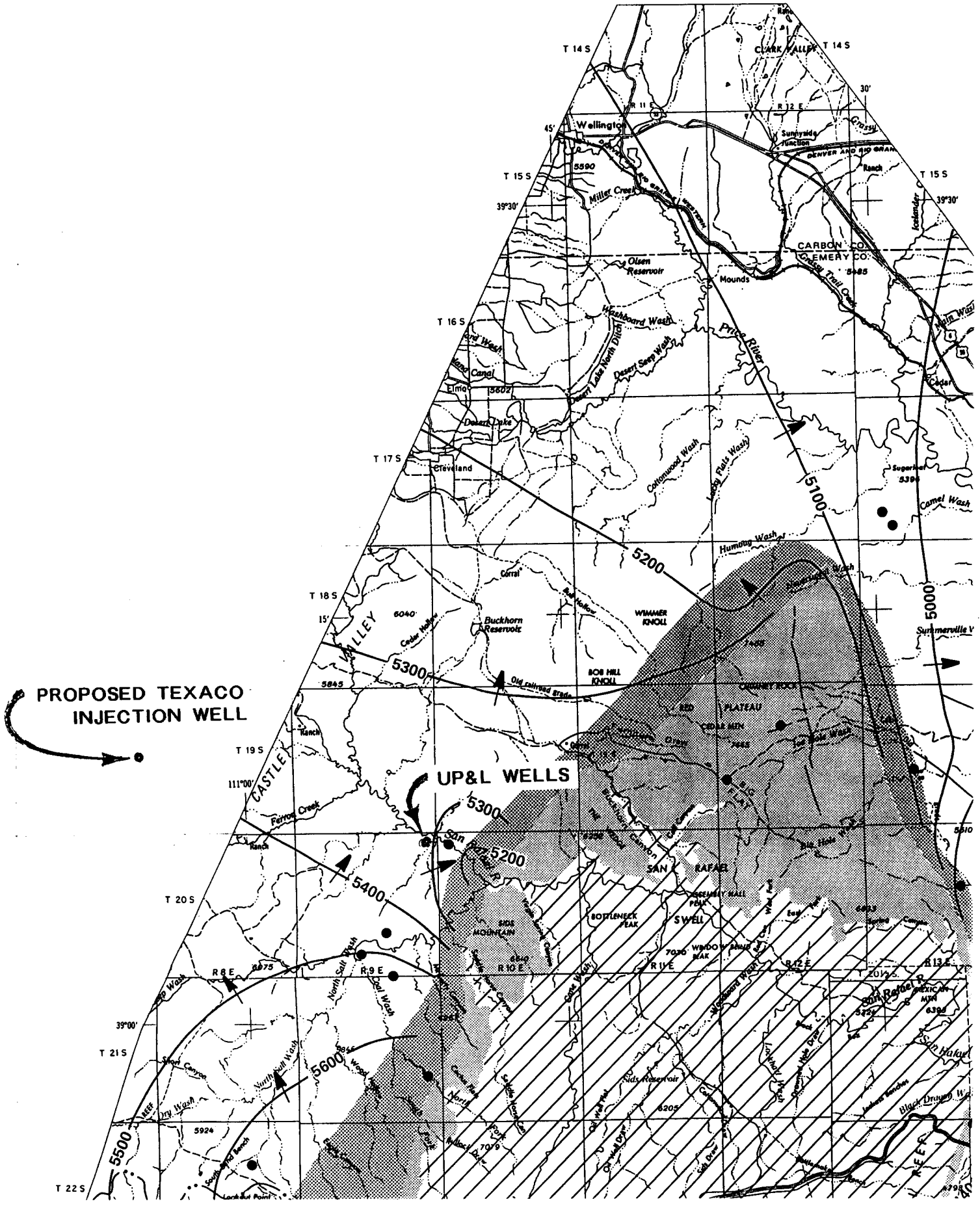
Kidd Family Partnership Limited
3838 Oaklawn Avenue, Suite 725
Dallas, TX 75219

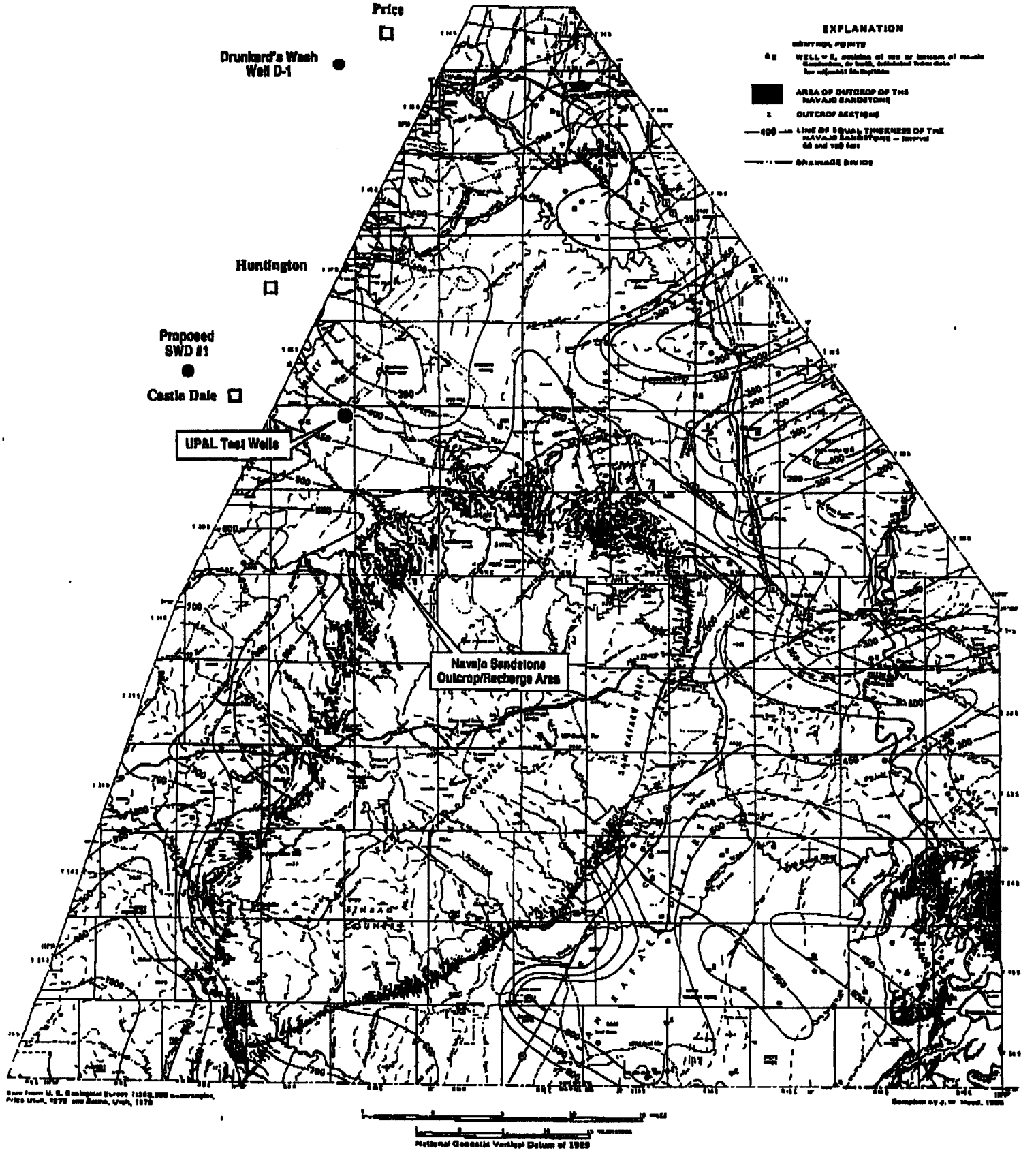
Security Energy Company
1221 McKinney St., Suite 1106
Houston, TX 77010



S DEPARTMENT OF THE INTERIOR
URVEY

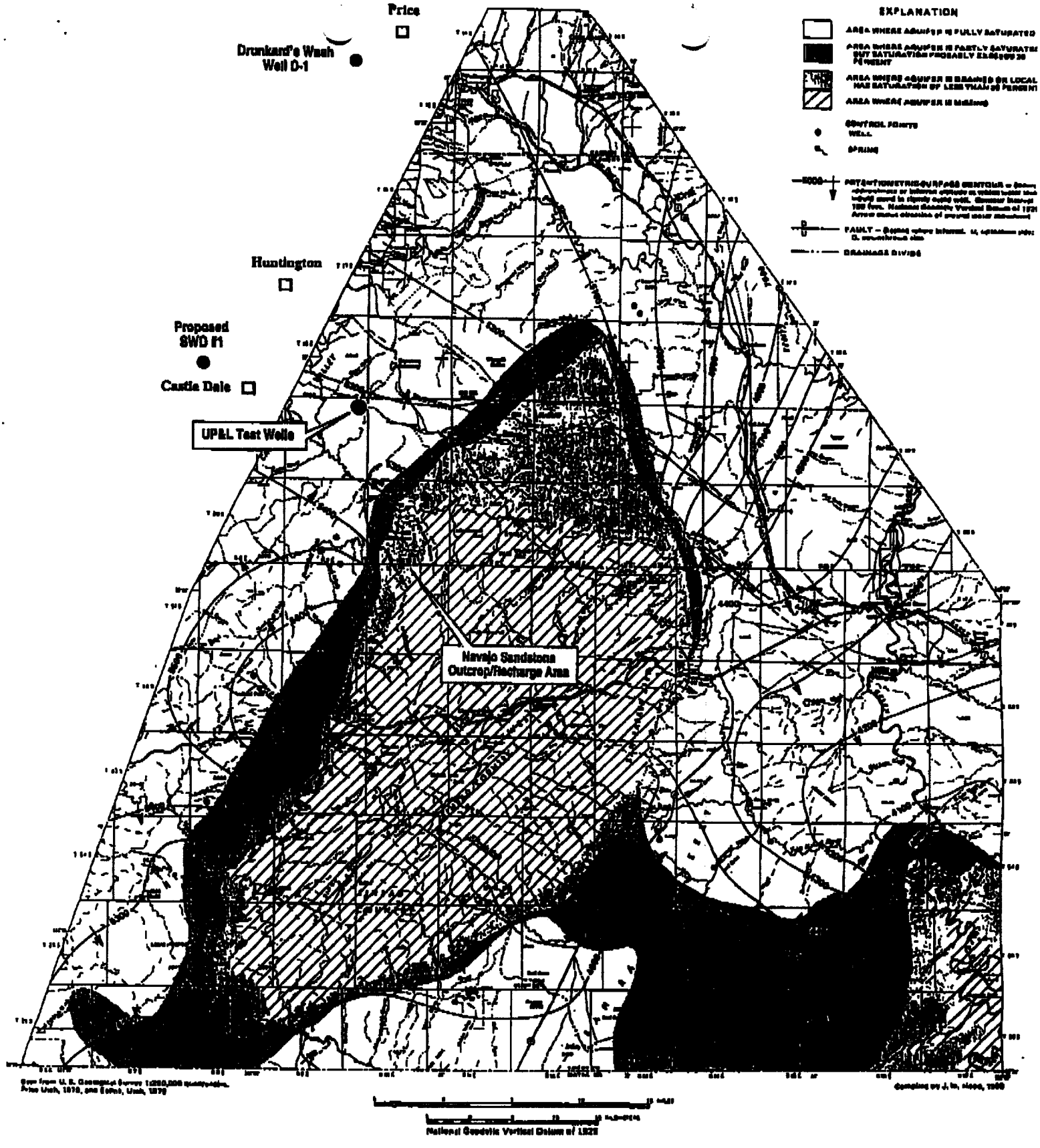
Prepared in cooperation with the
STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES





MAP SHOWING THICKNESS OF THE NAVAJO SANDSTONE IN THE NORTHERN SAN RAFAEL SWELL AREA, UTAH.

FIGURE 1



MAP SHOWING THE APPROXIMATE POTENTIOMETRIC SURFACE FOR THE NAVAJO SANDSTONE AQUIFER IN THE NORTHERN SAN RAFAEL SWELL AREA, UTAH.

FIGURE 2

BEFORE THE BOARD OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH

IN THE MATTER OF THE APPLICATION OF TEXACO EXPLORATION AND PRODUCTION INC. FOR ADMINISTRATIVE APPROVAL OF THE SWD #1 WELL LOCATED IN SECTION 24, TOWNSHIP 18 SOUTH, RANGE 7 EAST, S.L.M., EMERY COUNTY, UTAH, AS A CLASS II INJECTION WELL	**FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER OF APPROVAL** **Docket No. 96-003** **Cause No. UIC-167**

This cause came on for hearing before the Utah Board of Oil, Gas and Mining (the "Board") on Wednesday, April 24, 1996 at the hour of 10:30 a.m. The following Board members were present and participated at the hearing:

Thomas B. Faddies, Acting Chairman

Jay L. Christensen

Kent G. Stringham

Judy F. Lever

Elise Erler

Board members David Lauriski and Raymond Murray were unable to attend. Attending and participating on behalf of the Division of Oil, Gas and Mining (the "Division") were James W. Carter, Director; Ronald J. Firth, Associate Director, Oil and Gas; Frank R. Matthews, Petroleum Engineer; and Gil Hunt, Environmental Manager. The Division, after testimony was presented at the hearing, expressed its conditional support of the Application. The Board

and the Division were represented by Phillip Pugsley, Esq. and Thomas A. Mitchell, Esq., respectively, Assistant Attorneys General. Attending and participating on behalf of the Bureau of Land Management ("BLM") were Robert Hendricks, Chief, Branch of Fluid Minerals, and Assad Rafoul, Petroleum Engineer, Utah State Office. The BLM, after testimony was presented at the hearing, expressed no objection to the Application.

Testifying on behalf of Applicant Texaco Exploration and Production, Inc. ("TEXEP") were Mark Dolar, owner and manager of Dolar Oil Properties, L.C.; Robert Schaffitzel, Production Engineer, TEXEP; Robert Lamarre, Senior Geoscientist, TEXEP; and John Garr, Senior Hydrogeologist, Montgomery Watson. Also testifying as a rebuttal witness was Dan Jarvis, UIC Geologist for the Division. Frederick M. MacDonald, Esq., Pruitt, Gushee & Bachtell, appeared as attorney on behalf of TEXEP.

Testifying on behalf of Protestant PacifiCorp d/b/a Utah Power & Light Company ("PacifiCorp") were Rodger Fry, Geologist, Interwest Mining, a subsidiary of PacifiCorp; and Brent G. Arnold, Property Manager, PacifiCorp. Rosemary Richardson, Esq., in-house counsel, appeared as attorney on behalf of PacifiCorp.

Testifying on behalf of Protestant Emery County was Peter Nielsen, Hydrogeologist, SECOR International, Inc. Allen Thorpe, Esq., Assistant County Attorney, appeared as attorney on behalf of Emery County.

The Board, having considered the testimony presented and the exhibits received at the hearing, being fully advised, and for good cause appearing, hereby makes the following Findings of Fact, Conclusions of Law, and Order.

FINDINGS OF FACT

1. On March 4, 1996, TEXEP submitted an Application for Injection Well (Form No. DOGM - UIC-1) (the "Application"), in accordance with the applicable rules and regulations of the Board and Division, for administrative approval to utilize its SWD #1 well, located in the SW¼NW¼ of Section 24, Township 18 South, Range 7 East, SLM, Emery County (the "Disposal Well") as a Class II injection well for the purpose of water disposal. TEXEP initially identified the proposed injection interval as between 6,295 feet and 7,295 feet. However, at the hearing, TEXEP amended its request for injection into the Navajo sandstone formation only which, based on well log information, appears between 6,406 feet and 6,904 feet in the Disposal Well.

2. Notice of the Application was mailed by TEXEP to operators, owners and surface owners within a one-half mile radius of the Disposal Well and published in the form and manner as required by law and the rules of the Board and Division.

3. In response to TEXEP's Application, protests were filed with the Division by PacifiCorp, Emery County Board of Commissioners, Emery County Planning and Zoning, Emery County Public Lands Council, and the Emery Water Conservancy District. After testimony was presented at the hearing, PacifiCorp withdrew its protest.

4. As a consequence of the protests, the Application was scheduled for hearing by the Board and due and regular notice of the time, place and purpose of the hearing was given to all interested parties in the form and manner as required by law and the rules of the Board. Waivers of Notice and Consent to Approval of Applications were received and accepted by the

Board at the hearing from Chandler & Associates, Inc., Williams Production Company, Kidd Family Partnership Limited, St. Anselm Exploration Company, Inc., and Security Energy Company, all operators within a one-half mile radius of the Disposal Well who were inadvertently not provided notice with the initial mailing.

5. TEXEP's proposed development of the Ferron coals for coalbed methane pursuant to its leases has created the need for a produced water disposal facility within the central vicinity of the development area. At present, the nearest disposal well facility is located in the Drunkards Wash Unit, approximately 25 miles northeast of the Disposal Well location, but that well is currently being utilized at its maximum injection capacity and is unavailable for further disposal use. The next closest disposal well is located in Vernal.

6. TEXEP is the surface owner of the lands on which the Disposal Well is located. No wells currently exist within a one-half mile radius of the Disposal Well and the nearest conglomerate of water wells completed in the Navajo formation are PacifiCorp wells located approximately 14.9 miles southeast of the Disposal Well.

7. In and near the Disposal Well location, the Navajo sandstone is confined and sufficiently porous to sustain the proposed injection. It does not contain any oil, gas or other resources which may be impacted by the proposed injection.

8. A bottom hole injection pressure of 4,050 psi or higher will compromise the integrity and confinement of the Navajo sandstone in and near the Disposal Well.

9. Navajo sandstone water samples taken from the Disposal Well reflect total dissolved solids ("TDS") in the range of 21,000 to 23,000. Representative Ferron coal water

samples taken from wells from which the water to be disposed of will be generated indicate total TDS of approximately 7,000 to 11,000. The proposed injection water is compatible with the water found in the Navajo sandstone in the Disposal Well.

10. The Disposal Well was drilled and completed in a manner, and has sufficient mechanical integrity, to prevent any migration of injection waters into other formations.

11. TEXEP is a reputable, appropriately bonded operator and its proposed use of the Disposal Well will cause no adverse affect upon oil, gas or other resources, upon groundwater, or upon PacifiCorp's wells.

12. All technical requirements for approval of the Disposal Well as a Class II injection well have been met.

13. The vote by the Board in this cause was unanimous in favor of approving the Application upon satisfaction of certain conditions proposed by the Division, which are fully set forth in the Order below.

CONCLUSIONS OF LAW

14. Due and regular notice of the time, place and purpose of the Application and the April 24, 1996 hearing was given to or waived by all interested parties and all owners, operators and surface owners within one-half mile radius of the Disposal Well in the form and manner and within the time required by law and the applicable rules and regulations of the Board and Division.

15. The Board has jurisdiction over all matters covered by the Application and the protests received herein pursuant to Utah Code Ann. § 40-6-5 and has the power and authority to make and promulgate the Order herein set forth.

16. The use of the Disposal Well for water disposal in the manner proposed by TEXEP is reasonably necessary to fulfill the purposes of the Utah Oil and Gas Conservation Act (Utah Code Ann. §§ 40-6-1, *et seq.*).

17. TEXEP's Application meets all applicable statutory and administrative requirements for approval of the Disposal Well as a Class II injection well.

18. The use of the Disposal Well in the manner proposed by TEXEP will not adversely affect oil, gas or other resources or groundwater.

19. The protests of PacifiCorp, Emery County Board of Commissioners, Emery County Planning and Zoning, Emery County Public Lands Council, and the Emery Water Conservation District are without sufficient merit.

ORDER

Based on the Findings of Fact and Conclusions of Law set forth above, the Board hereby enters the following Order:

1. The SWD #1 Well is approved as a Class II injection well for the purpose of disposing produced water into the Navajo sandstone formation only (from 6,406 feet to 6,904 feet as evidenced by the log data from the SWD #1 well), with an injection pressure not to exceed 4,050 psig (bottom hole).

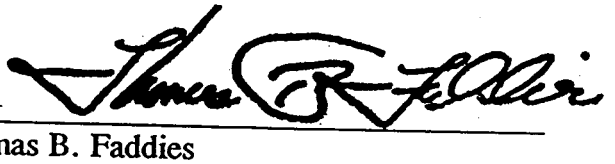
2. Prior to commencing injection, TEXEP is required to conduct a casing-tubing annular pressure test of the SWD #1 and report the test results to the Division and receive its final approval.

3. The protests of PacifiCorp, Emery County Board of Commissioners, Emery County Planning and Zoning, Emery County Public Lands Council, and the Emery Water Conservancy District are denied.

4. The Board retains continuing jurisdiction over the matters covered by this Order and over all parties affected thereby.

ENTERED THIS 10th day of May, 1996.

STATE OF UTAH
BOARD OF OIL, GAS & MINING

By: 

Thomas B. Faddies
Acting Chairman

Form 3160-4
(October 1990)

SUBMIT ORIGINAL WITH 5 COPIES

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
APR 29 1996
DIV OF OIL, GAS & MINING

FORM APPROVED
Budget Bureau No. 1004-0137
Expires: December 31, 1991

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. Type of Well: OIL WELL ☐ GAS WELL ☐ DRY ☐ OTHER DISPOSAL WELL

1b. Type of Completion:
NEW WELL ☒ WORK OVER ☐ DEEPEN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ OTHER

2. Name of Operator
TEXACO EXPLORATION & PRODUCTION, INC.

3. Address and Telephone No.
3300 N. Butler Ave., Suite 100 Farmington NM 87401 325-4397

4. Location of Well (Report location clearly and in accordance with any State requirements.*)
At Surface
Unit Letter E : 2095 Feet From The NORTH Line and 310 Feet From The WEST Line
At proposed prod. zone

At Total Depth

5. Lease Designation and Serial No.

6. If Indian, Alottee or Tribe Name

7. If Unit or CA, Agreement Designation

8. Well Name and Number
FEE

SWD-1

9. API Well No.
4301530272

10. Field and Pool, Exploaratory Area
WILDCAT

11. SEC., T., R., M., or BLK. and Survey or Area
Sec. 24, Township T18S, Range R7E

14. Permit No.	Date Issued	12. County or Parish	13. State
		EMERY	UT

15. Date Spudded	16. Date T.D. Reached	17. Date Compl. (Ready to Prod.)	18. Elevations (Show whether DF,RT, GR, etc.)	19. Elev. Casinhead
12/16/95	2/4/96	2/21/96	5988	

20. Total Depth, MD & TVD	21. Plug Back T.D., MD & TVD	22. If Multiple Compl., How Many*	23. Intervals Drilled By -->	Rotary Tools	CableTools
7760'	7434'			ROTARY	

24. Producing Interval(s), Of This Completion -- Top, Bottom, Name (MD and TVD)*

25. Was Directional Survey Made
YES

26. Type Electric and Other Logs Run MAGNETIC RESONANCE IMAGER
NEUTRON, LITHO-DENSITY, INDUCTION, GAMMA RAY, CALIPER, CBL SIDEWALL CORES

27. Was Well Cored
NO

28. CASING RECORD (Report all Strings set in well)

CASING SIZE & GRADE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENT RECORD	AMOUNT PULLED
13-3/8"		329'	17-1/2"	380 SX	
9-5/8"	36#	2700'	12-1/4"	510 SX	
7"	26#	7746'	8-3/4"	696 SX	

29. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN

30. TUBING RECORD

SIZE	DEPTH SET	PACKER SET
3-1/2"	6615'	

31. Perforation record (interval, size, and number)

Navajo Fm. 4 SPF, 90 deg. phase, .42" hole, 6674'-6703', 6731'-6831', 6841'-6877'
Shinarump Fm. 5 SPF, 60 deg. phase, .48" hole, 7484'- 7542', 7562'- 7586'

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

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
6674'-6877'	750 Gal. 28% HCl
7484'-7586'	750 Gal. 15% HCl
7454'	4 SX cement on CIBP @ 7454'

33. PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - size and type pump)	Well Status (Prod. or Shut-in)

Date of Test	Hours tested	Choke Size	Prod'n For Test Period	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas - Oil Ratio

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

34. Disposition of Gas (Sold, used for fuel, vented, etc.)

Test Witnessed By

35. List of Attachments
wellbore diagram

36. I hereby certify that the foregoing is true and correct.

SIGNATURE _____ TITLE Operating Unit Manager DATE 4/22/96

TYPE OR PRINT NAME Ted A. Tipton

37. SUMMARY OF POROUS ZONES: (Show all important zones of porosity and contents therof; cored intervals; and all drill-stem, tests including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries):

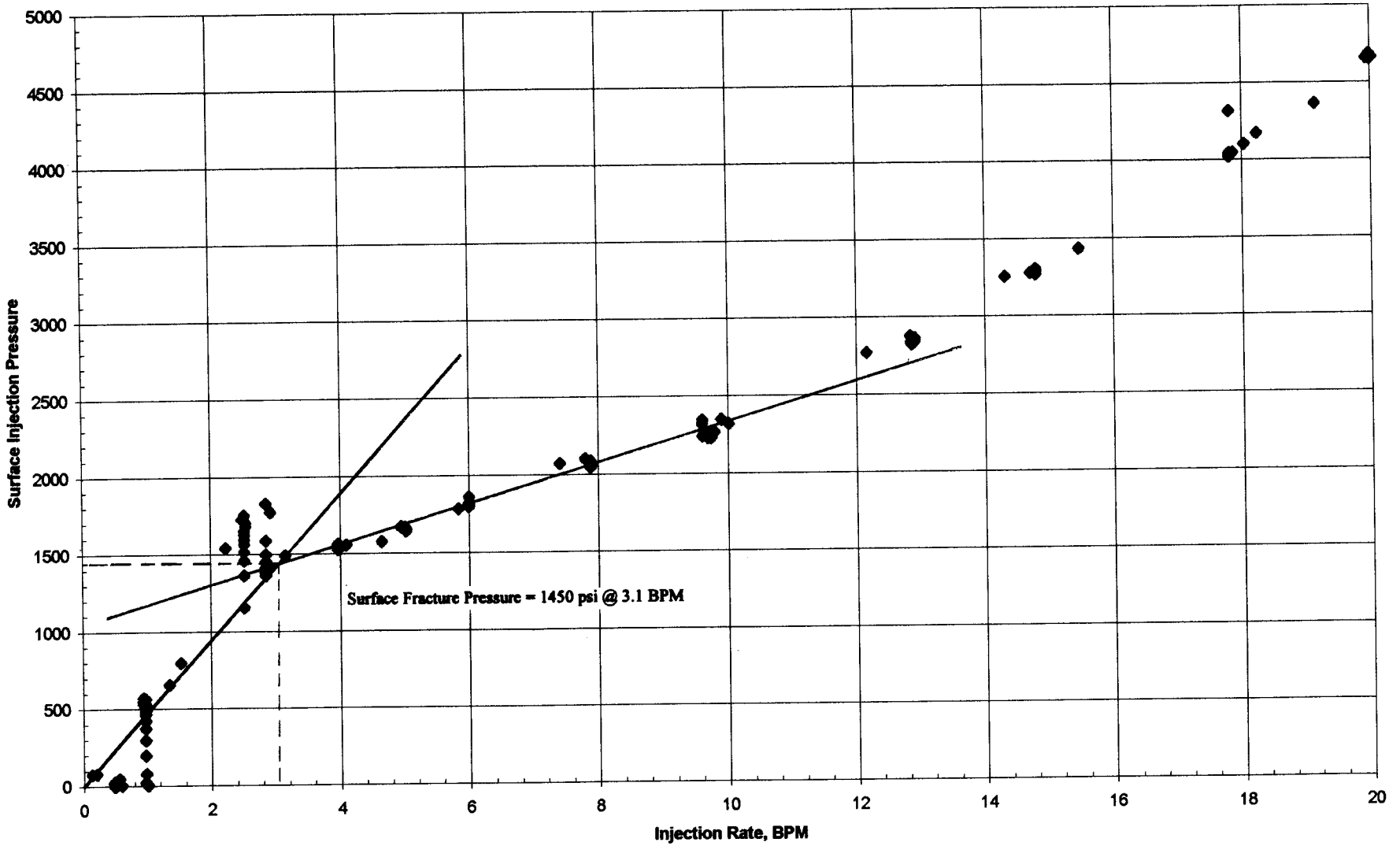
FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS,ETC.

38. GEOLOGIC MARKERS

NAME	TOP	
	MEAS. DEPTH	TRUE VERT. DEPTH
Ferron	2450'	
Tununk	2718'	
Dakota	3280'	
Cedar Mtn.	3374'	
Salt Wash	3880'	
Morrison	4054'	
Summerville	4228'	
Curtis	4650'	
Entrada	4851'	
Carmel	5594'	
Navajo	6406'	
Kayenta	6904'	
Wingate	7028'	
Chinle	7357'	
Shinarump	7464'	
Moenkopi	7643'	
T.D.	7760'	

Texaco Exploration and Production, Inc.

SWD No.1 Step Rate Test



Attachment I

SWD-1
Current Completion

2/29/96

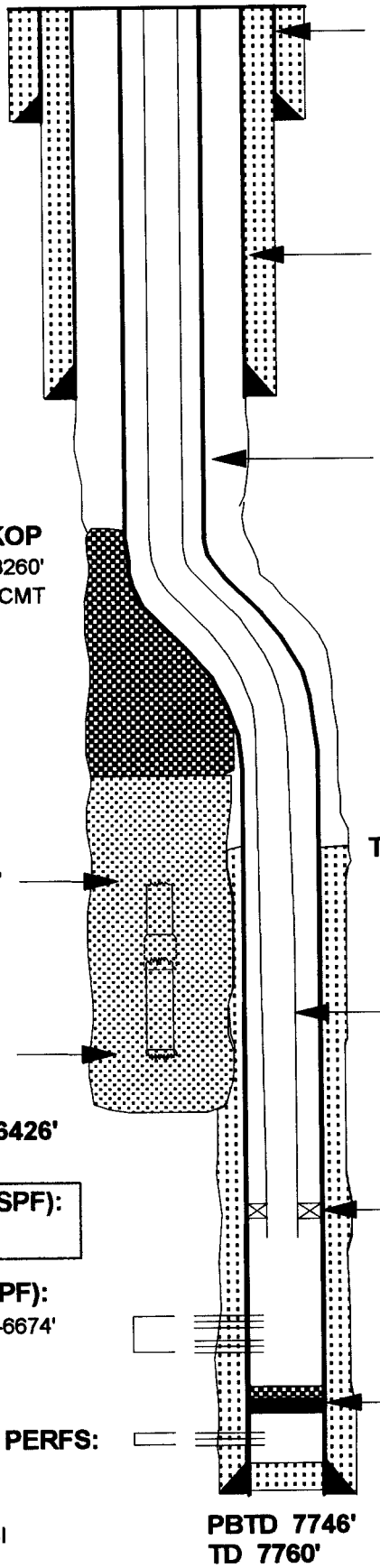
API No. 43-015-30272

LOCATION:
2095' FNL & 310' FWL
SW/4, NW/4, Sec. 24, T18S, R7E
Emery County, Utah

SPUD DATE: 12/16/95
RDMOL: 2/21/96

ELEVATION: 6003' KB
5987' GR

FORMATION TOPS:
2450' Ferron
2718' Tununk
3280' Dakota
3374' Cedar Mtn.
3880' Salt Wash
4054' Morrison
4228' Summerville
4650' Curtis
4851' Entrada
5594' Carmel
6406' Navajo
6904' Kayenta
7028' Wingate
7357' Chinle
7464' Shinarump
7643' Moenkopi



13-3/8", 54.5#, K-55 CSG
Set @ 329' in 17-1/2" Hole
w/ 380 SXS CMT
Circ. 27 BBLS

9-5/8", 36#, K-55 CSG
Set @ 2700' in 12-1/4" Hole
w/ 510 SXS CMT
Circ. 21 BBLS

7", 26#, K-55 CSG
Set @ 7746' in 8-3/4" Hole
w/ 696 SXS CMT

KOP
Plug Back to 3260'
w/ 200 SXS CMT

TOC @ 5270' (CBL)

FREEPOINT @ 5763'
(Top of Fish)
Total Fish 126.66'

3-1/2" 9.3#, L-80 TBG
Set @ 6615'

BIT @ 5890'

OPEN HOLE @ 6426'

PROPOSED NAVAJO PERFS (4 SPF):
6460' - 6500', 6540' - 6560'

7", 26#, PLS PKR
10,000# Compression

NAVAJO PERFS (4 SPF):
6877'-41', 6831'-6731', 6703'-6674'

4 SXS CMT(20') on top of
7", 26#, Alpha CIBP
Set @ 7454'

ISOLATED SHINARUMP PERFS:
7586'-62', 7542'-7484'
5 SPF
Acid. w/ 750 Gals. of 15% HCl

PBTD 7746'
TD 7760'

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
APR 26 1996
DIV. OF OIL, GAS & MINING

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT --" for such proposals

5. Lease Designation and Serial No.

6. If Indian, Alottee or Tribe Name

SUBMIT IN TRIPLICATE

7. If Unit or CA, Agreement Designation

1. Type of Well: ☐ OIL WELL ☐ GAS WELL ☒ OTHER DISPOSAL WELL

8. Well Name and Number
FEE
SWD-1

2. Name of Operator
TEXACO EXPLORATION & PRODUCTION, INC.

3. Address and Telephone No.
3300 N. Butler Ave., Suite 100 Farmington NM 87401 325-4397

9. API Well No.
4301530272

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Unit Letter E : 2095 Feet From The NORTH Line and 310 Feet From The WEST Line Section 24 Township T18S Range R7E

10. Field and Pool, Exploratory Area
WILDCAT

11. County or Parish, State
EMERY , UT

12. **Check Appropriate Box(s) To Indicate Nature of Notice, Report, or Other Data**

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Abandonment	☐ Change of Plans
☒ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ OTHER: COMPLETION	☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log Form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*.

TEXACO E. & P., INC. HAS COMPLETED THE FOLLOWING ON THE SUBJECT WELL:

2/8/96 PREP TO COMPLETE. TEST CASING TO 1150 PSI. FOR 30 MINUTES. CASING TESTED, O.K. (MR. DAN JARVIS - UTAH DIVISION OF MINERALS NOTIFIED TO WITNESS TEST - WAIVED). RUN CBL/CCL 7679' - 5000'. PERFORATE THE SHINARUMP FM. FROM 7484'-7542', 7562'-7586' WITH 60 DEG. PHASING, .48" HOLES, 5 SPF. SWAB FORMATION WATER. MR. DAN JARVIS - UTAH DIVISION OF MINERALS COLLECTED WATER SAMPLE. RUN IN HOLE WITH P.I.P. PACKER. PUMP 750 GAL. 15% HCl, 3 GPT INHIBITOR, 10 PPT IRON REDUCER, 1 GPT SURFACTANT, 1 GPT NON-EMULSIFIER, TO PICKLE TUBING. PUMP 50 GAL./FT OF SAME ACID SYSTEM FROM 7484'-7542', 7562'-7586'. RELEASE PACKER. PLACE CIBP AND 4 SX (20') OF CEMENT ON TOP OF PLUG AT 7454' TO PLUG OFF SHINARUMP FORMATION. (MR FRANK MATTHEWS - UTAH MINERALS DEPT. GAVE VERBAL 2/13/96).

2/14/96 PERFORATE THE NAVAJO FM. FROM 6674'-6703', 6731'-6831', 6841'-6877' WITH 90 DEG. PHASING, .42" HOLES, 4 SPF. RUN IN HOLE W/ P.I.P. PACKER. SWAB. COLLECT WATER SAMPLE, MR. GIL HUNT-UTAH DEPT OF MINERALS COLLECTED SAME. RUN STEP RATE INJECTION TEST. RUN IN HOLE W/ TUBING AND PACKER. SET TUBING AT 6615'.

2/20/96 TEST CASING TO 1000 PSI. CASING TESTED O.K.(MR. GIL HUNT-UTAH DEPT OF MINERALS WAIVED TEST WITNESS 7:05 A.M. 2/20/96)

14. I hereby certify that the foregoing is true and correct

SIGNATURE Ted A. Tipton TITLE Operating Unit Manager DATE 4/23/96

TYPE OR PRINT NAME Ted A. Tipton

(This space for Federal or State office use)

APPROVED

CONDITIONS OF APPROVAL, IF ANY: ____ TITLE _____ DATE _____

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

FORM 9

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

5. Lease Designation and Serial Number: Fee

SUNDRY NOTICES AND REPORTS ON WELLS

6. If Indian, Allottee or Tribe Name:

Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells. Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.

7. Unit Agreement Name:

1. Type of Well: OIL ☐ GAS ☐ OTHER: SWD

8. Well Name and Number: SWD #1

2. Name of Operator: Texaco Exploration & Production Inc.

9. API Well Number: 43-015-30272

3. Address and Telephone Number: 3300 N. Butler, Farmington N.M. 87401 (505)325-4397

10. Field and Pool, or Wildcat: Wildcat

4. Location of Well
Footages: 2095' FNL & 310' FWL
QQ, Sec., T., R., M.: SW/4, NW/4 Sec. 24, T18S, R7E
County: Emery
State: Utah

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT (Submit in Duplicate)		SUBSEQUENT REPORT (Submit Original Form Only)	
☐ Abandonment	☐ New Construction	☐ Abandonment *	☐ New Construction
☐ Casing Repair	☐ Pull or Alter Casing	☐ Casing Repair	☐ Pull or Alter Casing
☐ Change of Plans	☐ Recompletion	☐ Change of Plans	☐ Shoot or Acidize
☐ Conversion to Injection	☐ Shoot or Acidize	☐ Conversion to Injection	☐ Vent or Flare
☒ Fracture Treat	☐ Vent or Flare	☐ Fracture Treat	☐ Water Shut-Off
☐ Multiple Completion	☐ Water Shut-Off	☐ Other	
☐ Other			
Approximate date work will start		Date of work completion	

Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form.

* Must be accompanied by a cement verification report.

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Texaco E. & P., Inc. plans to fracture stimulate the subject well per the attached procedures.

Accepted by the State of Utah Division of Oil, Gas and Mining
Date: 5-23-96
By:

13.
Name & Signature: [signature] Title: Area Engineer Date: 5/22/96

(This space for State use only)

UO&GC (5) (See Instructions on Reverse Side) RSD

Completion Procedure
SWD No.1

Field: Navajo Sandstone
Location: Emery County, Utah

1. MIRU Colorado Well Service, NDWH, NUBOP. Release 7" PLS PKR.

2. POOH w/ PKR and 6615' 3-1/2" 9.3# L-80 TBG

3. RIH w/ 3-1/2" x 7" treating PKR and 3-1/2" tbg to @ 6615'.

3. Install a Dowell 10,000# min. frac valve. RU Dowell and Frac down TBG through the following perforation intervals:

   6674 - 6703
   6731 - 6831
   6841 - 6877

   Go to Flush immediately after all 8# concentration is in; do not allow sand concentration to begin falling before going to flush. Take ISIP and monitor leakoff for 10 minutes past closure or a total of 30 minutes, whichever is shorter. Do not over flush the frac. If Nolte plot net pressure is stable, taper down rate during flush to assist tip screenout and minimize fluid momentum at final shut down.

   Fracture with the attached Dowell Frac schedule.

5. Open well and flow back until well is dead. Do not exceed 1 BPM flowback.

6. Release treating PKR and POOH w/ PKR and TBG. GIH with 3-1/2" tubing and baler. Clean out to PBTD. TOH 3-1/2" TBG (laying down).

7. GIH with 3-1/2" internally coated tubing and 7" PLS PKR. Set PKR @ 6615'. Circulate PKR fluid in annulus. Test TBG - CSG annulus to 1000 psi.

Capacities:		Burst:
3-1/2", 9.3#, L-80 tubing	0.3652 gals/ft (0.00870 Bbls/ft)	10,160 psi (80%: 8,128 psi)
7", 26#, K-55 casing	1.6070 gals/ft (0.0382 Bbls/ft)	4,980 psi (80%: 3,984 psi)
3-1/2" x 7", annulus	1.1072 gals/ft (0.0264 Bbls/ft)	

FORM 9

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.
Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.

5. Lease Designation and Serial Number:

6. If Indian, Allottee or Tribe Name:

7. Unit Agreement Name:

1. Type of Well: OIL ☐ GAS ☐ OTHER: DISPOSAL WELL

8. Well Name and Number: SWD #1

2. Name of Operator: Texaco Exploration & Production Inc.

9. API Well Number: 43-015-30272

3. Address and Telephone Number: 3300 N. Butler, Farmington N.M. 87401 (505)325-4397

10. Field and Pool, or Wildcat:

4. Location of Well

Footages: 2095' FNL / 310' FWL

QQ, Sec.,T.,R.,M.: SW 1/4, NW 1/4 Sec. 24 T18S / R7E SLM

County: Emery

State: Utah

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT
(Submit in Duplicate)

- ☐ Abandonment
- ☐ Casing Repair
- ☐ Change of Plans
- ☐ Conversion to Injection
- ☐ Fracture Treat
- ☐ Multiple Completion
- ☐ Other
- ☐ New Construction
- ☐ Pull or Alter Casing
- ☐ Recompletion
- ☐ Shoot or Acidize
- ☐ Vent or Flare
- ☐ Water Shut-Off

Approximate date work will start

SUBSEQUENT REPORT
(Submit Original Form Only)

- ☐ Abandonment *
- ☐ Casing Repair
- ☐ Change of Plans
- ☐ Conversion to Injection
- ☒ Fracture Treat
- ☐ Other
- ☐ New Construction
- ☐ Pull or Alter Casing
- ☐ Shoot or Acidize
- ☐ Vent or Flare
- ☐ Water Shut-Off

Date of work completion 6/2/96

Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form.

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TEXACO E. & P., INC. HAS COMPLETED THE FOLLOWING ON THE SUBJECT WELL:
5/30/96 - NU BOP. TIH w/ packer, set at 6609'. Test to 1000 psi, test lines to 9000 psi., OK. Sand Frac the Navajo Fm. perfs (6674'-6877' gross) with the following totals: Pump 899 gelled fluid, and 124,560# 20-40 sand. Set well for injection. RIH w/ tubing and packer. Tubing set at 6614'. Set packer at 6586'. NU wellhead. Pressure test casing to 1440 psi, held pressure for 15 min., tested OK. Rig down, move off location.

RECEIVED
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DIV. OF OIL, GAS & MINING

13. Name & Signature: [signature] Ted A. Tipton Title: Operating Unit Manager Date: 6/12/96

(This space for State use only)

86 Feb 104 55 159 154 2 318 51 365 318 47 RSD

(12/92) UOGCC(2), Drilling, Asset Team, wellfile (See Instructions on Reverse Side)

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

UNDERGROUND INJECTION CONTROL PERMIT

Cause No. UIC-167

Operator: Texaco Exploration And Production Company

Wells: SWD # 1 Well

Location: Section 24, Township 18 South, Range 7 East, Emery County

API No.: 43-015-30272

Well Type: Disposal

Stipulations of Permit Approval

1. Approval to convert to injection issued by the Board of Oil, Gas and Mining on May 10, 1996, Cause No. UIC-167.
2. Maximum Allowable Injection Pressure: 815 psig. (surface pressure).
3. Maximum Allowable Injection Rate: (limited by maximum pressure).
4. Injection Interval: 6406 feet to 6904 feet (Navajo Formation).

Approved by: _____ 6/15/96

R.J. Firth
Associate Director, Oil and Gas

Date

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
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801-538-5340
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Approved by: _____ 6/15/96

R.J. Firth
Associate Director, Oil and Gas

Date

FORM 9

TE OF UTAH

DIVISION OF OIL, GAS AND MINING

RECEIVED
JUL 26 199
DIV. OF OIL, GAS & MINING

5. Lease Designation and Serial Number:

6. Indian, Allottee or Tribe Name:

7. Unit Agreement Name:

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CONFIDENTIAL

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TEXACO E. & P., INC. RESPECTFULLY REQUESTS AN INCREASE IN THE MAXIMUM SURFACE INJECTION PRESSURE FROM 815 PSI. TO 1450 PSI. UTILIZING INFORMATION FROM A STEP-RATE TEST PERFORMED 2/19/96, TEXACO HAS DETERMINED THE SURFACE FRACTURE PRESSURE TO BE AT 1450 PSI. AT A RATE OF 3.1 BPM. PLEASE REFER TO THE ATTACHED DOCUMENTS.

APPROVED BY THE STATE
OF UTAH DIVISION OF
OIL, GAS, AND MINING
DATE: 7/30/96
BY:

13.
Name & Signature: Ted A. Tipton Title: Operating Unit Manager Date: 7/25/96

(This space for State use only)

Bottom hole pressure should not exceed 4050# in accordance with Board Order UIC-167.

(See Instructions on Reverse Side)

UOPCC 2), Asset Team, wellfile

RSD

*This file produced by DATAPRO data conversion utility													
*Start date and time: 02/19/96 08:16:16													
*Time step in minutes:		0.20											
*Total number of Data Channels:				3.00									
*Names of Data Channels:													
Surf Press (Tbg) (psi) THTB													
Clean Flow Rate (bpm) CLRT													
Bottomhole Press (psi) BHPR													
*Column numbers:													
0 1 2													
TBG	BPM	BHP											
78	0.13	4276		512	0.98	3365							
48	0.56	2945		531	0.98	3380							
83	0.21	2911		534	0.95	3386							
5	1.01	2878		555	0.95	3413							
5	0.61	2869		549	0.95	3404							
5	0.50	2879		573	0.95	3422							
5	0.50	2879		568	0.98	3422							
5	0.50	2879		661	1.35	3454							
4	0.50	2879		802	1.53	3574							
0	0.50	2876		1157	2.52	3810							
19	0.50	2892		1364	2.52	4124							
31	0.50	2901		1461	2.52	4266							
28	0.50	2901		1518	2.52	4325							
28	0.50	2901		1567	2.52	4371							
28	0.50	2901		1597	2.52	4404							
23	0.50	2897		1626	2.52	4440							
23	0.50	2897		1653	2.52	4472							
23	0.50	2897		1682	2.54	4499							
23	0.50	2897		1705	2.54	4521							
23	0.50	2897		1718	2.52	4536							
23	0.50	2897		1727	2.49	4551							
27	0.98	2881		1754	2.52	4573							
84	0.99	2895		1542	2.23	4236							
201	0.98	2983		1775	2.92	4481							
302	0.98	3115		1832	2.85	4650							
376	0.98	3220		1588	2.85	4522							
426	0.98	3266		1502	2.85	4338							
469	0.98	3312		1455	2.85	4293							
487	0.98	3334		1419	2.85	4265							

Attachment II

1397	2.85	4230		1803	6.00	458.							
1390	2.85	4214		1802	6.00	4580							
1383	2.85	4206		1806	6.00	4590							
1367	2.85	4197		1822	6.00	4605							
1369	2.85	4192		1825	6.00	4610							
1370	2.85	4192		1822	6.00	4605							
1367	2.85	4189		1818	6.00	4598							
1493	3.15	4197		1820	6.00	4605							
1560	4.10	4368		1827	6.00	4610							
1556	3.97	4369		1818	6.00	4605							
1557	3.97	4370		1815	6.00	4610							
1561	3.97	4370		1818	6.00	4608							
1557	3.97	4365		1820	6.00	4603							
1566	3.97	4361		1864	6.00	4610							
1561	3.97	4365		2075	7.41	4804							
1552	3.97	4373		2103	7.80	4883							
1555	3.97	4367		2088	7.88	4858							
1552	3.97	4361		2086	7.88	4859							
1550	3.97	4351		2079	7.88	4855							
1544	3.97	4347		2079	7.88	4855							
1529	3.97	4351		2075	7.91	4846							
1529	3.97	4346		2064	7.88	4845							
1580	4.65	4475		2064	7.88	4839							
1673	4.95	4469		2047	7.88	4828							
1676	4.95	4478		2062	7.88	4823							
1675	4.95	4473		2057	7.88	4823							
1667	4.98	4469		2057	7.88	4832							
1662	5.03	4464		2049	7.88	4824							
1663	5.03	4464		2353	9.90	4980							
1671	5.01	4464		2320	9.60	5099							
1658	5.03	4461		2348	9.61	5113							
1660	5.03	4453		2262	9.64	5082							
1658	5.03	4455		2232	9.69	5054							
1648	5.03	4450		2234	9.75	5020							
1651	5.03	4441		2245	9.69	4994							
1648	5.03	4445		2252	9.64	5007							
1646	5.03	4445		2232	9.75	4993							
1653	5.03	4445		2232	9.75	5009							
1788	5.83	4477		2271	9.75	4983							
				2238	9.72	4989							

2253	9.75	5001		4042	17.81	5865							
2268	9.80	5031		4047	17.81	5844							
2243	9.61	4989		4024	17.81	5862							
2321	10.02	4988		4043	17.81	5842							
2775	12.16	5253		4035	17.81	5865							
2878	12.84	5405		4041	17.81	5855							
2865	12.91	5420		4041	17.81	5850							
2865	12.87	5402		4029	17.81	5859							
2843	12.91	5394		4322	17.81	5842							
2845	12.88	5389		4665	19.95	6031							
2852	12.91	5389		4672	19.99	5976							
2843	12.85	5380		4661	19.99	5969							
2846	12.88	5402		4668	20.02	5963							
2843	12.91	5371		4688	19.99	5954							
2838	12.88	5362		4655	19.99	5967							
2847	12.91	5376		4672	19.99	5981							
2830	12.85	5390		4676	19.99	5989							
2825	12.87	5369		4660	19.99	5959							
3260	14.32	5529		779	8.70	3793							
3282	14.71	5595		1469	0.00	3881							
3280	14.79	5613		1149	0.00	4285							
3277	14.79	5602		1249	0.00	4195							
3296	14.79	5591		1186	0.00	4117							
3296	14.79	5608		1154	0.00	4106							
3278	14.79	5604		1149	0.00	4088							
3276	14.79	5613		1138	0.00	4056							
3303	14.79	5621		1105	0.00	4056							
3287	14.79	5610		1110	0.00	4028							
3287	14.79	5599		1081	0.00	4024							
3289	14.79	5604		1076	0.00	4001							
3307	14.79	5608		1060	0.00	3987							
3286	14.79	5594		1048	0.00	3980							
3273	14.79	5608		1037	0.00	3964							
3438	15.47	5792		1021	0.00	3951							
4366	19.15	6093		1010	0.00	3941							
4176	18.24	5834		999	0.00	3928							
4106	18.04	5871		985	0.00	3916							
4049	17.86	5871		973	0.00	3904							
4038	17.81	5842		962	0.00	3891							
4043	17.81	5869		951	0.00	3882							

940	0.00	3873		582	0.00	3506								
929	0.00	3862		573	0.00	3502								
918	0.00	3846		565	0.00	3497								
907	0.00	3836		558	0.00	3487								
896	0.00	3827		552	0.00	3481								
885	0.00	3818		545	0.00	3470								
875	0.00	3807		539	0.00	3465								
866	0.00	3794		531	0.00	3461								
857	0.00	3781		526	0.00	3451								
845	0.00	3772		518	0.00	3444								
835	0.00	3763		509	0.00	3438								
823	0.00	3756		504	0.00	3433								
813	0.00	3744		496	0.00	3424								
802	0.00	3731		490	0.00	3419								
795	0.00	3722		486	0.00	3412								
784	0.00	3712		481	0.00	3406								
773	0.00	3701		472	0.00	3401								
765	0.00	3692		468	0.00	3397								
756	0.00	3680		462	0.00	3391								
745	0.00	3671		456	0.00	3382								
734	0.00	3667		449	0.00	3378								
727	0.00	3656		445	0.00	3374								
717	0.00	3646		440	0.00	3365								
705	0.00	3635		434	0.00	3360								
699	0.00	3626		428	0.00	3357								
688	0.00	3616		422	0.00	3351								
682	0.00	3610		417	0.00	3342								
671	0.00	3600		413	0.00	3342								
664	0.00	3589		407	0.00	3336								
653	0.00	3580		403	0.00	3330								
646	0.00	3575		399	0.00	3323								
636	0.00	3565		392	0.00	3319								
630	0.00	3556		390	0.00	3314								
618	0.00	3548		384	0.00	3309								
612	0.00	3543		378	0.00	3305								
606	0.00	3534		376	0.00	3300								
599	0.00	3527		369	0.00	3296								
588	0.00	3518		367	0.00	3291								
				361	0.00	3287								
				358	0.00	3284								

353	0.00	3278		225	0.00	3153							
348	0.00	3273		222	0.00	3149							
344	0.00	3268		220	0.00	3145							
339	0.00	3267		218	0.00	3145							
337	0.00	3261		216	0.00	3140							
330	0.00	3255		215	0.00	3139							
328	0.00	3255		211	0.00	3136							
326	0.00	3250		206	0.00	3136							
321	0.00	3249		206	0.00	3131							
316	0.00	3243		202	0.00	3131							
312	0.00	3241		202	0.00	3127							
310	0.00	3236		197	0.00	3124							
307	0.00	3232		197	0.00	3122							
303	0.00	3231		193	0.00	3122							
298	0.00	3225		193	0.00	3117							
293	0.00	3223		188	0.00	3116							
291	0.00	3218		188	0.00	3113							
289	0.00	3214		184	0.00	3108							
284	0.00	3213		184	0.00	3108							
282	0.00	3209		180	0.00	3108							
280	0.00	3204		179	0.00	3104							
275	0.00	3200		179	0.00	3104							
272	0.00	3200		174	0.00	3104							
270	0.00	3195		174	0.00	3099							
266	0.00	3193		171	0.00	3099							
261	0.00	3186		170	0.00	3094							
259	0.00	3186		170	0.00	3094							
257	0.00	3181		165	0.00	3090							
252	0.00	3180		163	0.00	3090							
252	0.00	3177		161	0.00	3085							
248	0.00	3172		161	0.00	3085							
243	0.00	3172		158	0.00	3085							
243	0.00	3168		156	0.00	3081							
239	0.00	3167		156	0.00	3081							
239	0.00	3163		152	0.00	3076							
234	0.00	3159		151	0.00	3063							
232	0.00	3159		147	0.00	3074							
229	0.00	3154		147	0.00	3072							
				145	0.00	3072							
				142	0.00	3067							

142	0.00	3067											
140	0.00	3067											
138	0.00	3063											
138	0.00	3063											

FORM 9

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

RECEIVED
AUG 26 1996
DIV. OF OIL, GAS & MINING

5. Lease Designation and Serial Number:

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Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.

7. Unit Agreement Name:

1. Type of Well: OIL ☐ GAS ☐ OTHER: DISPOSAL WELL

8. Well Name and Number: SWD #1

2. Name of Operator: Texaco Exploration & Production Inc.

9. API Well Number: 43-015-30272

3. Address and Telephone Number: 3300 N. Butler, Farmington N.M. 87401 (505)325-4397

10. Field and Pool, or Wildcat:

4. Location of Well
Footages: 2095' FNL / 310' FWL
QQ, Sec.,T.,R.,M.: SW 1/4, NW 1/4 Sec. 24 T18S / R7E SLM
County: Emery
State: Utah

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT (Submit in Duplicate)		SUBSEQUENT REPORT (Submit Original Form Only)	
☐ Abandonment	☐ New Construction	☐ Abandonment *	☐ New Construction
☐ Casing Repair	☐ Pull or Alter Casing	☒ Casing Repair	☐ Pull or Alter Casing
☐ Change of Plans	☐ Recompletion	☐ Change of Plans	☐ Shoot or Acidize
☐ Conversion to Injection	☐ Shoot or Acidize	☐ Conversion to Injection	☐ Vent or Flare
☐ Fracture Treat	☐ Vent or Flare	☐ Fracture Treat	☐ Water Shut-Off
☐ Multiple Completion	☐ Water Shut-Off	☐ Other	
☐ Other			

Approximate date work will start

Date of work completion 8/2/96

Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form.

* Must be accompanied by a cement verification report.

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

TEXACO E. & P., INC. HAS COMPLETED THE FOLLOWING ON THE SUBJECT WELL:
7/23/96 - MOVE IN SERVICE RIG. ND TREE, NU BOP. PRESSURE TEST TUBING TO 2100 PSI, OK. TEST CASING TO 2100 PSI, LEAKED OFF TO 800 PSI. ISOLATE LEAK AT 5539'-5544'. ESTABLISH RATE OF .4 BPM. GIH W/ RBP, SET AT 5585'. TIH W/ TUBING TO 5537', SPOT 4 SX SAND ON RBP. PUMP 35 SX CLASS 'G' CEMENT W/ .6% D60, .1% D13 (7.2 BBL. SLURRY). REVERSE CIRCULATE. PRESSURE UP ON CEMENT TO 2000 PSI. PSI HOLDING. TIH W/ BIT, TAG CEMENT AT 5378'. DRILL CEMENT TO 5570'. PRESSURE TEST CASING, PRESSURE HELD AT 1035 PSI FOR 15 MIN. REVERSE SAND OFF RBP. TOOH W/ RBP. GIH W/ PACKER & 3-1/2" TUBING, SET PACKER @6599'. TEST ANNULUS TO 1050 PSI., OK. RIG DOWN SERVICE UNIT. 8/2/96 PUT WELL ON INJECTION.

13.
Name & Signature: Rachel Hughes BY FAX Ted A. Tipton Title: Operating Unit Manager Date: 8/22/96

(This space for State use only)

(12/89) UOGCC(2), Asset Team, wellfile (See Instructions on Reverse Side) RSD

SWD-1
Current Completion

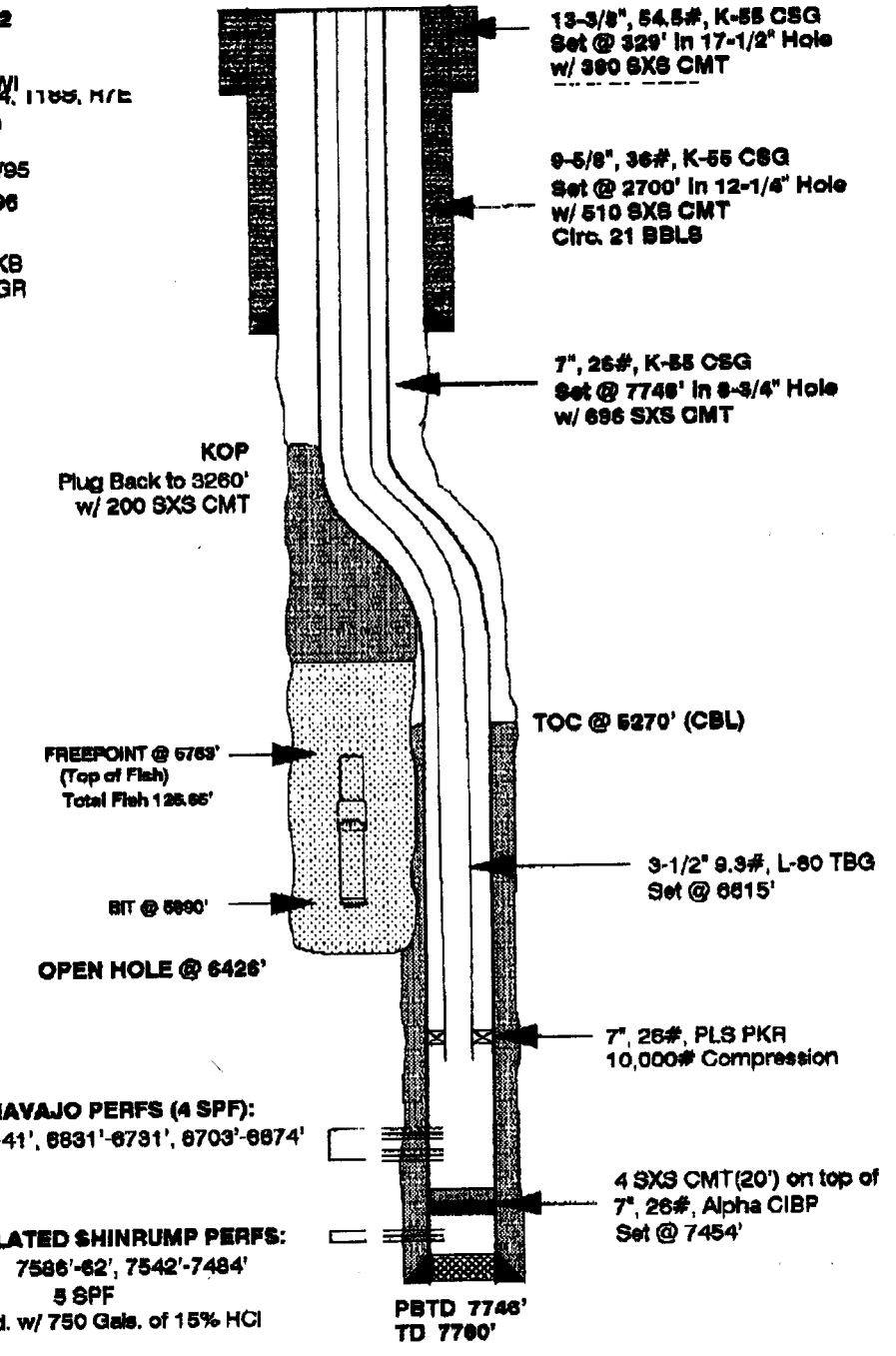
API No. 43-015-30272

LOCATION:
2095' FNL & 410' FWL
SW/4, NW/4, Sec. 24, T16S, R7E
Emery County, Utah

SPUD DATE: 12/16/95
RDMOL: 2/21/96

ELEVATION: 6003' KB
5987' GR

FORMATION TOPS:
2450' Ferron
2716' Tununk
3280' Dakota
3374' Cedar Mtn.
3660' Salt Wash
4054' Morrison
4228' Summerville
4650' Curtis
4851' Entrada
5594' Carmel
6406' Navajo
6904' Kayenta
7028' Wingate
7357' Chinle
7464' Shinarump
7643' Moenkopi



Schlumberger Dowell

FracCADE™
STIMULATION PROPOSAL

Operator	: **TEXACO E & P, INC.**	**Well**	: **S.W.D. #1**
Country	: U.S.A.	Field	: Price Field
State	: Utah	Formation	: Navajo Sand
County	: Emery County		
Prepared for	: **Mr. Robert Schaffitzel**	**Location**	: **Price, Utah**
Proposal No.	: 2	Service Point	: Vernal, Utah
Date Prepared	: 05-17-1996	Business Phone	: 801 - 789 - 0411
		FAX No.	: 801 - 789 - 0138

Prepared by : Kenneth M. Collins
Phone : 505 - 325 - 5096
E-Mail Address : collins@farmington.dowell.slb.com

Dowell

Client : TEXACO E & P, INC.
Well : S.W.D. #1
Formation : Navajo Sand
District : Vernal, Utah
Country : U.S.A.

Section 1: Definitions

The following are definitions of terms used in this proposal.

FRACTURE HALF-LENGTH
refers to the length of one fracture wing from the wellbore to the fracture tip.

FLUID LENGTH
refers to the fracture half-length occupied by fluid and may include length without proppant which does not contribute to production.

PROPPED LENGTH
refers to the fracture half-length occupied by proppant and may include length which does not contribute to production due to low proppant concentration, proppant damage or other effects.

EFFECTIVE or APPARENT LENGTH
refers to the fracture half-length through which formation fluid can be produced and which may be expected to contribute to well productivity improvement.

Dowell

Client : TEXACO E & P, INC.
Well : S.W.D. #1
Formation : Navajo Sand
District : Vernal, Utah
Country : U.S.A.

Zone Properties (continued)			
Zone Number	**5**	**6**	**7**
Zone Name	**Navajo**	**Navajo**	**Navajo**
Top MD (ft)	**6406**	**6510**	**6515**
Top TVD (ft)	**6406**	**6510**	**6515**
Zone Height Data			
Gross Height (ft)	104	5	91
Leakoff Height (ft)	104	1	91
Net Height (ft)	104	1	91
Rock Type	CLEAN-SANDSTONE	CLEAN-SANDSTONE	CLEAN-SANDSTONE
Depth Stress Profile			
Frac Gradient (psi/ft)	0.67	0.77	0.67
Insitu Stress (psi)	4327	5015	4396
Reservoir Pressure (psi)	2690	2690	2690
Mechanical Properties			
Young's Modulus (psi)	3.500E+06	4.500E+06	3.500E+06
Poisson's Ratio	0.20	0.20	0.20
Toughness (psi*in0.5)	1000	2000	1000
Specific Gravity	2.65	2.65	2.65
Embedded Strength (psi)	60000	60000	60000
Limestone (%)	0.0	0.0	0.0
Dolomite (%)	0.0	0.0	0.0
Transmissibility Properties			
Permeability (md)	10	0.1	12
Porosity (%)	18.0	6.0	20.0
Form. Volume Factor (bbl/stb)	1.02	1.02	1.02
Total Compressibility (1/psi)	5.98E-6	8.18E-6	5.82E-6
Oil Saturation (%)	20.0	20.0	20.0
Gas Saturation (%)	10.0	10.0	10.0
H_2O Saturation (%)	70.0	70.0	70.0

Dowell

Client : TEXACO E & P, INC.
Well : S.W.D. #1
Formation : Navajo Sand
District : Vernal, Utah
Country : U.S.A.

Zone Properties (continued)			
Zone Number	**8**	**9**	**10**
Zone Name	**Navajo**	**Navajo**	**Navajo**
Top MD (ft)	**6606**	**6673**	**6721**
Top TVD (ft)	**6606**	**6673**	**6721**
Zone Height Data			
Gross Height (ft)	67	48	10
Leakoff Height (ft)	40	40	4
Net Height (ft)	10	40	4
Rock Type	CLEAN-SANDSTONE	CLEAN-SANDSTONE	CLEAN-SANDSTONE
Depth Stress Profile			
Frac Gradient (psi/ft)	0.68	0.67	0.68
Insitu Stress (psi)	4515	4487	4574
Reservoir Pressure (psi)	2690	2690	2690
Mechanical Properties			
Young's Modulus (psi)	4.000E+06	3.600E+06	4.000E+06
Poisson's Ratio	0.20	0.20	0.20
Toughness (psi*in0.5)	1500	1000	1500
Specific Gravity	2.65	2.65	2.65
Embedded Strength (psi)	60000	60000	60000
Limestone (%)	0.0	0.0	0.0
Dolomite (%)	0.0	0.0	0.0
Transmissibility Properties			
Permeability (md)	0.2	8	0.1
Porosity (%)	8.0	12.0	6.0
Form. Volume Factor (bbl/stb)	1.02	1.02	1.02
Total Compressibility (1/psi)	7.51E-6	6.68E-6	8.18E-6
Oil Saturation (%)	20.0	20.0	20.0
Gas Saturation (%)	10.0	10.0	10.0
H_2O Saturation (%)	70.0	70.0	70.0

Dowell

Client : TEXACO E & P, INC.
Well : S.W.D. #1
Formation : Navajo Sand
District : Vernal, Utah
Country : U.S.A.

Zone Properties (continued)			
Zone Number	**11**	**12**	**13**
Zone Name	**Navajo**	**Navajo**	**Navajo**
Top MD (ft)	**6731**	**6831**	**6841**
Top TVD (ft)	**6731**	**6831**	**6841**
Zone Height Data			
Gross Height (ft)	100	10	36
Leakoff Height (ft)	100	4	34
Net Height (ft)	100	4	34
Rock Type	CLEAN-SANDSTONE	CLEAN-SANDSTONE	CLEAN-SANDSTONE
Depth Stress Profile			
Frac Gradient (psi/ft)	0.67	0.68	0.67
Insitu Stress (psi)	4543	4648	4596
Reservoir Pressure (psi)	2690	2690	2690
Mechanical Properties			
Young's Modulus (psi)	3.600E+06	4.000E+06	3.700E+06
Poisson's Ratio	0.20	0.20	0.20
Toughness (psi*in0.5)	1100	1500	1000
Specific Gravity	2.65	2.65	2.65
Embedded Strength (psi)	60000	60000	60000
Limestone (%)	0.0	0.0	0.0
Dolomite (%)	0.0	0.0	0.0
Transmissibility Properties			
Permeability (md)	12	0.01	7
Porosity (%)	15.0	6.0	14.0
Form. Volume Factor (bbl/stb)	1.02	1.02	1.02
Total Compressibility (1/psi)	6.28E-6	8.18E-6	6.40E-6
Oil Saturation (%)	20.0	20.0	20.0
Gas Saturation (%)	10.0	10.0	10.0
H_2O Saturation (%)	70.0	70.0	70.0

Dowell

Client : TEXACO E & P, INC.
Well : S.W.D. #1
Formation : Navajo Sand
District : Vernal, Utah
Country : U.S.A.

Zone Properties (continued)		
Zone Number	**14**	**15**
Zone Name	**Shale**	**Kayenta**
Top MD (ft)	**6877**	**6903**
Top TVD (ft)	**6877**	**6903**
Zone Height Data		
Gross Height (ft)	26	200
Leakoff Height (ft)	10	20
Net Height (ft)	0	0
Rock Type	SHALE	SHALE
Depth Stress Profile		
Frac Gradient (psi/ft)	0.77	0.77
Insitu Stress (psi)	5305	5392
Reservoir Pressure (psi)	2902	2902
Mechanical Properties		
Young's Modulus (psi)	4.500E+06	4.500E+06
Poisson's Ratio	0.30	0.30
Toughness (psi*in0.5)	2000	2000
Specific Gravity	2.65	2.65
Embedded Strength (psi)	60000	60000
Limestone (%)	0.0	0.0
Dolomite (%)	0.0	0.0
Transmissibility Properties		
Permeability (md)	0.1	0.01
Porosity (%)	6.0	8.0
Form. Volume Factor (bbl/stb)	1.02	1.02
Total Compressibility (1/psi)	8.18E-6	7.51E-6
Oil Saturation (%)	20.0	20.0
Gas Saturation (%)	10.0	10.0
H_2O Saturation (%)	70.0	70.0

Section 4: Reservoir Information

Well Type **H2O**
Spacing ..... **180 acres**
Reservoir Temperature ..... **150 degF**
Oil Gravity ..... **35.0 degAPI**
Initial Gas/Oil Ratio (GOR) ..... **356 SCF/bbl**
Bubble Point Pressure ..... **2000 psi**
Gas Gravity **0.65**

Dowell

Client : TEXACO E & P, INC.
Well : S.W.D. #1
Formation : Navajo Sand
District : Vernal, Utah
Country : U.S.A.

Section 5: Propped Fracture Schedule

The following is the Pumping Schedule to achieve a propped fracture half-length (X_f) of 211 ft with an average conductivity (K_fw) of 911 md*ft.

Job Description						
Stage Name	Pump Rate (bbl/min)	Fluid Name	Stage Fluid Volume (gal)	Gel Conc. (lb/mgal)	Prop. Type and Mesh	Prop. Conc. (lb/gal)
PAD	30.0	YF130	14000	30		0
1 PPA	30.0	YF130	1000	30	JORDAN SAND 20/40	1
2 PPA	30.0	YF130	2000	30	JORDAN SAND 20/40	2
4 PPA	30.0	YF130	4000	30	JORDAN SAND 20/40	4
6 PPA	30.0	YF130	5000	30	JORDAN SAND 20/40	6
8 PPA	30.0	YF130	9000	30	JORDAN SAND 20/40	8
8 PPA	30.0	YF130	6000	30	~~Curable Re 20/40~~	8
FLUSH	30.0	KCL WATER	10725	0	~~JORDAN SAND 20/40~~	0

Fluid Totals		
41000 gal	of	YF130
10725 gal	of	KCL WATER

Proppant Totals		
123000 lbs	of	JORDAN SAND 20/40
48000 lbs	of	Curable Re 20/40

Job Execution								
Stage Name	Stage Fluid Volume (gal)	Cum. Fluid Volume (gal)	Stage Slurry Volume (bbl)	Cum. Slurry Volume (bbl)	Stage Prop (lbs)	Cum. Prop. (lbs)	Stage Time (min)	Cum. Time (min)
PAD	14000	14000	333.3	333.3	0	0	11.1	11
1 PPA	1000	15000	24.9	358.2	1000	1000	0.8	12
2 PPA	2000	17000	52.0	410.2	4000	5000	1.7	14
4 PPA	4000	21000	112.7	522.9	16000	21000	3.8	17
6 PPA	5000	26000	151.7	674.6	30000	51000	5.1	22
8 PPA	9000	35000	292.7	967.3	72000	123000	9.8	32
8 PPA	6000	41000	196.8	1164.0	48000	171000	6.6	39
FLUSH	10725	51725	255.4	1419.4	0	171000	8.5	47

Section 6: Propped Fracture Simulation

The following are the results of the computer simulation of this Fracturing Proposal using a Pseudo 3-D Vertical model.

Dowell

Client : TEXACO E & P, INC.
Well : S.W.D. #1
Formation : Navajo Sand
District : Vernal, Utah
Country : U.S.A.

Propped Fracture Half-Length ..... **211 ft**
Average Propped Width ..... **0.139 in**
Average Gel Concentration ..... **319 lb/mgal**
Average Gel Fluid Retained Factor ... **0.60**
Average Conductivity ..... **911 md*ft**
Average Fcd **0.4**

Net Pressure ..... **57 psi**
Efficiency **0.600**

Simulation Results by Fracture Segment

From (ft)	To (ft)	Prop. Conc. at End of Pumping (lb/gal)	Propped Width (in)	Propped Height (ft)	Frac. Prop. Conc. (lb/ft2)	Frac. Gel Conc. (lb/mgal)	Fracture Conductivity (md*ft)
0	53	9	0.158	366	1.36	282	1023
53	105	10	0.178	345	1.58	219	1143
105	158	9	0.144	260	1.27	279	1011
158	211	4	0.091	193	0.81	495	645

Exposure Time Prediction by Stage

Stage Name	Fluid Name	Pump Rate (bbl/min)	Fluid Volume (gal)	Perforation Injection Temp. (degF)	Exposure above BHST of 150 degF (min)	Exposure above Watch Temp. of 110 degF (min)
PAD	YF130	30.0	14000	70	31	31
1 PPA	YF130	30.0	1000	70	17	17
2 PPA	YF130	30.0	2000	70	16	16
4 PPA	YF130	30.0	4000	70	13	13
6 PPA	YF130	30.0	5000	70	8	8
8 PPA	YF130	30.0	9000	70	1	1
8 PPA	YF130	30.0	6000	70	0	0
FLUSH	KCL WATER	30.0	10725	70		

Fluid Damage Prediction by Stage

Stage Name	Fluid Name	Fluid Volume (gal)	Fluid Polymer Loading (lb/mgal)	Fluid Breaker Conc (lb/mgal)	Fracture Gel Conc (lb/mgal)	Fluid Retained Factor
PAD	YF130	14000	30	3		
1 PPA	YF130	1000	30	3		
2 PPA	YF130	2000	30	3		
4 PPA	YF130	4000	30	3		

Dowell

Client : TEXACO E & P, INC.
Well : S.W.D. #1
Formation : Navajo Sand
District : Vernal, Utah
Country : U.S.A.

Fluid Damage Prediction by Stage						
Stage Name	Fluid Name	Fluid Volume (gal)	Fluid Polymer Loading (lb/mgal)	Fluid Breaker Conc (lb/mgal)	Fracture Gel Conc (lb/mgal)	Fluid Retained Factor
6 PPA	YF130	5000	30	3		
8 PPA	YF130	9000	30	3		
8 PPA	YF130	6000	30	3		
FLUSH	KCL WATER	10725	0	0		

Section 7: Treatment Fluid Data

Fluid data is given at 150 degF and 10.032 md.

Fluid Name	YF130	KCL WATER
Friction		
Rate Low (bbl/min)	1.0	1.0
Rate Pivot (bbl/min)	11.0	10.0
Rate High (bbl/min)	50.0	50.0
Pressure Low (psi/1000ft)	60.0	20.0
Pressure Pivot (psi/1000ft)	80.0	40.0
Pressure High (psi/1000ft)	500.0	100.0
Fluid Loss		
C_w (ft/min0.5)	1.0E-3	0.0E+0
Spurt (gal/100ft2)	0.0	0.0
C_1 (ft/min0.5)	0.0E+0	0.0E+0
Rheology		
Time (hrs)	1.0	0.0
Behavior Index (N')	0.25	1.00
Consistency Index (K') (lb*s/ft2)	1.10E-1	2.09E-5
Viscosity @ 40 1/Sec (cp)	331	1
Viscosity @ 170 1/Sec (cp)	112	1

Section 8: Proppant Data

Proppant Permeability is given at 150 degF, 4327 psi, and 1.00 lb/ft2.

Proppant Data					
Proppant Name	Mesh Size	Specific Gravity	Mean Diameter (in)	Pack Porosity (%)	Permeability (md)
COLORADO SIL	20/40	2.62	0.022	35.0	145345
JORDAN SAND	20/40	2.62	0.022	35.0	125712
Curable Re	20/40	2.54	0.029	35.0	211989

Dowell

Client : TEXACO E & P, INC.
Well : S.W.D. #1
Formation : Navajo Sand
District : Vernal, Utah
Country : U.S.A.

Section 9: MLF Pumping Schedule

Bridging Factor..... 2.5
Flowback Rate..... 0.00 bbl/min
Fluid Pumped..... YF130
Proppant Pumped..... JORDAN SAND

Job Description						
Stage Name	Pump Rate (bbl/min)	Fluid Volume (gal)	Prop. Conc. (lb/gal)	Prop. Mass (lbs)	Slurry Volume (bbl)	Time (min)
PAD	30.0	14000	0	0	333.3	11
1 PPA	30.0	1000	1	1000	24.9	1
2 PPA	30.0	2000	2	4000	52.0	2
4 PPA	30.0	4000	4	16000	112.7	4
6 PPA	30.0	5000	6	30000	151.7	5
8 PPA	30.0	9000	8	72000	292.7	10
8 PPA	30.0	6000	8	48000	196.8	7

Section 10: MLF Simulation Results

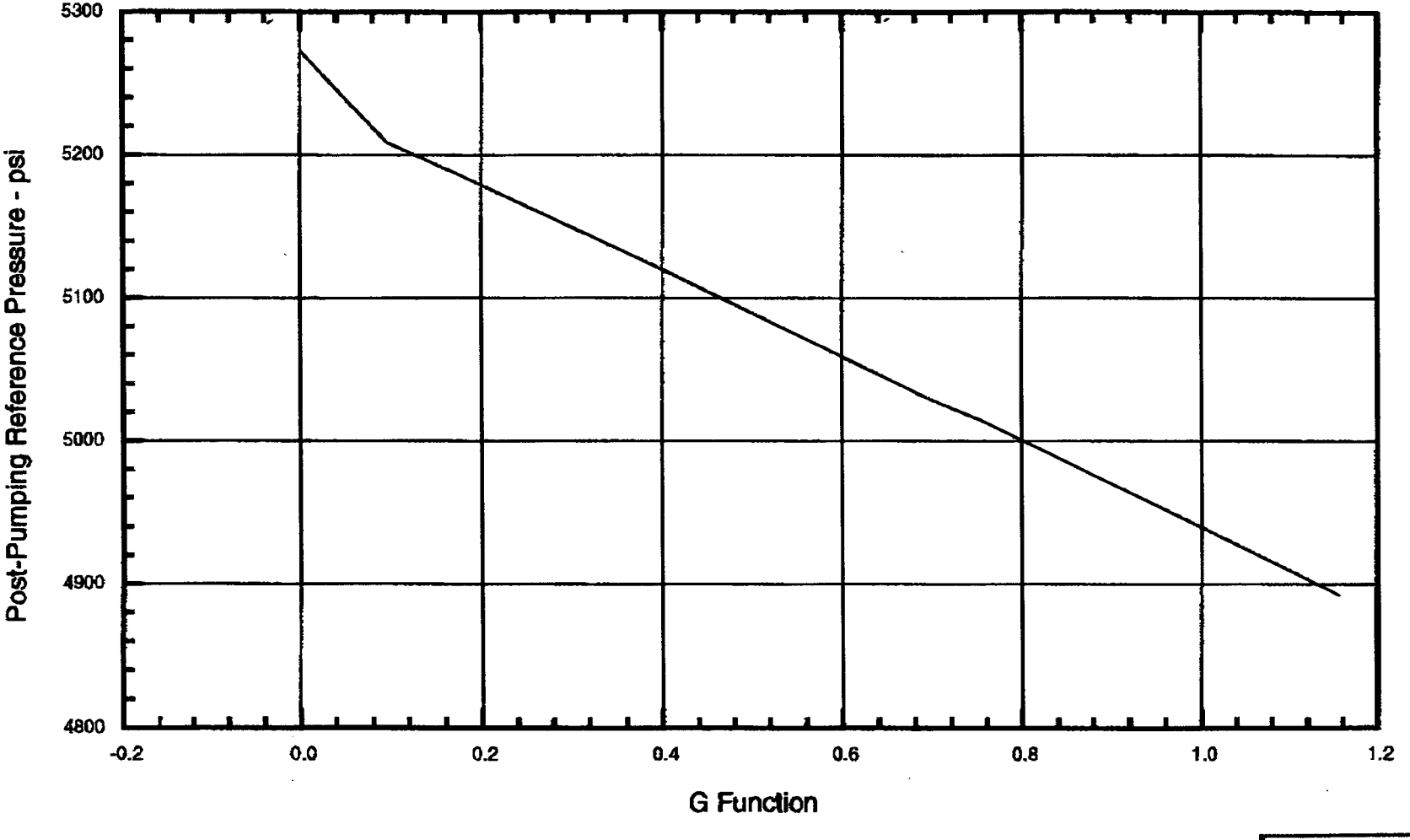
Treatment Volume.....1164.0 bbl
Total Fluid Volume.....41000 gal
Proppant Mass.....171000 lbs
Pump Rate.....30.0 bbl/min

MLF Simulation Data							
EOJ Hyd Half-Length (ft)	ACL Prop Half-Length (ft)	EOJ Inj. Rate (bbl/min)	Initial Shut-In EOJ Rate (bbl/min)	EOJ Efficiency	EOJ Net Pressure (psi)	EOJ Perf Fric. Pressure (psi)	Avg. Prop. Width (in)
277	220	2.93	0.32	0.381	786	0.0	0.092
651	630	26.19	-0.32	0.509	761	0.1	0.134
122	50	0.88	0.00	0.275	770	0.0	0.155

FracCADE*

TEXACO E & P, INC.
S.W.D. #1
Prop. 2
05-17-1996

Post-Pumping Reference Pressure vs G(t)



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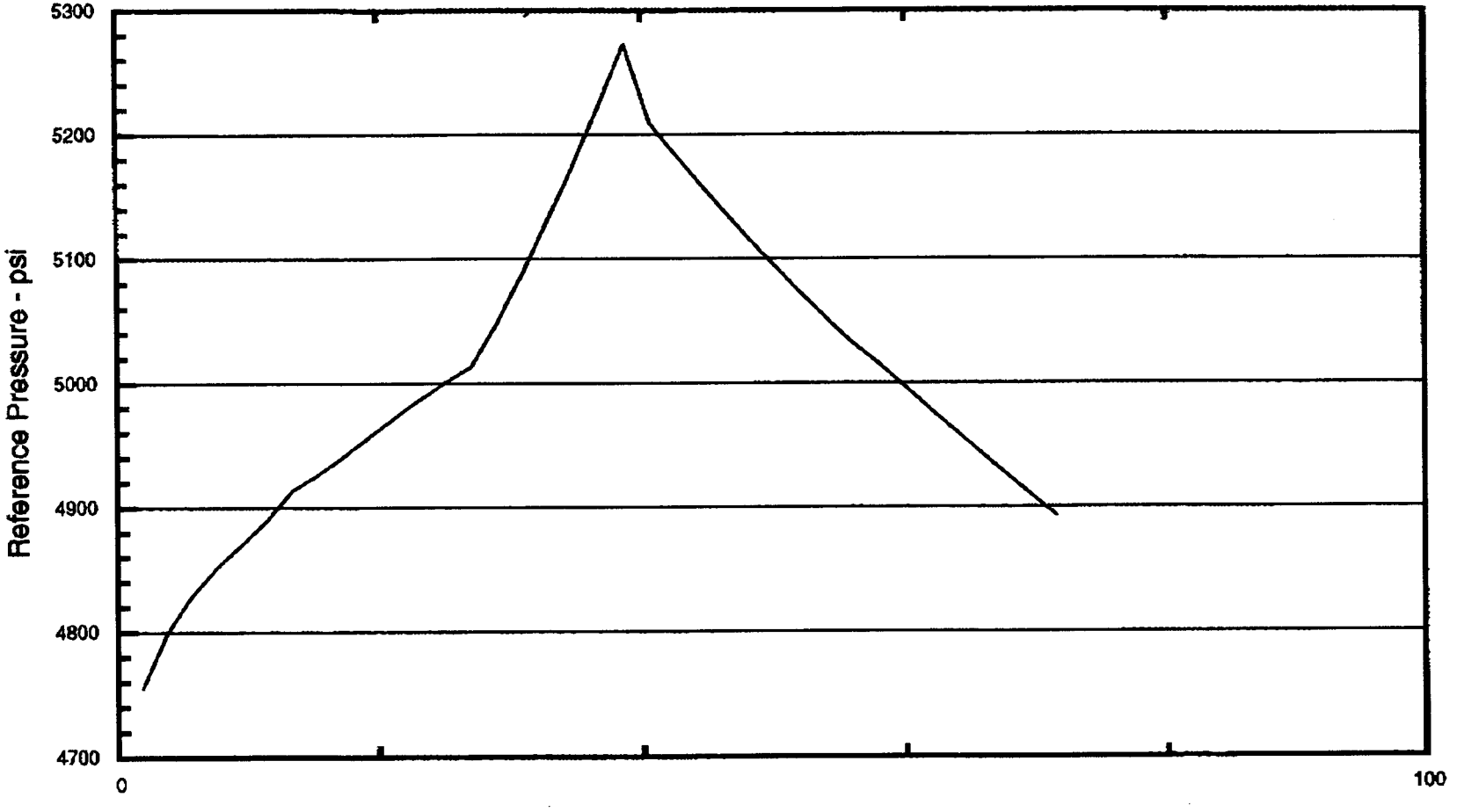
FracCADE*

Reference Pressure History

TEXACO E & P, INC.
S.W.D. #1
Prop. 2
05-17-1996



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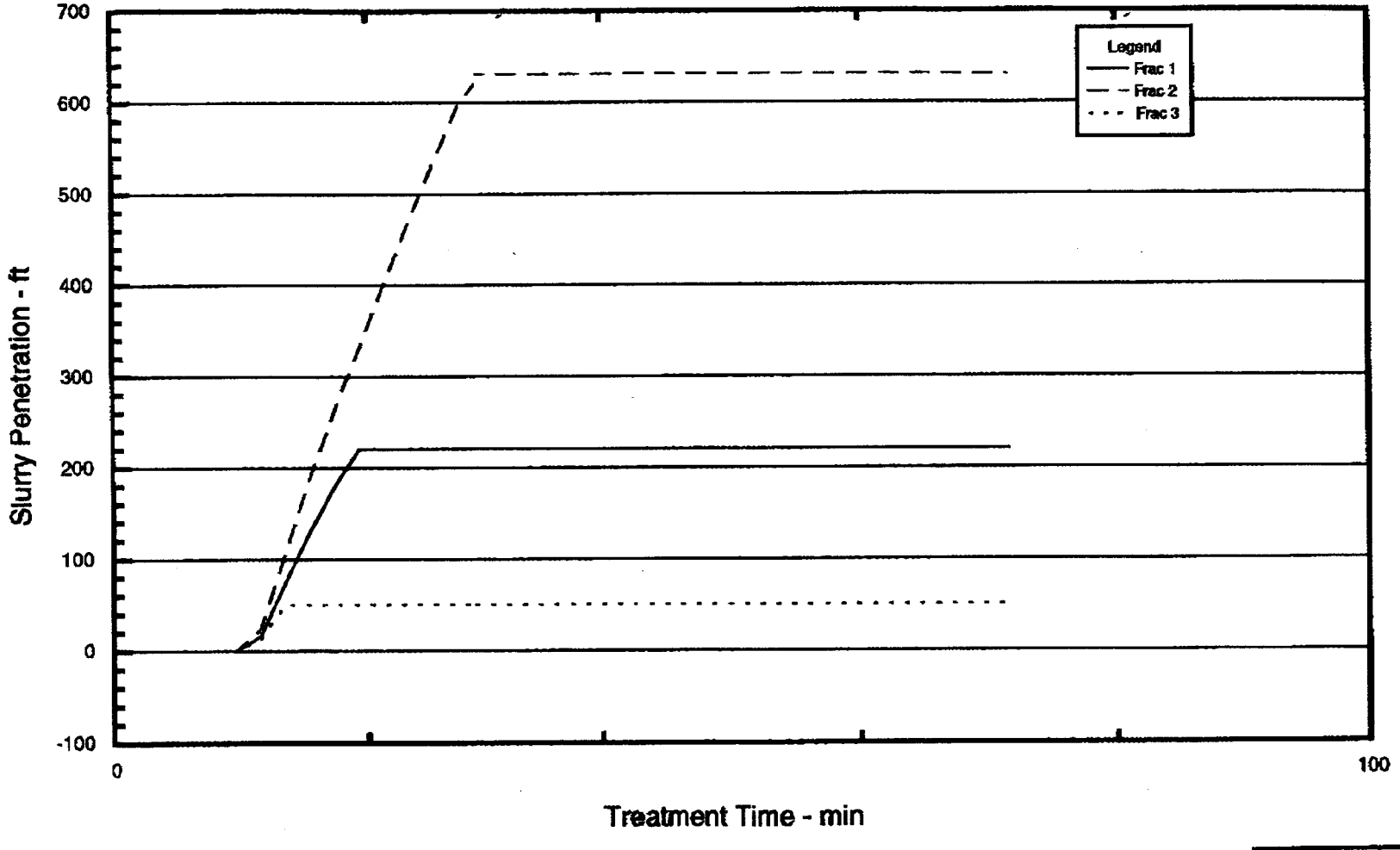
Slurry Penetration History

TEXACO E & P, INC.
S.W.D. #1
Prop. 2
05-17-1996



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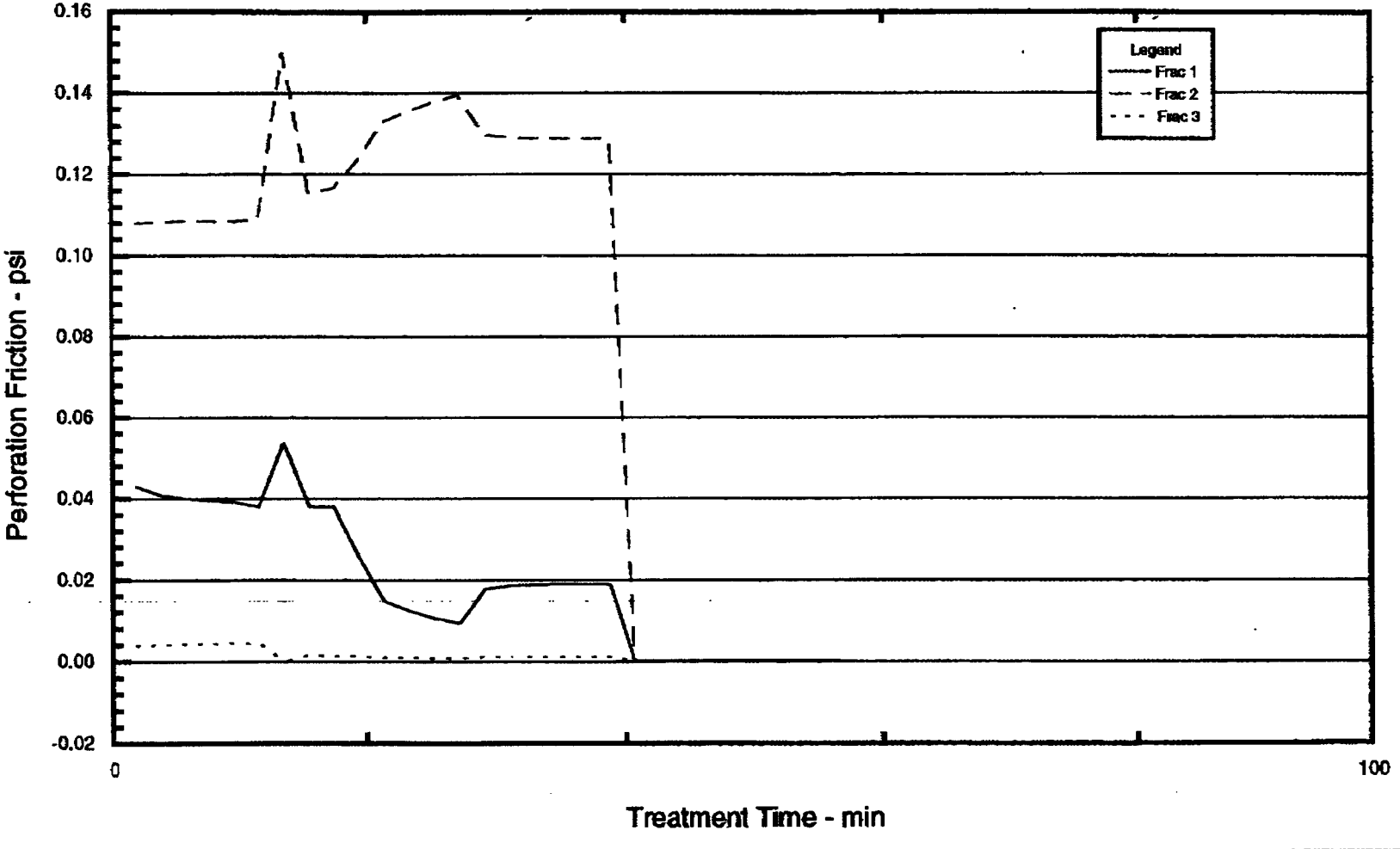
Perforation Friction History

TEXACO E & P INC.
S.W.D. #1
Prop. 2
05-17-1996



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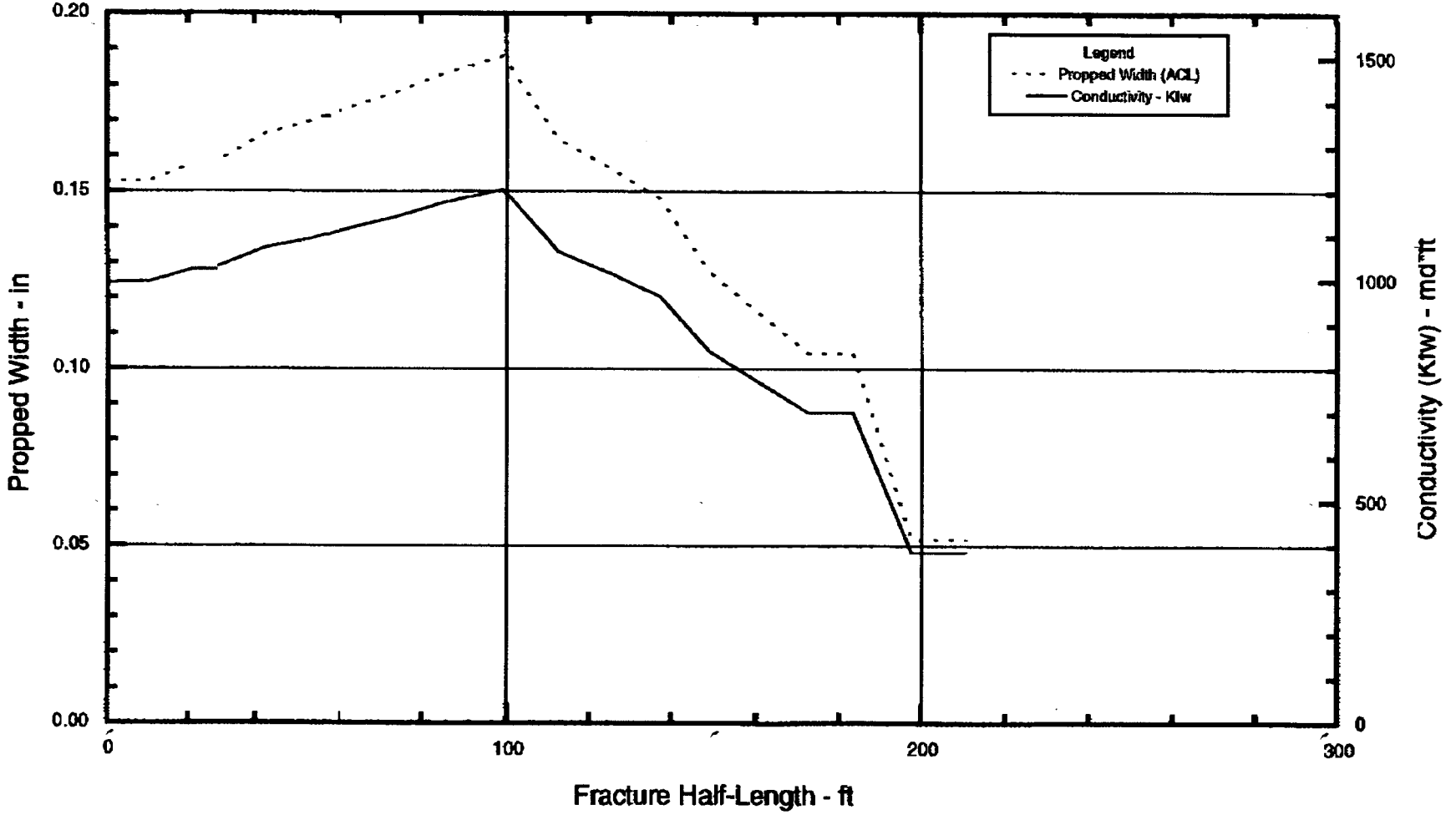
Flow Capac Profiles

TEXACO E & P, INC.
S.W.D. #1
Prop. 2
05-17-1996



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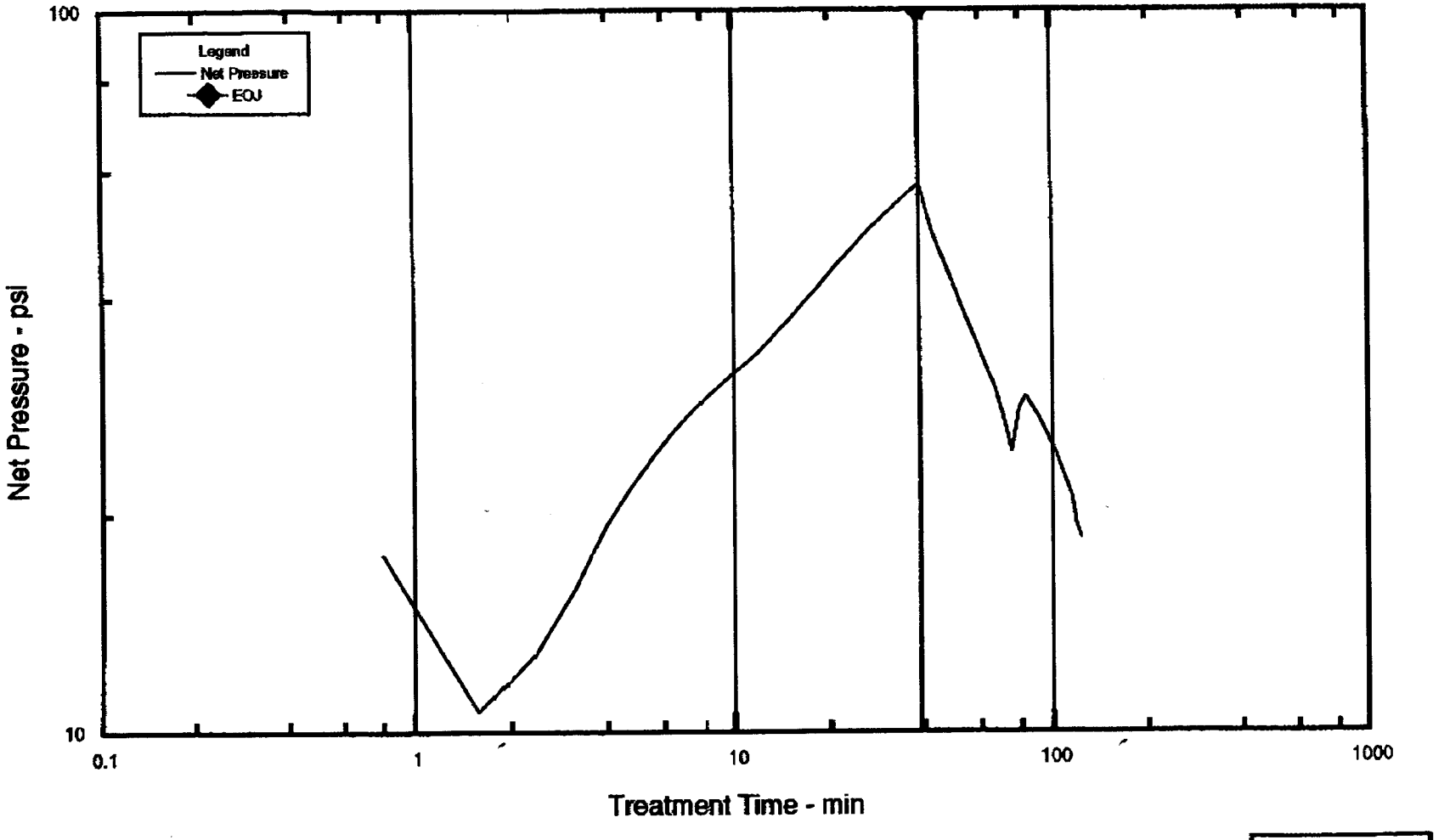
Fracturing Pressure Profile

TEXACO E & P, INC.
S.W.D. #1
Prop. 2
05-17-1996



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Dowell

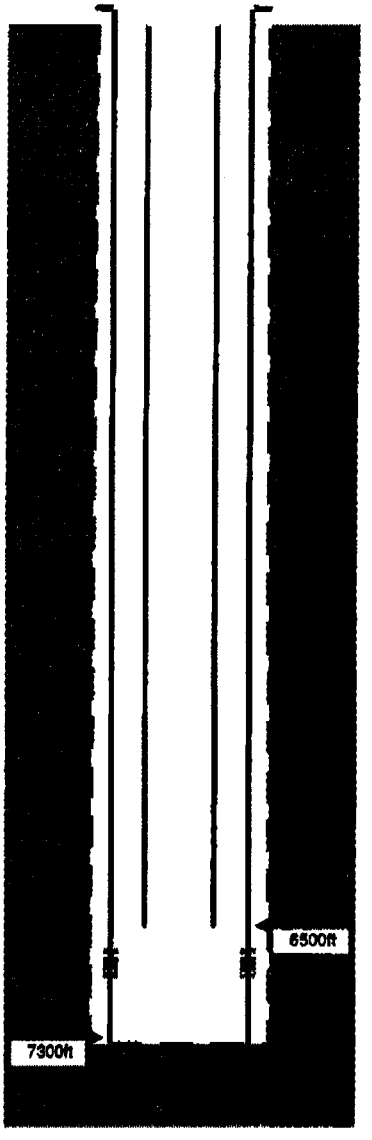
Client : TEXACO [illegible], INC.
Well : S.W.D. #1
Formation : Navajo Sand
District : Vernal, Utah
Country : U.S.A.

Section 2: Wellbore Configuration

Deviated Hole ..... **NO**
Treat Down ..... **TUBING**
Flush Volume to 6674.0 ft ..... **63.1 bbl**

Tubing Data			
OD (in)	Weight (lb/ft)	ID (in)	Depth (ft)
3.500	9.2	2.990	6500

Casing Data			
OD (in)	Weight (lb/ft)	ID (in)	Depth (ft)
7.000	26.0	6.276	7300



Dowell

Client : TEXACO E & P, INC.
Well : S.W.D. #1
Formation : Navajo Sand
District : Vernal, Utah
Country : U.S.A.

Perforation Data						
Top MD (ft)	Top TVD (ft)	Bottom MD (ft)	Bottom TVD (ft)	Shot Density (shot/ft)	Number	Diameter (in)
6674	6674	6703	6703	4	116	0.60
6731	6731	6831	6831	4	400	0.60
6841	6841	6877	6877	4	145	0.60

Section 3: Zone Data

Zone Properties				
Zone Number	1	2	3	4
Zone Name	Caprock	Lime	Shale	Shale
Top MD (ft)	6000	6120	6200	6340
Top TVD (ft)	6000	6120	6200	6340
Zone Height Data				
Gross Height (ft)	120	80	140	66
Leakoff Height (ft)	0	0	30	0
Net Height (ft)	0	0	0	0
Rock Type	SHALE	LIMESTONE	SHALE	SHALE
Depth Stress Profile				
Frac Gradient (psi/ft)	0.78	0.68	0.77	0.77
Insitu Stress (psi)	4727	4189	4828	4907
Reservoir Pressure (psi)	2340	2864	2902	2902
Mechanical Properties				
Young's Modulus (psi)	4.500E+06	1.000E+06	4.500E+06	4.500E+06
Poisson's Ratio	0.30	0.30	0.30	0.30
Toughness (psi*in0.5)	2000	500	2000	2000
Specific Gravity	2.65	2.65	2.65	2.65
Embedded Strength (psi)	60000	60000	60000	60000
Limestone (%)	0.0	0.0	0.0	0.0
Dolomite (%)	0.0	0.0	0.0	0.0
Transmissibility Properties				
Permeability (md)	0.01	0.3	0.1	0.01
Porosity (%)	10.0	4.0	10.0	6.0
Form. Volume Factor (bbl/stb)	1.02	1.02	1.02	1.02
Total Compressibility (1/psi)	7.04E-6	9.28E-6	7.03E-6	8.18E-6
Oil Saturation (%)	20.0	20.0	20.0	20.0
Gas Saturation (%)	10.0	10.0	10.0	10.0
H,O Saturation (%)	70.0	70.0	70.0	70.0

INSPECTION FORM 6

STATE OF UTAH
DIVISION OF OIL GAS AND MINING

INJECTION WELL - PRESSURE TEST

Well Name: SWD #1 API Number: 4301530272
Qtr/Qtr: SWNW Section: 24 Township: 18S Range: 7E
Company Name: ChevronTexaco
Lease: State ~~X~~ Fee X Federal ____ Indian ____
Inspector: M. Jones Date: 7/9/02

Initial Conditions:

Tubing - Rate: 5197 bls/day Pressure: ~1600 psi

Casing/Tubing Annulus - Pressure: 0 psi

Conditions During Test:

Time (Minutes)		Annulus Pressure	Tubing Pressure
8:32	0	1050 #	~1600 #
	5		
	10		
	15	1060 #	~1600 #
	20		
	25		
	30	1080 #	~1600 #

Results: (Pass)/Fail

Conditions After Test:

Tubing Pressure: ~1900 psi

Casing/Tubing Annulus Pressure: 0 psi

COMMENTS: Well injecting during test.
Packer @ 6399'.

Ron Wirth
Operator Representative

Completion Procedure
SWD No.1
12/4/97

Location: SW/NW, Sec. 24 T18S, R7E
Emery County, Utah
Elevation: 5987' GL
K.B.: 6003'
PBTD: 7434 TD: 7760
Estimate Number:
API #: 43-015-30272
FRSID: 333/69090076

1. MIRU service unit. NUBOP.

2. Release pkr @ 6598' and TOOH w/ 3-1/2" plastic coated J-55 tbg.

3. RU Schlumberger. TIH w/ 7" RBP on wireline. Set RBP @ 6590'. Test plug to 1000 psi and hold for 30 min. Dump 1 sx sand on plug w/ wireline dump.

4. Perforate the following intervals w/ 4" HEGS 4 SPF Deep penetrating 0.45" holes

Interval	Length	Holes
6540'-6560'	20'	80
6460'-6500'	40'	160

5. RD Schlumberger. PU and TIH w/ notched collar, Guiberson Uni VI 2-7/8 x 7" PKR, and 2-7/8" workstring. Land EOT @ 6450'

6. RU Dowell. (All acid pumped will be 7.5% HCL w/ inhibitor, iron reducer, surfactant and non emulsifier) Pump 250 gals acid. Begin dropping balls at roughly 7 balls per bbl of acid. 400 total balls. Continue pumping acid at a rate of 12 BPM. Pump total volume acid - 3000 gals.

7. Displace acid with produced water. Ball off interval. Surge balls off perfs and allow to fall.

8. RU swab. Swab 250 bbls of fluid. RD swab

9. Release pkr. Tooh w/ pkr and tbg.

10. TIH w/ retrieving head and tbg. Retrieve RBP. TOOH.

11. TIH w/ notched collar, 1 jt, SN and tbg. Clean out to PBTD. TOOH and lay down 2-7/8" tbg.

12. Account for all balls if possible. If missing significant balls. TIH w/ ring gauge and knock of balls. Circulate balls to surface.

13. PU 2-7/8" x 7" coated UNI VI PKR and 3-1/2" IPC tbg. TIH w/ PKR and TBG. Set PKR at 6425'. Fill annulus with Unichem CPF-1 packer fluid. Test annulus to 1000 psi for 30 min. If test holds, release pressure.

14. RDMO service unit

Capacities:		Burst:
2-7/8", 6.5#, J-55 tubing	0.2431 gals/ft (0.00579 Bbls/ft)	7,260 psi (80%: 5,808 psi)
7", 26#, K-55 casing	1.6070 gals/ft (0.0382 Bbls/ft)	4,980 psi (80%: 3,984 psi)
2-7/8" x 7", 26# annulus	1.2698 gals/ft (0.0302 Bbls/ft)	
3-1/2" x 7", 26# annulus	1.1072 gals/ft (0.0264 Bbls/ft)	

FORM 9

STATE OF UTAH
DIVISION OF OIL AND GAS AND MINING

RECEIVED
DEC 10 1997
OF OIL, GAS & MINING

5. Lease Designation and Serial Number:

SUNDRY NOTICES AND REPORTS ON WELLS

6. If Indian, Allottee or Tribe Name:

(Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.
Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.)

7. Unit Agreement Name:

1. Type of Well: ☐ OIL WELL ☐ GAS WELL ☑ OTHER DISPOSAL

8. Well Name and Number: FEE SWD-1

2. Name of Operator: TEXACO EXPLORATION & PRODUCTION, INC.

9. API Well Number: 4301530272

3. Address and Telepone Number: 3300 N. Butler Ave., Suite 100 Farmington NM 87401 325-4397

10. Field and Pool, or Wildcat: WILDCAT

Location of Well

Footages: 2095 NORTH 310 WEST County: EMERY

QQ, Sec,T.,R.,M: SW , NW , 24 , T18S , R7E State: UT

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT (Submit in Duplicate)		SUBSEQUENT REPORT (Submit Original Form Only)	
☐ Abandonment	☐ New Construction	☐ Abandonment	☐ New Construction
☐ Casing Repair	☐ Pull or Alter Casing	☐ Casing Repair	☐ Pull or Alter Casing
☐ Change of Plans	☐ Recompletion	☐ Change of Plans	☐ Shoot or Acidize
☐ Conversion to Injection	☐ Shoot or Acidize	☐ Conversion to Injection	☐ Vent or Flare
☐ Fracture Treat	☐ Vent or Flare	☐ Fracture Treat	☐ Water Shut-Off
☐ Multiple Completion	☐ Water Shut-Off	☐ OTHER	
☑ OTHER MAXIMUM INJECTION PRESSURE		Date of work completion	
Approximate date work will start		Report results of Multiple Completions and Recompletions to different reservoirs on Well COMPLETION OR RECOMPLETION AND LOG form.	
		* Must be accompanied by a cement verification report.	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to the work.)

TEXACO E. & P. INC. REQUESTS APPROVAL ON THE FOLLOWING:

1. INCREASE THE MAXIMUM INJECTION PRESSURE ON THE SUBJECT WELL FROM CURRENT MAXIMUM PRESSURE OF 1450 PSI., TO PROPOSED MAXIMUM PRESSURE OF 1750 PSI. PLEASE REFER TO THE ATTACHED ENGINEERING AND GEOLOGICAL REPORT FROM 'STIM-LAB'.

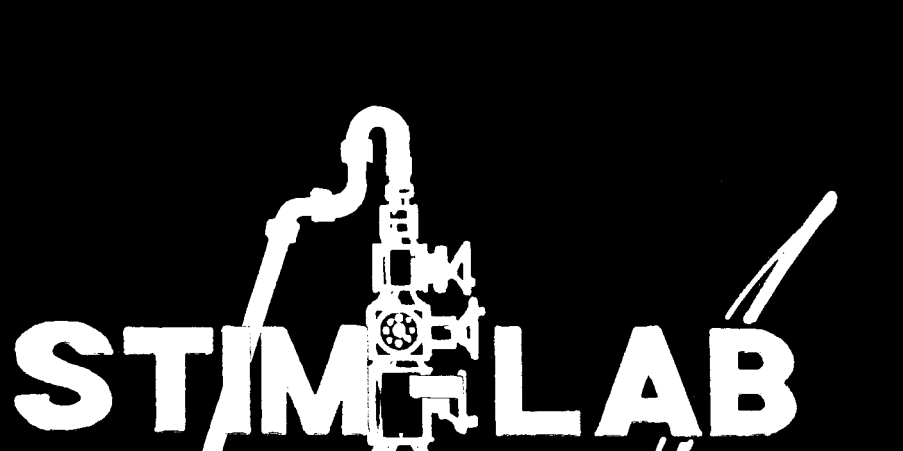
2. TO ADD PERFORATIONS IN THE NAVAJO 'A' INTERVAL OF THE WELLBORE FOR INCREASED INJECTIVITY. PLEASE REFER TO THE ATTACHED PROCEDURE AND WELLBORE DIAGRAM.

13.
Name and Signature: Allen Davis TITLE: Operating Unit Manager DATE: 12/8/97

(This space for State use only)

APPROVED BY THE STATE
OF UTAH DIVISION OF
OIL, GAS, AND MINING
DATE: 12/15/97
BY:

EXAMINATION OF NAVAJO SALT WATER DISPOSAL WELLS IN BUZZARD BENCH, EMERY COUNTY, UTAH



EXAMINATION OF NAVAJO SALT WATER DISPOSAL WELLS IN BUZZARD BENCH, EMERY COUNTY, UTAH

PREPARED FOR:

MR. WILL JONES
TEXACO EXPLORATION & PRODUCTION CO.
4601 DTC BOULEVARD
DENVER, COLORADO 80237

PREPARED BY:

STIM-LAB, INC.
7406 NORTH HWY 81
DUNCAN, OKLAHOMA 73534

P.O. NUMBER: VERBAL/MR. WILL JONES
FILE NUMBER: SL 5081

DECEMBER 4, 1997

STIM-LAB Inc.

TABLE OF CONTENTS

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1. INTRODUCTION

The purpose of this study was to review the reservoir and injection characteristics of SWD #1 and the newly drilled SWD #2 Navajo salt water disposal wells to determine if a 1750 psi injection pressure is high enough to allow sustained injection into the Navajo sandstone and yet low enough to prevent water migration out of the target injection zone. The Navajo sandstone is the primary water disposal zone for the water co-produced with the coalbed methane from the Ferron coal group.

The local permeability in the Navajo sandstone is very high, often approaching almost a Darcy air permeability in the horizontal direction. However, the permeability is not continuous, often encountering crossbeds and permeability barriers from small compacted layers which are characteristic of eolian deposits. This requires injection pressures at or above the parting pressure to effectively access the storage capacity in the Navajo sandstone.

This would not be possible unless there is a positive, higher stress barrier to fracture height growth that contains the fluid in the Navajo sandstone. The anhydrite zone above the Navajo sandstone represents the most positive barrier, although the shales and limestone between the sandstone and the anhydrite are also higher stress than the sandstone. Since various pieces of data are available for two different wells in Buzzard Bench as well as the information from the 5 Navajo penetrations in Drunkards Wash, the first step was to reconcile the known similarities and differences so that logical conclusions could be made.

The effective stress in the Navajo sandstone is a result of the original pore pressure, lithologic characteristics, and tectonic stress. This defines the fracture parting pressure. The tectonic stress in the region can vary significantly and thus can result in as much as 1000 psi difference in parting pressure. Therefore, the stress on the anhydrite barrier must be examined carefully.

The original pore pressure and fracture extension pressure in the Navajo sandstone are known for the SWD #1 and the dipole sonic log which is required to get the dynamic, elastic rock mechanical properties was acquired on the newly drilled SWD #2 well. This information was used to determine the stress state in the Navajo sandstone and in the anhydrite barrier to determine the maximum injection pressure in the disposal zone that is guaranteed not breach the anhydrite barrier.

2. ANALYSIS OF STRESS STATE IN SWD #1

The first step in the analysis was to compare the log derived characteristics of the Navajo sandstone and the anhydrite barrier in both SWD #1 and SWD #2. Figure 1 shows the characteristics around the primary anhydrite zone in SWD #2 and presents the gamma ray and bulk density which are the best indicators of lithology in this area. The bulk density from SWD #1 is plotted on the same scale by using a log depth adjustment of -385 ft and shows the similarities of the two wells, especially with respect to the major anhydrite layer at ca. 6400 ft. This gave us confidence that we could use the SWD #2 mechanical properties for characterizing SWD #1 from 5865 to 6315 ft. The data in figure 2 shows the gamma ray and porosity comparison for each well with depth adjustment to compare the Navajo sandstone interval characteristics.

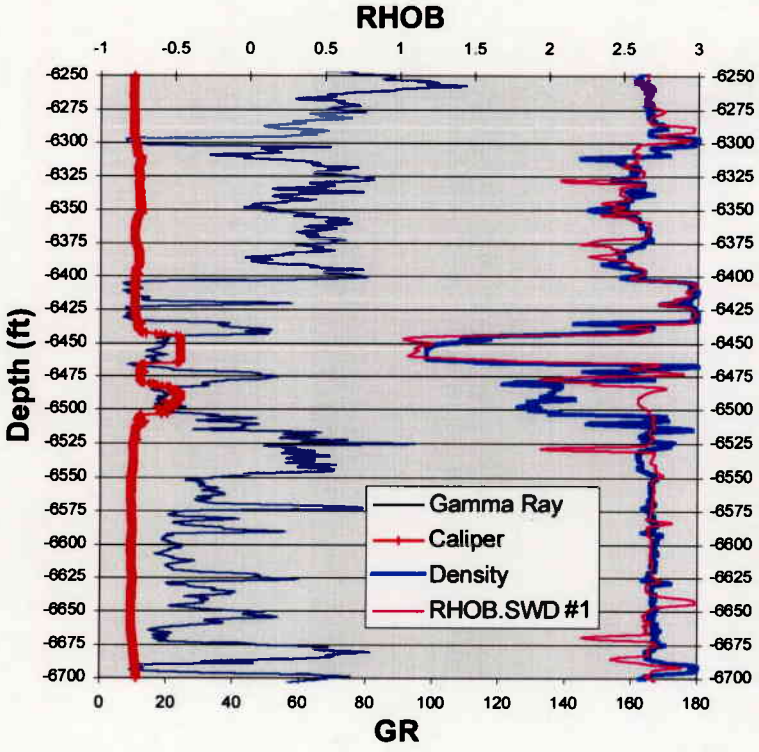

Figure 1

The development of porosity in the Navajo sandstone is very similar in the two wells. There are well developed shales on the top and bottom of the Navajo with a low porosity siltstone in the center. Therefore we believe that the mechanical properties derived from SWD #2 will be quite applicable to SWD #1 with the appropriate depth shift.

2.1 PORE PRESSURE

An injection fall-off test was conducted in SWD #1 with a bottomhole pressure gauge at 7000 ft. The extrapolated bottom hole pressure was 2618 psi which is a pore pressure gradient of 0.374 psi/ft. This value is consistent with other measured pressures which show that the Navajo sandstone is slightly underpressured.

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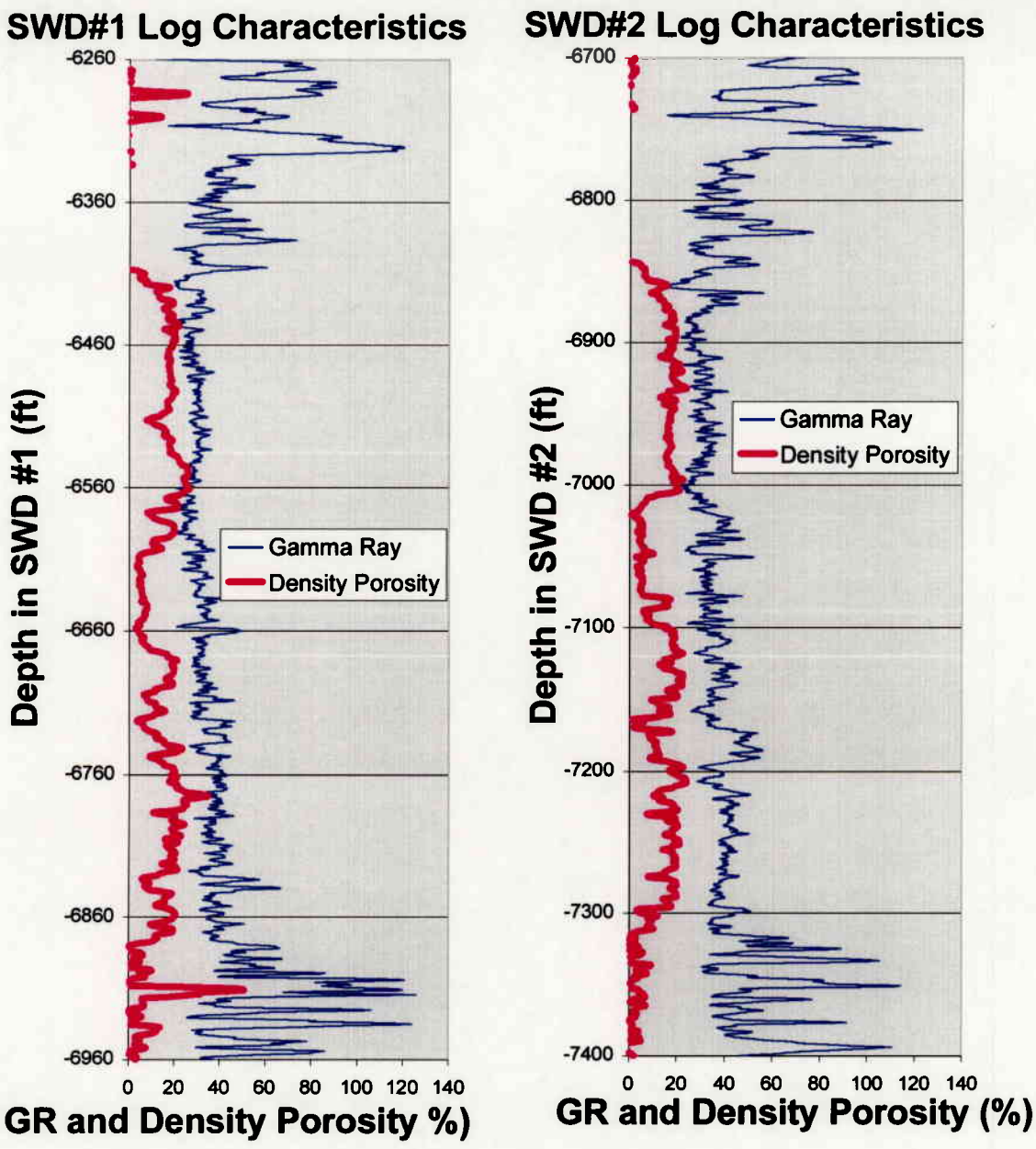

Figure 2

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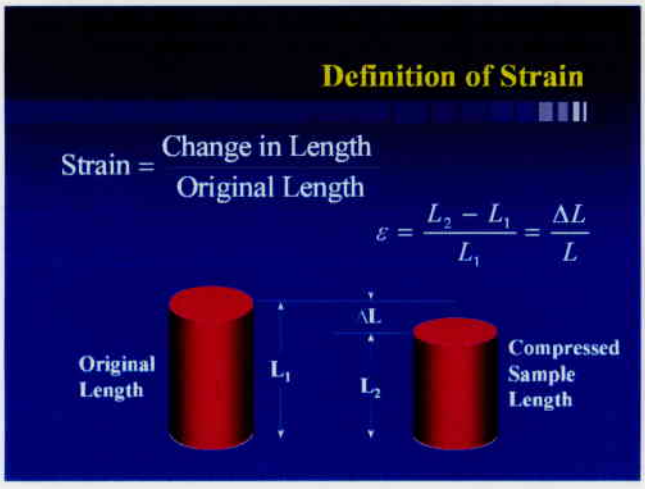
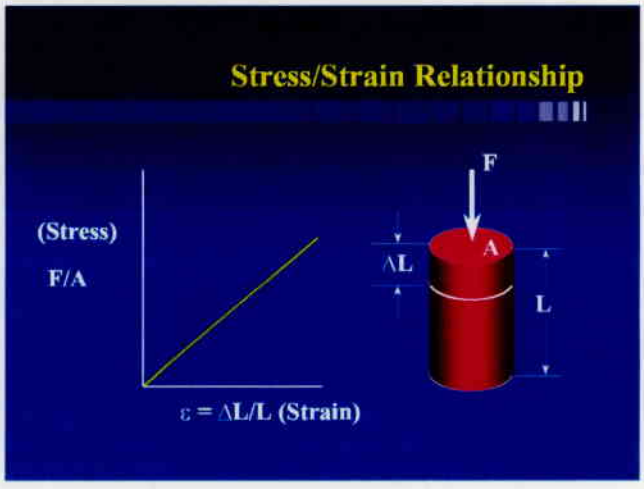
2.2 MECHANICAL PROPERTIES

There are two primary forces which are responsible for the horizontal stress state in the various rock layers in the reservoir. The largest is the overburden and the second is the stress induced by tectonics.

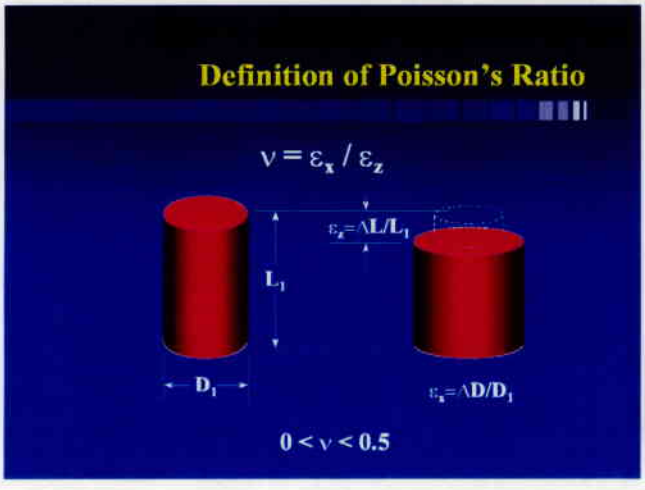
2.2.1 STRESS DUE TO ELASTIC MECHANICAL PROPERTIES

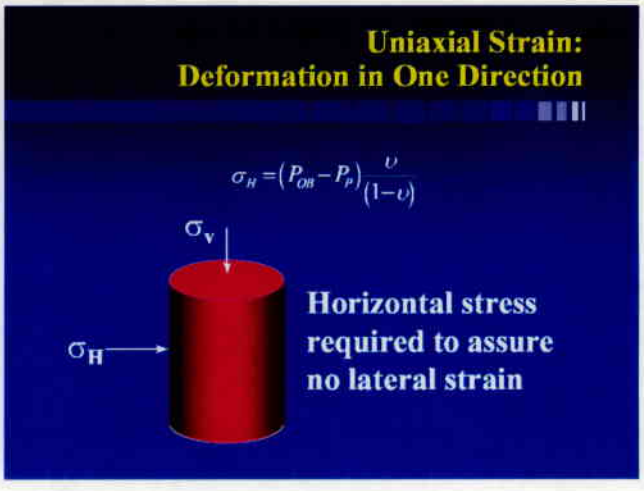
When a force is applied to a rock mass, it deforms. The applied stress divided by the change in length is Young's Modulus in units of psi. The stiffest rock in this reservoir is the anhydrite with a dynamic Young's Modulus approaching 12 million psi.





The lithostatic stress in the rock layers arises from the weight of the overburden. In experiments with an isolated cylindrical formation sample, the rock will shorten and increase in diameter as the force is applied. Poisson's Ratio is the change in diameter divided by the change in length.





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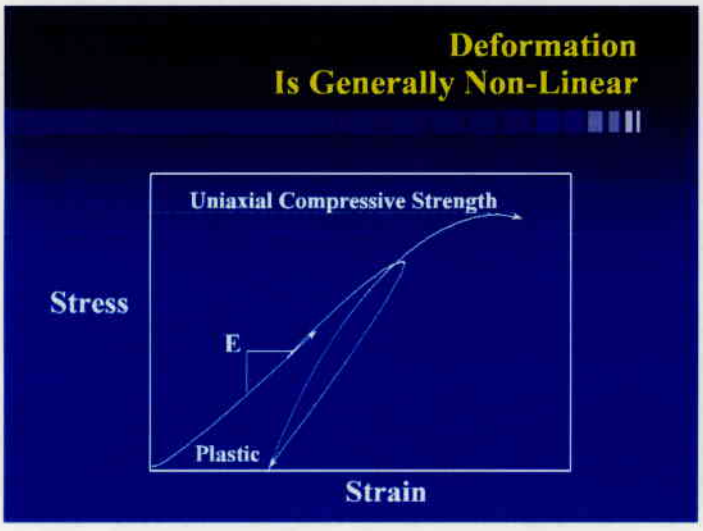
In the reservoir, the sample can't increase in size and therefore the stress in the layer must increase. Poisson's Ratio thus describes the amount of horizontal stress caused in the reservoir by the weight of the overburden.

The elastic mechanical properties, Young's Modulus and Poisson's Ratio were derived from the Dipole sonic log on SWD #2. Unfortunately, not all rocks behave as elastic solids. Sandstones and siltstones come the closest to fitting elastic theory and numerous field stress measurements have shown that the log derived values reasonably predict the lithostatic stress in those rock types. Other rock types; limestone, shales, coals and anhydrite, can also behave as a plastic and creep over geologic time. This means that the effective Poisson's Ratio is higher, and the stresses are higher than measured by the sonic logs. Marble is shown below as an example.



Shales are very common barriers to hydraulic fracture growth. An exceptionally high stress level is due to plastic deformation. Shales are compositionally quite complex, but their stress states vary primarily by the amount of quartz and other filler material present. Quartz behaves as a filler and reduces the plastic nature of the shale. This principle is very common in the plastics industry and is used to modify the properties of engineering plastics. Filled composites are much more rigid and less plastic than the parent material. In shales, the gamma ray is higher for higher clay content shales and roughly correlates to the in-situ stress present in the shale. Recent field experiments conducted by Sandia/GRI/DOE at the M-Site in Colorado [Branagan, Warpinski, 1997[1]] have confirmed that some shales have stresses equal to the overburden stress. Over geologic time, they have achieved an effective Poisson's ratio of 0.5 which is the maximum value.

In practice, anhydrite layers have been seen to stop fracture height growth. Fracture height growth is arrested in fracturing treatments in the Madison formation [Cramer, 1984[2]] by the anhydrite cap and also in the Levelland San Andres field [Morgenthaler,

1994[3]]. In this well, the effectiveness of anhydrite in terminating natural fractures is seen in the FMI log which shows two separate cases of an open natural fracture that terminates on the top (figure 3) and bottom of the anhydrite (figure 4)

Unfortunately, no other log can be used as easily to confirm the variations in the plastic nature of anhydrite. The measured dynamic Poisson's Ratio for anhydrite is ca. 0.3 which is similar to the value for the shales. Furthermore, there are few "pure" shales in this reservoir. The computed stress in the shales, limestones and anhydrite, from elastic properties alone, is enough higher than the stress in the Navajo sandstone to limit fracture height growth. However, it may not provide the "absolute" containment that we are seeking.

2.2.2 ADDITIONAL STRESS DUE TO PLASTIC PROPERTIES

A literature survey was conducted to determine what has been published that would be pertinent to the stress state in the anhydrite layers above the Navajo sandstone. Unfortunately few direct measurements of stress have been identified at this time. A number of laboratory studies have been conducted, particularly with respect to containment of radioactive wastes. The most pertinent abstracts are given in Appendix I.

The majority of the studies suggest that anhydrite can behave as a plastic rock and creep over geological time. The measurements suggest that a number of parameters such as temperature, strain rate and composition will impact the specific properties. Based on this literature, we believe that the anhydrite layer has much higher stress than would be predicted by elastic theory and therefore even more of a barrier to fracture height growth.

2.3 TECTONIC STRESS

A simulation was conducted with GOHFER (Grid Oriented Hydraulic Fracture Extension Replicator) to investigate the relative containment that might be expected from the stresses due to the elastic properties alone and to determine the tectonic state in SWD #1. The predicted injection pressures from the fracture simulation were used to assess the tectonic stresses in the reservoir. We have found in previous work that injections into sandstones or siltstones can be used to get an accurate picture of the tectonic stress in the reservoir. The mechanical properties determined from the logs in SWD #2 were used for the simulation and adjusted to the actual depth of the reservoir in SWD #1 where the step-rate test was conducted.

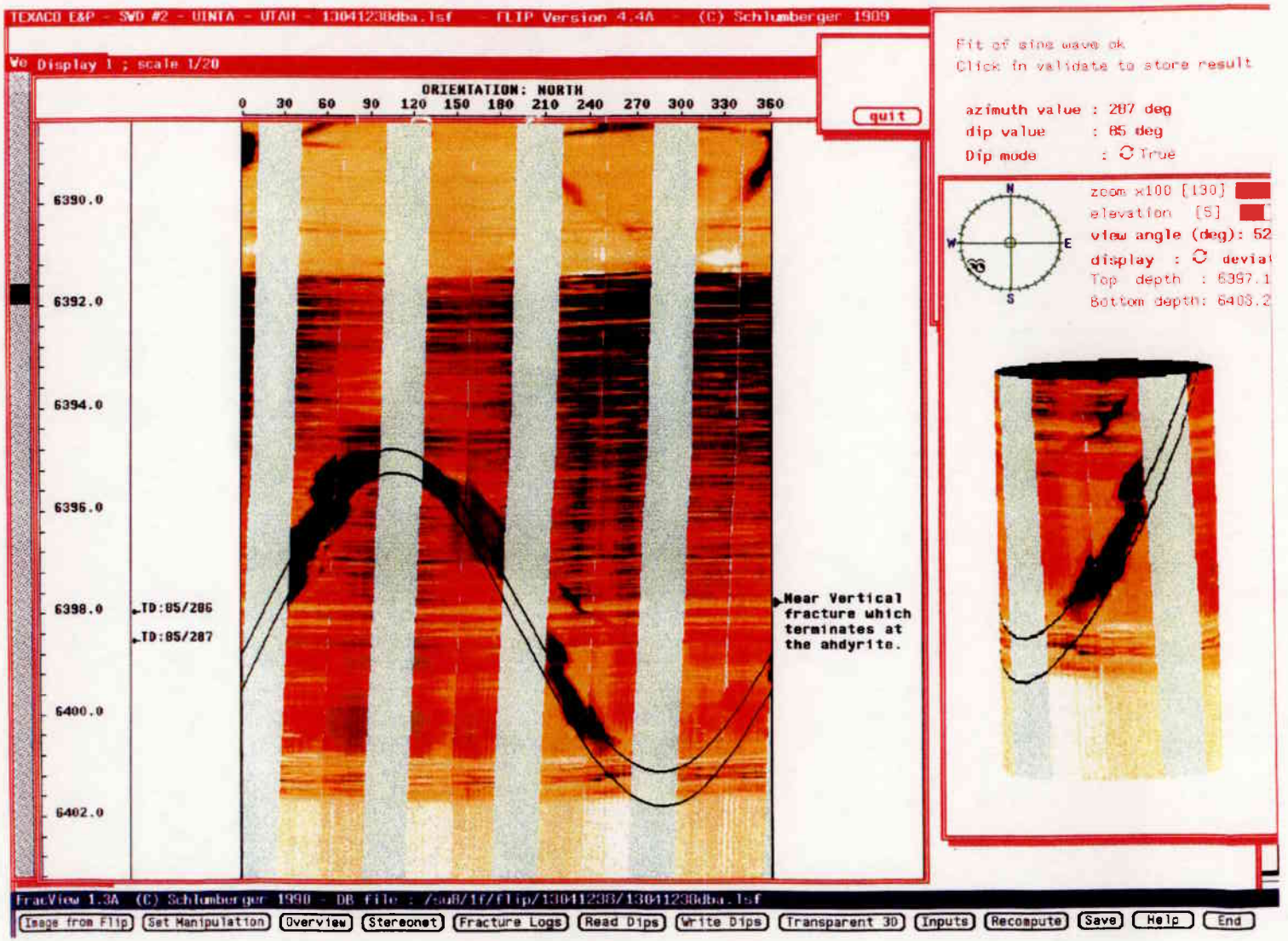


Figure 3

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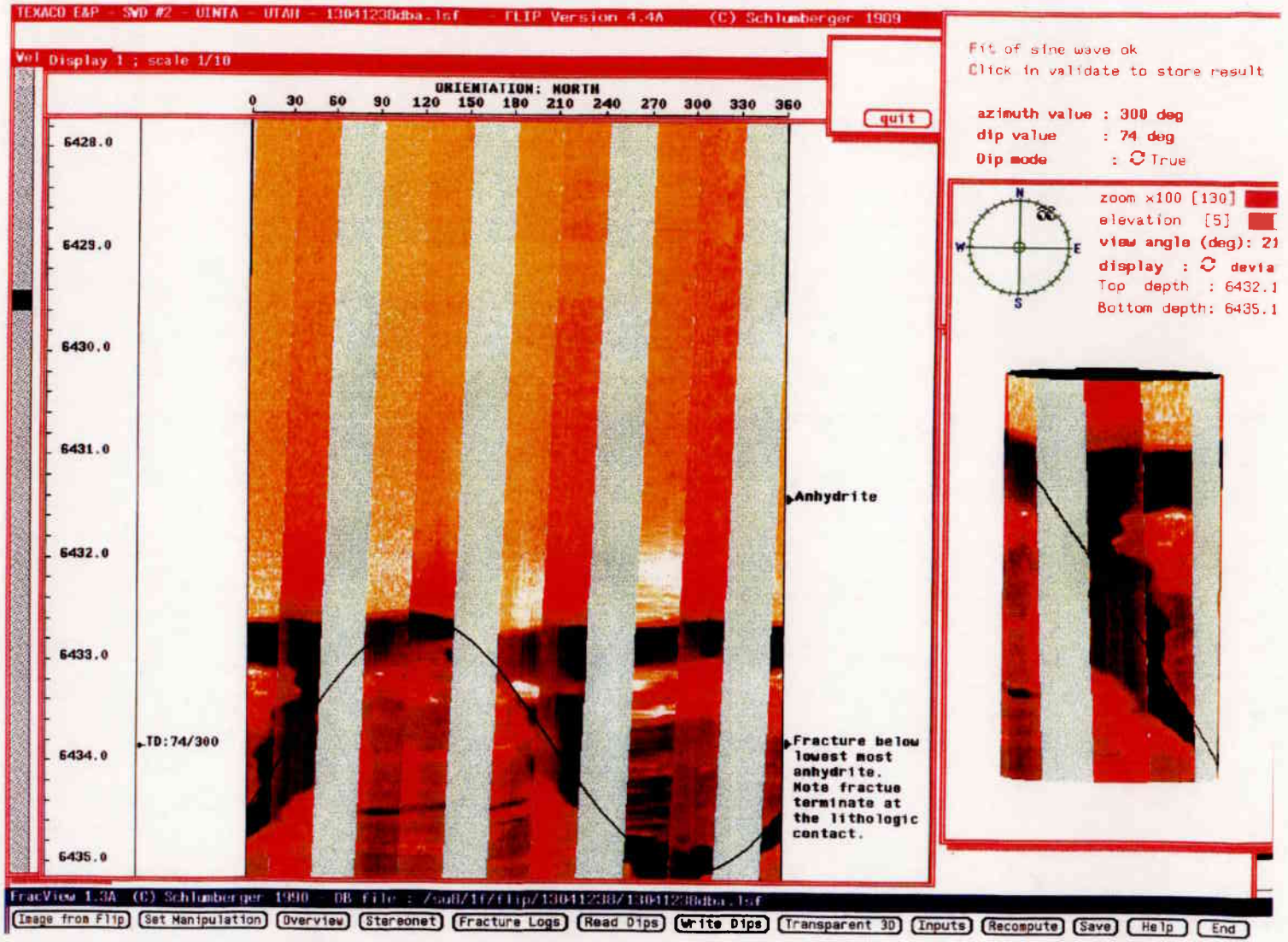

Figure 4

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The simulation results given in figure 5 show that the injection pressures seen in the step-rate test are reasonably modeled by including a tectonic compression of 50 microstrains. Using the previously discussed definition of Young's Modulus, 50 microstrains will result in a horizontal stress increase of 300 psi in a rock with a 6 million psi modulus.

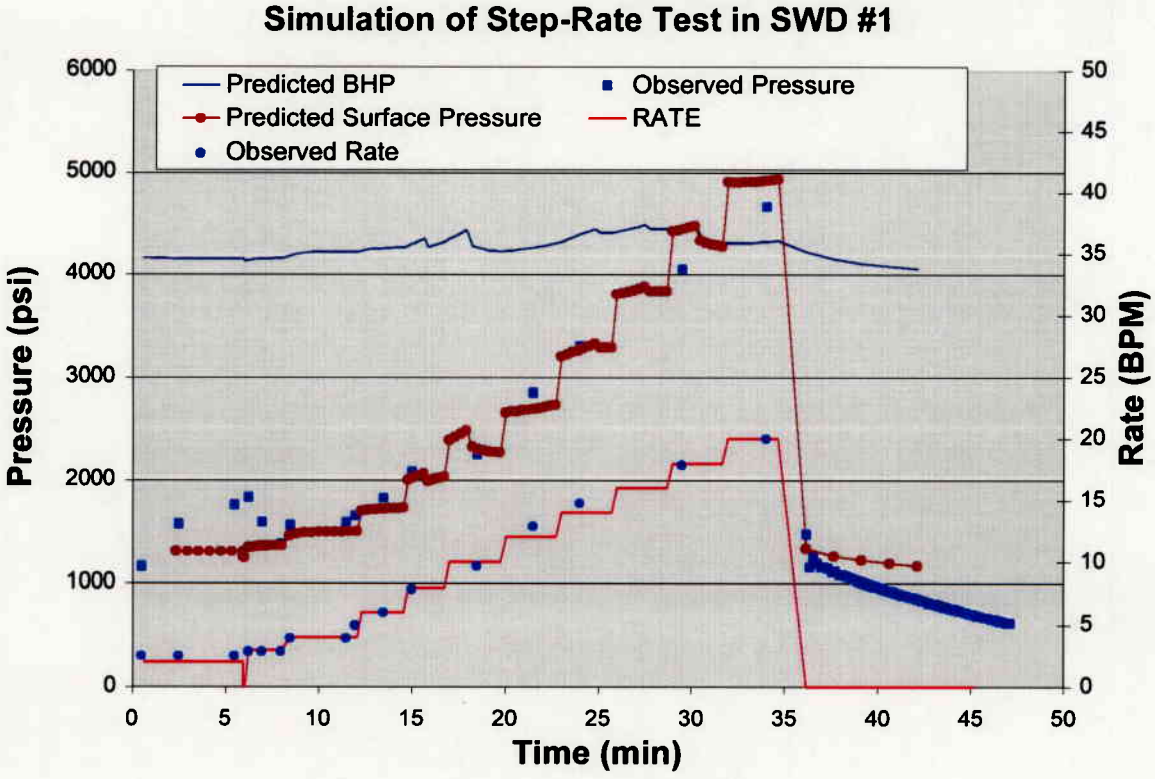

Figure 5

A permeability of 12.5 md determined from the pressure transient analysis of the injection test was used. The fall-off rate at the end of the injection test is underestimated for short fractures in high permeability rock. Only the linear leak-off is modeled in the simulator and not the pseudo-radial leak-off that occurs at the tip of the fracture.

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3. INJECTION SIMULATION

Using the stress profile based only on elastic properties (not including the plastic properties that will add additional stress) and calibrated by modeling the step-rate test, the containment of the fracture was examined with 0.4 million barrels of water injection at 4 BPM (5760 BWPD). The GOHFER simulation was conducted assuming the upper set of perforations were also opened. The data in figure 6 shows that a surface pressure of approximately 1750 psi or less will be required to sustain the injection of that volume of water.

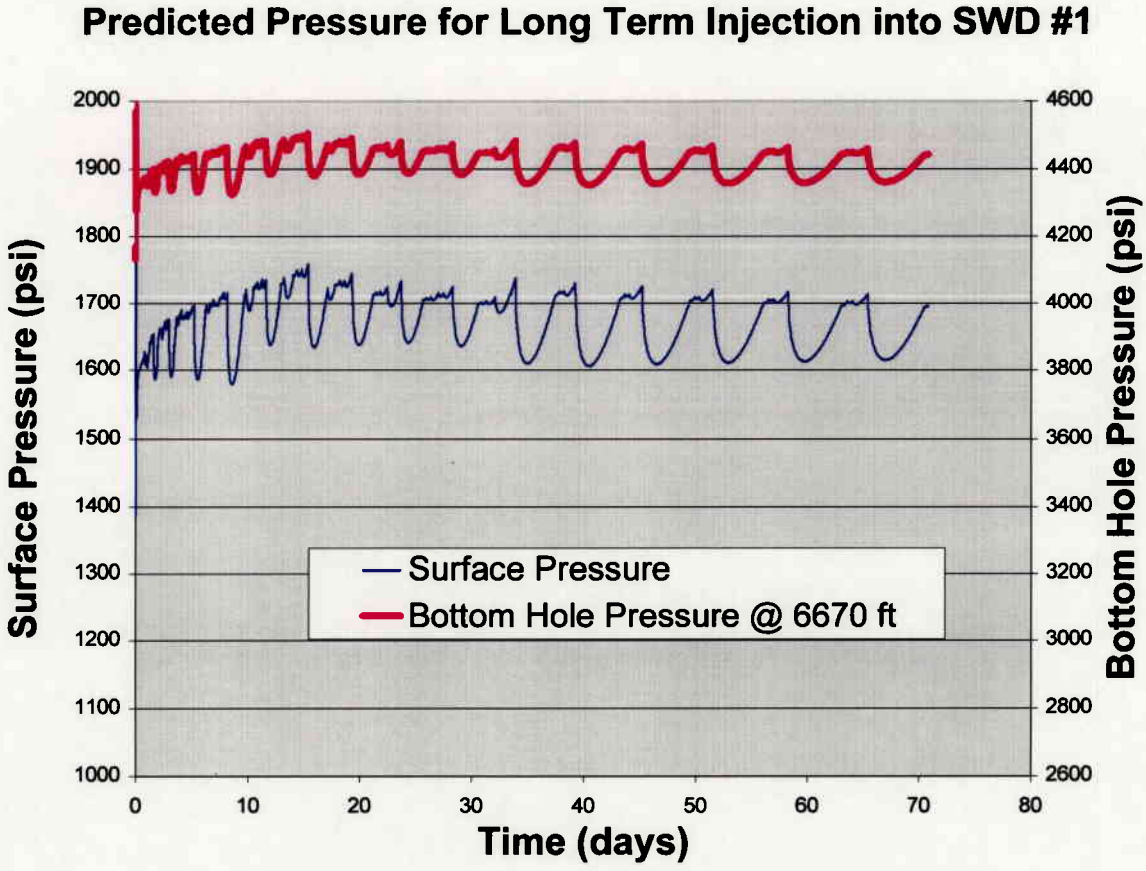

Figure 6

The fracture geometry at the end of pumping is shown in figure 7. The limestone above the zone appears to be an effective barrier to fracture height growth.

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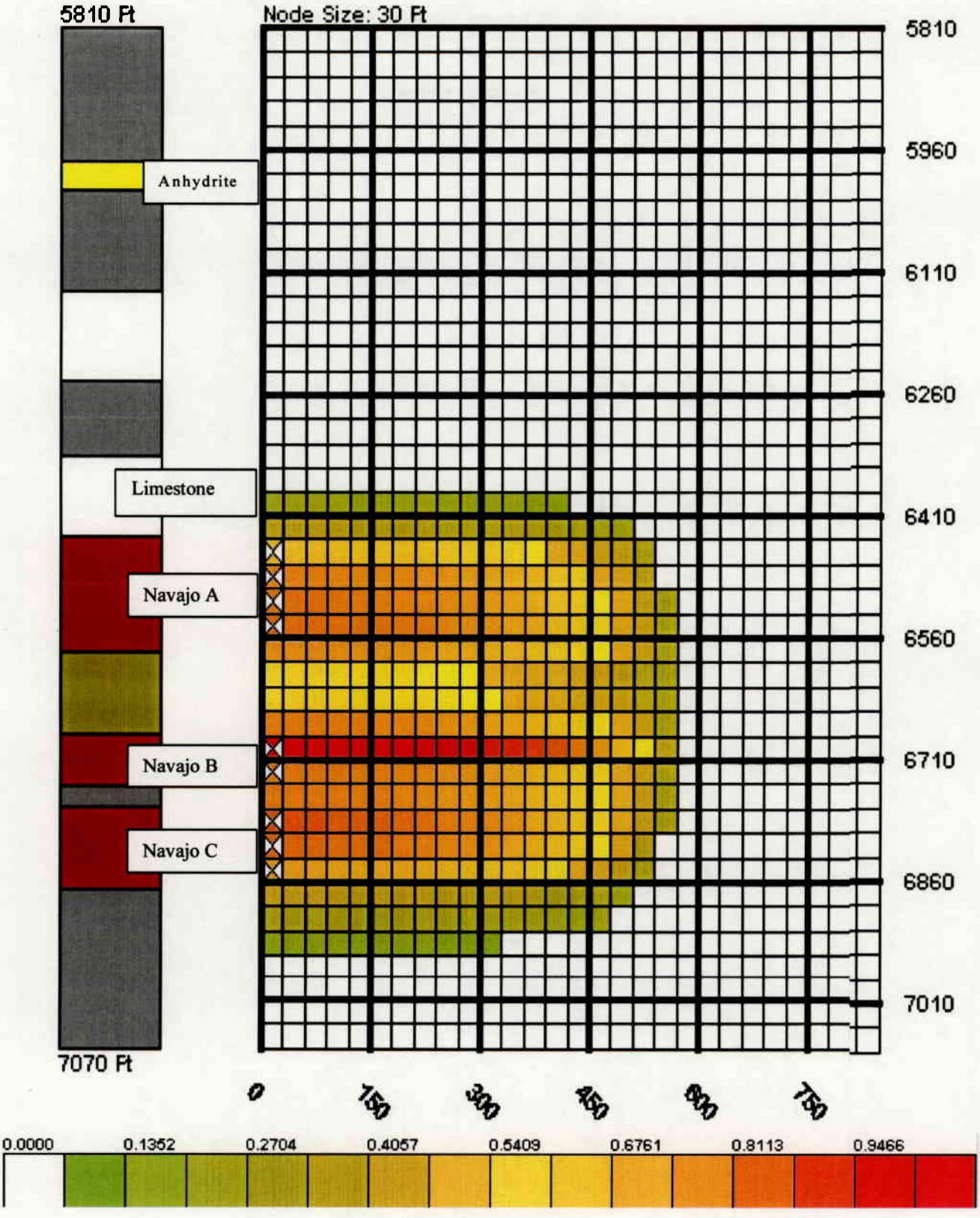
5810 Ft
Node Size: 30 Ft
5810
5960
6110
6260
6410
6560
6710
6860
7010
Anhydrite
Limestone
Navajo A
Navajo B
Navajo C
7070 Ft
0
750
300
450
600
750
0.0000
0.1352
0.2704
0.4057
0.5409
0.6761
0.8113
0.9466

Figure 7

4. RECOMMENDATION

This work shows that a surface pressure limit of at least 1750 psi may be sufficient for sustained injection of +/-6000 BWPD in SWD #1. The analysis of the stresses and fracture simulation shows that the limestone zones above the Navajo sandstone will be an effective barrier to height growth at 1750 psi. The anhydrite barrier further ensures the injected fluid will be contained. The properties of the anhydrite in this area will be assessed further to determine if higher injection pressures can be justified. Therefore, we recommend that the upper zone be perforated and the surface pressure limit be raised to 1750 psi.

5. APPENDIX I

****

Search Topic: Creep in anhydrites

****

1.-ID-T607096

-TITLE-EXPERIMENTAL DEFORMATION OF FINE-GRAINED ANHYDRITE: EVIDENCE FOR DISLOCATION AND DIFFUSION CREEP

-SOURCE- J. GEOPHYS. RES. v.100, no.B8, pp.15425-15440, 8/10/95. (ISSN 0148-0227; Over 40 refs)-YEAR-1995

-AUTHOR-L.N.Dell'Angelo and D.L.Olgaard (Swiss Federal Inst Technol)

-ABSTRACT-

Deformation experiments on 2 fine-grained anhydrite aggregates have revealed 2 high-temperature flow regimes: (1) twinning and dislocation creep at high stresses (s), and (2) diffusion creep accompanied by grain boundary sliding at low stresses. Each regime is characterized by a power law constitutive equation, diagnostic microstructures, and crystallographic preferred orientations. The data for both anhydrites, corrected for grain size (d), are combined into a single composite flow law. The anhydrites show strain hardening for s > 150 MPa and steady state flow for s <= 150 MPa.

-END-

2.-ID-95-33816

-TITLE-Experiments on plastic flow of fine-grained two-phased rocks IN:

-TITLE-Grain size effects on the deformation of anhydrite IN: AGU 1994 fall meeting

-SOURCE-Eos, Transactions, American Geophysical Union (75) no. 44, Suppl. p. 636 ISSN: 0096-3941 CODEN: EOSTAJ Anonymous Publisher: American Geophysical Union Washington, DC USA United States Meeting: American Geophysical Union, 1994 fall meeting San Francisco, CA USA United States 19941205 Dec. 5-9, 1994 Summary Only -YEAR-1994

-AUTHOR-

Bruhn, D. | Olgaard, D. L. | Dell'Angelo, L. N. (ETH Geologisches Institut Zurich CHE Switzerland)

-DESCRIPTORS-

aggregate | anhydrite | calcite | carbonates | creep | crystal dislocations | deformation | experimental studies | fines | grain boundaries | grain size | plastic flow | plasticity | rheology | strain | sulfates

-END-

3.-ID-T474113

-TITLE-PLASTIC FLOW AND CONTRAFLOW IN SUPERPOSED ZECHSTEIN SALT SEQUENCES

-SOURCE-

J. PETROL. GEOL. v.12, no.4, pp.477- 486, Oct. 1989

-AUTHOR-M.K.Jenyon.
-ABSTRACT-
A competent band within a salt-rock sequence can be useful indicator of the form taken by any plastic deformation movement that occurs in the salt. The acoustic impedance contrasts provided by such a band often result in strong seismic reflection events that exhibit the effects of all stages of deformation accompanying salt movement. Examples are shown in seismic data from the North Sea Zechstein of deformation of the Plattendolomit band that separates the underlying Z2-cycle salt from the salt of the overlying Z3 cycle. Cases are discussed in which the evidence suggests contradow in the 2 salts, where the Z2 salt has flowed bi-directionally away from the axial trough of a sall-withdrawal basin. This has led to flow of the overlying Z3 salt bidirectionally toward the same axis. Observations clarify the rheological behavior of superposed slats, and the deformational behavor of competent carbonate/anhydrite bands within a salt sequence.
-END-

4.-ID- 96-28346*
-TITLE- Natural flow of anhydrite
-SOURCE- Terra Abstracts. ISSN:09544887 v.1 (5), p. 291, 1993, Blackwell Scientific Publications, Oxford, III; illus.
Conference: Seventh meeting of the European Union of Geosciences , abstract supplement;Strasbourg, FRA; April 4-8, 1993.
-AUTHOR- Jordan, Peter G. (Universitaet Basel, Geologisches-Palaeontologisches Institut, Basel, CHE)
-DESCRIPTORS- anhydrite; deformation; Europe; field studies; Jura Mountains; plasticity; strain; sulfates
-END-

5.-ID- 96-05440*
-TITLE- Clay and sulfate rocks in deformation reactions
-SOURCE- Geologische Rundschau. ISSN:00167835 v.78 (2), p. 443-457, 1989, Springer International, Berlin, DEU; 30 ref., illus., charts, 1 table, geol. sketch map
-AUTHOR- Nueesch, R. (IGB Tonmin. Lab., ETH-Zuerich, Zurich, CHE); Baumann, W.
-DESCRIPTORS- Aargau Switzerland; anhydrite; argillite; Central Europe; chlorides; clastic rocks; deformation; Europe; experimental studies; gypsum; halides; halite; Jura Mountains; plastic flow; sedimentary rocks; strength; sulfates; Swiss Jura Mountains; Switzerland; time factor; water
-END-

6.-ID-69-33318
-TITLE-Geologic settings of subsidence IN: Reviews in engineering geology, V. 2
-SOURCE-p. 305-342 Varnes, D. J. editor | Kiersch, George editor illus. 1969 Boulder, Colo., Geol. Soc. America
-AUTHOR- Allen, Alice S.
-ABSTRACT-
This paper reviews the role of geologic processes that contribute to subsidence. The processes are: (1) solution of gypsum and salt and redistribution of transient fill materials through solution cavities in calcareous rocks, (2) underground erosion of uncemented or

lightly
cemented silt and sand through temporary underground passageways, (3) lateral plastic flow of salt, gypsum and anhydrite, shale, and clay under loading, (4) compaction of sediments by loading, drainage, vibration, and hydrocompaction, (5) tectonic movements including primary and secondary effects of earthquakes, folding, and warping, and (6) volcanic activity. Examples have been selected to illustrate subsidence under natural and manmade conditions. The future prospects for advancing our geologic knowledge are excellent. Methods of measuring ground-surface displacements are improving rapidly.
-DESCRIPTORS-compaction | geologic hazards | land subsidence | loading | pore water | processes -END-

7.-ID-T58910

-TITLE-AN EXPERIMENTAL STUDY OF THE EFFECT OF TEMPERATURE

AND STRESS ON THE CREEP OF ROCKS

-SOURCE-GEOPHYS J V 9, NO 5, PP 509-535, JULY 1965
-AUTHOR-MISRA, A K MURRELL, S A F
-ABSTRACT-
Measurements have been made of the creep of a number of different rocks (anhydrite, dolomite, sandstone, marble, micrograndiorite and periotite) at temperatures up to 750 <> C under conditions of constant compressive or torsional stress. The results show that at temperatures below about 0.2Tm <> (where Tm <> is the absolute temperature of melting) the creep strain is proportional to the logarithm of the time under load, and is approximately proportional to the stress and to the temperature. At higher temperatures the creep rate falls off less rapidly with time, and the creep strain is proportional to a fractional power of the time, with the exponent increasing as the temperature increases and reaching a value of <> /3 at temperatures of about 0.5Tm <> . At these temperatures the creep increases with stress according to a power greater than unity and possibly exponentially and it increases with temperature as exp(-U/kT), where U is an activation energy and k is Boltzmann's constant. These results are strikingly similar to those obtained in measurements on metals, and it is thought that they can be explained in an exactly similar way in terms of competing processes of strain-hardening and thermal recovery. (36 refs.)
-END-

8.-ID-95-10291
-TITLE-A survey of the engineering properties of some anhydrite and gypsum from the north and Midlands of England
-SOURCE-Engineering Geology (38) no. 1-2 p. 1-23 ISSN: 0013-7952 CODEN: EGGOAO Publisher: Elsevier Amsterdam NLD Netherlands References: 25 illus. incl. strat. cols., 4 tables, geol. sketch map 1994
-AUTHOR- Bell, F. G. (University of Natal, Department of Geology and Applied Geology Durban ZAF South Africa)
-ABSTRACT-
The Permian and Triassic systems in the north and midlands of England contain notable beds of anhydrite and gypsum. These rocks contain small but varying amounts of muddy material which often has some influence on their geomechanical properties. Anhydrite is a strong to very strong rock in terms of both its unconfined compressive strength and point load index, whereas gypsum is of medium strength according to

its
unconfined compressive strength. Because of the low porosity of these rocks, porosity does not have a significant influence on their strength. However, the strength and hardness of these rocks are strongly correlated. In terms of the slake-durability test, anhydrite has a very high durability and gypsum a high to very high durability, with the stronger rocks yielding higher values of durability. Most anhydrite and gypsum exhibit plastic-elastic-plastic deformation, subsequent plastic deformation occurring at an earlier stage during loading of gypsum than of anhydrite. As far as deformability is concerned, that of anhydrite is very low while that of gypsum varies from low to high. Both rock types experience hysteresis on cyclic loading, that of gypsum being more notable than that of anhydrite and the amount of hysteresis undergone increases with successive cycles of loading and unloading. Anhydrite and gypsum both undergo creep when subjected to constant loading, gypsum being the more prone to creep under constant load.
-DESCRIPTORS-
anhydrite | chemically precipitated rocks | creep | Cumbria England | cyclic loading | deformation | density | durability | engineering properties | England | Europe | evaporites | experimental studies | Great Britain | gypsum | loading | mechanical properties | Midlands | northern England | Nottinghamshire England | plasticity | rock mechanics | sedimentary rocks | specific gravity | strain | strength | sulfates | United Kingdom | Western Europe | Yorkshire England
-END-

9.-ID-97-53631
-TITLE-Texture development in experimentally deformed two-phase aggregates of calcite and anhydrite
-SOURCE-Journal of Structural Geology (19) no. 7 p. 909-925 ISSN: 0191-8141 CODEN: JSGEDY Publisher: Pergamon Oxford-New York III International References: 28 illus. incl. 6 tables 1997
-AUTHOR- Bruhn, David F. | Casey, Martin (ETH Zuerich, Geologisches Institut Zurich CHE Switzerland)
-DESCRIPTORS-
anhydrite | calcite | carbonates | compressibility | creep | deformation | diffraction | effects | experimental studies | grain size | hemihydrate | indicators | mechanism | preferred orientation | probability | rock mechanics | SEM data | statistical analysis | strain | stress | structural analysis | sulfates | textures
-END-

10.
02165732 AIX-19-031499; EDB-88-108465
Title: Method for estimation of tectonic shear strain based on microstructural observations

Author(s): Jordan, P.

Affiliation: Basel Univ. (Switzerland)

Title: Contributions to geology of Northern Switzerland
Original Title: Beitraege zur Geologie der Nordschweiz
Corporate Source: Nationale Genossenschaft fuer die Lagerung Radioaktiver Abfaelle (NAGRA), Baden (Switzerland)
Conference Title: Geology of northern Switzerland conference
Conference Location: Bern, Switzerland Conference Date: 9 Oct 1986
Publication Date: 1987 p 491-508
Report Number(s): NAGRA-NTB-87-15; CONF-8610398-

Document Type: Analytic of a Report; Conference literature
Language: German
Journal Announcement: ERA8803
Availability: Nagra, CH-5401 Baden.
Country of Publication: Switzerland
Abstract: The relative competence between certain rocks or minerals inverts when particular confining conditions are reached. Anhydrite, for example, deforms at a higher stress level in the cataclastic field than clay. With increasing burial depth, anhydrite enters the field of crystal plasticity and its strength decreases rapidly, while clay keeps on deforming by cataclasis at increasingly higher stresses and becomes finally stronger than anhydrite. This inversion of strength is a function of temperature, pore pressure, confining pressure as well as of strain rate. The inversion of relative competence may, therefore, be used as a valuable dynamic indicator, provided that the ambient conditions effective during deformation are sufficiently known. Based on experimentally deduced flow laws, equilibrium point maps may be calculated for the maximum or minimum strain rate implied by the observed microstructures. The map presented here allows a good estimation of the influences of all the uncertainties in pressure or temperature on the critical strain rate. An application of the anhydrite-clay equilibrium point map on the detachment horizon of the Eastern Jura Mountains (NW Switzerland) implies a maximum simple shear strain rate of ca. 3x10/sup -14/s/sup -1/, or ca. 6x10/sup -13/s/sup -1/, depending upon the differing paleo-temperature estimates. The first estimate is based on the present geothermal gradient, while the second one is based on fluid inclusions which are considered to be related to the Miocene detachment. (author) 28 refs., 5 figs.
Major Descriptors: *TECTONICS -- SHEAR PROPERTIES
Descriptors: ANHYDRITE; CLAYS; GEOLOGY; SWITZERLAND
Broader Terms: ALKALINE EARTH METAL COMPOUNDS; CALCIUM COMPOUNDS; CALCIUM SULFATES; EUROPE; MECHANICAL PROPERTIES; MINERALS; OXYGEN COMPOUNDS; SULFATE MINERALS; SULFATES; SULFUR COMPOUNDS; WESTERN EUROPE

11.
01725470 EDB-86-049144
Author(s): Stowe, R.L.
Title: Creep test of WIPP (Waste Isolation Pilot Plant) site anhydrite core. Final report
Corporate Source: Army Engineer Waterways Experiment Station, Vicksburg, MS (USA). Structures Lab.
Publication Date: Sep 1985 p 30
Report Number(s): AD-A-160444/6/XAB
Abstract: A creep reaction frame, a test-specimen deformation jacket, a data-acquisition system, and a triaxial chamber were readied and verified for their suitability for conducting triaxial creep tests of hard rock. All the equipment was found to be adequate for doing triaxial creep tests. A limited number of creep tests was conducted on anhydrite rock core from the Waste Isolation Pilot Plant (WIPP) site. Three of the four creep stages were observed during the testing. A logarithmic function was found to best fit the transient and steady-state creep stages.
Major Descriptors: *ANHYDRITE -- CREEP; *WIPP -- ROCK MECHANICS
Descriptors: DATA ACQUISITION; DEFORMATION; JACKETS; PILOT PLANTS; TRANSIENTS
Broader Terms: ALKALINE EARTH METAL COMPOUNDS; CALCIUM COMPOUNDS; CALCIUM SULFATES; FUNCTIONAL MODELS; MECHANICAL PROPERTIES; MECHANICS; MINERALS ; NATIONAL ORGANIZATIONS; NUCLEAR FACILITIES; OXYGEN COMPOUNDS; PILOT PLANTS; RADIOACTIVE WASTE FACILITIES; SULFATE MINERALS; SULFATES; SULFUR COMPOUNDS; UNDERGROUND FACILITIES; US DOE; US

ORGANIZATIONS
Subject Categories: 052002* -- Nuclear Fuels -- Waste Disposal & Storage

12.
01253057 ERA-08-047546; EDB-83-153058
Author(s): Pfeifle, T.W.; Mellegard, K.D.; Senseny, P.E.
Title: Preliminary constitutive properties for salt and nonsalt rocks from four potential repository sites
Corporate Source: RE/SPEC, Inc., Rapid City, SD (USA)
Publication Date: Jul 1983 p 240Report Number(s): ONWI-450
Order Number: DE83015777Contract Number (DOE): AC06-76RL01830; AC02-83CH10140
Note: Portions are illegible in microfiche products. Original copy available until stock is exhausted
Document Type: Report; Numerical data
Journal Announcement: NTS8308 Availability: NTIS, PC A11/MF A01; 1.
Abstract: Results are presented from laboratory strength and creep tests performed on salt and nonsalt specimens from the Richton Dome in Mississippi, the Vacherie Dome in Louisiana, the Permian Basin in Texas, and the Paradox Basin in Utah. The constititive properties obtained for salt are the elastic moduli and the failure envelope at 24/sup 0/C and parameter values for the exponential-time creep law. Some additional data are presented to indicate how the elastic moduli and strength change with temperature. The nonsalt constitutive properties reported are the elastic moduli, the unconfined compressive strength and the tensile strength at 24/sup 0/C. The properties given in this report will be used in subsequent numerical simulations that will provide information to assist in the screening and selection of site locations for a nuclear waste repository and to assist in the repository design at the selected site. The matrix of tests performed is the minimum effort required to obtain these constitutive properties. The preliminary values obtained will be supplemented by additional testing for sites that are selected for further investigation.;
Major Descriptors: *DOLOMITE -- COMPRESSION STRENGTH; *DOLOMITE -- POISSON RATIO; *DOLOMITE -- YOUNG MODULUS; *LIMESTONE -- COMPRESSION STRENGTH; *LIMESTONE -- POISSON RATIO; *LIMESTONE -- YOUNG MODULUS; *SALT DEPOSITS -- COMPRESSION STRENGTH; *SALT DEPOSITS -- CREEP; *SALT DEPOSITS -- POISSON RATIO; *SALT DEPOSITS -- YOUNG MODULUS; *SANDSTONES -- COMPRESSION STRENGTH; *SANDSTONES -- POISSON RATIO; *SANDSTONES -- YOUNG MODULUS; *SHALES -- COMPRESSION STRENGTH; *SHALES -- POISSON RATIO; *SHALES -- YOUNG MODULUS
Descriptors: ANHYDRITE; ELASTICITY; EXPERIMENTAL DATA; FAILURES; STRAINS; STRESSES; TIME DEPENDENCE
Subject Categories: 580300* -- Mineralogy, Petrology, & Rock Mechanics -- (-1989) 052002 -- Nuclear Fuels -- Waste Disposal & Storage

13.
04063209 E.I. No: EIP95022560048
Title: Survey of the engineering properties of some anhydrite and gypsum from the north and midlands of England
Author: Bell, F.G. Corporate Source: Univ of Natal, Durban, S Afr
Source: Engineering Geology v 38 n 1-2 Dec 1994. p 1-23
Abstract: The Permian and Triassic systems in the north and midlands of England contain notable beds of anhydrite and gypsum. These rocks contain small but varying amounts of muddy material which often has some influence on their geomechanical properties. Anhydrite is a strong to very strong rock in terms of both its unconfined compressive strength and point load index, whereas gypsum is of medium strength according to its unconfined compressive strength and point load porosity of these rocks, porosity does not have a significant influence on their strength. However, the strength and hardness of these rocks are strongly correlated. In terms

of the
slake-durability test, anhydrite has a very high durability and gypsum a high to very high durability, with the stronger rocks yielding higher values of durability. Most anhydrite and gypsum exhibit plastic-elastic-plastic deformation, subsequent plastic deformation occurring at an earlier stage during loading of gypsum than of anhydrite. As far as deformability is concerned, that of anhydrite is very low while that of gypsum varies from low to high. Both rock types experience hysteresis on cyclic loading, that of gypsum being more notable than that of anhydrite and the amount of hysteresis undergone increases with successive cycles of loading and unloading. Anhydrite and gypsum both undergo creep when subjected to constant loading, gypsum being the more prone to creep under constant load. (Author abs0tract) 25 Refs.
Descriptors: *Rocks; Minerals; Gypsum; Mechanical properties; Compressive strength; Porosity; Durability; Plastic deformation; Hysteresis; Creep
Identifiers: Engineering properties; Anhydrite; Midlands; Muddy materials ; Geomechanical properties; Slake durability tests; Deformability

14.
01268226 E.I. Monthly No: EIM8301-000713
Title: GEOTECHNICAL PROPERTIES OF SOME EVAPORITIC ROCKS.
Author: Bell, F. G. Corporate Source: Teesside Polytech, Middlesbrough, Engl
Conference Title: Symposium on Engineering Geological Problems of Construction on Soluble Rocks.
Conference Location: Istanbul, Turk Conference Date: 19810914
E.I. Conference No.: 01389
Source: Bulletin of the International Association of Engineering Geology n 24 Dec 1981 p 137-144
Descriptors: *GEOPHYSICS--*Rock Properties
Identifiers: ANHYDRITE; GYPSUM; POTASH; ROCK SALT; SPECIFIC GRAVITY AND DRY DENSITY; POROSITY; STRENGTH IN UNCONFINED COMPRESSION AND IN TENSION; HARDNESS; PLASTIC DEFORMATION; YOUNG'S MODULUS; INCREMENTAL CREEP TESTS

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1 Branagan, P. and Warpinski, N.: 1997, GRI Forum M-Site Experiments Data Interpretation and Implications, Houston, Texas, November 5-6, 1997.

2 Cramer, D.D.: 1984, "An Analysis of Post-Stimulation Production Response in the Madison: Elk Area, ND," paper SPE 12922 presented at the 1984 Rocky Mountain Regional Meeting, Casper, WY, May 21-23, 1984.

3 Morgenthaler, L.N.: 1993, "Application of a 3D Hydraulic-Fracturing Simulator for Design of Acid-Fracturing Treatments," paper SPE 25413 presented at the 1993 SPE Production Operations Symposium, Oklahoma City, OK, March 21-23, 1993.

FORM 9

STATE OF UTAH
DIVISION OF OIL AND GAS AND MINING

	5. Lease Designation and Serial Number:
SUNDRY NOTICES AND REPORTS ON WELLS	6. If Indian, Allottee or Tribe Name:
(Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells. Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.)	7. Unit Agreement Name:
1. Type of Well ☐ OIL WELL ☐ GAS WELL ☑ OTHER DISPOSAL	8. Well Name and Number: FEE SWD-1
2. Name of Operator TEXACO EXPLORATION & PRODUCTION, INC.	9. API Well Number: 4301530272
3. Address and Telepone Number: 3300 N. Butler Ave., Suite 100 Farmington NM 87401 325-4397	10. Field and Pool, or Wildcat: WILDCAT

Location of Well

Footages: 2095 NORTH 310 WEST County: EMERY

QQ, Sec,T.,R.,M: SW , NW , 24 , T18S , R7E State: UT

11. **CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

NOTICE OF INTENT (Submit in Duplicate)		SUBSEQUENT REPORT (Submit Original Form Only)	
☐ Abandonment	☐ New Construction	☐ Abandonment	☐ New Construction
☐ Casing Repair	☐ Pull or Alter Casing	☐ Casing Repair	☐ Pull or Alter Casing
☐ Change of Plans	☐ Recompletion	☐ Change of Plans	☐ Shoot or Acidize
☐ Conversion to Injection	☐ Shoot or Acidize	☐ Conversion to Injection	☐ Vent or Flare
☐ Fracture Treat	☐ Vent or Flare	☐ Fracture Treat	☐ Water Shut-Off
☐ Multiple Completion	☐ Water Shut-Off	☑ OTHER ADD PERFS	
☐ OTHER		Date of work completion 2/17/98	
Approximate date work will start		Report results of Multiple Completions and Recompletions to different reservoirs on Well COMPLETION OR RECOMPLETION AND LOG form.	
		* Must be accompanied by a cement verification report.	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to the work.)

TEXACO E. & P. INC. HAS COMPLETED THE FOLLOWING ON THE SUBJECT WELL:

2/3/98 - MIRU. ND WELLHEAD, NU BOP. RIH W/ RBP. SET AT 6560'. DUMP 1 SX SAND ON RBP. PERFORATE W/ 4 SPF, 0.45" HOLES AT 6460'-6500', 6540'-6560'. RIH W/ PACKER, SET AT 6451'. TEST ANNULUS TO 1000 PSI. ACIDIZE 6460'-6560' W/ 3000 GAL 7.5% HCL W/ ADDITIVES AND SEALER BALLS. FLOW WELL BACK TO PIT. SWAB WELL. RELEASE RBP. CLEAN OUT TO 7140' (PBTD). RIH W/ TUBING, SET AT 6418'. SET PACKER AT 6406'. ND BOP, NU WELLHEAD. PUT WELL ON INJECTION.

2/17/98 - RIG DOWN SERVICE UNIT.

13.

Name and Signature Allen Davis TITLE Operating Unit Manager DATE 2/20/98

(This space for State use only)

RECEIVED
MAR 02 1998
DIV. OF OIL, GAS & MINING

AFFIDAVIT OF PUBLICATION

STATE OF UTAH)

ss.

County of Emery,)

I, Kevin Ashby, on oath, say that I am the Publisher of the Emery County Progress, a weekly newspaper of general circulation, published at Castle Dale, State and County aforesaid, and that a certain notice, a true copy of which is hereto attached, was published in the full issue of such newspaper for 1 (One) consecutive issues, and that the first publication was on the 9th day of April,1996 and that the last publication of such notice was in the issue of such newspaper dated the 9th day of April, 1996.

Kevin Ashby - Publisher

Subscribed and sworn to before me this 9th day of April,1996.

Notary Public My commission expries January 10, 1999 Residing at Price, Utah

Publication fee, $69.36

NOTARY PUBLIC
LINDA THAYN
811 NORTH 10TH EAST
PRICE, UT 84501
My Commission Expires
State of Utah

NOTICE OF HEARING
DOCKET NO. 96-003
CAUSE NO. UIC-167

BEFORE THE BOARD OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH

IN THE MATTER OF THE APPLICATION OF TEXACO EXPLORATION & PRODUCTION INC. FOR ADMINISTRATIVE APPROVAL OF THE SWD #1 WELL LOCATED IN SECTION 24, TOWNSHIP 18 SOUTH, RANGE 7 EAST, S.L.M., EMERY COUNTY, UTAH, AS A CLASS II INJECTION WELL

THE STATE OF UTAH TO ALL PERSONS INTERESTED IN THE ABOVE ENTITLED MATTER.

Notice is hereby given that the Board of Oil, Gas and Mining ("Board)", State of Utah, will conduct a hearing on Wednesday, April 24, 1996, at 10:30 a.m., or as soon thereafter as possible, in the Boardroom of the Division of Oil, Gas and Mining, 355 West North Temple, 3 Triad Center, Suite 520, Salt Lake City, Utah.

The hearing will be conducted in accordance with the Utah Code Ann. § 40-6-1 et seq., Utah Code Ann § 63-46b-1 et seq. (1953, as amended), and the Procedural Rules of the Board.

The purpose of the proceeding will be for the Board to receive and consider testimony and evidence, make its findings and enter its Order:

1. Authorizing the conversion of the Texaco Exploration & Production Inc. SWD #1 well to a Class II injection well for purposes of produced water disposal;
2. Authorizing the SWD #1 well to be selectively perforated in the Navajo formation interval from 6295 feet to 7295 feet;
3. Authorizing the requested maximum injection pressure of 1500 psig and maximum injection rate of 15,000 barrels of water per day; and
4. Granting such other relief as it may deem proper.

Natural persons may appear and represent themselves before the Board. All other representation by parties before the Board will be by attorneys licensed to practice law in the state of Utah, or attorneys licensed to practive law in another jurisdiction which meet the rules of the Utah State Bar for practicing law before the Utah Courts. Attorney representation may be waived by the Board upon petition and good cause shown.

Objections to this matter should be filed with the Secretary of the Board at the above address no later than the 10th day of the month, or two weeks before the scheduled hearing, whichever is earlier. Objections filed later than the 10th day may be considered by the Board at or before the regularly scheduled meeting for good cause shown.

Persons interested in this matter may participate pursuant to the procedural rules of the Board. The Petition, and any subsequent pleadings, may be inspected in the office of the undersigned.

Pursuant to the Americans with Disabilities Act, persons requiring auxiliary communicative aids and services to enable them to participate in this hearing should call Victoria Bailey at 538-5340, at least three working days prior to the hearing date.

DATED this 3rd day of April, 1996.

STATE OF UTAH
BOARD OF OIL, GAS AND MINING
Dave D. Lauriski, Chairman

-s-Victoria A. Bailey
Acting Secretary of the Board
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
(801)538-5340

Published in the Emery County Progress April 9, 1996.

GEO 6
NUAD 6016
15 OK

FORM G-400 (9-95)

TEXACO

FAX TRANSMITTAL COVER SHEET

DATE: January ~~8~~ 12, 1999 ☒ URGENT ☐ ROUTINE NO. OF PAGES: C+1

MESSAGE TO: Mr. ~~Christopher Kierst~~ Robert J. Krueger

TELEPHONE NO.: _____ FAX MACHINE NO.: _____

DEPT./DIV./SUBS.: State of Utah, DOGM

LOCATION: Salt Lake City, Utah ROOM NO.: _____

MESSAGE FROM: Larry Schlotterback

TELEPHONE NO.: 505 325 4397 x17 FAX MACHINE NO.: 505 325 5398

DEPT./DIV./SUBS.: _____

LOCATION: Farmington, New Mexico ROOM NO.: _____

SENDING DEPT. APPROVAL: _____ **TIME TRANSMITTED:** 1:12 PM

☐ RETURN ORIGINAL VIA INTER-OFFICE MAIL ☐ RETURN ORIGINAL CALL SENDER TO PICKUP

ADDITIONAL COMMENTS:

Attached:

Pursuant to notification of shutdown

Please call if you have any questions...

Larry Schlotterback

Larry:
OK to proceed, please keep us notified on the progress.
Thanks,
Bob K.

Texaco Exploration and Production Inc.
Farmington Operating Unit
3300 North Butler, Suite 100
Farmington, NM 87401
505 325 4397

January 8, 1999

Mr. John Baza, Associate Director
State of Utah
Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

RE: **NOTIFICATION OF SHUTDOWN**
Scheduled Compressor Operations Repair
Orangeville, Utah

Dear Mr. Baza:

Pursuant to notification on January 8, 1999 by Mr. Larry Schlotterback to Mr. Gil Hunt, Texaco has scheduled shutdown of it's compressor, located 4 miles north of Orangeville, Utah, in order to repair a leaking convection section tubes in the heat exchanger of the amine unit. The shutdown is scheduled for the morning of January 11, 1999 and will be down for approximately four (4) days. During the shutdown period, Texaco will be venting methane gas with a volume estimated at 2,500 MCF/day.

As discussed, Texaco will notify the Department of any deviations from this schedule as well as actual time when the compressor starts back up. Within five (5) days after startup, Texaco will also provide the Department a written report detailing the event with actual duration and volumes vented.

If you have any questions, please contact me at (505) 325 4397.

Sincerely,

Allen R. Davis
Operations Manager

LNS/s

FORM 9

STATE OF UTAH
DIVISION OF OIL AND GAS AND MINING

5. Lease Designation and Serial Number:

SUNDRY NOTICES AND REPORTS ON WELLS

6. If Indian, Allottee or Tribe Name:

(Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.
Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.)

7. Unit Agreement Name:

1. Type of Well: ☐ OIL WELL ☐ GAS WELL ☑ OTHER Compressor Location — 8. Well Name and Number: FEE Compressor

2. Name of Operator: TEXACO EXPLORATION & PRODUCTION, INC.

9. API Well Nmuber: 4301530272

3. Address and Telepone Number: 3300 N. Butler Ave, Ste100 Farmington NM 87401 325-4397

10. Field and Pool, or Wildcat:

Location of Well

Footages: 2095 NORTH 310 WEST — County: EMERY

QQ, Sec,T.,R.,M: SW , NW , 24 , T16S , R7E — State: UT

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT (Submit in Duplicate)		SUBSEQUENT REPORT (Submit Original Form Only)	
☐ Abandonment	☐ New Construction	☐ Abandonment	☐ New Construction
☐ Casing Repair	☐ Pull or Alter Casing	☐ Casing Repair	☐ Pull or Alter Casing
☐ Change of Plans	☐ Recompletion	☐ Change of Plans	☐ Shoot or Acidize
☐ Conversion to Injection	☐ Shoot or Acidize	☐ Conversion to Injection	☐ Vent or Flare
☐ Fracture Treat	☑ Vent or Flare	☐ Fracture Treat	☐ Water Shut-Off
☐ Multiple Completion	☐ Water Shut-Off	☐ OTHER	
☐ OTHER		Date of work completion	

Approximate date work will start

Report results of Multiple Completions and Recompletions to different reservoirs on Wel COMPLETION OR RECOMPLETION AND LOG form.

* Must be accompanied by a cement verification report.

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to the work.)

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As discussed, Texaco will notify the Department of any deviations from this schedule as well as actual time when the compressor starts back up. Within five (5) days after startup, Texaco will also provide the Department a written report detailing the event with actual duration and volumes vented.

If you have any questions, please contact me at (505) 325 4397.

13.
Name and Signature: Allen Davis TITLE Operating Unit Manager DATE 1/8/99

(This space for State use only)

APPROVED
The Utah Division of Oil, Gas and Mining
Robert J. Krueger, PE, Petroleum Engineer

Date: 1-12-99

P.01

TRANSACTION REPORT

JAN-12-99 MON 03:21 PM

DATE START	RECEIVER	TX TIME	PAGES	TYPE	NOTE	M# DP
JAN-12 03:19 PM	15053255398	1'56"	3	SEND	OK	

FORM 9

RECEIVED
JAN 14 1999
DIV. OF OIL, GAS & MINING

STATE OF UTAH
DIVISION OF OIL AND GAS AND MINING

5. Lease Designation and Serial Number:

SUNDRY NOTICES AND REPORTS ON WELLS

6. If Indian, Allottee or Tribe Name:

(Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.

Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.)

7. Unit Agreement Name:

1. Type of Well ☐ OIL WELL ☐ GAS WELL ☑ OTHER Compressor Location

8. Well Name and Number: FEE Compressor

2. Name of Operator
TEXACO EXPLORATION & PRODUCTION, INC.

9. API Well Nmuber: 4301530272

3. Address and Telepone Number:
3300 N. Butler Ave, Ste100 Farmington NM 87401 325-4397

10. Field and Pool, or Wildcat:

Location of Well

Footages: 2095 NORTH 310 WEST County: EMERY

QQ, Sec,T.,R.,M: SW , NW , 24 , T18S , R7E State: UT

11. **CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

NOTICE OF INTENT (Submit in Duplicate)		SUBSEQUENT REPORT (Submit Original Form Only)	
☐ Abandonment	☐ New Construction	☐ Abandonment	☐ New Construction
☐ Casing Repair	☐ Pull or Alter Casing	☐ Casing Repair	☐ Pull or Alter Casing
☐ Change of Plans	☐ Recompletion	☐ Change of Plans	☐ Shoot or Acidize
☐ Conversion to Injection	☐ Shoot or Acidize	☐ Conversion to Injection	☐ Vent or Flare
☐ Fracture Treat	☑ Vent or Flare	☐ Fracture Treat	☐ Water Shut-Off
☐ Multiple Completion	☐ Water Shut-Off	☐ OTHER	
☐ OTHER		Date of work completion	
Approximate date work will start		Report results of Multiple Completions and Recompletions to different reservoirs on Well COMPLETION OR RECOMPLETION AND LOG form.	
		* Must be accompanied by a cement verification report.	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to the work.)

Pursuant to notification on January 8, 1999 by Mr. Larry Schlotterback to Mr. Gil Hunt, Texaco has scheduled shutdown of it's compressor, located 4 miles north of Orangeville, Utah, in order to repair a leaking convection section tubes in the heat exchanger of the amine unit. The shutdown is scheduled for the morning of January 11, 1999 and will be down for approximately four (4) days. During the shutdown period, Texaco will be venting methane gas with a volume estimated at 2,500 MCF/day.

As discussed, Texaco will notify the Department of any deviations from this schedule as well as actual time when the compressor starts back up. Within five (5) days after startup, Texaco will also provide the Department a written report detailing the event with actual duration and volumes vented.

If you have any questions, please contact me at (505) 325 4397.

13.
Name and Signature Allen Davis TITLE Operating Unit Manager DATE 1/8/99

(This space for State use only)

Texaco Exploration
and Production Inc.
Farmington Operating Unit

3300 North Butler, Suite 100
Farmington, NM 87401
505 325 4397

January 8, 1999

Mr. John Baza, Associate Director
State of Utah
Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

RE: **NOTIFICATION OF SHUTDOWN**
Scheduled Compressor Operations Repair
Orangeville, Utah

Dear Mr. Baza:

Pursuant to notification on January 8, 1999 by Mr. Larry Schlotterback to Mr. Gil Hunt, Texaco has scheduled shutdown of it's compressor, located 4 miles north of Orangeville, Utah, in order to repair a leaking convection section tubes in the heat exchanger of the amine unit. The shutdown is scheduled for the morning of January 11, 1999 and will be down for approximately four (4) days. During the shutdown period, Texaco will be venting methane gas with a volume estimated at 2,500 MCF/day.

As discussed, Texaco will notify the Department of any deviations from this schedule as well as actual time when the compressor starts back up. Within five (5) days after startup, Texaco will also provide the Department a written report detailing the event with actual duration and volumes vented.

If you have any questions, please contact me at (505) 325 4397.

Sincerely,

Allen R. Davis
Operations Manager

LNS/s

FAX'D to (801)359 3940 attention Mr. Christopher Kierst
January 8, 1999 @ 2:08 pm. LNS

Texaco Exploration and Production Inc.
Farmington Operating Unit
3300 North Butler, Suite 100
Farmington, NM 87401
505 325 4397

January 8, 1999

Mr. Jose Garcia
State of Utah
Department of Environmental Quality
Division of Air Quality
150 North 1950 West
P.O. Box 144820
Salt Lake City, Utah 84114-4820

RE: **NOTIFICATION OF SHUTDOWN**
Scheduled Compressor Operations Repair
Orangeville, Utah

Dear Mr. Garcia:

Pursuant to notification on January 7, 1999 by Mr. Larry Schlotterback, Texaco has scheduled shutdown of it's compressor, located 4 miles north of Orangeville, Utah, in order to repair a leaking convection section tubes in the heat exchanger of the amine unit. The shutdown is scheduled for the morning of January 11, 1999 and will be down for approximately four (4) days. During the shutdown period, Texaco will be venting methane gas with a volume estimated at 2,500 MCF/day.

As discussed, Texaco will notify the Department of any deviations from this schedule as well as actual time when the compressor starts back up. Within seven (7) days after startup, Texaco will also provide the Department a written report detailing the event with actual volumes vented and duration.

If you have any questions, please contact me at (505) 325 4397.

Sincerely,

Allen R. Davis
Operations Manager

LNS/s

cc: State of Utah, DOGM, Mr. Christopher Kierst

FAX'D to (801) 536 4099 attention of Mr. Jose Garcia
January 8, 1999 @ 2:14 pm

FORM G-400 (8-95)

TEXACO

FAX TRANSMITTAL COVER SHEET

DATE: January 19, 1999 ☒ URGENT ☐ ROUTINE NO. OF PAGES: C+1

MESSAGE TO: Mr. Robert J. Krueger

TELEPHONE NO.: _____ FAX MACHINE NO.: _____

DEPT./DIV./SUBS.: State of Utah DOGM

LOCATION: Salt Lake City, Utah ROOM NO.: _____

MESSAGE FROM: Larry Schlotterback

TELEPHONE NO.: 505 325 4397 x17 FAX MACHINE NO.: 505 325 5398

DEPT./DIV./SUBS.: _____

LOCATION: Farmington, New Mexico ROOM NO.: _____

SENDING DEPT. APPROVAL: _____ **TIME TRANSMITTED:** 11:09 AM

☐ RETURN ORIGINAL VIA INTER-OFFICE MAIL ☐ RETURN ORIGINAL CALL SENDER TO PICKUP

ADDITIONAL COMMENTS:

Attached:

Form 9 subsequent for venting event from 1/12/99 to 1/14/99

Texaco Ferron Facility - Orangeville, Utah

If you have any questions, please call me…

Larry Schlotterback

FORM 9

STATE OF UTAH
DIVISION OF OIL AND GAS AND MINING

5. Lease Designation and Serial Number:

SUNDRY NOTICES AND REPORTS ON WELLS

6. If Indian, Allottee or Tribe Name:

(Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells. Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.)

7. Unit Agreement Name:

1. Type of Well: ☐ OIL WELL ☐ GAS WELL ☑ OTHER Compressor Location

8. Well Name and Number: FEE Compressor

2. Name of Operator: TEXACO EXPLORATION & PRODUCTION, INC.

9. API Well Nmuber: 4301530272

3. Address and Telepone Number: 3300 N. Butler Ave, Ste100 Farmington NM 87401 325-4397

10. Field and Pool, or Wildcat:

Location of Well

Footages: 2095 NORTH 310 WEST County: EMERY

QQ, Sec,T.,R.,M: SW , NW , 24 , T18S , R7E State: UT

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

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☐ Fracture Treat	☐ Vent or Flare	☐ Fracture Treat	☐ Water Shut-Off
☐ Multiple Completion	☐ Water Shut-Off	☐ OTHER	
☐ OTHER		Date of work completion	1/14/99
Approximate date work will start	1/11/99	Report results of Multiple Completions and Recompletions to different reservoirs on Well COMPLETION OR RECOMPLETION AND LOG form.	
		* Must be accompanied by a cement verification report.	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to the work.)

Texaco has completed the repair work as discussed in our January 8, 1999 notice of intent, i.e. shutdown of the compressor facility located near Orangeville, Utah. The chronology of events and volume of methane gas vented are as follows:

DATE	Time	Description of Activity	Volume (mcf/day)	Comment
1/11/99	9:00 AM	Shut down of Compressor	Initial Pressure UP	No Venting occurred
1/12/99	24 hr	Venting	1,044	--
1/13/99	24 hr	Venting	1,369	--
1/14/99	to 6:00 PM	Venting & Start Up	756	Venting Stopped @ 6:00 PM

Texaco appreciates the help and patience of the Department on this matter.

If you have any questions, please contact me at (505) 325 4397.

13.

Name and Signature: Allen Davis TITLE Operating Unit Manager DATE 1/19/99

(This space for State use only)

FORM 9

STATE OF UTAH
DIVISION OF OIL AND GAS AND MINING

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2. Name of Operator
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9. API Well Nmuber:
4301530272

3. Address and Telepone Number:
3300 N. Butler Ave, Ste100 Farmington NM 87401 325-4397

10. Field and Pool, or Wildcat:

Location of Well

Footages: 2095 NORTH 310 WEST County: EMERY

QQ, Sec,T.,R.,M.: SW , NW , 24 , T18S , R7E State: UT

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☐ Fracture Treat	☐ Vent or Flare	☐ Fracture Treat	☐ Water Shut-Off
☐ Multiple Completion	☐ Water Shut-Off	☐ OTHER	
☐ OTHER		Date of work completion	1/14/99
Approximate date work will start	1/11/99	Report results of Multiple Completions and Recompletions to different reservoirs on Well COMPLETION OR RECOMPLETION AND LOG form.	
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1/14/99	to 6:00 PM	Venting & Start Up	756	Venting Stopped @ 6:00 PM

Texaco appreciates the help and patience of the Department on this matter.

If you have any questions, please contact me at (505) 325 4397.

13.

Name and Signature Allen Davis TITLE Operating Unit Manager DATE 1/19/99

(This space for State use only)

RECEIVED
FEB 01 1999
DIV. OF OIL, GAS & MINING

FORM 9

STATE OF UTAH
DIVISION OF OIL AND GAS AND MINING

5. Lease Designation and Serial Number:

SUNDRY NOTICES AND REPORTS ON WELLS

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(Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.
Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.)

7. Unit Agreement Name:

1. Type of Well: ☐ OIL WELL ☐ GAS WELL ☑ OTHER Saltwater Disposal

8. Well Name and Number: FEE SWD #1

2. Name of Operator: TEXACO EXPLORATION & PRODUCTION, INC.

9. API Well Number: 4301530272

3. Address and Telepone Number: 3300 N. Butler Ave, Ste100 Farmington NM 87401 325-4397

10. Field and Pool, or Wildcat:

Location of Well

Footages: 2095 NORTH 310 WEST County: EMERY

QQ, Sec,T.,R.,M: SW , NW , 24 , T18S , R7E State: UT

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NOTICE OF INTENT (Submit in Duplicate)		SUBSEQUENT REPORT (Submit Original Form Only)	
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☐ Conversion to Injection	☐ Shoot or Acidize	☐ Conversion to Injection	☐ Vent or Flare
☑ Fracture Treat	☐ Vent or Flare	☐ Fracture Treat	☐ Water Shut-Off
☐ Multiple Completion	☐ Water Shut-Off	☐ OTHER	
☑ OTHER Perf. & Frac.		Date of work completion	

Approximate date work will start 10/15/1999

Report results of Multiple Completions and Recompletions to different reservoirs on Well COMPLETION OR RECOMPLETION AND LOG form.

* Must be accompanied by a cement verification report.

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to the work.)

TEXACO E. & P. INC. PROPOSES THE FOLLOWING WIRK ON SUBJECT WELL:

Add perforations and increase the injectivity into SWD #1. MIRUSU. Pull tbg. & pkr.. Rig up service company and perforate the Navajo 6582'-6596', perforate the Kayenta fromation at 6970'-7028', and the Wingate formation at 7028-7060, 7100-7150 and 7200'-7240' (194' total) with 4 jets per foot with 90 degree phasing with 0.45" holes. Rig up service company and acid frac. Frac all perfs (419' total) of net reservoir with 20,000 gal. 15% acid at 30 bpm. Trip in hole w/ 3 1/2" 9.3# L-80 tbg string and 7" Uni-pkr. Set pkr @ 6406' tbg @ 6418' & put on injection.
If you have any questions, please contact me at (505) 325 4397.

SEP 27 1999
DIV. OF OIL, GAS & MINING

13. Name and Signature: Richard N. Carr Richard Carr TITLE Eng. Assistant DATE 09/22/1999

(This space for State use only)

COPY SENT TO OPERATOR
Date: 10-6-99
Initials: CHD

Approved by the
Utah Division of
Oil, Gas and Mining
Date: 10/5/99
By:
STIPULATIONS ATTACHED

Utah Division of Oil, Gas and Mining

Attachment to **Sundry Notice and Report on Wells**
dated September 22, 1999

Subject: Request of Texaco Exploration & Production, Inc. for permission to perforate Navajo, Kayenta and Wingate Formations and acid-frac.
SWD #1 Well
SW/NW, sec. 24, T18S, R7E, Emery, County
API = 43-015-30272

Conditions of Approval:

1. Swab sample of Wingate Formation water must be obtained prior to acid-frac. treatment.

2. Swab until conductivity of sample stabilizes and a good representative formation water sample can be taken and sent to a lab for water quality analysis and analysis of compatibility with the injected fluid.

3. Check with the DOGM UIC section (if rep. not on site) before discontinuing swabbing operations.

4. The annulus shall be pressure tested prior to putting the well back on injection.

RECEIVED

FEB 0 2 2000

DIVISION OF OIL, GAS AND MINING

FORM 9

STATE OF UTAH

DIVISION OF OIL AND GAS AND MINING

5. Lease Designation and Serial Number:

SUNDRY NOTICES AND REPORTS ON WELLS

6. If Indian, Allottee or Tribe Name:

(Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.
Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.)

7. Unit Agreement Name:

1. Type of Well: ☐ OIL WELL ☐ GAS WELL ☑ OTHER Saltwater Disposal

8. Well Name and Number: FEE SWD #1

2. Name of Operator: TEXACO EXPLORATION & PRODUCTION, INC.

9. API Well Number: 4301530272

3. Address and Telepone Number: 3300 N. Butler Ave, Ste100 Farmington NM 87401 325-4397

10. Field and Pool, or Wildcat:

Location of Well

Footages: 2095 NORTH 310 WEST County: EMERY

QQ, Sec,T.,R.,M: SW , NW , 24 , T18S , R7E State: UT

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT (Submit in Duplicate)		SUBSEQUENT REPORT (Submit Original Form Only)	
☐ Abandonment	☐ New Construction	☐ Abandonment	☐ New Construction
☐ Casing Repair	☐ Pull or Alter Casing	☐ Casing Repair	☐ Pull or Alter Casing
☐ Change of Plans	☐ Recompletion	☐ Change of Plans	☐ Shoot or Acidize
☐ Conversion to Injection	☐ Shoot or Acidize	☐ Conversion to Injection	☐ Vent or Flare
☐ Fracture Treat	☐ Vent or Flare	☐ Fracture Treat	☐ Water Shut-Off
☐ Multiple Completion	☐ Water Shut-Off	☑ OTHER Perf & Acidize	
☐ OTHER Perf. & Frac.		Date of work completion 1/14/2000 per Richard Carr CHD	
Approximate date work will start 1/4/2000 per Richard Carr CHD		Report results of Multiple Completions and Recompletions to different reservoirs on Well COMPLETION OR RECOMPLETION AND LOG form.	
		* Must be accompanied by a cement verification report.	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to the work.)

TEXACO E. & P. INC. HAS COMPLETED THE FOLLOWING WORK ON SUBJECT WELL:

Add perforations and increase the injectivity into SWD #1. MIRUSU. Pull tbg. & pkr.. Rig up service company and perforate the Navajo 6582'-6596', perforate the Kayenta fromation at 6970'-7028', and the Wingate formation at 7028-7060, 7100-7150 and 7200'-7240' (194' total) with 4 jets per foot with 90 degree phasing with 0.45" holes. Rig up service company and acid frac all perfs (419' total) of net reservoir with 14,000 gal. 15% acid. Trip in hole w/ 4 1/2" DuoLined tbg string and 7" Uni-pkr. Set ' tbg @ 6399' & put on injection.
If you have any questions, please contact me at (505) 325 4397.

13.

Name and Signature: Richard N. Carr TITLE Eng. Assistant DATE 01/31/2000

(This space for State use only)

Form 8

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

RECEIVED
FEB 0 2 2000
DIVISION OF
OIL, GAS AND MINING

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. Lease Designation and Serial No.

6. If Indian, Alottee or Tribe Name

1a. Type of Well: OIL WELL ☐ GAS WELL ☐ DRY ☐ OTHER, Water Disposal

1b. Type of Completion
NEW WELL ☐ WORKOVER ☑ DEEP EN ☐ PLUG BACK ☐ DIFF. RESVR. ☑ OTHER Add Perfs & Acidize

7. Unit Agreement Name

8. Farm or Lease Name
FEE

2. Name of Operator
TEXACO EXPLORATION & PRODUCTION, INC.

9. Well No.
SWD #1

3. Address and Telephone No.
3300 N. Butler Ave, Ste100 Farmington NM 87401 325-4397

4. Location of Well (Report location clearly and in accordance with any State requirements.*)
At Surface
Unit Letter E : 2095 Feet From The NORTH Line and 310 Feet From The WEST Line
At top prod. interval reported below

10. Field and Pool, or Wildcat

11. SEC., T., R., M., or BLK. and Survey or Area
Sec. 24 , Township T18S, Range R7E

At Total Depth

14. API No.	Date Issued	12. County	13. State
4301530272		EMERY	UT

15. Date Spudded	16. Date T.D. Reached	17. Date Compl. (Ready to Prod.)	18. Elevations (Show whether DF,GR,RT, GR, etc.)	19. Elev. Casinhead
12/16/1995		02/21/1996 (Plug Abd)	5988	

20. Total Depth, MD & TVD	21. Plug Back T.D., MD & TVD	22. If Multiple Compl., How Many*	23. Intervals Drilled By -->	Rotary Tools	CableTools
7760'	7434'				

24. Producing Interval(s), Of This Completion -- Top, Bottom, Name (MD and TVD)*

25. Was Directional Survey Made

26. Type Electric and Other Logs Run

27. Was Well Cored Yes ☐ No ☐ (Submit
Drill Stem Test Yes ☐ No ☐ (See Reverse Side)

28. CASING RECORD (Report all Strings set in well)

CASING SIZE & GRADE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENT RECORD	AMOUNT PULLED
13-3/8"		329'	17-1/2"	380 SX	
9-5/8"	36#	2700'	12-1/4"	510 SX	
7"	26#	7746'	8-3/4"	696 SX	

29. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN

30. TUBING RECORD

SIZE	DEPTH SET	PACKER SET
3-1/2"	6615'	

31. Perforation record (interval, size, and number)

Navajo Fm. 4 SPF, 90 deg. phase, .42" hole, 6674'-6703', 6731'-6831', 6841'-6877'.
Shinarump Fm. 5 SPF, 60 deg. phase, .48" hole, 7484'- 7542', 7562'- 7586' Add perfs 1-10-2000: 7200'-50', 7130'-50',7110'-30, 7100'-10', 7060'-697, 6582'-96'.

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

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED

33. PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping - size and type pump)	Well Status (Prod. or Shut-in)

Date of Test	Hours tested	Choke Size	Prod'n For Test Period	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas - Oil Ratio

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

34. Disposition of Gas (Sold, used for fuel, vented, etc.)

Test Witnessed By

35. List of Attachments

[redacted]

36. I hereby certify that the foregoing is true and correct

SIGNATURE Richard Carr TITLE Eng. Assistant DATE 01/31/2000

TYPE OR PRINT NAME Richard N. Carr

See Spaces for Additional Data on Reverse Side

Chevron

Chevron U.S.A. Production Company
Mid-Continent Business Unit
P.O. Box 36366
Houston, TX 77236
Phone 713 754 2000

April 9, 2002

Mr. John Baza,
Associate Director of Oil and Gas
Utah Department of Natural Resources
Division of Oil, Gas & Mining
1594 W. North Temple St., Suite 1210
Salt Lake City, UT 84114-5801

Dear Mr. Baza:

As you may. recall from our meeting last year, we planned to combine the assets of Chevron U.S.A. Inc. ("CUSA"), by merger, and Texaco Exploration and Production Inc. ("TEPI"), by assignment, into a new entity which we referred to as "Newco LP". Along the way, additional information came to light and it was decided that this proposed corporate restructure would not be preferable. Therefore, CUSA and TEPI have continued to operate as separate entities.

We are now planning a simpler restructuring process where TEPI will assign most of its assets/operatorship to CUSA effective May 1, 2002. We plan to use the existing CUSA bonds/letters of credit, operator identification numbers, etc., for the TEPI assets that will be assigned.

A task force of Land, Regulatory and Environmental Compliance personnel are finishing the work that was begun last year to assign TEPI's assets—using the same forms and procedures as before. We have "new faces" in this task force due to reassignments and departures. In some cases, it may be worthwhile to visit you and your staff in person where new people are involved or if we need to review/clarify your forms and procedures. Otherwise, we will endeavor to complete the work to assign TEPI's assets/operatorship to CUSA and deliver the requisite materials to you in a timely manner.

During discussions last year, our focus was on Land, Regulatory and Environmental matters. The Finance organization also desires to join in this effort. For State Tax, Royalty and Regulatory reporting purposes (applicable to production from May 2002 through December 2002), we intend to generate two reports and two payments.

However, the reporting company name and identification number will be CUSA's. Beginning with January 2003 production and thereafter, we will issue only one CUSA report and payment. We trust this plan meets with your approval. Any questions or comments should be directed to Rick Dunlavy (telephone 713/752-7411, rickdunlavy@chevrontexaco.com).

We appreciate the cooperation and guidance you provided us in the past, and we look forward to bringing these efforts to a conclusion.

Respectfully submitted,

Don R. Sellars
Sr. Environmental Specialist

Chevron U.S.A. Inc.
Midcontinent Business Unit
Ferron Operations
Emery County, Utah

Name / Operatorship Change
Texaco Exploration and Production Inc.
to
Chevron U.S.A. Inc.
Disposal Wells

Account Number	Section	Township	Range	API Number	Well Name	Lease Type	Well Status Main	Well Type Main	Fed or State
N5700	15	170S	080E	4301530490	SWD 4	4	APD	WD	FEE
N5700	11	180S	070E	4301530303	SWD 3	4	I	WD	FEE
N5700	14	180S	070E	4301530323	SWD 2	4	A	WD	FEE
N5700	24	180S	070E	4301530272	SWD 1	4	A	WD	FEE
N5700	23	18S	080E	4301530510	SWD 5	4	I	WD	FEE

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

Well Name and Number	API Number
Orangeville & Huntington, Emery County, Utah (See Attached Well List)	
Location of Well	Field or Unit Name
Footage : See attached well locations County : Emery	See Attached Well List
QQ, Section, Township, Range: State : UTAH	Lease Designation and Number: See Attached Well List

EFFECTIVE DATE OF TRANSFER: 5/1/2002

CURRENT OPERATOR

Company: Texaco Exploration and Production Inc
Address: 3300 North Butler, Suite 100
city Farmington state NM zip 87401
Phone: (505) 325-4397
Comments:

Name: Allen S. Robinson
Signature: Allen S Robinson
Title: Attorney-In-Fact
Date: April 30, 2002

NEW OPERATOR

Company: Chevron U.S.A. Inc.
Address: P.O. Box 36366
city Houston state TX zip 79702
Phone: (915) 687-2000
Comments:

Name: J. Scott Purdy
Signature:
Title: Attorney-In-Fact
Date: May 1, 2002

(This space for State use only)

Transfer approved by:
Title: Tech. Services Manager

Approval Date: 8/5/02

Comments: SWD #1

RECEIVED
MAY 06 2002
DIVISION OF
OIL, GAS AND MINING

(5/2000)

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5. LEASE DESIGNATION AND SERIAL NUMBER: See Attached List of Wells

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: BLM & State of Utah

7. UNIT or CA AGREEMENT NAME: Orangeville & Huntington

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER Operator Name Change

8. WELL NAME and NUMBER: See Attached List of Wells

2. NAME OF OPERATOR: Chevron U.S.A. Inc.

9. API NUMBER:

3. ADDRESS OF OPERATOR: P.O. Box 36366 CITY Houston STATE TX ZIP 77236

PHONE NUMBER: (281) 561-3443

10. FIELD AND POOL, OR WILDCAT:

4. LOCATION OF WELL

FOOTAGES AT SURFACE: See Attached List of Wells

COUNTY: Emery

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:

STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☑ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☐ REPERFORATE CURRENT FORMATION
Approximate date work will start:	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVIOUS PLANS	☑ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☐ PLUG AND ABANDON	☐ VENT OR FLARE
☑ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion:	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☐ OTHER: Operator Name Change (Merger)
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Effective May 1, 2002, Chevron U.S.A. Inc. is the new operator of the attached list of subject wells and leases that were previously operated by Texaco Exploration and Production Inc. The subject wells are located North of Orangeville and North of Huntington, Emery County, Utah. These Wells will be protected by the following surety bonds:

STATE OF UTAH Bond #: 103521627-0016 in the amount of $80,000. (This bond will replace United Pacific Insurance Company bond number U89-75-80-0059. We respectfully request this bond be released and returned.)

BLM Nationwide Bond#: U89-75-81-0034 in the amount of $300,000.

Key Contacts:

Ron Wirth - Operations Supervisor - 435 748-5395 x1

Texaco Exploration & Production Inc.

J. S. Purdy, Attorney-In-Fact

RECEIVED
MAY 06 2002
DIVISION OF
OIL, GAS AND MINING

NAME (PLEASE PRINT) Allen S. Robinson TITLE Attorney-In-Fact

SIGNATURE Allen S. Robinson DATE April 30, 2002

(This space for State use only)

(5/2000) (See Instructions on Reverse Side)

Division of Oil, Gas and Mining

OPERATOR CHANGE WORKSHEET

ROUTING
1. GLH ✓
2. CDW
3. FILE

Change of Operator (Well Sold) — Designation of Agent

Operator Name Change — X — **Merger**

The operator of the well(s) listed below has changed, effective: **05-01-2002**

FROM: (Old Operator):	**TO:** (New Operator):
TEXACO EXPLORATION & PRODUCTION INC	CHEVRON USA INC
Address: 3300 NORTH BUTLER, SUITE 100	Address: P O BOX 36366
FARMINGTON, NM 87401	HOUSTON, TX 79702
Phone: 1-(505)-325-4397	Phone: 1-(915)-687-2000
Account No. N5700	Account No. N0210

CA NO. **Unit:**

WELL(S)

NAME	SEC TWN RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
SWD 3	11-18S-07E	43-015-30303	12915	FEE	SWD	I
SWD 2	14-18S-07E	43-015-30323	12279	FEE	SWD	A
SWD 1	24-18S-07E	43-015-30272	99990	FEE	SWD	A

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 05/06/2002
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 04/12/2002
3. The new company has been checked through the **Department of Commerce, Division of Corporations Database on:** 08/01/2002
4. Is the new operator registered in the State of Utah: YES Business Number: 564408-0143
5. If **NO**, the operator was contacted contacted on: N/A
6. (R649-9-2) Waste Management Plan received on: IN PLACE

6. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: N/A

7. **Federal and Indian Units:**
The BLM or BIA has approved the successor of unit operator for wells listed on: N/A

8. **Federal and Indian Communization Agreements ("CA"):**
The BLM or BIA has approved the operator for all wells listed within a CA on: N/A

9. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject,** for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: 08/05/2002

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 08/01/2002
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 08/01/2002
3. Bond information entered in RBDMS on: N/A
4. Fee wells attached to bond in RBDMS on: N/A

STATE WELL(S) BOND VERIFICATION:

1. State well(s) covered by Bond Number: N/A

FEDERAL WELL(S) BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: N/A

INDIAN WELL(S) BOND VERIFICATION:

1. Indian well(s) covered by Bond Number: N/A

FEE WELL(S) BOND VERIFICATION:

1. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number 103521627-0018

2. The **FORMER** operator has requested a release of liability from their bond on: N/A
The Division sent response by letter on: N/A

LEASE INTEREST OWNER NOTIFICATION:

3. (R649-2-10) The **FORMER** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: 08/01/2002

COMMENTS:

Well file

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Kathleen Clarke
Executive Director
Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

June 18, 2002

Ron Wirth
Texaco Exploration and Production Inc
PO Box 618
Orangeville UT 84537

Re: Pressure Test for Mechanical Integrity, SWD #1 Well, Section 24, Township 18 South, Range 7 East, Emery County, Utah

Dear Ron:

The Underground Injection Control Program, which the Division of Oil, Gas and Mining (DOGM) administers in Utah, requires that all Class II injection wells demonstrate mechanical integrity. Rule R649-5-5.3 of the Oil and Gas Conservation General Rules requires that the casing-tubing annulus above the packer be pressure tested at a pressure equal to the maximum authorized injection pressure or 1,000 psi, whichever is lesser, provided that no test pressure is less than 300 psi. This test shall be performed at least every five-year period beginning October, 1982. Please make arrangements and ready the SWD #1 well for testing during the week of July 8, 2002 as outlined below:

1. Operator must furnish connections, and accurate pressure gauges, hot oil truck (or other means of pressuring annulus), along with personnel to assist in opening valves etc.

2. The casing-tubing annulus shall be filled prior to the test date to expedite testing, as each well will be required to hold pressure for a minimum of 15 minutes.

3. If mechanical difficulties or workover operations make it impossible for the wells to be tested on this date the tests may be rescheduled.

4. Company personnel should meet DOGM representatives at the field office or other location as negotiated.

5. All bradenhead valves with exception of the tubing on the injection wells must be shut-in 24 hours prior to testing.

Please contact Mark Jones at (435) 613-5659 to arrange a meeting time and place or negotiate a different date, if this one is unacceptable.

Sincerely,

Gil Hunt
Technical Services Manager

er
cc: Mark Jones

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5. LEASE DESIGNATION AND SERIAL NUMBER:	Various Leases
6. IF INDIAN, ALLOTTEE OR TRIBE NAME:	
7. UNIT or CA AGREEMENT NAME:	
1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☑ OTHER	
8. WELL NAME and NUMBER:	See attached list
2. NAME OF OPERATOR:	XTO ENERGY INC. N2615
9. API NUMBER:	Multiple
3. ADDRESS OF OPERATOR:	2700 Farmington Bldg K,Sui CITY Farmington STATE NM ZIP 87401
PHONE NUMBER:	(505) 324-1090
10. FIELD AND POOL, OR WILDCAT:	Buzzard Bench
4. LOCATION OF WELL	
FOOTAGES AT SURFACE:	
COUNTY:	Emery
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:	
STATE:	UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☐ REPERFORATE CURRENT FORMATION
Approximate date work will start: _____	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVIOUS PLANS	☑ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☐ PLUG AND ABANDON	☐ VENT OR FLARE
☑ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion:	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
_____	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☐ OTHER: _____
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Effective August 1,2004, the operator changed from Chevron U.S.A. Inc. to XTO ENERGY INC. for all wells on the attached list.

BLM #579173

State and Fee Bond #104312762

Kenneth W. Jackson Regulatory Specialist ChevronTexaco for Chevron U.S.A. Inc. N0210

NAME (PLEASE PRINT) James L. Death TITLE Vice President-Land

SIGNATURE James L. Death DATE 8/16/04

(This space for State use only)

APPROVED 9/30/2004
Earlene Russell
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

(See Instructions on Reverse Side)

(5/2000)

RECEIVED
SEP 28 2004
DIV. OF OIL, GAS & MINING

API Well Number	Well Name	Well Type	County Name	Qtr/Qtr	Section	Twn-Rng
43-015-30242-00-00	L M LEMMON 10-1	Gas Well	EMERY	SESE	10	17S-8E
43-015-30243-00-00	FEDERAL B21-3	Gas Well	EMERY	NESW	21	19S-7E
43-015-30244-00-00	FEDERAL A26-2	Gas Well	EMERY	SESW	26	18S-7E
43-015-30245-00-00	FEDERAL C23-8	Gas Well	EMERY	NENW	23	18S-7E
43-015-30246-00-00	FEDERAL A26-4	Gas Well	EMERY	SWSE	26	18S-7E
43-015-30247-00-00	FEDERAL A35-6	Gas Well	EMERY	NWNW	35	18S-7E
43-015-30248-00-00	FEDERAL A35-5	Gas Well	EMERY	NWNE	35	18S-7E
43-015-30249-00-00	FEDERAL A34-7	Gas Well	EMERY	NENE	34	18S-7E
43-015-30258-00-00	UTAH FED P 10-47	Gas Well	EMERY	NWNW	10	18S-7E
43-015-30259-00-00	A L JENSEN 27-9	Gas Well	EMERY	SESE	27	21S-6E
43-015-30268-00-00	ST OF UT T 36-10	Gas Well	EMERY	SWNE	36	16S-7E
43-015-30270-00-00	ST OF UT U 2-11	Gas Well	EMERY	NWNW	2	18S-7E
43-015-30272-00-00	SWD 1	Water Disposal Well	EMERY	SWNW	24	18S-7E
43-015-30274-00-00	UTAH FED S 8-46	Gas Well	EMERY	SESW	8	18S-7E
43-015-30275-00-00	UTAH FED R 9-45	Gas Well	EMERY	NWNE	9	18S-7E
43-015-30276-00-00	UTAH FED P 10-42	Gas Well	EMERY	NWNE	10	18S-7E
43-015-30277-00-00	UTAH FED P 10-43	Gas Well	EMERY	NWSE	10	18S-7E
43-015-30280-00-00	UTAH FED Q 4-44	Gas Well	EMERY	SESE	4	18S-7E
43-015-30282-00-00	UTAH FED D 34-12	Gas Well	EMERY	SESE	34	17S-7E
43-015-30285-00-00	UTAH FED D 35-13	Gas Well	EMERY	SWSW	35	17S-7E
43-015-30286-00-00	UTAH FED D 35-14	Gas Well	EMERY	NWNW	35	17S-7E
43-015-30287-00-00	UTAH FED D 35-15	Gas Well	EMERY	SWSE	35	17S-7E
43-015-30292-00-00	UTAH FED M 6-25	Gas Well	EMERY	SENE	6	17S-8E
43-015-30294-00-00	UTAH FED H 6-21	Gas Well	EMERY	SESW	6	20S-7E
43-015-30303-00-00	SWD 3	Water Disposal Well	EMERY	SENE	11	18S-7E
43-015-30306-00-00	ST OF UT U 2-48	Gas Well	EMERY	NWNE	2	18S-7E
43-015-30308-00-00	ST OF UT U 2-50	Gas Well	EMERY	NESW	2	18S-7E
43-015-30309-00-00	ST OF UT U 2-49	Gas Well	EMERY	NWSE	2	18S-7E
43-015-30310-00-00	L & M CURTIS 10-58	Gas Well	EMERY	SWSW	10	18S-7E
43-015-30311-00-00	ST OF UT X 16-66	Gas Well	EMERY	SENW	16	18S-7E
43-015-30312-00-00	ST OF UT X 16-65	Gas Well	EMERY	NWNE	16	18S-7E
43-015-30313-00-00	U P & L 14-53	Gas Well	EMERY	SESE	14	18S-7E
43-015-30314-00-00	U P & L 14-55	Gas Well	EMERY	NWNW	14	18S-7E
43-015-30315-00-00	U P & L 23-51	Gas Well	EMERY	SENE	23	18S-7E
43-015-30316-00-00	U P & L 24-57	Gas Well	EMERY	NWNW	24	18S-7E
43-015-30318-00-00	D & A JONES 15-68	Gas Well	EMERY	NENW	15	18S-7E
43-015-30319-00-00	D&D CURTIS 14-54	Gas Well	EMERY	SENE	14	18S-7E
43-015-30320-00-00	P & K PEACOCK 8-62	Gas Well	EMERY	SWNE	8	18S-7E
43-015-30321-00-00	PEACOCK TRUST 9-60	Gas Well	EMERY	NWSW	9	18S-7E
43-015-30323-00-00	SWD 2	Water Disposal Well	EMERY	NWNW	14	18S-7E
43-015-30324-00-00	R G NORRIS 14-40	Gas Well	EMERY	NESW	14	18S-7E
43-015-30325-00-00	L & M CURTIS 15-67	Gas Well	EMERY	NENE	15	18S-7E
43-015-30326-00-00	PEACOCK TRUST 8-61	Gas Well	EMERY	NESE	8	18S-7E
43-015-30327-00-00	PEACOCK 7-64	Gas Well	EMERY	NENE	7	18S-7E
43-015-30328-00-00	PEACOCK TRUST 8-63	Gas Well	EMERY	SENW	8	18S-7E
43-015-30329-00-00	D & A JONES 9-59	Gas Well	EMERY	SESE	9	18S-7E
43-015-30381-00-00	UTAH STATE 1-76	Gas Well	EMERY	NWNW	1	18S-7E
43-015-30382-00-00	UTAH STATE 36-78	Gas Well	EMERY	SWSW	36	17S-7E
43-015-30383-00-00	USA 3-74	Gas Well	EMERY	SESE	3	18S-7E
43-015-30384-00-00	USA 3-75	Gas Well	EMERY	NENE	3	18S-7E
43-015-30385-00-00	USA 11-70	Gas Well	EMERY	SWSE	11	18S-7E
43-015-30386-00-00	USA 11-71	Gas Well	EMERY	SWNE	11	18S-7E
43-015-30387-00-00	USA 11-72	Gas Well	EMERY	NWNW	11	18S-7E
43-015-30388-00-00	USA 11-73	Gas Well	EMERY	NWSW	11	18S-7E
43-015-30389-00-00	USA 34-80	Gas Well	EMERY	SENE	34	17S-7E
43-015-30390-00-00	USA 34-82	Gas Well	EMERY	SESW	34	17S-7E
43-015-30393-00-00	ST OF UT EE 06-138	Gas Well	EMERY	NENW	6	17S-9E
43-015-30396-00-00	ST OF UT AA 07-106	Gas Well	EMERY	NWNE	7	17S-8E
43-015-30437-00-00	ST OF UT BB 09-119	Gas Well	EMERY	SESW	9	17S-8E
43-015-30438-00-00	ST OF UT CC 10-124	Gas Well	EMERY	SENE	10	17S-8E
43-015-30439-00-00	ST OF UT DD 31-98	Gas Well	EMERY	NWSW	31	17S-8E
43-015-30440-00-00	FEDERAL T 27-85	Gas Well	EMERY	SENW	27	18S-7E
43-015-30441-00-00	UP&L 06-102	Gas Well	EMERY	NENW	6	17S-8E
43-015-30442-00-00	UP&L 06-104	Gas Well	EMERY	NESE	6	17S-8E
43-015-30443-00-00	WM S IVIE ET AL 09-118	Gas Well	EMERY	SWNE	9	17S-8E

API Well Number	Well Name	Well Type	County Name	Qtr/Qtr	Section	Twn-Rng
43-015-30444-00-00	ST OF UT BB 09-120	Gas Well	EMERY	NESE	9	17S-8E
43-015-30445-00-00	FEDERAL A 26-88	Gas Well	EMERY	SWNW	26	18S-7E
43-015-30446-00-00	FEDERAL A 35-89	Gas Well	EMERY	NWSW	35	18S-7E
43-015-30447-00-00	FEDERAL C 23-84	Gas Well	EMERY	NESW	23	18S-7E
43-015-30448-00-00	FEDERAL P 3-92	Gas Well	EMERY	SESW	3	18S-7E
43-015-30449-00-00	FEDERAL P 3-93	Gas Well	EMERY	SWNW	3	18S-7E
43-015-30450-00-00	FEDERAL T 21-94	Gas Well	EMERY	NENE	21	18S-7E
43-015-30451-00-00	FEDERAL T 22-69	Gas Well	EMERY	NENE	22	18S-7E
43-015-30452-00-00	FEDERAL T 22-83	Gas Well	EMERY	SWSE	22	18S-7E
43-015-30453-00-00	FEDERAL T 22-91	Gas Well	EMERY	NENW	22	18S-7E
43-015-30454-00-00	ST OF UT CC 10-123	Gas Well	EMERY	NWNW	10	17S-8E
43-015-30455-00-00	FEDERAL T 27-86	Gas Well	EMERY	SENE	27	18S-7E
43-015-30456-00-00	FEDERAL T 27-87	Gas Well	EMERY	SESE	27	18S-7E
43-015-30457-00-00	FEDERAL T 27-90	Gas Well	EMERY	NWSW	27	18S-7E
43-015-30458-00-00	ST OF UT FF 10-125	Gas Well	EMERY	NESW	10	17S-8E
43-015-30459-00-00	ST OF UT FF 11-129	Gas Well	EMERY	NWNW	11	17S-8E
43-015-30462-00-00	ST OF UT FF 11-130	Gas Well	EMERY	NWSW	11	17S-8E
43-015-30478-00-00	GARDNER TRUST ET AL 16-121	Gas Well	EMERY	NENE	16	17S-8E
43-015-30479-00-00	ST OF UT BB 05-107	Gas Well	EMERY	SENW	5	17S-8E
43-015-30480-00-00	ST OF UT BB 05-108	Gas Well	EMERY	NWSW	5	17S-8E
43-015-30481-00-00	ST OF UT BB 05-109	Gas Well	EMERY	SENE	5	17S-8E
43-015-30482-00-00	ST OF UT BB 05-110	Gas Well	EMERY	SWSE	5	17S-8E
43-015-30483-00-00	UP&L 06-103	Gas Well	EMERY	NESW	6	17S-8E
43-015-30484-00-00	AMERICA WEST GROUP ET AL 15-126	Gas Well	EMERY	NENW	15	17S-8E
43-015-30485-00-00	W H LEONARD ET AL 15-127	Gas Well	EMERY	NENE	15	17S-8E
43-015-30486-00-00	ROWLEY 08-111	Gas Well	EMERY	SENW	8	17S-8E
43-015-30490-00-00	SWD 4	Water Disposal Well	EMERY	SENE	15	17S-8E
43-015-30495-00-00	SEELEY 08-112	Gas Well	EMERY	NENE	8	17S-8E
43-015-30496-00-00	ST OF UT BB 08-113	Gas Well	EMERY	NWSE	8	17S-8E
43-015-30497-00-00	ST OF UT AA 07-105	Gas Well	EMERY	SWNW	7	17S-8E
43-015-30498-00-00	ST OF UT 01-97	Gas Well	EMERY	SENE	1	18S-7E
43-015-30499-00-00	ST OF UT GG 03-122	Gas Well	EMERY	SWSW	3	17S-8E
43-015-30500-00-00	ST OF UT HH 03-133	Gas Well	EMERY	SWSE	3	17S-8E
43-015-30501-00-00	SEELEY FARMS 09-117	Gas Well	EMERY	NWNW	9	17S-8E
43-015-30502-00-00	ST OF UT GG 15-128	Gas Well	EMERY	NWSW	15	17S-8E
43-015-30503-00-00	ST OF UT BB 04-116	Gas Well	EMERY	SWSE	4	17S-8E
43-015-30504-00-00	ST OF UT GG 04-115	Gas Well	EMERY	NESW	4	17S-8E
43-015-30505-00-00	BURNSIDE 14-132	Gas Well	EMERY	NWNE	14	17S-8E
43-015-30506-00-00	ST OF UT T 36-100	Gas Well	EMERY	NESE	36	16S-7E
43-015-30507-00-00	UT FED KK 01-140	Gas Well	EMERY	SENW	1	17S-7E
43-015-30508-00-00	ST OF UT II 36-96	Gas Well	EMERY	NWSE	36	17S-7E
43-015-30509-00-00	ST OF UT II 36-95	Gas Well	EMERY	NWNE	36	17S-7E
43-015-30510-00-00	SWD 5	Water Disposal Well	EMERY	SESE	23	17S-8E
43-015-30511-00-00	UP&L FED 01-101	Gas Well	EMERY	SENE	1	17S-7E
43-015-30520-00-00	ST OF UT SS 22-165	Gas Well	EMERY	NENE	22	17S-8E
43-015-30521-00-00	ZIONS FED 35-135R (RIG SKID)	Gas Well	EMERY	NESW	35	16S-7E
43-015-30528-00-00	ST OF UT 14-170	Gas Well	EMERY	SWSE	14	17S-8E
43-015-30529-00-00	CONOVER 14-171	Gas Well	EMERY	NWSW	14	17S-8E
43-015-30530-00-00	ST OF UT 36-139	Gas Well	EMERY	NWSW	36	16S-7E
43-015-30533-00-00	ST OF UT FO 02-186	Gas Well	EMERY	NENW	2	17S-8E
43-015-30549-00-00	ST OF UT JJ 03-160	Gas Well	EMERY	NWNW	3	17S-8E
43-015-30550-00-00	ST OF UT 36-138	Gas Well	EMERY	SWNW	36	16S-7E
43-015-30551-00-00	UT FED P 12-153	Gas Well	EMERY	NWNW	12	18S-7E
43-015-30552-00-00	ST OF UT CC 03-161	Gas Well	EMERY	SENE	3	17S-8E
43-015-30553-00-00	ST OF UT FO 02-188	Gas Well	EMERY	NWSW	2	17S-8E
43-015-30554-00-00	ST OF UT BB 04-158	Gas Well	EMERY	NENW	4	17S-8E
43-015-30555-00-00	ST OF UT BB 04-159	Gas Well	EMERY	SWNE	4	17S-8E
43-015-30556-00-00	MALONE 14-131	Gas Well	EMERY	SWNW	14	17S-8E
43-015-30559-00-00	UT FED KK 01-141	Gas Well	EMERY	SESE	1	17S-7E
43-015-30560-00-00	ST OF UT FO 02-189	Gas Well	EMERY	SWNE	2	17S-8E
43-015-30561-00-00	ST OF UT GG 15-184	Gas Well	EMERY	NWSE	15	17S-8E
43-015-30562-00-00	STATE OF UTAH "LL" 31-20	Gas Well	EMERY	NWNW	31	17S-8E
43-015-30566-00-00	ST OF UT "KK" 32-145	Gas Well	EMERY	NESE	32	16S-8E
43-015-30567-00-00	ST OF UT "KK" 32-144	Gas Well	EMERY	SWSW	32	16S-8E
43-015-30568-00-00	ST OF UT "AA" 18-153	Gas Well	EMERY	SESW	18	17S-8E

API Well Number	Well Name	Well Type	County Name	Qtr/Qtr	Section	Twn-Rng
43-015-30569-00-00	ST OF UT "AA" 07-146	Gas Well	EMERY	NESW	7	17S-8E
43-015-30570-00-00	ST OF UT "AA" 18-154	Gas Well	EMERY	NESE	18	17S-8E
43-015-30571-00-00	ST OF UT "AA" 17-156	Gas Well	EMERY	SWSE	17	17S-8E
43-015-30572-00-00	ST OF UT "AA" 18-149	Gas Well	EMERY	SENW	18	17S-8E
43-015-30573-00-00	ST OF UT "MM" 20-192	Gas Well	EMERY	SENW	20	17S-8E
43-015-30574-00-00	ST OF UT "MM" 20-193	Gas Well	EMERY	NENE	20	17S-8E
43-015-30575-00-00	ST OF UT MM 20-194	Gas Well	EMERY	NWSW	20	17S-8E
43-015-30576-00-00	ST OF UT AA 07-147	Gas Well	EMERY	SESE	7	17S-8E
43-015-30577-00-00	ST OF UT BB 08-148	Gas Well	EMERY	NWSW	8	17S-8E
43-015-30578-00-00	ST OF UT AA 18-150	Gas Well	EMERY	NWNE	18	17S-8E
43-015-30579-00-00	ST OF UT NN 19-157	Gas Well	EMERY	NENE	19	17S-8E
43-015-30580-00-00	ST OF UT AA 17-152	Gas Well	EMERY	NENE	17	17S-8E
43-015-30581-00-00	ST OF UT OO 16-190	Gas Well	EMERY	NESW	16	17S-8E
43-015-30582-00-00	ST OF UT PP 16-191	Gas Well	EMERY	NESE	16	17S-8E
43-015-30583-00-00	ST OF UT AA 17-151	Gas Well	EMERY	NENW	17	17S-8E
43-015-30585-00-00	ST OF UT MM 21-195	Gas Well	EMERY	NENW	21	17S-8E
43-015-30586-00-00	ST OF UT GG 21-163	Gas Well	EMERY	NENE	21	17S-8E
43-015-30587-00-00	ZIONS FED 35-137	Gas Well	EMERY	NESE	35	16S-7E
43-015-30589-00-00	UTAH FED 01-205D	Gas Well	EMERY	SENW	1	17S-7E
43-015-30590-00-00	ZIONS FED 02-134	Gas Well	EMERY	NWNW	2	17S-7E
43-015-30591-00-00	UTAH FED 12-197	Gas Well	EMERY	SENE	12	17S-7E
43-015-30592-00-00	ST OF UT QQ 31-201	Gas Well	EMERY	SESW	31	16S-8E
43-015-30593-00-00	ST OF UT AA 17-155	Gas Well	EMERY	SWSW	17	17S-8E
43-015-30601-00-00	UTAH FED 12-199	Gas Well	EMERY	NESE	12	17S-7E
43-015-30602-00-00	UTAH FED 35-196	Gas Well	EMERY	NENW	35	16S-7E
43-015-30603-00-00	UTAH FED 35-136	Gas Well	EMERY	SWNE	35	16S-7E
43-015-30604-00-00	UT FED 12-200D	Gas Well	EMERY	NESE	12	17S-7E
43-015-30605-00-00	UT FED 12-198D	Gas Well	EMERY	SENE	12	17S-7E
43-015-30606-00-00	ST OF UT QQ 31-204D	Gas Well	EMERY	SESW	31	16S-8E
43-015-30607-00-00	ST OF UT QQ 31-203D	Gas Well	EMERY	SESW	31	16S-8E
43-015-30608-00-00	ST OF UT QQ 31-202D	Gas Well	EMERY	SESW	31	16S-8E
43-015-30609-00-00	ST OF UT HH 23-166	Gas Well	EMERY	NENW	23	17S-8E

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

Well Name and Number	API Number
SWD 1 Permit # UIC-167.1	4301530272
Location of Well	Field or Unit Name
Footage : 2095' FNL 310' FWL County : Emery	Buzzard Bench
QQ, Section, Township, Range: SWNW 24 18S 7E State : UTAH	Lease Designation and Number

EFFECTIVE DATE OF TRANSFER: 8/17/2004

CURRENT OPERATOR

N0210

Company: Chevron U.S.A. Inc.
Address: 11111 S. Wilcrest
city Houston state Tx zip 77099
Phone: (281) 561-4991
Comments:

Name: Kenneth W. Jackson
Signature: Kenneth W. Jackson
Title: Regulatory Specialist
Date:

NEW OPERATOR

N2615

Company: XTO ENERGY INC.
Address: 2700 Farmington Ave. Bldg K. Suite 1
city Farmington state NM zip 87401
Phone: (505) 324-1090
Comments:

Name: James L. Death
Signature: James L. Death
Title: Vice President - Land
Date: 8/16/04

(This space for State use only)

Transfer approved by: David Gunn
Title: UIC Geologist

Approval Date: 9/28/04

Comments:

RECEIVED
SEP 28 2004
DIV. OF OIL, GAS & MINING

(5/2000)

Division of Oil, Gas and Mining

OPERATOR CHANGE WORKSHEET

ROUTING
1. GLH
2. CDW
3. FILE

X Change of Operator (Well Sold) Designation of Agent/Operator

Operator Name Change Merger

The operator of the well(s) listed below has changed, effective: **8/1/2004**

FROM: (Old Operator):	**TO:** (New Operator):
N0210-Chevron USA, Inc	N2615-XTO Energy Inc
11111 S Wilcrest	2700 Farmington Ave, Bldg K Suite 1
Houston, TX 77099	Farmington, NM 87401
Phone: 1-(281) 561-4991	Phone: 1-(505) 324-1090

CA No. **Unit:**

WELL(S)

NAME	SEC	TWN	RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS		
ZIONS FED 35-135R (RIG SKID)	35	160S	070E	4301530521	13810	Federal	GW	P	C	K
ZIONS FED 35-137	35	160S	070E	4301530587	13811	Federal	GW	P	C	
UTAH FED 35-196	35	160S	070E	4301530602		Federal	GW	APD	C	
UTAH FED 35-136	35	160S	070E	4301530603		Federal	GW	APD	C	
UT FED KK 01-140	01	170S	070E	4301530507	13553	Federal	GW	P		
UP&L FED 01-101	01	170S	070E	4301530511	13546	Federal	GW	P		
UT FED KK 01-141	01	170S	070E	4301530559	13587	Federal	GW	P		
UTAH FED 01-205D	01	170S	070E	4301530589	13828	Federal	GW	P	C	
ZIONS FED 02-134	02	170S	070E	4301530590		Federal	GW	APD	C	
UTAH FED 12-197	12	170S	070E	4301530591		Federal	GW	APD	C	
UTAH FED 12-199	12	170S	070E	4301530601		Federal	GW	APD	C	
UT FED 12-200D	12	170S	070E	4301530604		Federal	GW	APD	C	
UT FED 12-198D	12	170S	070E	4301530605		Federal	GW	APD	C	K
L M LEMMON 10-1	10	170S	080E	4301530242	11724	Fee	GW	P		
L & M CURTIS 10-58	10	180S	070E	4301530310	12201	Fee	GW	TA		
SWD 3	11	180S	070E	4301530303	12915	Fee	WD	I		K
UT FED P 12-153	12	180S	070E	4301530551		Federal	GW	APD	C	K
U P & L 14-53	14	180S	070E	4301530313	12333	Fee	GW	P		
SWD 1	24	180S	070E	4301530272	99990	Fee	WD	A		
A L JENSEN 27-9	27	210S	060E	4301530259	11990	Fee	GW	TA		

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 9/28/2004
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 9/28/2004

3. The new company was checked on the **Department of Commerce, Division of Corporations Database on:** 7/19/2004
4. Is the new operator registered in the State of Utah: YES Business Number: 5655506-0143
5. If **NO**, the operator was contacted contacted on:

6a. (R649-9-2)Waste Management Plan has been received on: to follow

6b. Inspections of LA PA state/fee well sites complete on: being worked

7. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BLM not yet BIA n/a

8. **Federal and Indian Units:**
The BLM or BIA has approved the successor of unit operator for wells listed on: n/a

9. **Federal and Indian Communization Agreements ("CA"):**
The BLM or BIA has approved the operator for all wells listed within a CA on: n/a

10. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject,** for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: 9/28/2004

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 9/30/2004
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 9/30/2004
3. Bond information entered in RBDMS on: 9/30/2004
4. Fee/State wells attached to bond in RBDMS on: 9/30/2004
5. Injection Projects to new operator in RBDMS on: 9/30/2004
6. Receipt of Acceptance of Drilling Procedures for APD/New on: 9/28/2004

FEDERAL WELL(S) BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: 579173

INDIAN WELL(S) BOND VERIFICATION:

1. Indian well(s) covered by Bond Number: n/a

FEE & STATE WELL(S) BOND VERIFICATION:

1. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number 104312762

2. The **FORMER** operator has requested a release of liability from their bond on: n/a
The Division sent response by letter on: n/a

LEASE INTEREST OWNER NOTIFICATION:

3. (R649-2-10) The **FORMER** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: 10/5/2004

COMMENTS:

FORM 9

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

5. LEASE DESIGNATION AND SERIAL NUMBER: FEE

SUNDRY NOTICES AND REPORTS ON WELLS

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A

7. UNIT or CA AGREEMENT NAME: N/A

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER WATER DISPOSAL

8. WELL NAME and NUMBER: SWD #1

2. NAME OF OPERATOR: XTO ENERGY INC.

9. API NUMBER: 4301530272

3. ADDRESS OF OPERATOR: 382 CR 3100 CITY AZTEC STATE NM ZIP 87410

PHONE NUMBER: (505) 333-3100

10. FIELD AND POOL, OR WILDCAT: BUZZARD BENCH

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 2,095' FNL & 310' FWL

COUNTY: EMERY

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: SWNW 24 18S 7E

STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☐ REPERFORATE CURRENT FORMATION
Approximate date work will start:	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVIOUS PLANS	☐ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☐ PLUG AND ABANDON	☐ VENT OR FLARE
☑ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion: 8/20/2009	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☑ OTHER: MIT
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

XTO Energy Inc. performed a MIT on this well on 8/20/2009. Please see the attached copy of the chart for more information.

Accepted by the Utah Division of Oil, Gas and Mining
Date: 08-24-09
By:

RECEIVED
AUG 2 4 2009
DIV. OF OIL, GAS & MINING

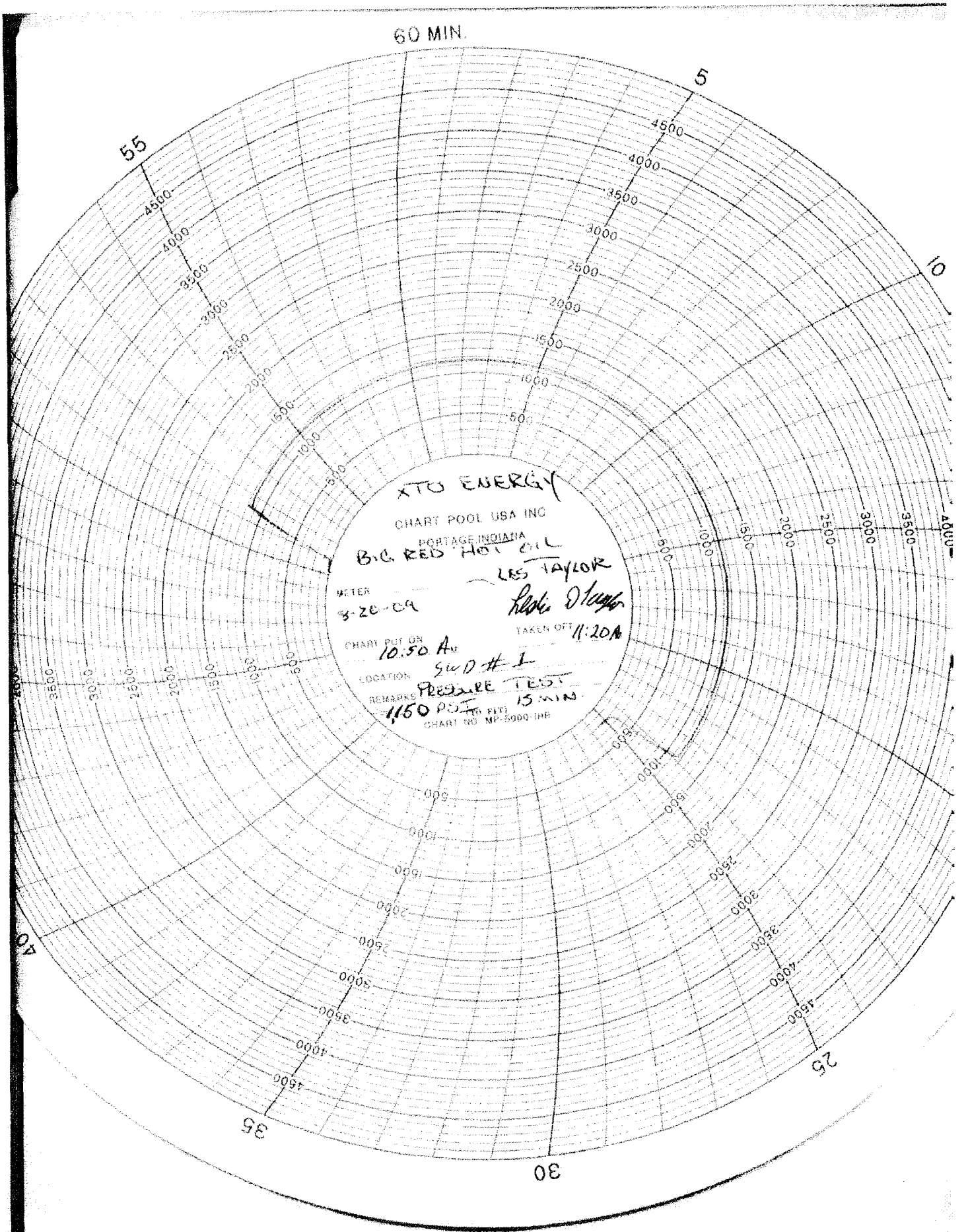
NAME (PLEASE PRINT) BARBARA A. NICOL TITLE REGULATORY CLERK

SIGNATURE Barbara A. Nicol DATE 8/24/2009

(This space for State use only)

COPY SENT TO OPERATOR
Date: 8.25.2009
Initials: KS

(5/2000) (See Instructions on Reverse Side)


60 MIN.
5
10
15
20
25
30
35
40
45
50
55
XTO ENERGY
CHART POOL USA INC
PORTAGE INDIANA
B.C. RED HOT OIL
LES TAYLOR
METER
3-20-09
TAKEN OFF 11:20A
CHART PUT ON 10:50 AM
LOCATION SWD #1
REMARKS PRESSURE TEST
1,150 PSI (TO FIT) 15 MIN.
CHART NO MP-5000 INS

INSPECTION FORM 6

STATE OF UTAH
DIVISION OF OIL GAS AND MINING

INJECTION WELL - PRESSURE TEST

Well Name: SWD #1 API Number: 43015302720000
Qtr/Qtr: SWNW Section: 24 Township: 18S Range: 7E
Company Name: XTO Energy Inc.
Lease: State ____ Fee X Federal ____ Indian ____
Inspector: Mark Jones Date: 8/20/09

Initial Conditions:

Tubing - Rate: 1000 BBLS/DAY Pressure: 800 psi

Casing/Tubing Annulus - Pressure: 0 psi

Conditions During Test:

Time (Minutes)	Annulus Pressure	Tubing Pressure
0 10:45	1125 #	750 #
5		
10		
15 11:00	1125 #	750 #
20		
25		
30 11:15	1125 #	750 #

Results: (Pass)/Fail

Conditions After Test:

Tubing Pressure: 750 psi

Casing/Tubing Annulus Pressure: 0 psi

RECEIVED
DEC 15 2009
DIV. OF OIL, GAS & MINING

COMMENTS: ____

Dal Gray
Operator Representative

GARY R. HERBERT
Governor
GREGORY S. BELL
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
MICHAEL R. STYLER
Executive Director
Division of Oil, Gas and Mining
JOHN R. BAZA
Division Director

June 25, 2014

XTO Energy Inc
382 CR 3100
Aztec, NM 87410

SUBJECT: Pressure Test for Mechanical Integrity, SWD 1 (API# 43-015-30272) Well, Emery County, Utah:

To Whom It May Concern:

The Underground Injection Control Program, which the Division of Oil, Gas and Mining (DOGM) administers in Utah, requires that all Class II injection wells demonstrate mechanical integrity. Rule R649-5-5.3 of the Oil and Gas Conservation General Rules requires that the casing-tubing annulus above the packer be pressure tested at a pressure equal to the maximum authorized injection pressure or 1,000 psi, whichever is lesser, provided that no test pressure is less than 300 psi. This test shall be performed at least every five-year period beginning October 1982. The following wells require a current test:

SWD 1 43-015-30272 24 18S 7E

Please make arrangements and ready wells for testing during the week of August 11, 2014 as outlined below:

1. Operator must furnish connections, and accurate pressure gauges, hot oil truck (or other means of pressuring annulus), along with personnel to assist in opening valves, etc.

2. The casing-tubing annulus shall be filled prior to the test date to expedite testing, as each well will be required to hold pressure for a minimum of 15 minutes.

3. If mechanical difficulties or workover operations make it impossible for the well(s) to be tested on this date the test(s) may be rescheduled.

4. Company personnel should meet a DOGM representative(s) at the field office or other location as negotiated.

1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801
telephone (801) 538-5340 • facsimile (801) 359-3940 • TTY (801) 538-7458 • *www.ogm.utah.gov*

UTAH DNR OIL, GAS & MINING

5. All bradenhead valves with exception of the tubing on the injection well(s) must be shut-in 24 hours prior to testing.

Please contact me at (435) 820-0862 to arrange a meeting time and place or to negotiate a different date, if the date(s) specified is unacceptable.

Sincerely,

Bart Kettle
Environmental Scientist

bk/dj/js

cc: Dan Jarvis, Operations Manager
Well File

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

5.LEASE DESIGNATION AND SERIAL NUMBER:
FEE

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7.UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL
Water Disposal Well

8. WELL NAME and NUMBER:
SWD 1

2. NAME OF OPERATOR:
XTO ENERGY INC

9. API NUMBER:
43015302720000

3. ADDRESS OF OPERATOR:
PO Box 6501 , Englewood, CO, 80155

PHONE NUMBER:
303 397-3727 Ext

9. FIELD and POOL or WILDCAT:
BUZZARD BENCH

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
2095 FNL 0310 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: SWNW Section: 24 Township: 18.0S Range: 07.0E Meridian: S

COUNTY:
EMERY

STATE:
UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT Approximate date work will start:	☐ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
☑ SUBSEQUENT REPORT Date of Work Completion: 8/11/2014	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ SPUD REPORT Date of Spud:	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ DRILLING REPORT Report Date:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☑ OTHER	OTHER: 5-YEAR MIT

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

XTO Energy Inc. conducted a MIT on this well per the following: 8/11/2014: MIRU B&C quick test. PT line to 1,550 psig, gd tst. PT csg 1,000 psig for 30 min. Tstd gd. Witness by Bart Kettle w/DOGM. RDMO B&C quick test. Please see the attached MIT chart.

Accepted by the Utah Division of Oil, Gas and Mining
Date: September 04, 2014
By: 

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Barbara Nicol	303-397-3736	Regulatory Analyst
SIGNATURE		**DATE**
N/A		8/12/2014

RECEIVED: Aug. 12, 2014

Sundry Number: 54400 API Well Number: 43015302720000