UTAH OIL AND GAS CONSERVATION COMMISSION

REMARKS: WELL LOG ___ ELECTRIC LOGS ✓ FILE X WATER SANDS ___ LOCATION INSPECTED C ___ SUB. REPORT abd ___

Operator change 5.23.85: 930728 APC Operating to Forcenergy Gas eff. 9-3-93: 930923 Forcenergy to Richardson Oper. eff. 8-1-93:
7-19-94 mud log
Commenced Injection 10-10-94 "WDW"

DATE FILED 11-15-82

LAND: FEE & PATENTED ___ STATE LEASE NO. ___ PUBLIC LEASE NO. U-47812 INDIAN ___

DRILLING APPROVED 1-26-83

SPUDDED IN 2-14-83

COMPLETED 10-24-83 SIOW PUT TO PRODUCING 1-84 10-18-83

INITIAL PRODUCTION 367 BOPD, 2700 MCF, 25 BWPD

GRAVITY A.P.I. 54.2

GOR 7350/1

PRODUCING ZONES 13,133- 13,181- NUGGETT

TOTAL DEPTH 13,451'

WELL ELEVATION 7520' KB; 7494 GR

DATE ABANDONED ___

FIELD ~~WILDCAT~~

UNIT ___

COUNTY SUMMIT

WELL NO. LOGAN FEDERAL # 2-A API NO. 43-043-30223

LOCATION BHL: 1992' FROM (N) (S) LINE, 1933' FT. FROM (E) (W) LINE NW SE 1/4 — 1/4 SEC. 26

SURFACE LOCATION: 2534 FSL + 2375 FEL

~~Forcenergy Gas Explor. Inc.~~ ~~APC Operating~~

TWP	RGE	SEC.	OPERATOR	TWP	RGE	SEC.	OPERATOR
				3N	7E	26	RICHARDSON OPERATING

QUATERNARY
Alluvium
Lake beds
Pleistocene
Lake beds
TERTIARY
Pliocene
Salt Lake
Oligocene
Norwood
Eocene
Duchesne River
Uinta
Bridger
Green River
KELVIN 172
THRUST 1918
KELVIN 6240

Wasatch
Stone Cabin
Colton
Flagstaff
North Horn
Almy
Paleocene
Current Creek
North Horn
CRETACEOUS
Montana
Mesaverde
Price River
Blackhawk

Star Point
Wahweap
Masuk
Colorado
Sego
Buck Tongue
Castlegate
Mancos
Upper
Middle
Lower
Emery
Blue Gate
Ferron
Frontier
Dakota
Burro Canyon
Cedar Mountain
Buckhorn
JURASSIC
Morrison
Salt Wash
San Rafeal Gr.
Summerville
Bluff Sandstone
Curtis
Entrada
Moab Tongue
Carmel
Glen Canyon Gr.
Navajo
Kayenta
Wingate
TRIASSIC

Chinle
Shinarump
Moenkopi
Sinbad
PERMIAN
Kaibab
Coconino
Cutler
Hoskinnini
DeChelly
White Rim
Organ Rock
Cedar Mesa
Halgaite Tongue
Phosphoria
Park City
Rico (Goodridge)
Supai
Trusx Fault
Leadville Mbr 2810'
Aspen Fm 5732
Beaver River 5976
Stump Fm 10,184'
Pruss Fm 10,365
Salt Section 11,314
SALT - 11,380
Twin Crk Fm -
Giraffe Ck Mbr 11,450'
Gypsum Springs Mbr 12,912
Nugget Fm - 12,988'
T.D. - 13,451'
Cane Creek

Molas
Manning Canyon
Mississippian
Humbug
Brazer
Pilot Shale
Madison
Leadville
Redwall
DEVONIAN
Upper
Middle
Lower
Ouray
Elbert
McCracken
Aneth
Simonson Dolomite
Sevy Dolomite
North Point
SILURIAN
Laketown Dolomite
ORDOVICIAN
Eureka Quartzite
Pogonip Limestone
CAMBRIAN
Lynch
Bowman
Tapeats
Ophir
Tintic
PRE - CAMBRIAN

ACME VISIBLE CROZET VIRGINIA 100730

Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK: DRILL [XX] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL: OIL WELL [XX] GAS WELL [ ] OTHER SINGLE ZONE [XXX] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR: DAVIS OIL COMPANY

3. ADDRESS OF OPERATOR: 410 17th Street, Suite 1400, Denver, Colorado 80202

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: NWSE Sec. 26, T3N, R7E
At proposed prod. zone: 2375' FEL, 2534' FSL - surface; 1980' FEL, 1980' FSL-bottomhole loc.

5. LEASE DESIGNATION AND SERIAL NO.: U-47812

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ----------

7. UNIT AGREEMENT NAME: ----------

8. FARM OR LEASE NAME: Logan Federal

9. WELL NO.: #2-A

10. FIELD AND POOL, OR WILDCAT: ~~Development~~

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 26, T3N, R7E

12. COUNTY OR PARISH: Summit

13. STATE: Utah

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 16 miles east of Coalville, Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 660' bottomhole

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.: 2000' NE

19. PROPOSED DEPTH: 13,200'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 4494.2' GR Est.

22. APPROX. DATE WORK WILL START*: Upon approval

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2"	13 3/8"	68# K-55	STC(NEW)	0-4000'
17 1/2"	13 3/8"	72# N-80	STC(NEW)	4000-6000' ~~1700 sxs. est.~~
12 1/4"	9 5/8"	53.5# N-80	LTC(NEW)	0-2000'
12 1/4"	9 5/8"	47# N-80	LTC(NEW)	2000-8000'
12 1/4"	9 5/8"	53.5# N-80	LTC(NEW)	8000-9500'
12 1/4"	9 7/8"	62.8# SM95T	LTC(NEW)	9500-11,000' 850 sxs. est.
8 1/2"	7"	38# P110	LTC(NEW)	0-80'
8 1/2"	7"	32# P110	LTC(NEW)	80-9500'
8 1/2"	7"	38# P110	LTC(NEW)	9500-13,200' 700 sxs. est.

(SEE TEN POINT PROGRAM)

APPROVED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING
DATE: 1-26-83
BY: [signature]

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, 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 and true vertical depths. Give blowout preventer program, if any.

24.
SIGNED: Ed Lafaye TITLE: Chief Geologist DATE: 11/15/82

(This space for Federal or State office use)

PERMIT NO. APPROVAL DATE

APPROVED BY TITLE DATE

CONDITIONS OF APPROVAL, IF ANY:

TEN POINT PROGRAM

1) SURFACE FORMATION: Frontier

2 & 3) ESTIMATED TOPS: (Water, Oil, Gas or Mineral bearing formations)

Frontier	surface	shales, sandstones, conglomerates and coals, no oil or gas
Aspen	5528'	shales & siltstones; no oil or gas
Bear River	5770'	shales & siltstones; no oil or gas
Kelvin	6050'	sandstones, siltstones, and shales; no oil or gas
Stump	9865'	conglomerates, sandstones; siltstones, shales and limestones; no oil or gas
Preuss FM Upper	10165'	siltstones, shales & sandstones; no oil or gas
Preuss Salt	11055'	thin salt and anhydrite; no oil or gas
Preuss Fm. Lower	11065'	siltstones, shales and sandstones; no oil or gas
Twin Creek	11130'	limestone and minor shales; possible oil and gas in lower zones.
Gypsum Spring FM	12420'	shale and anhydrite; no oil and gas
Nugget Sandstone	12510'	sandstone possible oil and gas
Total Depth	13200'	same to water-bearing sandstone.

4) CASING PROGRAM:
17 1/2", 13 3/8" 68# K-55 STC(NEW) 0-4000'
17 1/2", 13 3/8" 72# N-80 STC(NEW) 4000-6000' 1700 sxs. est.
12 1/4", 9 5/8" 53.5# N-80 LTC(NEW) 0-2000'
12 1/4", 9 5/8" 47# N-80 LTC(NEW) 2000-8000'
12 1/4", 9 5/8" 53.5# N-80 LTC(NEW) 8000-9500'
12 1/4", 9 7/8" 62.8# SM95T 9500-11,000' 850 sxs. est.
8 1/2", 7" 38# P110 LTC(NEW) 0-80'
8 1/2", 7" 32# P110 LTC(NEW) 80-9500', 9500-13,200' 7" 38# P110 LTC(NEW) 700 sxs. est.

5) PRESSURE CONTROL EQUIPMENT: (See attached schematic diagram) BOP's and choke manifold will be installed and pressure tested before drilling out under surface casing and then will be checked daily as to mechanical operating condition. Ram type preventors and related pressure control equipment will be pressure tested to rated working pressure of the stack assembly or to 70% of the minimum internal yield pressure of the casing. Annular type preventors will be tested to 50% of their rated working pressure. BOP's will be pressure tested at least once every 30 days.

6) MUD PROGRAM:
0-1000' fresh water spud mud 8.5 ppg
1000-6000' LSND Maximum mud weighted 8.9-9.3 ppg
6000-11,000' brine mud 9-10 ppg maximum mud weighted
11,000-13,200' LSND Maximum mud weight 8.9-9 ppg
35-45 vis., 10 cc W.L.,PH 10.

Sufficient mud materials to maintain mud properties, control lost circulation and to contain blowout will be available at wellsite.

7) AUXILLIARY EQUIPMENT:

1) Kelly Cock.
2) Drill Pipe Float (Except for lost circulation drilling conditions)
3) Monitoring of Mud System will be visual unless otherwise specified.
4) A sub on the floor with a full opening valve to be stabbed into drill pipe when Kelly is not in the string.

8) LOGGING:

DIL, SFl - from base of surface casing to TD. DLL as needed. Gamma Ray over surface casing; FDC-CNL, Sonic, dipmeter over entire open hole; Frac log as needed.

CORING:

Cores of Nugget Sandstone.

8) Continued -

TESTING:

DST of Twin Creek if shows encountered.

STIMULATION:

Nugget Sand Formation - oil breakdown, oil frac if necessary.

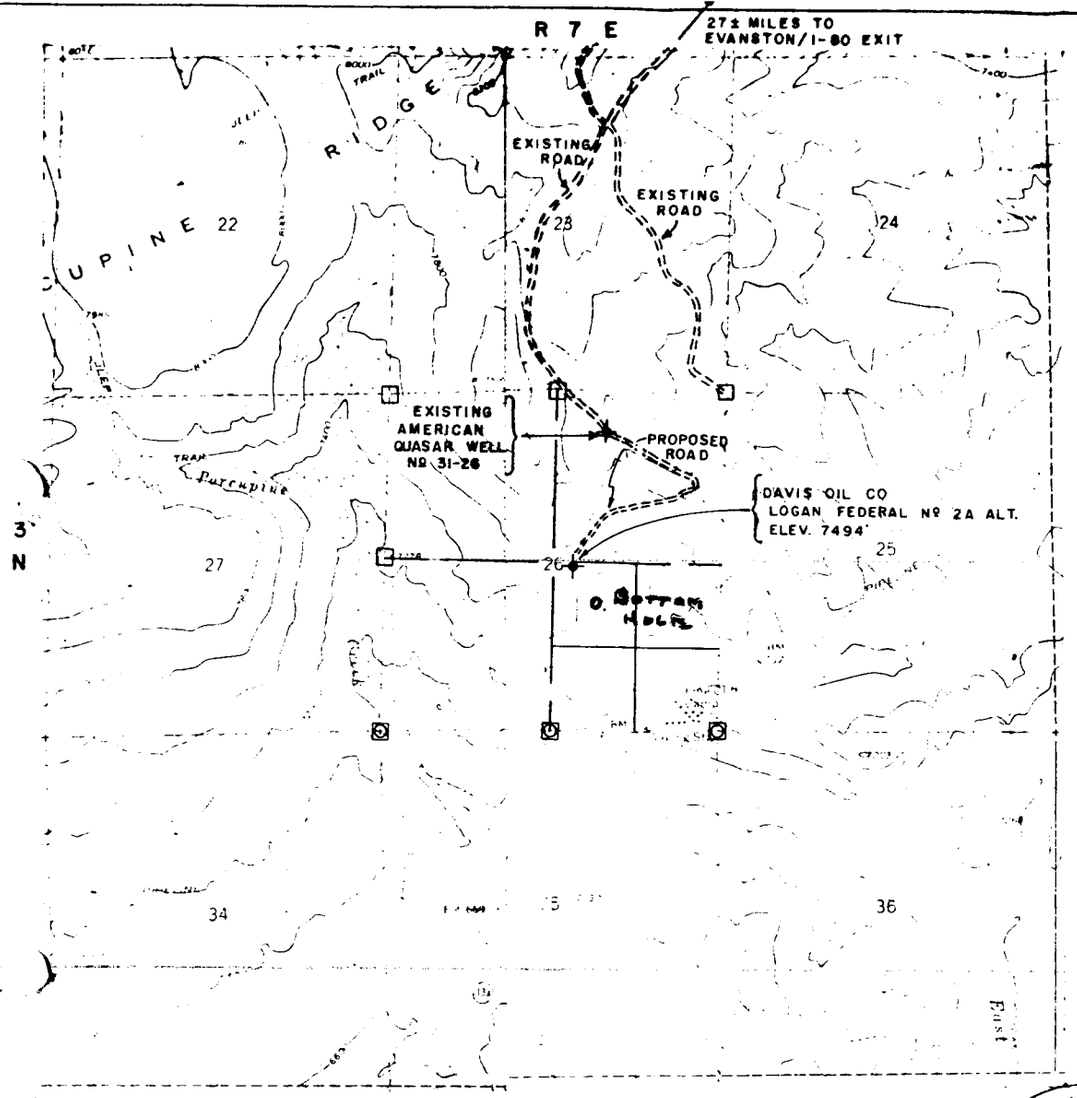
PLANNED COMPLETION & STIMULATING PROCEDURES: (Ex. proposed completion zone, acidizing, and fracturing programs):

9) ABNORMAL PRESSURE: This firm does not anticipate any abnormal pressure of temperatures or any other hazards. This is based on previous geological data from nearby wells.

ESTIMATED BOTTOMHOLE PRESSURE: 5000 PSI.
ESTIMATED MAXIMUM SURFACE PRESSURE: 100 PSI.

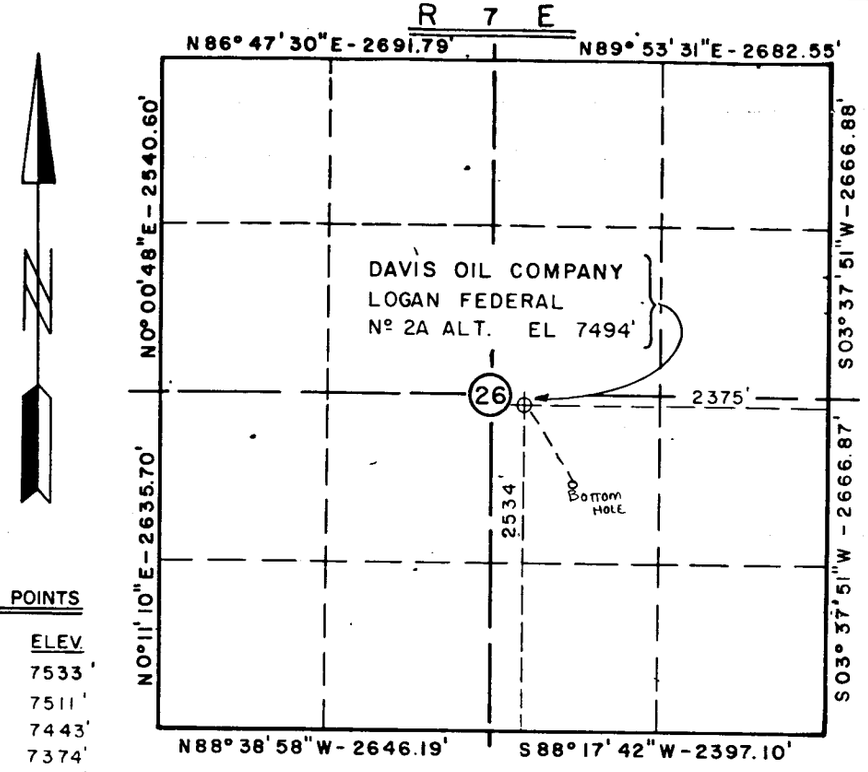
10) ANTICIPATED STARTING DATE: Within 30-45 days from Government approval.

DURATION OF OPERATION: 30-60 Days.



VICINITY MAP

SCALE: 1" = 2000'



LOCATION MAP

SCALE: 1" = 1000'

REFERENCE POINTS

LOCATION	ELEV.
N 200'	7533'
NE COR.	7511'
E 200'	7443'
SE COR.	7374'
S 200'	7447'
SW COR.	7447'
W 200'	7489'
NW COR.	7549'

NOTES:

⊕ - PIPE CORNERS LOCATED, ⊕ - STONE CORNERS LOCATED

B.M. - U.S.G.S. Y161 (1962) ELEV. 6691'

U.S.G.S. QUAD - RED HOLE, UTAH - WYOMING

REGISTERD LAND SURVEYOR 4806 JOSEPH W. MANATOS STATE OF UTAH

CERTIFICATE OF SURVEYOR

STATE OF WYOMING
COUNTY OF SWEETWATER } S.S.

I, JOSEPH W. MANATOS, OF ROCK SPRINGS, WYOMING DO HEREBY CERTIFY THAT THIS MAP CORRECTLY SHOWS THE WELL LOCATION MADE FOR DAVIS OIL COMPANY ON NOVEMBER 12, 1982.

Joseph W. Manatos

UTAH R. L. S. NO. 4806

MAP
SHOWING WELL LOCATION
FOR
DAVIS OIL COMPANY

LOGAN FEDERAL, Nº 2A (ALTERNATE)
NW 1/4, SE 1/4, SECTION 26
T 3 N, R 7 E

SUMMIT COUNTY, UTAH

JOHNSON-FERMELIA & CRANK, INC.
ROCK SPRINGS, WYO.

JOB NO. 1091-0582-1

Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

MINERALS MANAGEMENT SERVICE
OIL & GAS OPERATIONS
RECEIVED
NOV 22 1982
SALT LAKE CITY, UT

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK: DRILL XX DEEPEN ☐ PLUG BACK ☐

b. TYPE OF WELL: OIL WELL XX GAS WELL ☐ OTHER SINGLE ZONE XXX MULTIPLE ZONE ☐

2. NAME OF OPERATOR: DAVIS OIL COMPANY

3. ADDRESS OF OPERATOR: 410 17th Street, Suite 1400, Denver, Colorado 80202

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: NWSE Sec. 26, T3N, R7E
At proposed prod. zone: 2375' FEL, 2534' FSL - surface; 1980' FEL, 1980' FSL-bottomhole loc.

5. LEASE DESIGNATION AND SERIAL NO.: U-47812

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ----------

7. UNIT AGREEMENT NAME: ----------

8. FARM OR LEASE NAME: Logan Federal

9. WELL NO.: #2-A

10. FIELD AND POOL, OR WILDCAT: Development

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 26, T3N, R7E

12. COUNTY OR PARISH: Summit

13. STATE: Utah

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 16 miles east of Coalville, Utah

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 660' bottomhole

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.: 2000' NE

19. PROPOSED DEPTH: 13,200'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 7494.2' GR Est.

22. APPROX. DATE WORK WILL START*: Upon approval

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2"	13 3/8"	68# K-55	STC(NEW)	0-4000'
17 1/2"	13 3/8"	72# N-80	STC(NEW)	4000-6000' 1700 sxs. est.
12 1/4"	9 5/8"	53.5# N-80	LTC(NEW)	0-2000'
12 1/4"	9 5/8"	47# N-80	LTC(NEW)	2000-8000'
12 1/4"	9 5/8"	53.5# N-80	LTC(NEW)	8000-9500'
12 1/4"	9 7/8"	62.8# SM95T	LTC(NEW)	9500-11,000' 850 sxs. est.
8 1/2"	7"	38# P110	LTC(NEW)	0-80'
8 1/2"	7"	32# P110	LTC(NEW)	80-9500'
8 1/2"	7"	38# P110	LTC(NEW)	9500-13,200' 700 sxs. est.

(SEE TEN POINT PROGRAM)

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, 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 and true vertical depths. Give blowout preventer program, if any.

24. SIGNED: Ed Lafaye TITLE: Chief Geologist DATE: 11/15/82

(This space for Federal or State office use)

PERMIT NO. ---------- APPROVAL DATE ----------

APPROVED BY: W. Martin FOR E. W. GUYNN TITLE: DISTRICT OIL & GAS SUPERVISOR DATE: DEC 09 1982

CONDITIONS OF APPROVAL, IF ANY:

NOTICE OF APPROVAL

CONDITIONS OF APPROVAL ATTACHED TO OPERATOR'S COPY

FLARING OR VENTING OF GAS IS SUBJECT TO NTL 4-A DATED 1/1/80

STATE O & G

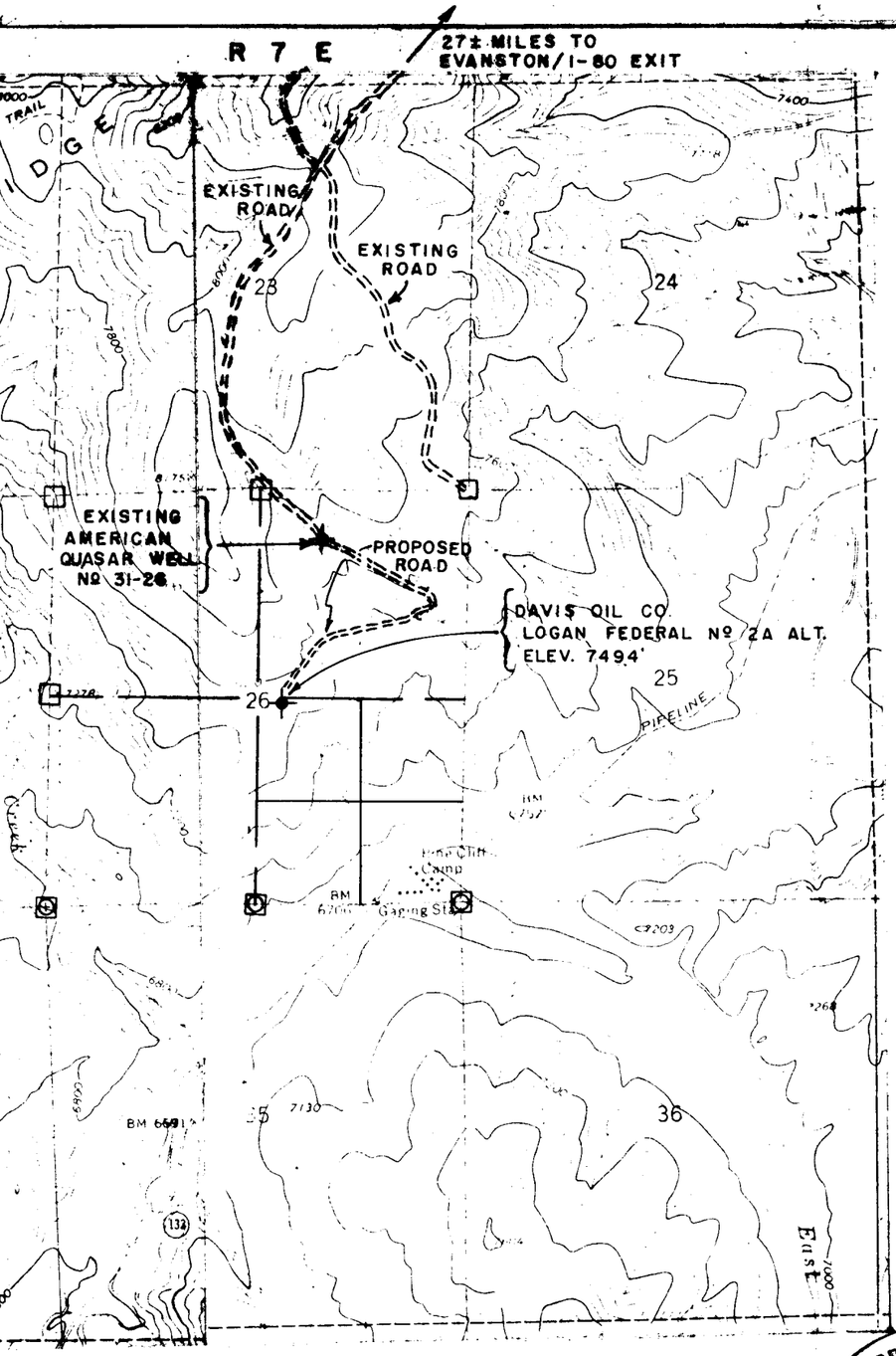
Davis Oil Company
Well No. 2-A
Section 26, T3N, R7E
Summit County, Utah
Lease U-47812

Supplementary Stipulations

1. Proper precautionary measures shall be observed during pad construction to avoid spring thaw compaction problems that could occur as a result of disturbances to frozen soil materials.

2. Sewage and waste disposal shall follow state and county ordinances. Proper permits should be obtained.

3. To maintain vegetation consistent with the adjacent area, native browse species presently growing on the location shall be seeded along with the landowners seeding recommendations, only if it is compatible with the landowners planned use of the rehabilitated area.



VICINITY MAP

SCALE: 1" = 2000'

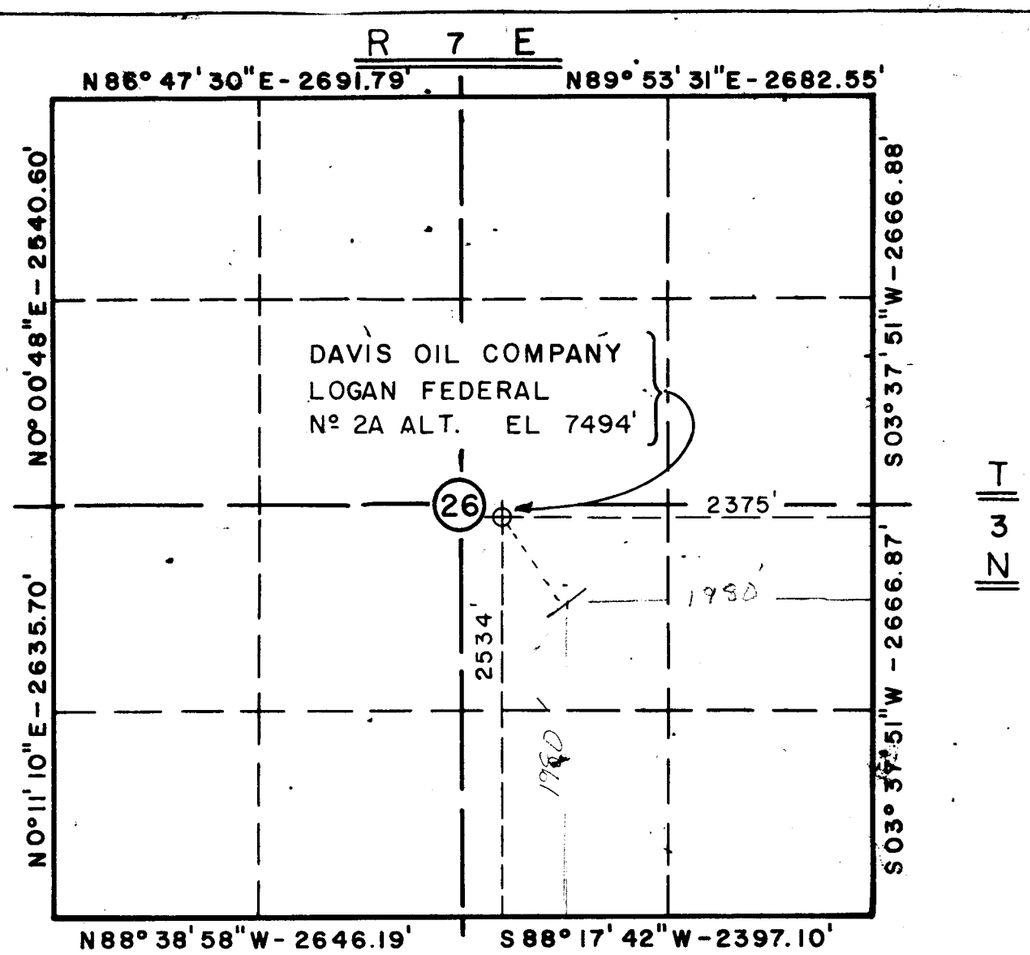
-STONE CORNERS LOCATED

V.6691'

TAH - WYOMING

REFERENCE POINTS

LOCATION	ELEV.
N 200'	7533'
NE COR.	7511'
E 200'	7443'
SE COR.	7374'
S 200'	7447'
SW COR.	7447'
W 200'	7489'
NW COR.	7549'



LOCATION MAP

SCALE: 1" = 1000'

CERTIFICATE OF SURVEYOR

STATE OF WYOMING
COUNTY OF SWEETWATER } S.S.

I, JOSEPH W. MANATOS, OF ROCK SPRINGS, WYOMING DO HEREBY CERTIFY THAT THIS MAP CORRECTLY SHOWS THE WELL LOCATION MADE FOR DAVIS OIL COMPANY ON NOVEMBER 12, 1982.

Joseph W. Manatos

UTAH R. L. S. NO. 4806

REGISTERED LAND SURVEYOR
4806
JOSEPH W.
MANATOS
STATE OF UTAH

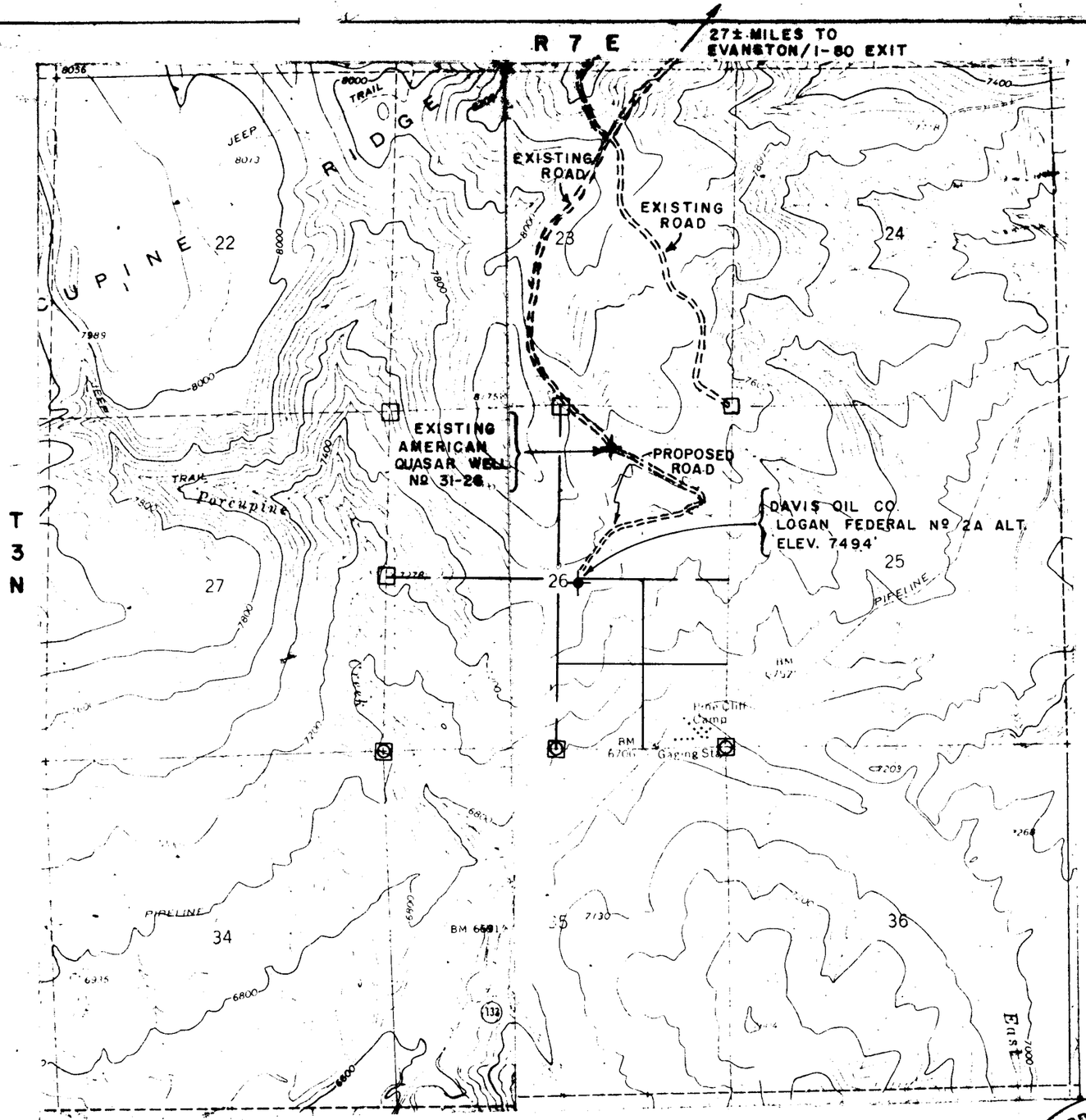
MAP
SHOWING WELL LOCATION
FOR
DAVIS OIL COMPANY

LOGAN FEDERAL, Nº 2A (ALTERNATE)
NW 1/4, SE 1/4, SECTION 26
T 3 N, R 7 E

SUMMIT COUNTY, UTAH

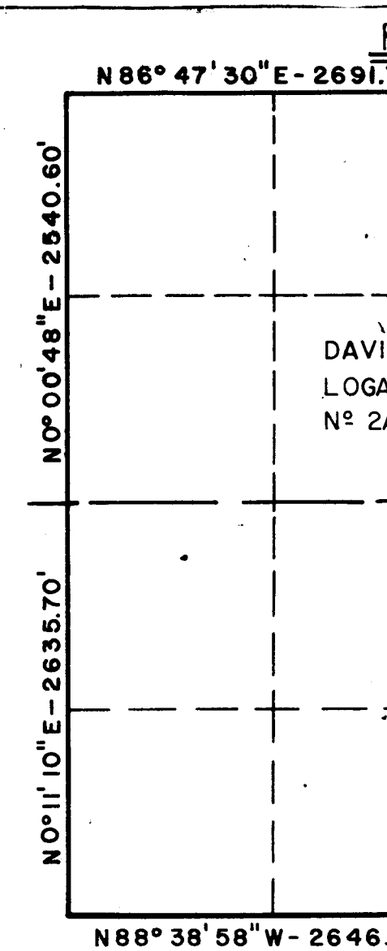
JOHNSON-FERMELIA & CRANK, INC.
ROCK SPRINGS, WYO.

JOB NO. 1091-0582-1



VICINITY MAP

SCALE: 1" = 2000'



REFERENCE POINTS

LOCATION	ELEV.
N 200'	7533'
NE COR.	7511'
E 200'	7443'
SE COR.	7374'
S 200'	7447'
SW COR.	7447'
W 200'	7489'
NW COR.	7549'

LOCA
SC

CERTIFICATE OF SURVEYOR

STATE OF WYOMING
COUNTY OF SWEETWATER } S.S.

I, JOSEPH W. MANATOS, OF ROCK SPRIN
DO HEREBY CERTIFY THAT THIS MAP C
SHOWS THE WELL LOCATION MADE FOR
COMPANY ON NOVEMBER 12, 1982.

Joseph W. Manatos

UTAH R. L. S. NO. 4806

REGISTERED LAND SURVEYOR
4806
JOSEPH W.
MANATOS
STATE OF UTAH

RECEIVED
NOV 17 1982
DAVIS OIL COMPANY
MILLS, WYO. 82644

NOTES:

-PIPE CORNERS LOCATED, -STONE CORNERS LOCATED

B.M. - U.S.G.S. Y161 (1962) ELEV. 6691'

U.S.G.S. QUAD - RED HOLE, UTAH - WYOMING

DAVIS OIL COMPANY
410 — 17TH STREET, SUITE 1400
DENVER, COLORADO 80202-4472
TELEPHONE: 303-623-1000

NEW ORLEANS
HOUSTON
TULSA

November 15, 1982

RECEIVED
NOV 22 1982
DIVISION OF
OIL, GAS & MINING

MMS
1745 West & 1700 South
Room 2000 Administration Bldg.
Salt Lake City, Utah 84104

RE: #2-A Logan Federal
NWSE Sec. 26, T3N, R7E
Summit County, Utah

Gentlemen:

Enclosed please find for your approval, an original and three copies of the Application for Permit to Drill, together with four copies of the Staking Plat covering the drilling of the captioned proposed test. Designation of Operator from Marc Rich & Co., AE Investments, and Interstate Investment will be forthcoming.

By carbon copy of this letter to the Utah Division of Natural Resources, we are furnishing them with a copy of our application and plat.

Your early attention to the approval of said application will be appreciated.

Very truly yours,

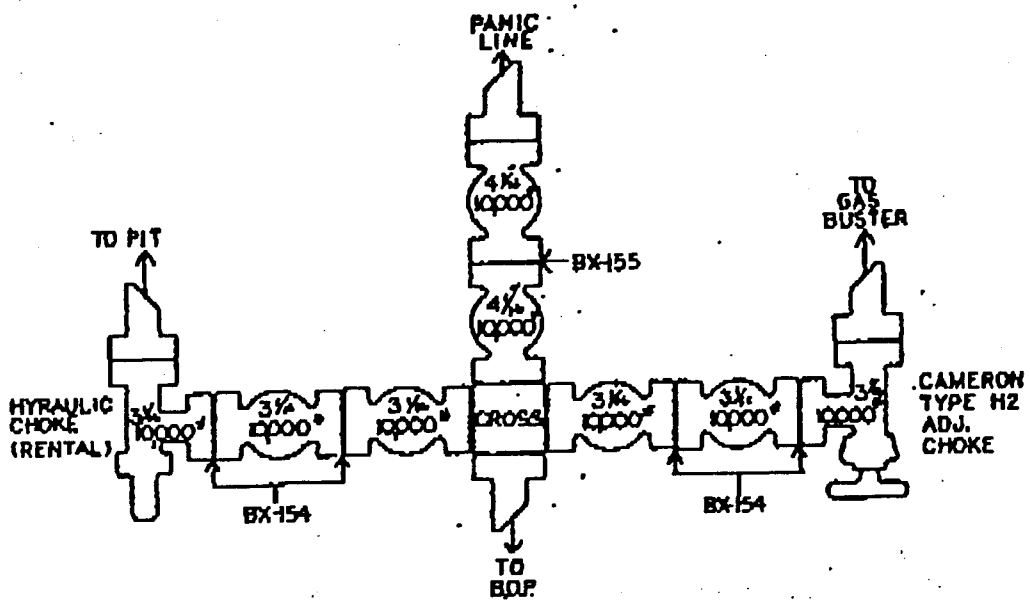
DAVIS OIL COMPANY

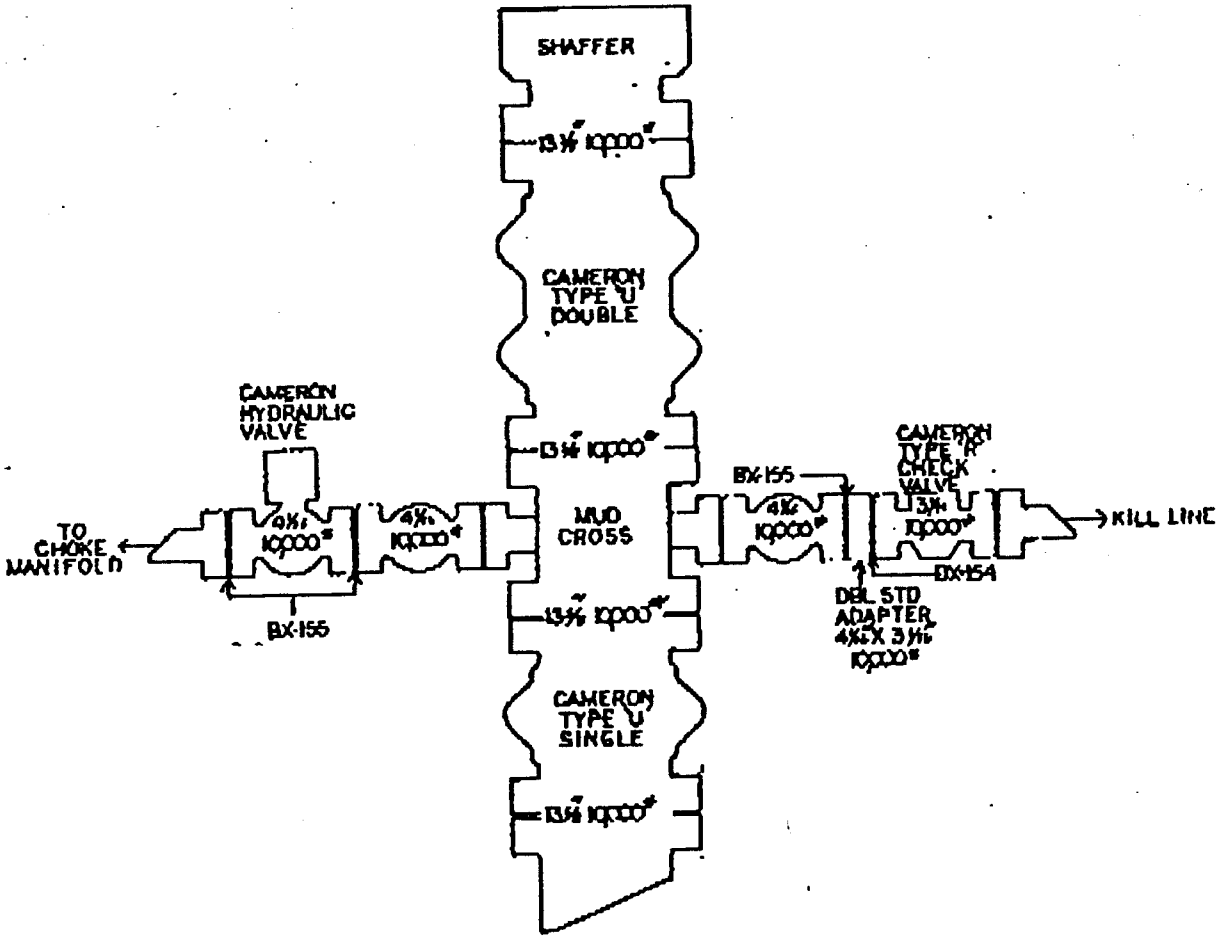
Michelle

Michelle Hiller
Executive Secretary

/mh
Enclosures

cc: Utah Division of Natural Resources


PANIC LINE
4 1/16" 10000#
BX-155
4 1/16" 10000#
TO GAS BUSTER
TO PIT
HYRAULIC CHOKE (RENTAL)
3 1/16" 10000#
3 1/16" 10000#
3 1/16" 10000#
CROSS
3 1/16" 10000#
3 1/16" 10000#
3 1/16" 10000#
CAMERON TYPE H2 ADJ. CHOKE
BX-154
BX-154
TO B.O.P.


SHAFFER
13 5/8" 10000#
CAMERON TYPE 'U' DOUBLE
CAMERON HYDRAULIC VALVE
13 5/8" 10000#
CAMERON TYPE 'R' CHECK VALVE
BX-155
TO CHOKE MANIFOLD
4 1/16" 10000#
4 1/16" 10000#
MUD CROSS
4 1/16" 10000#
3 1/16" U 10000#
KILL LINE
BX-155
BX-154
13 5/8" 10000#
DBL STD ADAPTER 4 1/16 X 3 1/16 10000#
CAMERON TYPE 'U' SINGLE
13 5/8" 10000#

DAVIS OIL COMPANY
410 – 17TH STREET, SUITE 1400
DENVER, COLORADO 80202
TELEPHONE: 303-623-1000

NEW ORLEANS
HOUSTON
TULSA

January 25, 1983

Mr. Norm Stout
Utah Division of Oil, Gas and Mining
4241 State Office Building
Salt Lake City, UT 84114

RE: #2A Logan Federal
NWSE Sec.26-T3N-R7E
Summit County, Utah
(Holding File)

Gentlemen:

As discussed today, on November 15, 1982, Davis Oil Company filed an Application for Permit to Drill the subject test well, with the State of Utah Division of Oil, Gas and Mining.

Pursuant to Cause No. 203-1 establishing 80-acre spacing for the North Pineview Field, Davis Oil Company hereby designates the N/2 SE/4 Section 26-T3N-R7E as the drilling and spacing unit for the subject test well. LAY DOWN

As we anticipate commencing the #2A Logan Federal test well as soon as possible, your timely approval of our APD is appreciated.

Very truly yours,

DAVIS OIL COMPANY

Lynn S. Belcher
Landman

LSB/vls

RECEIVED
JAN 26 1983
DIVISION OF
OIL GAS & MINING

OPERATOR Davis Oil DATE 11-24-82

WELL NAME Logan Fed #2A

SEC NWSE 26 T 3N R 7E COUNTY Summit

43-043-30223	Fed
API NUMBER	TYPE OF LEASE

POSTING CHECK OFF:

[ ] INDEX	[ ] HL	[ ]
[ ] NID	[ ] PI	[ ]
[ ] MAP	[ ]	[ ]

PROCESSING COMMENTS:
Permitted as a lay down drilling unit - directional drilling program

PJ 1-18-83 - Garry Rogow advised that necessary water permits had been obtained for water from Chalk Creek drainage.

APPROVAL LETTER:

SPACING: [ ] A-3 _____ UNIT [X] c-3-a amended 203-1 10-29-82 CAUSE NO. & DATE

[ ] c-3-b [ ] c-3-c

[redacted]

Directional drilling survey data shall be submitted at time of well completion. Compliance with bottom hole pressure testing, production restrictions, and all other aspects of Cause # 203-1 as amended is required.

- [x] RECONCILE WELL NAME AND LOCATION ON APD AGAINST SAME DATA ON PLAT MAP.
- [x] AUTHENTICATE LEASE AND OPERATOR INFORMATION
- [x] VERIFY ADEQUATE AND PROPER BONDING FED
- [x] AUTHENTICATE IF SITE IS IN A NAMED FIELD, ETC.
- [ ] APPLY SPACING CONSIDERATION
  - [x] ORDER 203-1
  - [ ] UNIT NO
  - [ ] c-3-b
  - [ ] c-3-c
- [x] OUTSTANDING OR OVERDUE REPORTS FOR OTHER WELLS OF THE OPERATOR.
- [x] POTASH

January 26, 1983

Davis Oil Company
410 - 17th Street, Suite 1400
Denver, Colorado 80202

RE: Well No. 2 A Logan Federal
NWSE Sec. 26, T.3N, R.7E
Summit County, Utah

Gentlemen:

Insofar as this office is concerned, approval to drill the above referred to oil well is hereby granted in accordance with the Order issued in Cause No. Amended 203-1 dated October 29, 1982. Directional drilling survey data shall be submitted at time of well completion. Compliance with bottom hole pressure testing, production, restrictions, and all other aspects of Cause #203-1 as amended is required.

Should you determine that it will be necessary to plug and abandon this well, you are hereby requested to immediately notify the following:

RONALD J. FIRTH - Engineer Office: 533-5771 Home: 571-6068	OR	CLEON B. FEIGHT - Director Office: 533-5771 Home: 466-4455

Enclosed please find Form OGC-8-X, which is to be completed whether or not water sands (acquifiers) are encountered during drilling. Your cooperation in completing this form will be appreciated.

Further, it is requested that this Division be notified within 24 hours after drilling operations commence, and that the drilling contractor and rig number be identified.

The API number assigned to this well is 43-043-30223.

Sincerely,

Norman C. Stout
Administrative Assistant

NCS/as
cc: Oil &Gas Operations
Enclosure

file

NOTICE OF SPUD

Company: Davis Oil

Caller: Dale Harrington

Phone: #307-266-2165

Well Number: Logan Fed 2-A

Location: NW 1/4 SE 1/4 Sec 26 T. 3N R. 7E

County: Summit State: UT

Lease Number: U-47812

Lease Expiration Date:

Unit Name (If Applicable):

Date & Time Spudded: 2-14-83 3:30 A.M.

Dry Hole Spudder/Rotary:

Details of Spud (Hole, Casing, Cement, etc.) 26" hole, just started drilling

Rotary Rig Name & Number: Parker 183

Approximate Date Rotary Moves In: 2-7-83

FOLLOW WITH SUNDRY NOTICE

Call Received By: Cindy

Date: 2-15-83 8:40 AM.

cc: Well file
mms (BLM) Vernal
UT St. O & G
TAM
APD

RECEIVED
FEB 16 1983
DIVISION OF
OIL, GAS & MINING

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

NAME OF COMPANY: Davis Oil

WELL NAME: Logan Federal 2A

SECTION NWSE 26 TOWNSHIP 3 N RANGE 7E COUNTY Summit

DRILLING CONTRACTOR Parker

RIG # 183

SPUDDED: DATE 2-14-83

TIME 3:30 AM

HOW Rotary

DRILLING WILL COMMENCE

REPORTED BY Dale Parrington

TELEPHONE # 307-266-2165

DATE 2-15-83 SIGNED AS

Form 9-331
Dec. 1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well [X] gas well [ ] other

2. NAME OF OPERATOR
Davis Oil Company

3. ADDRESS OF OPERATOR
410 17th St Suite 1400 Denver Colo 80202

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: NW-SE
AT TOP PROD. INTERVAL: Sec 26 T3N R7E
AT TOTAL DEPTH:

5. LEASE
U 47812

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME
Logan Federal

9. WELL NO.
2A

10. FIELD OR WILDCAT NAME
Development

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 26 T3N R7E

12. COUNTY OR PARISH: Summit
13. STATE: Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
7494.2 Gr Est

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	[ ]	[ ]
FRACTURE TREAT	[ ]	[ ]
SHOOT OR ACIDIZE	[ ]	[ ]
REPAIR WELL	[ ]	[ ]
PULL OR ALTER CASING	[ ]	[ ]
MULTIPLE COMPLETE	[ ]	[ ]
CHANGE ZONES	[ ]	[ ]
ABANDON*	[ ]	[ ]
(other)		

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. 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.)*

Spudded 2-14-83 at 3:30 A.M. with Parker 187.
Drlg a 26" hole to 1037. Set 20" 133# KSS to 1031 and cemented to surface

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED [signature] TITLE Drlg. Area Foreman DATE February 28, 1983

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form DOGC-4

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS CONSERVATION
4241 STATE OFFICE BUILDING
SALT LAKE CITY, UTAH 84114
533-5771

State Lease No. .....
Federal Lease No. U-47812 MAP
Indian Lease No. .....
Fee & Pat. .....

REPORT OF OPERATIONS AND WELL STATUS REPORT

STATE Utah COUNTY Summit FIELD/LEASE Wildcat Logan Federal #2-A

The following is a correct report of operations and production (including drilling and producing wells) for the month of: February, 19 83.

Agent's Address 410 17th Street, Suite 1400, Denver, CO 80202
Phone No. (303) 623-1000

Company Davis Oil Company
Signed Pamela Leighton
Title Production Services Manager

Sec. and ¼ of ¼	Twp.	Range	Well No.	Days Produced	Barrels of Oil	Gravity	Cu. Ft. of Gas (In thousands)	Gallons of Gasoline Recovered	Barrels of Water (if none, so state)	API NUMBER/REMARKS (If drilling, depth; if shut down, cause; date and result of test for gasoline content of gas)
26 NWSE	3N	7E	2-A	NONE	NONE	---	NONE	---	NONE	API # - 30223 Spudded 2/14/83. 2/19/83-Drg. @718', Kelvin formation. 2/27/83-Depth @1037'. Reaming. Ran 26 jts. 20",133,K-55 BT&C csg. Set @ 1031' & cmtd w/1790 sxs. 2/18/83-Cut 30" &20", Kelvin formation.

GAS: (MCF)
Sold NONE
Flared/Vented "
Used On/Off Lease "

OIL or CONDENSATE: (To be reported in Barrels)
On hand at beginning of month NONE
Produced during month "
Sold during month "
Unavoidably lost "
Reason: ---
On hand at end of month NONE

DRILLING/PRODUCING WELLS: This report must be filed on or before the sixteenth day of the succeeding month following production for each well. Where a well is temporarily shut-in, a negative report must be filed. *THIS REPORT MUST BE FILED IN DUPLICATE.*

Note: The API number must be listed on each well.

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.
U-47812

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME
Logan Federal

9. WELL NO.
#2-A

10. FIELD AND POOL, OR WILDCAT
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
26-3N-7E

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL [XX] GAS WELL [ ] OTHER

2. NAME OF OPERATOR
Davis Oil Company

3. ADDRESS OF OPERATOR
410 17th Street, Suite 1400 Denver, CO 80202

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface

NW SE Sec. 26-T3N-R7E

14. PERMIT NO.
43-043-30223

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

12. COUNTY OR PARISH
Summit

13. STATE
Utah

16. **Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data**

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]
(Other)			

SUBSEQUENT REPORT OF:

WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
(Other) Progress report			XXX

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

17. 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.)*

Spudded 2/14/83
2/19/83 - Drilling @ 718', Kleven formation.
2/22/83 - Drilling @ 953'.
2/27/83 - Depth @ 1037'. Reaming. Ran 26 jts. 20", 133, K-55 BT&C csg. Set @ 1031' & cmtd. w/1790 sxs. Good returns.
2/28/83 - Cut 30" & 20". Kelvin formation.

RECEIVED
MAR 16 1983
DIVISION OF
OIL GAS & MINING

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

SIGNED Pamela Leighton TITLE Production Services Mgr. DATE 3/14/83

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form DOGC-4

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS CONSERVATION
4241 STATE OFFICE BUILDING
SALT LAKE CITY, UTAH 84114
533-5771

State Lease No.
Federal Lease No. U-47812 MAP
Indian Lease No.
Fee & Pat.

REPORT OF OPERATIONS AND WELL STATUS REPORT

Logan Federal #2-A

STATE Utah COUNTY Summit FIELD/LEASE Wildcat

The following is a correct report of operations and production (including drilling and producing wells) for the month of: MARCH, 19 83.

Agent's Address: 410 17th Street, Suite 1400, Denver, CO 80202
Phone No.: (303) 623-1000

Company: Davis Oil Company
Signed: Pamela Leighton
Title: Production Services Manager

Sec. and ¼ of ¼	Twp.	Range	Well No.	Days Produced	Barrels of Oil	Gravity	Cu. Ft. of Gas (In thousands)	Gallons of Gasoline Recovered	Barrels of Water (if none, so state)	API NUMBER/REMARKS (If drilling, depth; if shut down, cause; date and result of test for gasoline content of gas)
26 NWSE	3N	7E	2-A	-0-	-0-	—	-0-	—	-0-	API # - 30223 3-1-83 TEST HYDRIL. 3-8-83 - DRG. @ 2035', FRONTIER 3-15-83 - DRG. @ 3075', OYSTER RIDGE. 3/21/83 - DRG. @ 3649' - FRONTIER. 3/27/83 T.I.H. DRG. @ 4213, CHALK CREEK. 3/31/83 - DEPTH @ 4618' - CHALK CREEK. REAMING @ 4580'.

GAS: (MCF)
Sold: NONE
Flared/Vented: ↓
Used On/Off Lease: ↓

OIL or CONDENSATE: (To be reported in Barrels)
On hand at beginning of month: NONE
Produced during month: ↓
Sold during month: ↓
Unavoidably lost: ↓
Reason: ↓
On hand at end of month: ↓

DRILLING/PRODUCING WELLS: This report must be filed on or before the sixteenth day of the succeeding month following production for each well. Where a well is temporarily shut-in, a negative report must be filed. *THIS REPORT MUST BE FILED IN DUPLICATE.*

Note: The API number must be listed on each well.

Form 9-331
Dec. 1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well [X] gas well [ ] other

2. NAME OF OPERATOR
Davis Oil Company

3. ADDRESS OF OPERATOR
410 17th St. Suite 1400 Denver, Co 80202

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: NWSE Sec 26 T3N R7E
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U 47812

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME
Logan Federal

9. WELL NO.
2A

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA NWSE Sec 26 T3N R7E

12. COUNTY OR PARISH Summit

13. STATE Utah

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
7494.2

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	[ ]	[ ]
FRACTURE TREAT	[ ]	[ ]
SHOOT OR ACIDIZE	[ ]	[ ]
REPAIR WELL	[ ]	[ ]
~~PULL OR ALTER~~ CASING	[ ]	[X]
MULTIPLE COMPLETE	[ ]	[ ]
CHANGE ZONES	[ ]	[ ]
ABANDON*	[ ]	[ ]
(other)		

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. 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.)*

Drilled to 5723 with 17½" bit

Set 13 3/8 to 5723

Cemented 2000'+

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED [signature] TITLE Area Drlg Foreman DATE April 13, 1983

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form 9-331
Dec. 1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well [X] gas well [ ] other

2. NAME OF OPERATOR
Davis Oil Company

3. ADDRESS OF OPERATOR
410 17th St. Suite 1400 Denver, Co 80202

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.) NWSE Sec 26 T3N R7E
AT SURFACE:
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
U 47812

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME
Logan Federal

9. WELL NO.
2A

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec 26, T3N R7E NWSE

12. COUNTY OR PARISH | 13. STATE

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	[ ]	[ ]
FRACTURE TREAT	[ ]	[ ]
SHOOT OR ACIDIZE	[ ]	[ ]
REPAIR WELL	[ ]	[ ]
~~PULL OR~~ ALTER CASING	[X]	[ ]
MULTIPLE COMPLETE	[ ]	[ ]
CHANGE ZONES	[ ]	[ ]
ABANDON*	[ ]	[ ]
(other)		

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. 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.)*

Due to the formation change we would like to set 13 3/8 [illegible]

Verbal agreement by Jim Rafaul.

RECEIVED
APR 15 1983
DIVISION OF
OIL GAS & MINING

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

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

SIGNED [signature] TITLE Area Drlg Foreman DATE April 13, 1983

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form DOGC-4

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS CONSERVATION
4241 STATE OFFICE BUILDING
SALT LAKE CITY, UTAH 84114
533-5771

State Lease No. ____
Federal Lease No. U-47812
Indian Lease No. ____
Fee & Pat. ____

REPORT OF OPERATIONS AND WELL STATUS REPORT

Logan Federal #2-A

STATE Utah COUNTY Summit FIELD/LEASE Wildcat

The following is a correct report of operations and production (including drilling and producing wells) for the month of: APRIL, 19 83.

Agent's Address: 410 17th Street, Suite 1400, Denver, CO 80202
Phone No.: (303) 623-1000

Company: Davis Oil Company
Signed: Pamela Leighton
Title: Production Services Manager

Sec. and ¼ of ¼	Twp.	Range	Well No.	Days Produced	Barrels of Oil	Gravity	Cu. Ft. of Gas (In thousands)	Gallons of Gasoline Recovered	Barrels of Water (if none, so state)	API NUMBER/REMARKS (If drilling, depth; if shut down, cause; date and result of test for gasoline content of gas)
26 NWSE	3N	7E	2-A	-0-	-0-	—	-0-	—	-0-	API # - 30223 3-22-83 - DRG. @ 3083; FRONTIER. 3-29-83 - DRG. @ 4475'. CHALK CREEK. 4-14-83 - DEPTH @ 5723: RAN 136 JTS. 13 3/8", 72#, N80 ST&C Csg. Cmtd. W/1450 SXS. 4-21-83 - DRG. @ 6406'; KELVIN.

MAY 31 1983

GAS: (MCF)
Sold: NONE
Flared/Vented:
Used On/Off Lease:

OIL or CONDENSATE: (To be reported in Barrels)
On hand at beginning of month: NONE
Produced during month:
Sold during month:
Unavoidably lost:
Reason:
On hand at end of month:

DRILLING/PRODUCING WELLS: This report must be filed on or before the sixteenth day of the succeeding month following production for each well. Where a well is temporarily shut-in, a negative report must be filed. *THIS REPORT MUST BE FILED IN DUPLICATE.*

Note: The API number must be listed on each well.

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

5. LEASE DESIGNATION AND SERIAL NO.: U-47812

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: Logan Federal

9. WELL NO.: 2-A

10. FIELD AND POOL, OR WILDCAT: Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: 26-3N-7E

1. OIL WELL [XX] GAS WELL [ ] OTHER

2. NAME OF OPERATOR: Davis Oil Company

3. ADDRESS OF OPERATOR: 410 17th Street, Suite 1400 Denver, CO 80202

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: NWSE Sec. 26-T3N-R7E

14. PERMIT NO.: 43-043-30223

15. ELEVATIONS (Show whether DF, RT, GR, etc.):

12. COUNTY OR PARISH: Summit

13. STATE: Utah

16. **Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data**

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other) Progress Report			[XX]
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. 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.)*

3/1/83 - Depth @ 1035'. Test hydril.
3/8/83 - Drg. @ 2035'. Frontier formation.
3/14/83 - Depth @ 2950'. Surveying. Encountered Oyster Ridge member of Frontier @ 2920'.
3/20/83 - Drg. @ 3489'.
3/25/83 - Drg. @ 4076'. Chalk Creek formation.
3/31/83 - Depth @ 4618'. Reaming @ 4580'. Chalk Creek.

RECEIVED
APR 18 1983
DIVISION OF
OIL GAS & MINING

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

SIGNED Pamela Leighton TITLE Production Services Mgr. DATE 4/14/83

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

5. LEASE DESIGNATION AND SERIAL NO.: U-47812

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

1. OIL WELL ☐ GAS WELL ☐ OTHER

2. NAME OF OPERATOR: Davis Oil Company

8. FARM OR LEASE NAME: Logan Federal

3. ADDRESS OF OPERATOR: 410 17th Street, Suite 1400 Denver, CO 80202

9. WELL NO.: #2-A

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: NWSE Sec. 26-T3N-R7E

10. FIELD AND POOL, OR WILDCAT: Development

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: 26-3N-7E

14. PERMIT NO.: 43-043-30223

15. ELEVATIONS (Show whether DF, RT, GR, etc.):

12. COUNTY OR PARISH: Summit

13. STATE: Utah

16. **Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data**

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐
REPAIR WELL	☐	CHANGE PLANS	☐
(Other)			

SUBSEQUENT REPORT OF:

WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
(Other) PROGRESS REPORT			XX

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

17. 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.)*

4/1/83 - Drg. @ 4777'. Chalk Creek.
4/8/83 - Drg. @ 5561'. Long Wall formation.
4/14/83 - Depth @ 5723'. Ran 136 jts. 13-3/8" 72#, N-80 ST&C csg. Set @ 5730'. Ran 2 centralizers. Mud flush w/88 bbls. water. & additives. Cmtd. w/1450 sxs.
4/21/83 - Drg. @ 6406'. Kelvin.
4/28/83 - Drg. @ 7738'.
4/30/83 - Drg. @ 7767'. Kelvin.

RECEIVED
MAY 1983
DIVISION OF
OIL GAS & MINING

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

SIGNED Pamela Leighton TITLE Production Services Mgr. DATE

(This space for Federal or State office use)

APPROVED BY TITLE DATE

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form DOGC-4

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS CONSERVATION
4241 STATE OFFICE BUILDING
SALT LAKE CITY, UTAH 84114
533-5771

State Lease No.
Federal Lease No. U-47812
Indian Lease No.
Fee & Pat.

REPORT OF OPERATIONS AND WELL STATUS REPORT

Logan Federal #2-A

STATE Utah COUNTY Summit FIELD/LEASE Wildcat

The following is a correct report of operations and production (including drilling and producing wells) for the month of: May, 1983.

Agent's Address 410 17th Street, Suite 1400, Denver, CO 80202
Phone No. (303) 623-1000

Company Davis Oil Company
Signed Pamela Leighton
Title Production Services Manager

Sec. and ¼ of ¼	Twp.	Range	Well No.	Days Produced	Barrels of Oil	Gravity	Cu. Ft. of Gas (In thousands)	Gallons of Gasoline Recovered	Barrels of Water (If none, so state)	API NUMBER/REMARKS (If drilling, depth; if shut down, cause; date and result of test for gasoline content of gas)
26 NWSE	3N	7E	2-A	0	—	—	—	—	—	API # - 30223 4/22/83 - DRG. @ 6587'. KELVIN 4/29/83 - DRG. @ 7738'. 5/6/83 - DRG. @ 8560'. 5/13/83 - DRG. @ 9587'. 5/21/83 - DRG. @ 10,351'. STUMP FORMATION.

JUN 27 1983

GAS: (MCF)
Sold NONE
Flared/Vented
Used On/Off Lease

OIL or CONDENSATE: (To be reported in Barrels)
On hand at beginning of month NONE
Produced during month
Sold during month
Unavoidably lost
Reason:
On hand at end of month

DRILLING/PRODUCING WELLS: This report must be filed on or before the sixteenth day of the succeeding month following production for each well. Where a well is temporarily shut-in, a negative report must be filed. *THIS REPORT MUST BE FILED IN DUPLICATE.*

Note: The API number must be listed on each well.

DOUBLE "D" ENTERPRISES

B.O.P. Test Report

B.O.P. TEST PERFORMED ON: 6/8/83

OIL CO: Davis Oil Co.

WELL NAME & NUMBER Logan Fed #2-A

SECTION: 26

TOWNSHIP: 3N

RANGE: 7E

COUNTY: Summit STATE: Utah

DRILLING CONTRACTOR: Parker (183)

ADDRESS: DOUBLE "D" ENTERPRISES, INC.
712 Morse Lee Street
Evanston, Wyoming 82930

PHONE NUMBERS: (307) 789-9213, or (307) 789-5821

EVANSTON SHOP ADDRESS:
96 WILLOW WAY
SUNSET INDUSTRIAL PARK
EVANSTON, WYOMING 82930

INVOICE BILLED OUT OF:

DOUBLE "D" ENTERPRISES, INC.
P.O.Box 560
Shoshoni, Wyoming 82649

OIL CO. SITE REPRESENTATIVE: Dave Hilldreth

RIG TOOL PUSHER:

TESTED OUT OF Evanston OFFICE:

NOTIFIED PRIOR TO TEST: Ron Firth - Utah Oil + Gas

COPIES OF THIS TEST REPORT SENT COPIES TO: Utah Oil + Gas (Ron Firth)
Davis oil - co. man
" " - super.
U.S.G.S.

ORIGINAL CHART & TEST REPORT ON FILE AT: Evanston OFFICE

Shane McKeown Phone Number (307) 789-4790
Mike Rykhus Phone Number (307) 789-5162
Evanston, Wyoming 82930

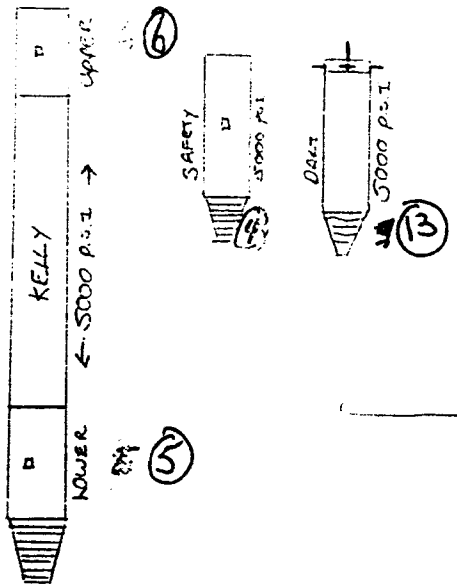
UTAH

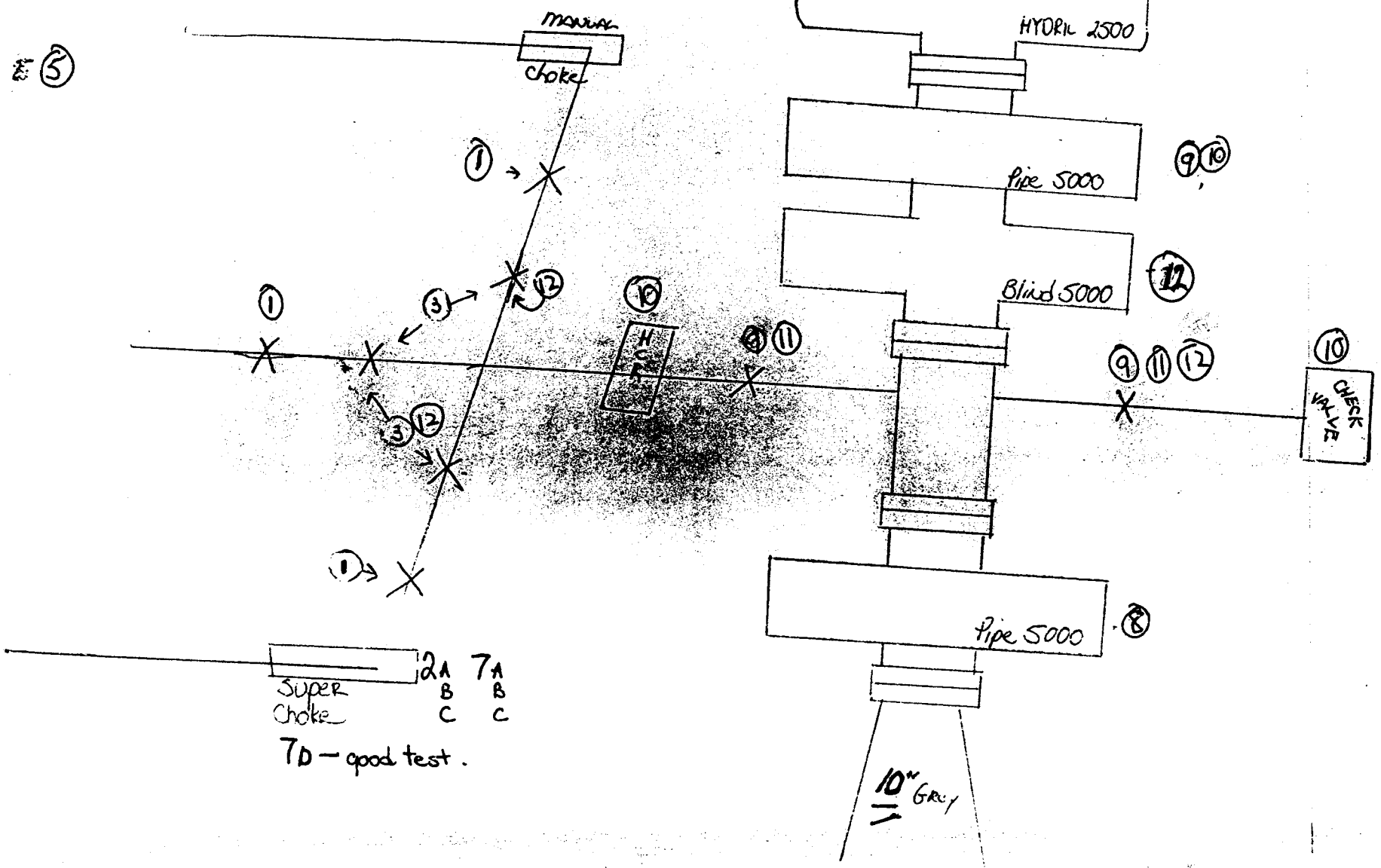
DATE	TICKET #	RIG #	TYPE OF TEST	OIL CO.	WELL #	STATE	SEC. T. RANGE		
3/1	944 15	PARKER #183	TEST	DAVIS OIL	LOGAN FED 2-A	UTAH	26-3N-7E	TEST 30' HYDRIL	
4/13	1167 26	PARKER #183	TEST	DAVIS OIL	LOGAN FED 2-A	UTAH	26-3N-7E	SURFACE	R
5/15	1220	PARKER 183	TEST	DAVIS OIL	LOGAN FED 2-A	UTAH	26-3N-7E	TRIP TEST	R
6/8	1288	PARKER 183	TEST	DAVIS OIL	LOGAN FED 2-A	UTAH	26-3N-7E		R

Parker 183 - 6/8/93

All tests HELD 15 min.

Kogan Fed-2A





7D – good test.

Company	Lease & Well Name #	Date of Test	Rig
Davis Oil Co.	Logan Fed. #2-A	6/8/83	Parker 183

Test #	Time	
	9:30 - 11:00	Load Truck - travel to location
	11:00 - 2:00	Rig up testing unit - move choke house - help rig crew (stack on the air)
1	2:00 - 15	outside manuals on manifold - @ 5000 psi
2 A,B,C	20 - 45	attempt test on "Superchoke" @ 5000 - Flushed + worked @ 1000, 2000, 3000 psi will not hold any pressure.
3	50 - 3:05	inside manuals on choke manifold @ 5000 p.s.i.
	3:10 - 5:55	Helped rig crew - rows still not beat up - welder fabricate weenie hoses - koomey lines - kelly up - lay down pick up lines - bake - rig up bales, elevators, tongs (no chains)
4	6:00 - 15	Safety @ 5000 15 min.
5	20 - 45	Lower kelly @ 5000
6	50 - 7:05	Upper kelly @ 5000
		Rig crew finishing rows, testing kelly - subs - Rig crew (Hydril, Blinds backwards) set mousehole, pick up joints, make up test sub. Meanwhile Swaco hand arrives
7	7:35 - 8:05	Pressured up on Superchoke (same as test two) - cleaned shit-ecal valves, test "7b" @ 5000 p.s.i. good, 15 min
	8:05 - 8:15	Set wellhead - spacer - plug - fill stack
8	8:20 - 35	[illegible] @ 5000 p.s.i.
9	40 - 55	[illegible] inside manuals @ 5000
10	55 - 9:10	[illegible] H.C.R. Check valve
11	9:15 - 30	[illegible] 000 p.s.i.
12	35 - 50	[illegible] 000 p.s.i.
13	55 - 10:15	[illegible] while test dart valve on bearer
		[illegible] floor -
		[illegible]

NOON
1
2
3
4
5
6 PM
7
8
9
10
11
MIDNIGHT
1
2
3
4
5
6 AM
7
8
9
10
11
19000
17000
15000
13000
11000
9000
7000
5000
3000
1000
18000
16000
14000
12000
10000
8000
6000
4000
2000
PRINTED IN U.S.A.

NOON
1
2
3
4
5
6 PM
7
8
9
10
11
MIDNIGHT
1
2
3
4
5
6 AM
7
8
9
10
11
DOUBLE ENTERPRISES
POUNDS PER SQUARE INCH
Aqua Ted #3-A
Davis Oil
PB 183
GC 66-1521
PRINTED IN U.S.A.

DOUBLE D ENTERPRISES
POUNDS PER SQUARE INCH
CONGO-15216
Oil & Gas
6 PM
MIDNIGHT
6 AM
NOON

Date	Ticket #	Rig #	Kind of Test	Oil Co.	Well #	State	Sec. T. Rng		
3/1	9144	Baker #183	TEST	Davis Oil	Logan Fed 2-A	Utah	26-3N-7E	TEST 20" HYDRIC	
4/13	11117	Baker #183	TEST	Davis Oil	Logan Fed. 2-A	Utah	26-3N-7E	SURFACE	R
5/15	12320	Baker #183	TEST	Davis Oil	Logan Fed. 2-A	Utah	26-3N-7E	TRIP TEST	R

DOUBLE "D" ENTERPRISES
B.O.P. Test Report

B.O.P. TEST PERFORMED ON (DATE) 5-15-83 Ticket 1220

TEST FOR: Davis Oil

WELL NAME & NUMBER Logan Fed #3A

SECTION 36

TOWNSHIP 3 N

RANGE 7 E

COUNTY Summit STATE Utah

DRILLING CONTRACTOR Parker 183

TESTER SENT FROM: DOUBLE "D" ENTERPRISES, INC.
213 Pine Street
Shoshoni, Wyoming 82649
(307) 876-2308, or (307) 876-2[illegible]

DOUBLE "D" ENTERPRISES, INC
712 Morse Lee Street
Evanston, Wyoming 82930
(307) 789-9213, or (307) 789-9214

PLACE TO RETURN:

DRILLING CO. REPRESENTATIVE Dave Hillarith

RIG TOOL PUSHER: Smitty

TESTER'S LOCATION Evanston

DELAYS PRIOR TO TEST:

WHO THIS TEST REPORT SENT COPIES TO: Division of oil, gas and Minerals

ORIGINAL CHART & TEST REPORT ON FILE AT: Evanston OFFICE

Mike Rhykus (307) 789-7[illegible]
Shane McKeown (307) 789-4790
(TESTERS)
Evanston, Wyoming 82930

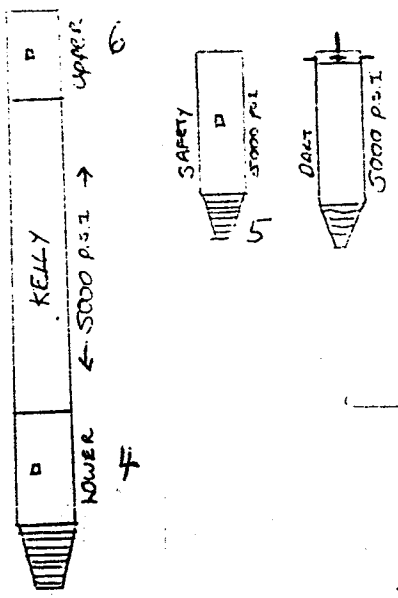
Company	Lease & Well Name #	Date of Test	Rig #
Davis oil	Logan Fed - 2A	5-15-93	Pd 183

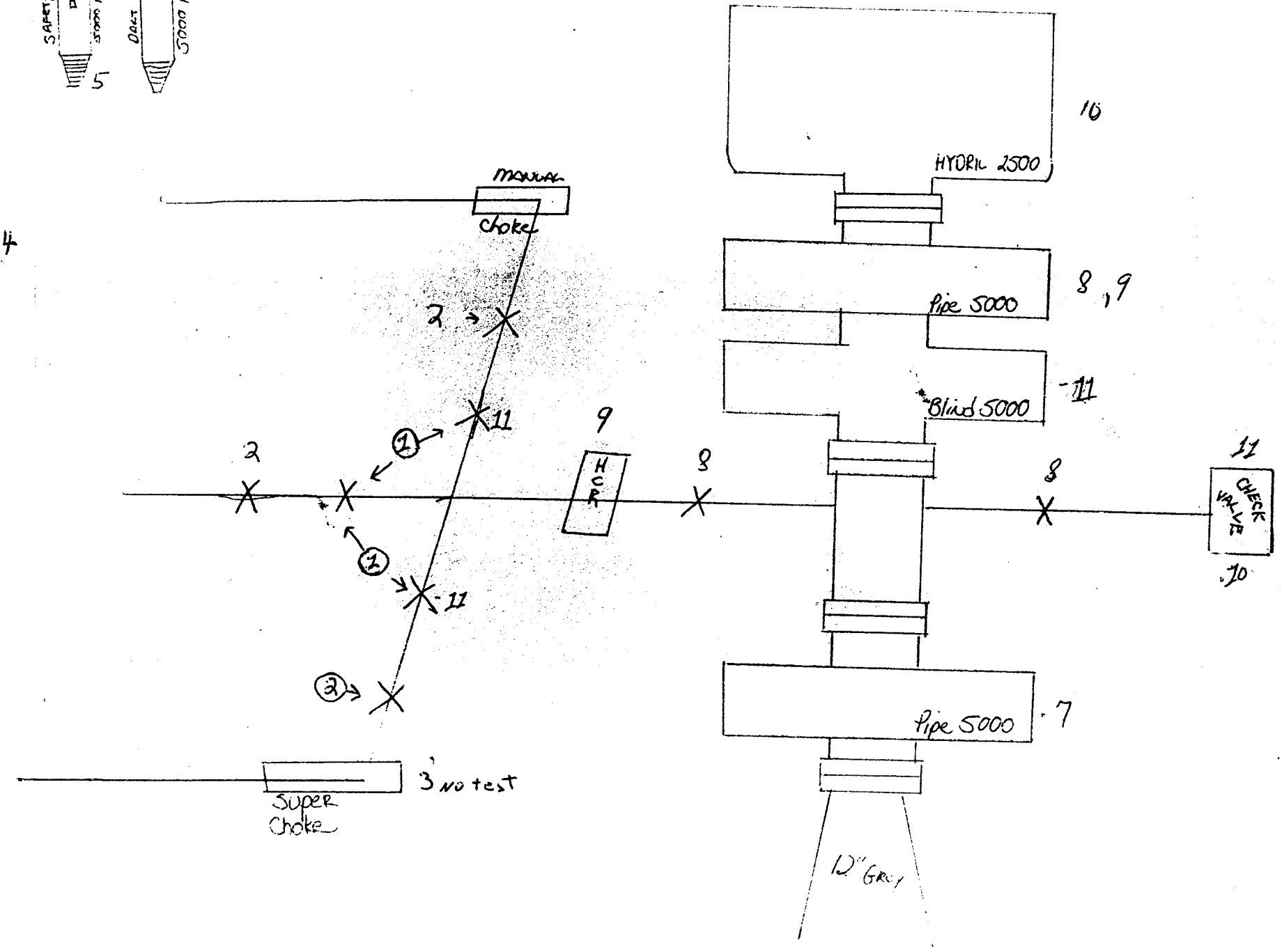
Test #	Time	
	7:00	on Location
1	7:45-8:00	test inside 3 manuals on manifold
2	8:05-8:20	test outside 3 manuals on manifold
3		NO Test All wood choke
	8:30-10:20	wait to finish inspecting bottom hole Assembly
4	10:20-10:35	test lower Kelly
5	10:40-10:55	floor valve
6	10:57	upper Kelly
7	12:15-12:30	test lower pipe rams (one ram door dipped once tightened it up right away)
8	12:35-12:50	test Upper pipe rams inside manual on choke + kill line
9	12:57-1:06	test Upper pipe rams HCR valve, check valve on kill line
10	1:15-1:30	had to operate (open + close Hydril a couple different times) test Hydril, HCR check valves
11	1:35-1:50	test B lind rams check valve inside 3 manuals

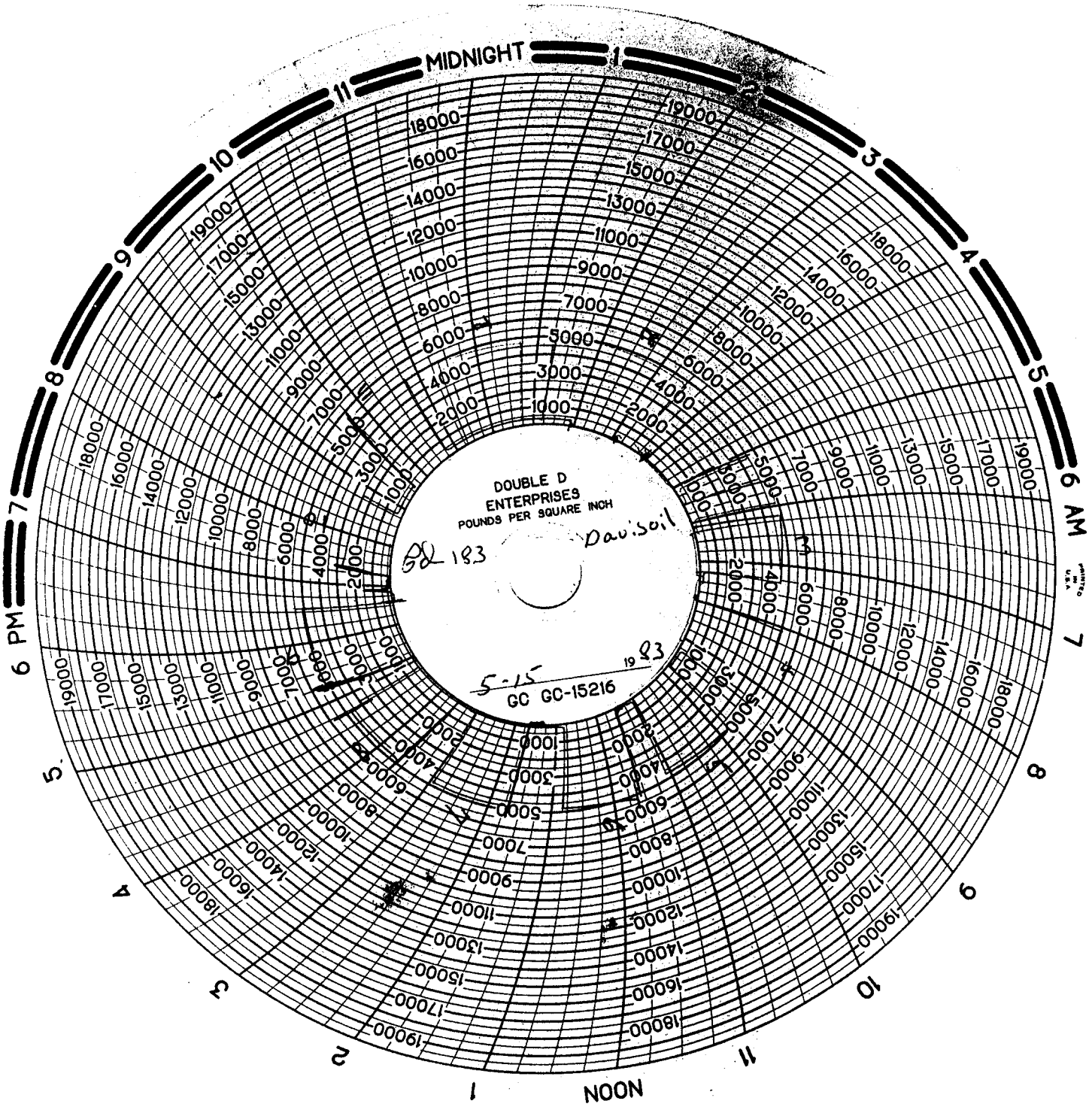
Parker R.S - 4/13/73

All tests HELD 15 min.

Kerr-McGee Fed-2A






MIDNIGHT
6 AM
NOON
6 PM
DOUBLE D
ENTERPRISES
POUNDS PER SQUARE INCH
GC GC-15216
5-15
1983
Davisoil

extra copy

DOUBLE "D" ENTERPRISES
B.O.P. Test Report

DATE 4/13/83 TICKET 1167

Davis Oil Co.

Logan Fed. #2A

2b

3n

7e

Summit STATE Utah

Parker 183

DOUBLE "D" ENTERPRISES, INC.
213 Pine Street
Shoshoni, Wyoming 82649
(307) 876-2308, or (307) 876-2234.

DOUBLE "D" ENTERPRISES, INC.
712 Morse Lee Street
Evanston, Wyoming 82930
(307) 789-9213, or (307) 789-9214

REPRESENTATIVE Dave Hilldreth

Curt Childers

Evanston

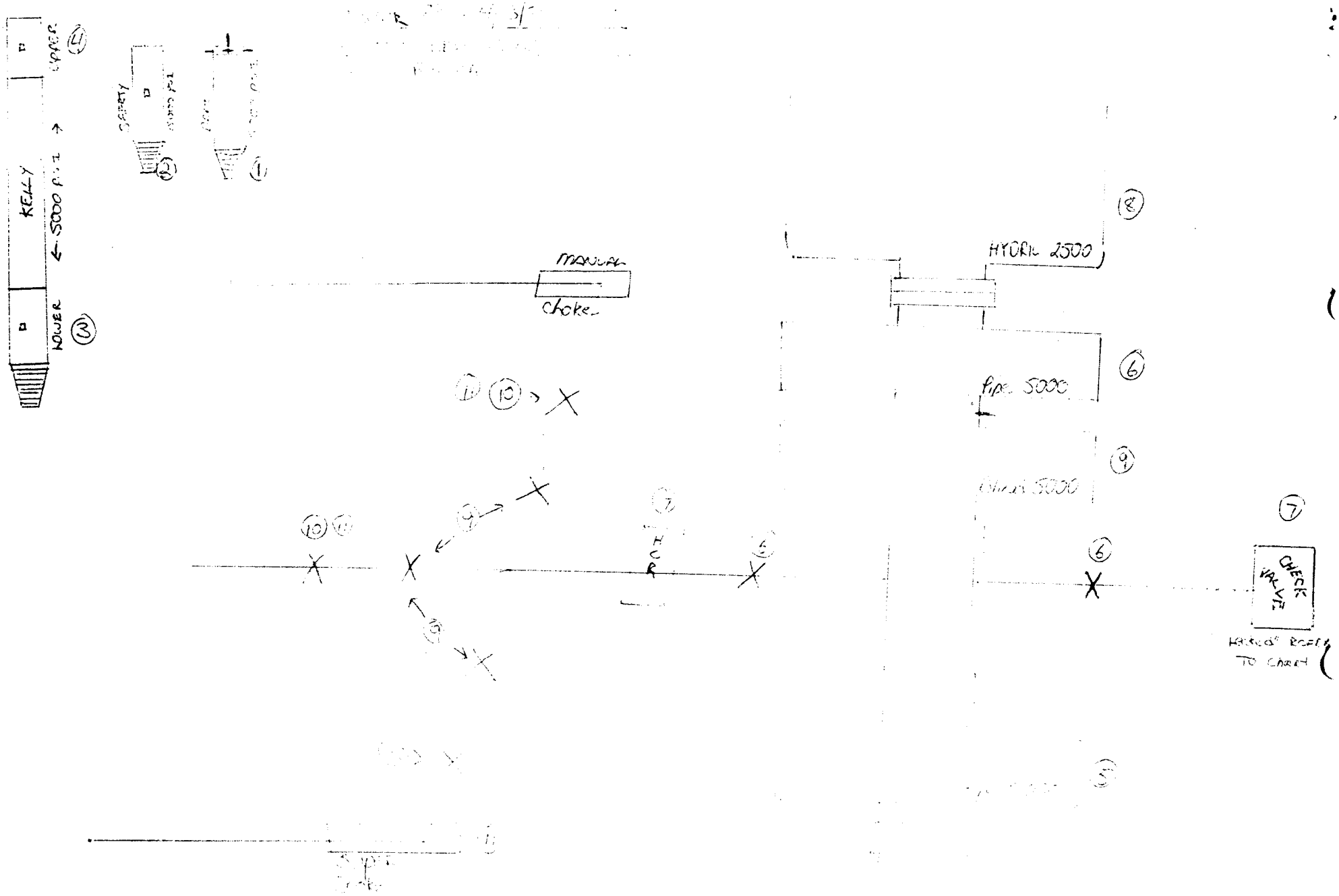
TEST REPORT SENT COPIES TO:

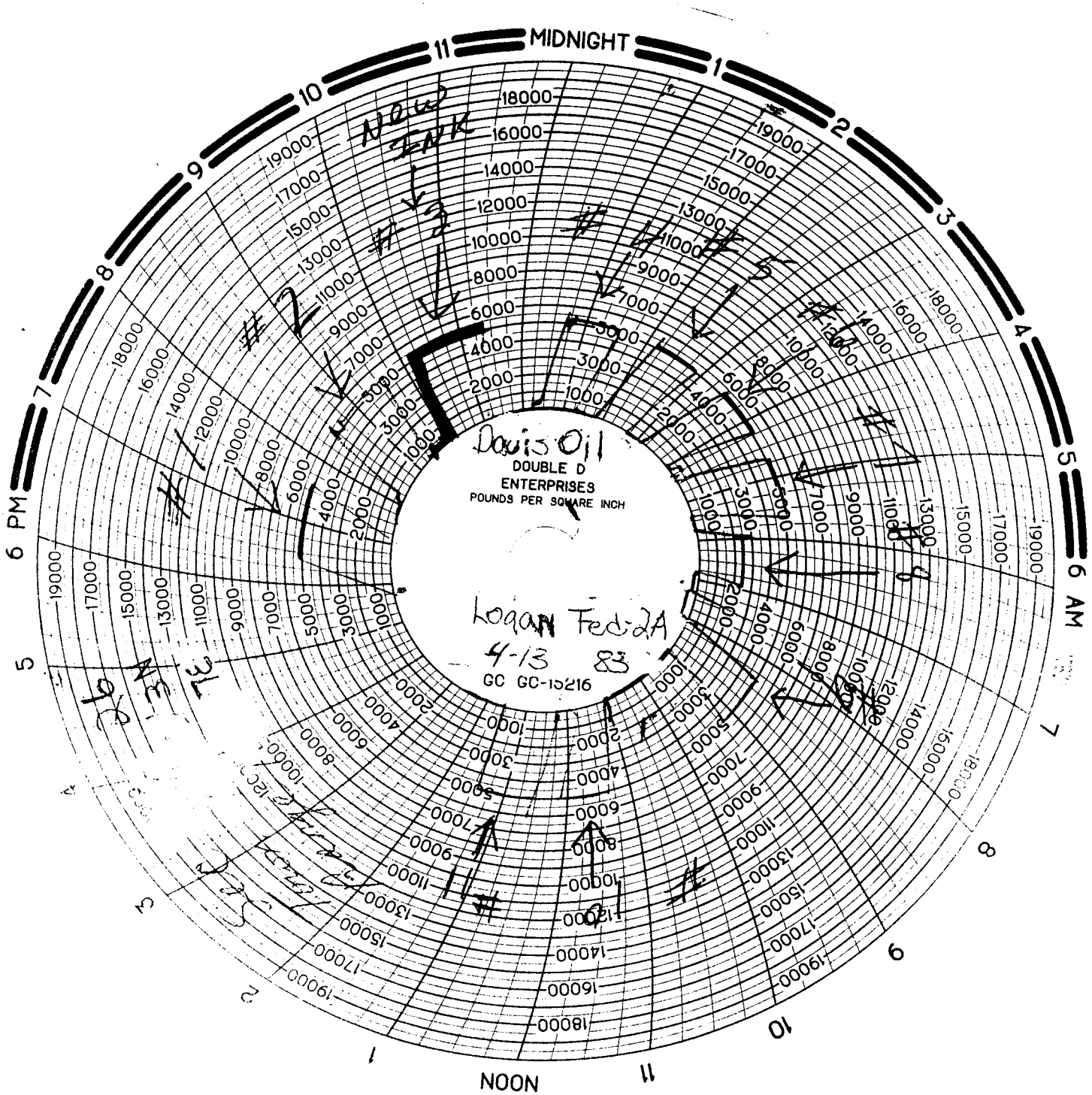
TEST REPORT ON FILE AT: Evanston

Mike Roybal
Shane McKeown
Evanston, Wyoming

Company	Lease & Well Name #	Date of Test	Rig #
Davis Oil	Logan Fed -2A	4/13/93	Parker # 183

Test #	Time	
		Load Truck + travel to location
	2:00 - 30	Rig up on floor, pick up kelly to test, while rig crew assembles koomey lines. Make up SAFETY, DART TEST SUB.
1	35 - 50	Test Dart @ 5000 psi 15 minutes
2	50 - 3:30	Rig down dart valve, put kelly sub back on, Test Safety @ 5000 15 min. (valve seized somewhat seized to breakout)
3	35 - 50	Test lower kelly @ 5000 15 min.
4	55 - 4:10	Upper kelly @ 5000 15 min
	15 - 5:00	Rig down kelly, subs, pick up joint, make up pipe subs, Help Hook up koomey lines - test all lines before running joint. Set plug, fill stack, close lower pipes
5	5:05 - 20	Test lower pipes @ 5000 p.s.i 15 min.
6	25 - 40	Upper pipes, inside manuals on B.O.P.
7	40 - 6:20	(Check valve would not hold water pressure - Rocks went in guts - cleaned out, re-assembled) Test Upper pipes H.C.R Check Valve. good Test.
8	25 - 40	Pressure up on Hydril 2500 psi @ 15 minutes
9	50 - 7:05	Rig up on manifold to test blinds. Blinds, & inside manuals on manifold.
	7:05 - 40	~~Test~~ Rig down on floor, pull plug, break [illegible] subs, set wearbushing, closed casinghead valve, inside manuals, H.C.R on B.O.P. - Rig free. B.O.P Test completed
10	45 - 8:00	Resume test on outside manuals on manifold (5000)
11	8:05 - 8:20	Test superchoke @ 5000 p.s.i 15 minutes
		Travel to shop →


UPPER
KELLY
5000 PSI
LOWER
SAFETY
manual
choke
HYDRIL 2500
Pipe 5000
Blind 5000
CHECK VALVE
HACKED BOARD TO CHART


MIDNIGHT
NOON
6 AM
6 PM
Davis Oil
DOUBLE D
ENTERPRISES
POUNDS PER SQUARE INCH
Logan Fed-2A
4-13 83
GC GC-15216

DOUBLE "D" TESTING

P.O. Box 560
Shoshoni, Wyoming 82649
307-876-2308

DELIVERY TICKET

№ 1167

RENTED TO Davis Oil Co NO Parker 183

DATE 3-13-83

ORDERED BY Dave Hildreth LEASE Hogan Fed WELL NO. #2 A

Rental begins when tools leave our warehouse and continues until returned thereto. Rental day starts at midnight and part day shall be charged as full day

TRANSPORTATION – TO AND FROM JOBSITE 80 MILES 1.00 $ 80.00

DOUBLE D Portable BLOWOUT PREVENTER PRESSURE TESTING SERVICE:

First eight hour test period 8 Hrs $ 800.00

Additional eight hours or fraction 7 @ 50.00 HR $ 450.00

Items Tested:

Lower pipe rams to 5000 # _____ Csg. to _____ # Choke Manifold 5000 # Lower Kelly 5000

Upper pipes rams to 5000 # Hydril B O P to 2500 # Upper Kelly Cock 5000 #

Blind rams to 5000 # Choke Line 5000 # Safety Valve 5000 #

_____ rams to _____ # Superchoke 5000 # Dart 5000 #

TEST SUBS 12" Grey Test Plug @ 150.00 $ 150.00

OTHER 12" Grey Retriever @ 150.00 150.00

2 - 4½ IF Test Subs @ 50.00 ea. 100.00

60 gallons methanol @ 2.00 gal 120.00

accumulator pressure 2800

manifold on accumulator 1500

Annular on accumulator 1500

All tests held 15 min

Set wear ring & closed casing head valve when done

BOP closing time - 5 seconds

manifold & methanol filled 50%

BOPs & valves in excellent shape

Parker #183 SUBTOTAL 1850.00

We Appreciate Your Business THANKS TOTAL . . . $

TERMS NET CASH – NO DISCOUNT. (PRICES SUBJECT TO CHANGE WITHOUT NOTICE): Terms and Conditions Under Which Tools and Other Equipment Are Rented: Lessor exercises precautions to keep its tools and other equipment in good condition, but does not guarantee its condition. All tools and other equipment rented from Lessor is used at Lessee's sole risk. Lessee agrees that Lessor shall not be liable for any damages for personal injuries to any persons or for any damage to Lessor's property or the property of other persons that may be caused by any of such tools or other equipment, or that may be caused by its failure during use, and Lessee hereby agrees to hold harmless and indemnify Lessor against all persons for all personal injuries and/or property damage. Well conditions which prevent satisfactory operation of equipment do not relieve Lessee of his responsibility for rental charges. Lessee assumes all responsibility for equipment while out of possession of the Lessor and promises to return such equipment to the Lessor in as good condition as it was at the effective date of the lease, natural wear and tear from reasonable use thereof excepted. All equipment lost or damaged beyond repair will be paid for by the Lessee at the market price and all damaged equipment which can be repaired will be repaired and the repairs paid for by the Lessee. Accrued rental charges cannot be applied against the purchase price or cost of repairs of such damaged or lost equipment. All transportation charges must be borne by the Lessee. Rental begins when equipment leaves Lessor's yard and continues until returned thereto. ALL TOOLS AND EQUIPMENT SHALL REMAIN the sole property of Lessor. This lease is made and shall be effective when the equipment is delivered to the carrier selected by the Lessee.

TERMS: Net Cash — No Discount. All charges are due and payable at the office of Lessor in Shoshoni, Wyoming on the 20th of the month following date of invoice. Interest will be charged at the rate of 8%. Interest charged after 60 days from date of invoice.

Delivered By

By Martin Rojas

OWNER OR OWNER'S REPRESENTATIVE

By: D L Howard

Form DOGC-4

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS CONSERVATION
4241 STATE OFFICE BUILDING
SALT LAKE CITY, UTAH 84114
533-5771

State Lease No.
Federal Lease No. U-47812
Indian Lease No.
Fee & Pat.

REPORT OF OPERATIONS AND WELL STATUS REPORT

Logan Federal #2-A

STATE Utah COUNTY Summit FIELD/LEASE Wildcat

The following is a correct report of operations and production (including drilling and producing wells) for the month of: July, 1983.

Agent's Address 410 17th Street, Suite 1400, Denver, CO 80202
Phone No. (303) 623-1000

Company Davis Oil Company
Signed Pamela Leighton
Title Production Services Manager

Sec. and ¼ of ¼	Twp.	Range	Well No.	Days Produced	Barrels of Oil	Gravity	Cu. Ft. of Gas (in thousands)	Gallons of Gasoline Recovered	Barrels of Water (if none, so state)	API NUMBER/REMARKS (If drilling, depth; if shut down, cause; date and result of test for gasoline content of gas)
26 NWSE	3N	7E	2-A	-0-	-0-	-	-0-	-0-	-0-	API # - 30223 6/21/83 - [redacted] 12924', TWIN CRK - GYPSUM SPGS, DST #1 12799-924'. 6/29/83 - DRG. @ 13372', NUGGET. 7-2-83 T.D. 13,451'. 7-4-83 - RAN 321 JTS. 7", 38# & 32# P110 LT&C. CMTD. W/600 SXS. 7/11 TO 7/20/83, FISHING FOR 3½" DRILL PIPE, RTTS.

GAS: (MCF)
Sold NONE
Flared/Vented
Used On/Off Lease

OIL or CONDENSATE: (To be reported in Barrels)
On hand at beginning of month NONE
Produced during month
Sold during month
Unavoidably lost
Reason:
On hand at end of month

DRILLING/PRODUCING WELLS: This report must be filed on or before the sixteenth day of the succeeding month following production for each well. Where a well is temporarily shut-in, a negative report must be filed. *THIS REPORT MUST BE FILED IN DUPLICATE.*

Note: The API number must be listed on each well.

Well Test Report # 43316 E

— FOR —

DAVIS OIL COMPANY

Well Name & No.: LOGAN FEDERAL #2-A

County SUMMIT State UTAH

Test No. 1 Date 06-20-83

Location SEC. 26 T3N R7E

RECEIVED
JUL 01 1983
DIVISION OF
OIL, GAS & MINING

DST NODAL℠ Interpretation Report

Johnston-Macco
A DIVISION OF SCHLUMBERGER TECHNOLOGY CORPORATION

DST NODAL INTERPRETATION REPORT

TABLE OF CONTENTS

FRONT COVER

- ☒ Title Page
- ☒ Table of Contents
- ☒ Report Description Letter
- ☒ DST Analysis Summary
- ☒ DST Data Summary

SEQUENCE OF EVENTS

- ☒ DST Event Summary
- ☒ Bottomhole Pressure vs. Time Plot (s)
  - ☒ J-200 Gauge # J-2002
  - ☐ Gauge #_____
  - ☐ Gauge #_____
  - ☐ Gauge #_____
  - ☐ Gauge #_____
- ☐ Bottomhole Temperature vs. Time Plot (s)
  - ☐ Gauge #_____
  - ☐ Gauge #_____
- ☐ Fluid Fill-up Pressure vs. Time Plot
  - ☐ Gauge #_____
- ☐ Teleflow Data Summary
  - ☐ Initial Flow & Shut-in Periods
  - ☐ Final Flow & Shut-in Periods
- ☐ Surface Pressure vs. Time Plot

INTERPRETATION PROCEDURE

- ☐ Initial Shut-in Period Plots & Calculations
  - ☐ Cartesian
  - ☐ Log-Log
  - ☐ Horner
- ☐ Final Shut-in Period Plots & Calculations
  - ☐ Cartesian
  - ☐ Log-Log
  - ☐ Horner

CHECKING PROCEDURES

- ☐ Table of interpretation Results
- ☐ Final Shut-in Period Plots
  - ☐ Dimensionless Build-up Type Curve and Actual Data Overlay
  - ☐ Dimensionless Horner Plot
- ☐ Final Flow & Shut-in Period Simulation

NODAL ANALYSIS

- ☐ Unfractured Well Flow Capacity
  - ☐ Current Skin Damage
  - ☐ Skin Damage Removed
- ☐ Hydraulically Fractured Well Flow Capacity
  - ☐ Frac Half-Length=_____ft.
  - ☐ Frac Half-Length=_____ft.
  - ☐ Frac Half-Length=_____ft.

APPENDICES

- ☒ DST Equipment Configuration
- ☒ Bottomhole Pressure vs. Time Data
  - ☒ J-200 Gauge # J-2002
  - ☐ Gauge #_____
  - ☐ Gauge #_____
  - ☐ Gauge #_____
  - ☐ Gauge #_____
- ☐ Fluid Fill-up Pressure vs. Time Data
  - ☐ Gauge #_____
- ☐ Teleflow Flow Rate & Surface Pressure vs. Time Data
- ☐ Nomenclature

BACK COVER

JOHNSTON-MACCO
Schlumberger
WESTERN REGION
1745 STOUT SUITE 300
DENVER, COLORADO 80202
(303) 623-0760

JUNE 27, 1983

DRILLSTEM TEST #1 WAS A MECHANICALLY SUCCESSFUL TEST OF THE TWIN CREEK FORMATION WITH THE EXCEPTION OF THE MALFUNCTION OF THE SPRO (SURFACE PRESSURE READ-OUT) SYSTEM. THE SPRO MALFUNCTION HAD NO ADVERSE EFFECT ON THE MECHANICAL SUCCESS OF THE TEST, BUT HAD IT FUNCTIONED PROPERLY, A LONGER FINAL SHUT-IN PERIOD WOULD PROBABLY HAVE BEEN EXERCISED. GAS FLOWED TO SURFACE DURING THE 416 MINUTE FINAL FLOW PERIOD AT AN AVERAGE RATE OF 616 MSCFD ON A 20/64 CHOKE (AT THE HEATER). NO RESERVOIR INTERPRETATION WAS POSSIBLE DUE TO INSUFFICIENT FINAL SHUT-IN TIME.

James C. Erdle

JAMES C. ERDLE, PH.D.
MANAGER OF RESERVOIR
ENGINEERING SERVICES

FIELD REPORT NO. 43316 E
TEST NO. 1

JCE/JRM

JOHNSTON-MACCO
Schlumberger

Field Report # 43316 E

Denver Region Office
JOHNSTON-MACCO
A DIVISION OF SCHLUMBERGER
TECHNOLOGY CORPORATION
1745 STOUT, SUITE 300
DENVER, CO 80202
PHONE (303) 623-0760

California Division Office . . . (805) 656-1605
Bakersfield . . . (805) 324-6037
Long Beach . . . (213) 423-1478
Ventura . . . (805) 644-7391

Wyoming Division Office . . . (307) 235-4683
Casper Testing, PTS, E/L (307) 266-2632
Gillette . . . (307) 682-3292
Powell . . . (307) 754-3581
Rock Springs . . . (307) 362-3681

Ogden Testing, PTS . . . (801) 621-6523
Vernal Testing . . . (801) 789-3709
Dickinson Testing . . . (701) 225-4451
Williston Testing . . . (701) 572-9552

DST ANALYSIS SUMMARY

CORRECTED[1] PIPE RECOVERY

		Volume	Cum Vol
Fluid 1. Oil		bbl	bbl
2. Formation H_2O			
3. Mud Filtrate			
4. Mud			
5. Cushion H_2O			
6.			
7.			

AVERAGE FLOW RATE

	Rate	Source*
Fluid 1. Oil	bbl/d	
2. Gas	616 Mscf/d	SF
3. Formation H_2O	bbl/d	
4. Total Liquid	bbl/d	
5.		

*FFP = Final Flow Pressure PR = Pipe Recovery SF = Surface Flow Rate T = Teleflow (closed chamber)

RESERVOIR PARAMETERS

Reservoir Pressure 4680 psia (ISI) _____ psia (FSI)

Transmissibility _____ md-ft/cp

Productive Capacity _____ md-ft

Effective Permeability _____ md to _____

Damage Ratio _____ (o)

Skin Factor _____ (o)

Radius of Investigation _____ ft

Indication of Depletion (Y/N) _____

Indication of Sealing Fault (Y/N) _____ Distance to Fault _____ ft

Other Pressure Buildup Anomaly (Y/N) _____ Type _____

Reservoir Behavior Model _____

Analysis Method _____ Shut-in # _____

Fluid Viscosity _____ cp Fluid Compressibility _____ psi⁻¹

Liquid Formation Volume Factor _____ bbl/STB Gas Z-Factor _____ (o)

Net Pay _____ ft Porosity _____ %

[1]Pipe Recovery is Adjusted to Sample Chamber Proportions If Mud Recovery Is Only from Rat Hole and Formation (not leaked around packers or through drillstem)

JOHNSTON-MACCO

Schlumberger

Field Report # 43316 E

Denver Region Office
JOHNSTON-MACCO
A DIVISION OF SCHLUMBERGER
TECHNOLOGY CORPORATION
1745 STOUT, SUITE 300
DENVER, CO 80202
PHONE: (303) 623-0760

California Division Office ... (805) 656-1605
Bakersfield ... (805) 324-6037
Long Beach ... (213) 423-1476
Ventura ... (805) 644-7391

Wyoming Division Office ... (307) 235-4683
Casper Testing, PTS, E/L (307) 266-2832
Gillette ... (307) 682-3292
Powell ... (307) 754-3581
Rock Springs ... (307) 362-3681

Ogden Testing, PTS ... (801) 621-6523
Vernal Testing ... (801) 789-3709
Dickinson Testing ... (701) 225-4451
Williston Testing ... (701) 572-9552

DST DATA SUMMARY

Company DAVIS OIL COMPANY Well LOGAN FEDERAL #2-A

County SUMMIT State UTAH

Date 06-20-83 Test # 1

Location SEC. 26 T3N R7E

HOLE	T.D. 12924 ft Test Interval 12799 ft to 12924 ft Formation TWIN CREEK Packer Depths 12794, 12799 ft
MUD	Weight 8.8 lb/gal Resistivity .26 Ω -m @ 65 °F
MUD FILTRATE	Chlorides ____ ppm Nitrates ____ ppm Resistivity ____ Ω -m @ ____ °F
REPORTED PIPE RECOVERY	Fluid 1. OIL % Oil 100 Length ESTIMATED 170 ft Volume 17 bbl 2. ____ (FOOTAGE ESTIMATED - REVERSED OUT) 3. ____ Test Tool 4. ____
PIPE RECOVERY FLUID PROPERTIES	Fluid 1. Resistivity ____ Ω -m @ ____ °F Chlorides ____ ppm Nitrates ____ ppm 2. ____ 3. ____ Test Tool 4. ____ Oil Gravity 54 °API @ 60 °F
SAMPLE[1] CHAMBER RECOVERY	Fluid 1. Gas ____ Volume 3.87 ft³ Pressure 500 psig 2. Oil ____ -0- cc GOR - scf/bbl 3. WATER -0- GLR - scf/bbl 4. MUD -0- Oil Gravity ____ °API @ ____ °F
BOTTOMHOLE PRESSURE BHT 213 °F Gauge J-2002 Depth 12806 ft	Period 1. Initial Flow X Duration 2 min Pressures 1102 psia to 729 psia 2. Initial Shut-in X 17 729 4586 3. Final Flow X 416 727 784 4. Final Shut-in X 431 784 2417 5. ____ 6. ____ Initial Hydrostatic 6011 psia Final Hydrostatic 5850 psia

[1]Gas Volume is Corrected to Final Flowing Pressure 784 psia

& Reservoir Temperature 213 °F

JOHNSTON-MACCO

DST EVENT SUMMARY

Field Report # 43316 E

DATE (M/D/Y)	TIME (HR:MIN)	EVENT E.T. (MIN)	EVENT DESCRIPTION		SURFACE PRESSURE (PSIG)	FLOOR MANIFOLD CHOKE SIZE (64ths INCH)
6-20-83	1625	—	SET PACKER	1		
	1628	—	OPENED TEST TOOL FOR INITIAL FLOW	2	0	
	1629	—	CLOSED TEST TOOL FOR INITIAL SHUT-IN	3	1	
	1646			4	28	
	1646	—	OPENED TEST TOOL FOR FINAL FLOW	5		
	2342	—	CLOSED TEST TOOL FOR FINAL SHUT-IN	6	143	
6-21-83	0653	—	FINISHED FINAL SHUT-IN	7		
	0740	—	UNSEATED PACKER	8		
		—	REVERSED OUT			
		—	BEGAN TRIP OUT OF HOLE			

BOTTOMHOLE PRESSURE LOG

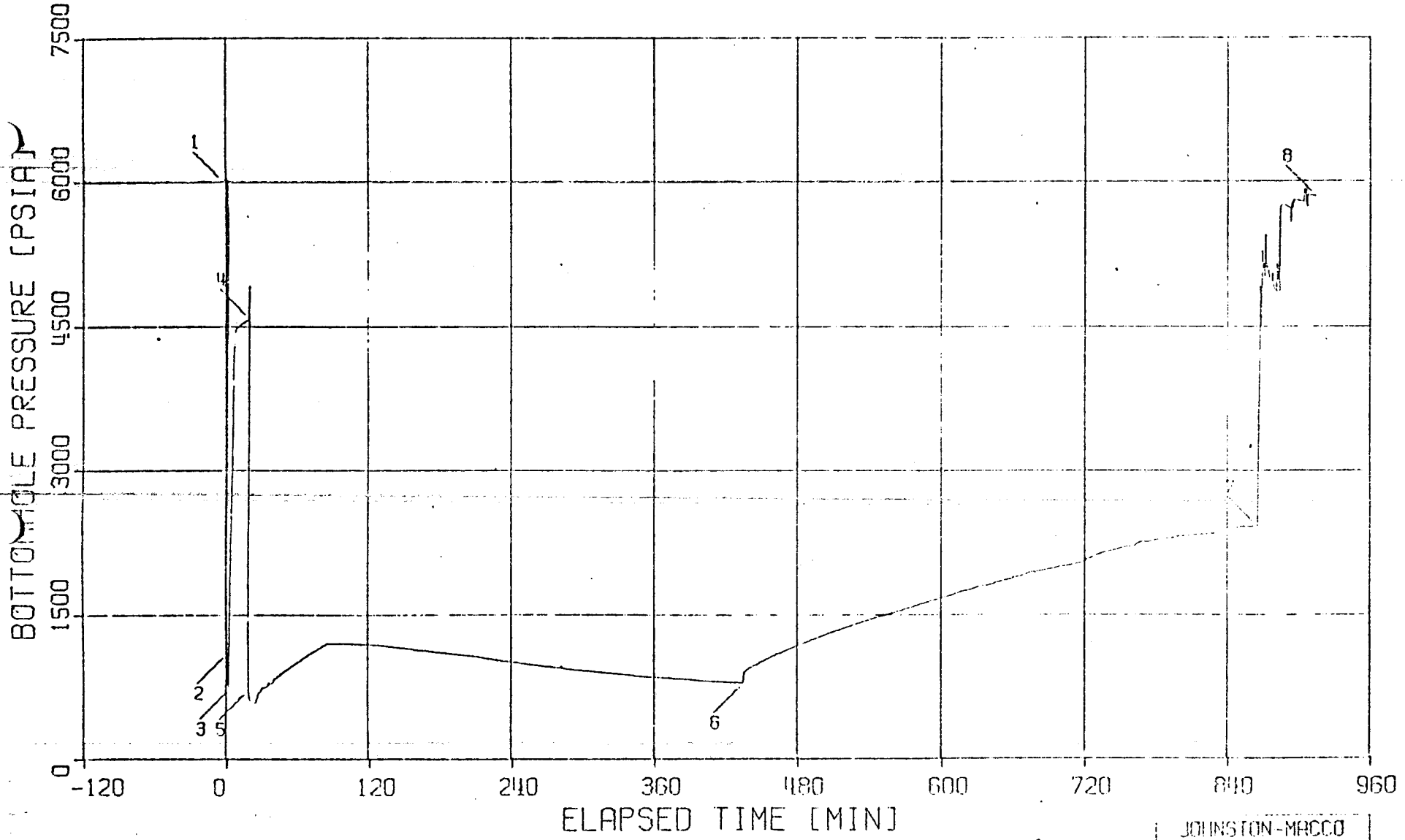
FIELD REPORT NO. 43316E COMPANY : DAVIS OIL COMPANY

INSTRUMENT NO. J-2002 WELL : LOGAN FEDERAL #2-A

DEPTH : 12806 FT

CAPACITY : 6400 PSI

PORT OPENING : OUTSIDE



JOHNSTON-MACCO
SCHLUMBERGER

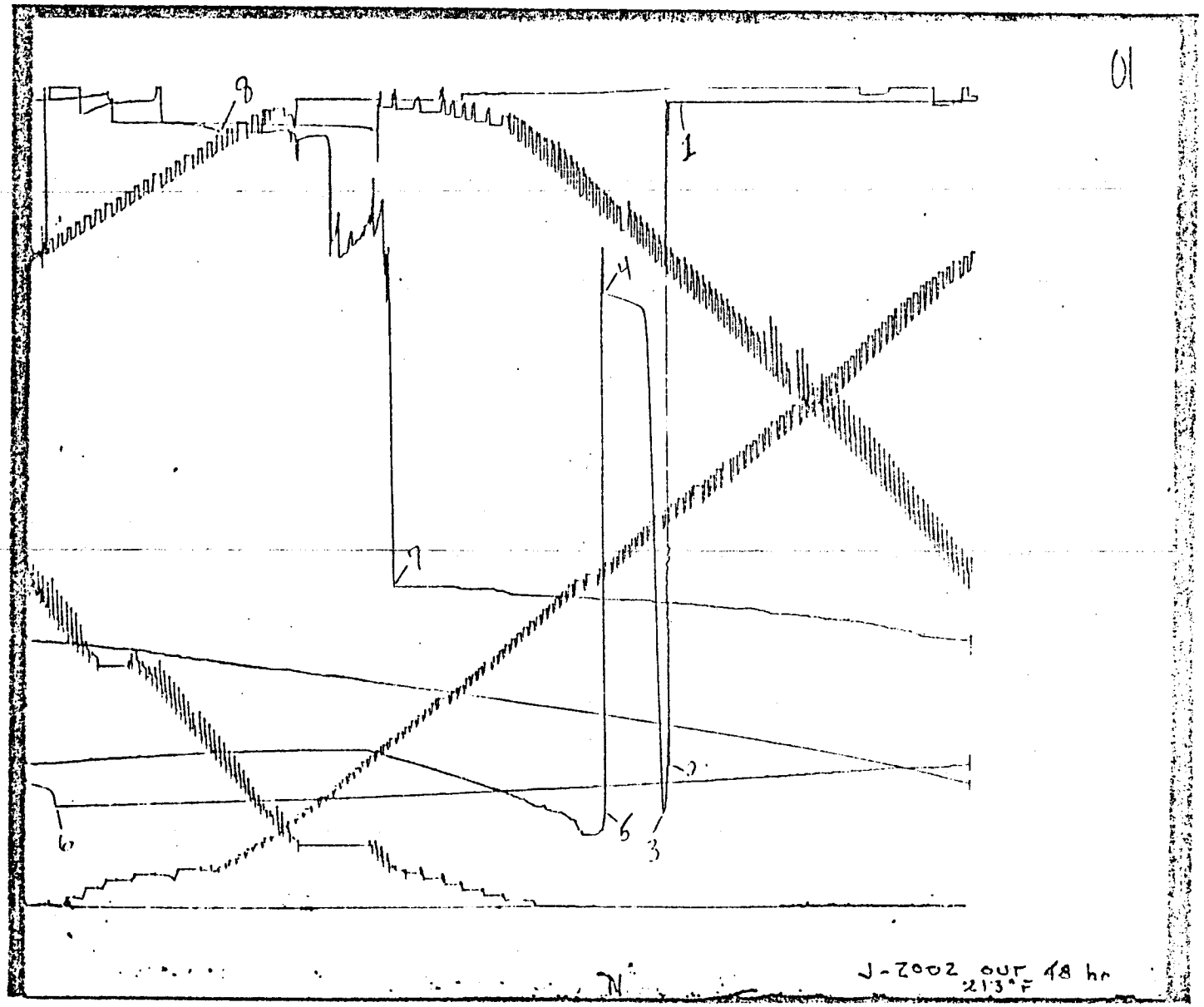
FIELD REPORT NO.: 43316 E

CAPACITY: 6400#

INSTRUMENT NO.: J-2002

NUMBER OF REPORTS:

JOHNSTON MACCO

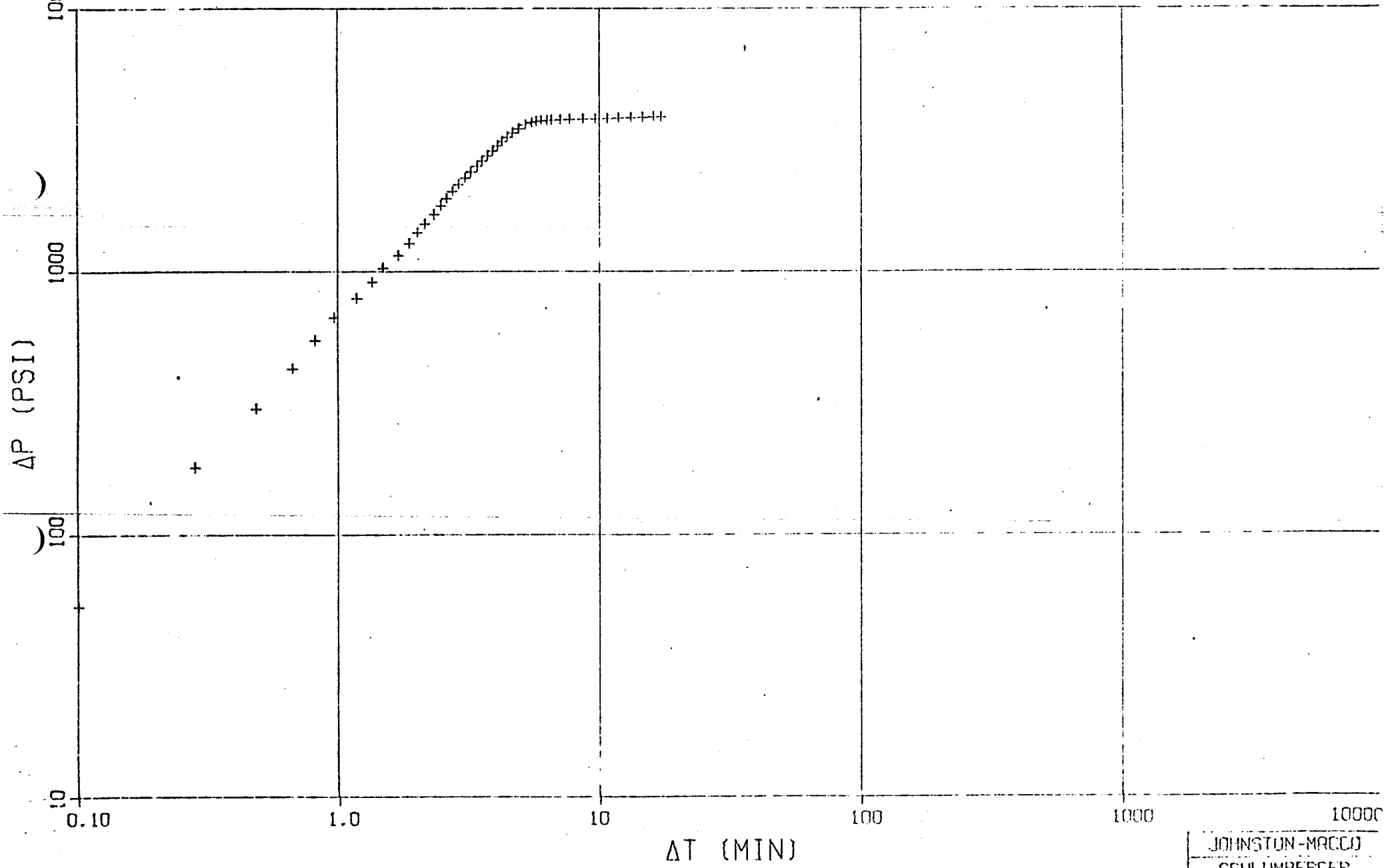


JS—167-A

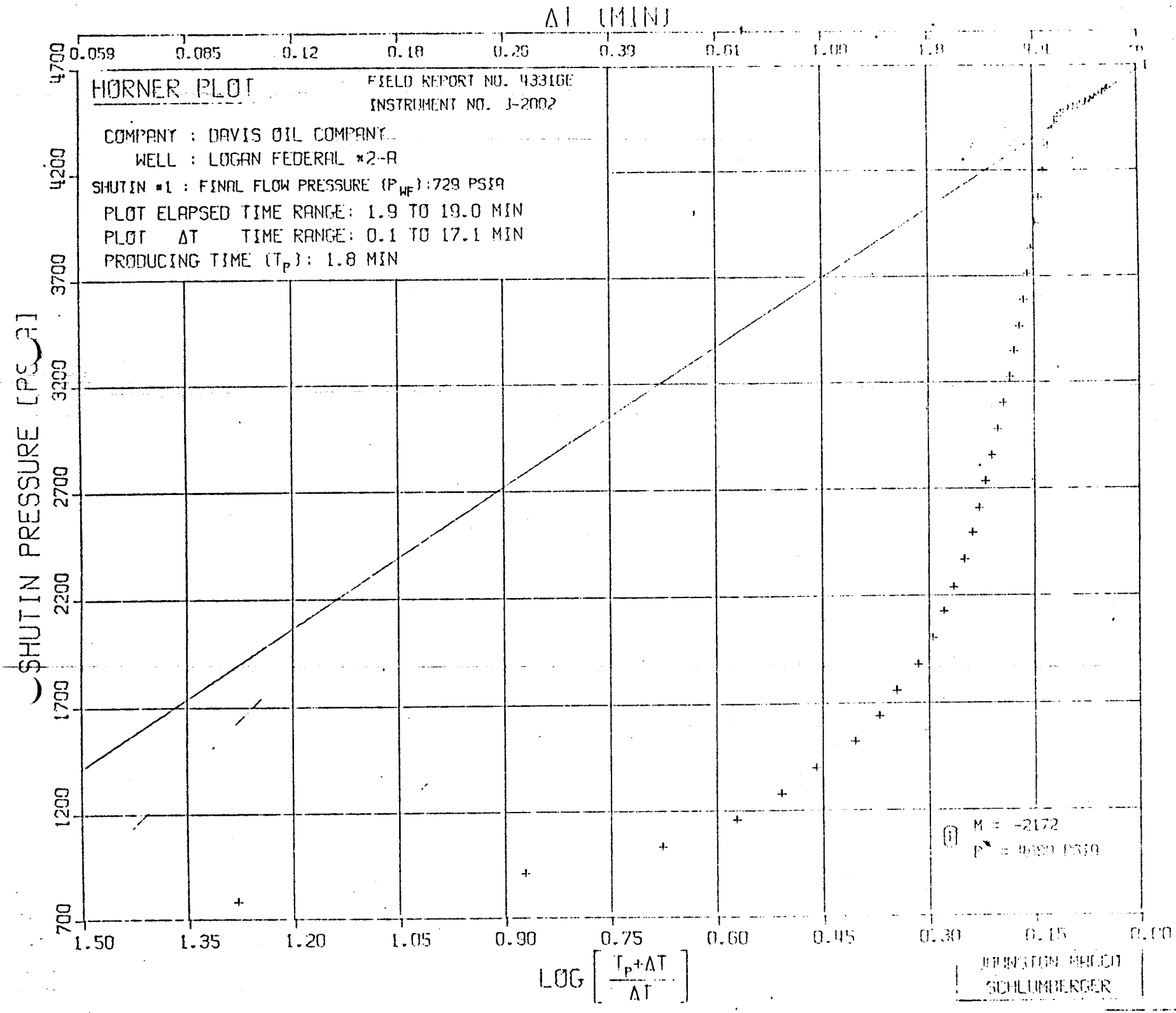
LOG LOG PLOT

COMPANY : DAVIS OIL COMPANY
WELL : LOGAN FEDERAL #2-9
FIELD REPORT NO. 43316E
INSTRUMENT NO. J-2002

SHUTIN #1
FINAL FLOW PRESSURE P_{wf} = 729 PSIG
PLOT FLOWED TIME RANGE 1.9 TO 1910 MIN
PLOT ΔT TIME RANGE 0.1 TO 17.1 MIN



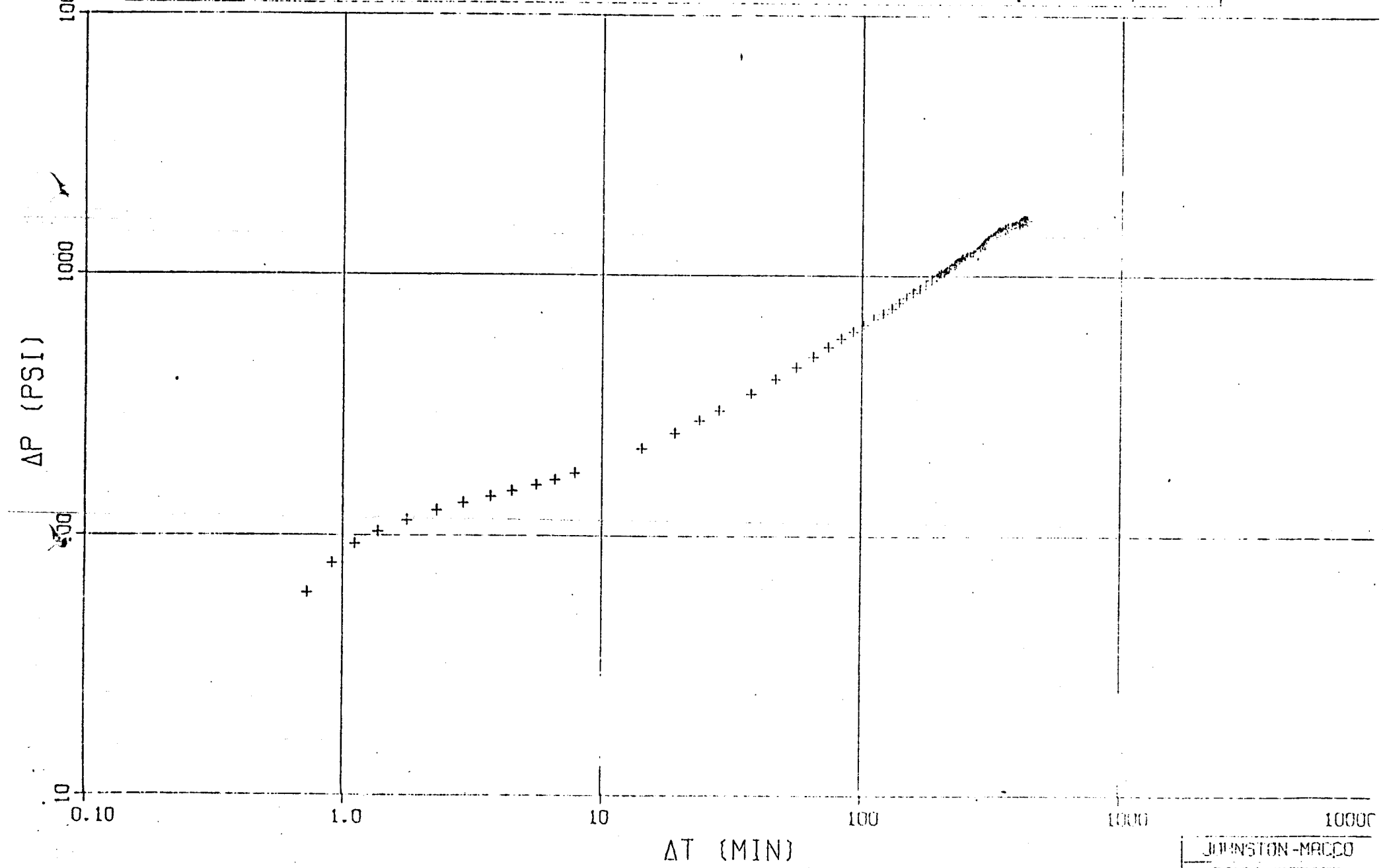
JOHNSTON-MACCO
SCHLUMBERGER


ΔT (MIN)
0.059
0.085
0.12
0.18
0.26
0.39
0.61
1.00
1.9
4.1
HORNER PLOT
FIELD REPORT NO. 43316E
INSTRUMENT NO. J-2002
COMPANY : DAVIS OIL COMPANY
WELL : LOGAN FEDERAL #2-A
SHUTIN #1 : FINAL FLOW PRESSURE (P_{WF}):729 PSIA
PLOT ELAPSED TIME RANGE: 1.9 TO 19.0 MIN
PLOT ΔT TIME RANGE: 0.1 TO 17.1 MIN
PRODUCING TIME (T_p): 1.8 MIN
SHUTIN PRESSURE [PSIA]
4700
4200
3700
3200
2700
2200
1700
1200
700
M = -2172
1.50
1.35
1.20
1.05
0.90
0.75
0.60
0.45
0.30
0.15
0.00
LOG $\left[\frac{T_p+\Delta T}{\Delta T}\right]$
JOHNSTON MACCO
SCHLUMBERGER

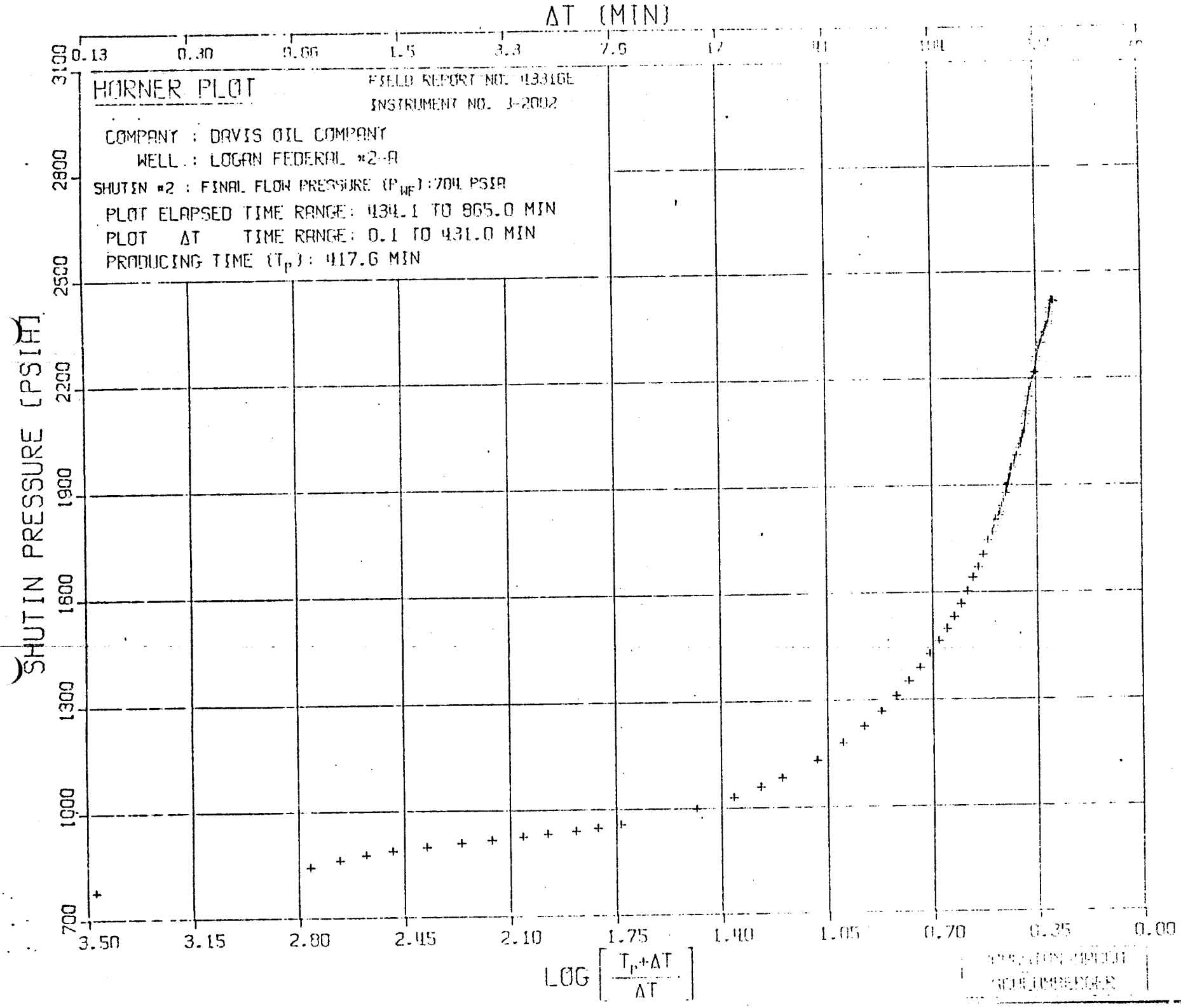
LOG LOG PLOT

COMPANY : DAVIS OIL COMPANY
WELL : LOGAN FEDERAL #2-A
FIELD REPORT NO. 4331GE
INSTRUMENT NO. J-2002

SHUTIN #2 :
FINAL FLOW PRESSURE (P_{wf}) : 780 PSIA
PLOT ELAPSED TIME RANGE: 431.7 TO 865.0 MIN
PLOT ΔT TIME RANGE: 0.7 TO 431.0 MIN



JOHNSTON-MACCO
SCHLUMBERGER


ΔT (MIN)
0.13
0.30
0.66
1.5
3.3
7.6
17
41
104
HORNER PLOT
FIELD REPORT NO. 43316E
INSTRUMENT NO. J-2002
COMPANY : DAVIS OIL COMPANY
WELL : LOGAN FEDERAL #2-A
SHUTIN #2 : FINAL FLOW PRESSURE (P_{WF}) : 704 PSIA
PLOT ELAPSED TIME RANGE: 434.1 TO 865.0 MIN
PLOT ΔT TIME RANGE: 0.1 TO 431.0 MIN
PRODUCING TIME (T_p) : 417.6 MIN
SHUTIN PRESSURE (PSIA)
3100
2800
2500
2200
1900
1600
1300
1000
700
3.50
3.15
2.80
2.45
2.10
1.75
1.40
1.05
0.70
0.35
0.00
LOG $\left[\frac{T_p+\Delta T}{\Delta T}\right]$

JOHNSTON-MACCO

TEST EQUIPMENT CONFIGURATION

Field Report # 43316 E

	COMPONENT	OD (IN)	ID (IN)	LENGTH (FT)	DEPTH (FT)
SURFACE	FLARE (PIT) LINE				
	FLOOR MANIFOLD	—	—	—	—
	FLOW HOSE				—
					—
					—
	CONTROL HEAD				—
	DRILL PIPE ABOVE ROTARY TABLE				R.T.
DRILL PIPE & COLLARS	DRILL PIPE	5.00	4.276	12070	12070
	DRILL COLLARS	6.75	2.25	577	12647
	REVERSE CIRC. VALVE	6.75		1	
	DRILL COLLARS	6.75	2.25	91	12739
	SPRO BARRELS AND GAGE				
TEST TOOL STRING	MFE BYPASS	5.00		13	12752
	RECORDER (INSIDE)				12770
	JARS				
	SAFETY JOINT				
	SAFETY SEAL PACKER				12794
	BOBTAIL PACKER				12799
	PERFORATED ANCHOR				
	RECORDER (OUTSIDE)				12806
	X-OVER				
	PERFORATED BULLNOSE				

CUSHION TYPE	LENGTH (FT)	SURFACE PRESSURE (PSIG)	TOTAL PRESSURE AT TEST TOOL (PSIG)
WATER	1025		445

INTERVAL

Type MFE-OH

Size 8 1/2 in.

Weight _____ lb/ft

PERFS

Size _____ in Density _____ spf

Gun _____ Total _____ shots

Interval(s) _____ ft

WELL TEST DATA PRINTOUT

FIELD REPORT # : 43316E

COMPANY : DAVIS OIL COMPANY
WELL : LOGAN FEDERAL #2-A

INSTRUMENT # : J-2002
CAPACITY [PSI] : 6400.
DEPTH [FT] : 12806.0
PORT OPENING : OUTSIDE
TEMPERATURE [DEG F] : 213.0

LABEL POINT INFORMATION

#	TIME OF DAY HH:MM:SS	DATE DD-MM	EXPLANATION	ELAPSED TIME,MIN	BOT HOLE PRESSURE PSIA
1	16:25: 1	20-JN	HYDROSTATIC MUD	-2.99	6011
2	16:28: 0	20-JN	START FLOW	0.00	1102
3	16:29:49	20-JN	END FLOW & START SHUT-IN	1.81	729
4	16:46:57	20-JN	END SHUT-IN	18.95	4586
5	16:46:12	20-JN	START FLOW	18.20	727
6	23:42: 0	20-JN	END FLOW & START SHUT-IN	434.00	784
7	6:53: 0	21-JN	END SHUT-IN	865.00	2417
8	7:40:56	21-JN	HYDROSTATIC MUD	912.93	5850

SUMMARY OF FLOW PERIODS

PERIOD	START ELAPSED TIME,MIN	END ELAPSED TIME,MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA
1	0.00	1.81	1.81	1102	729
2	18.20	434.00	415.80	727	784

SUMMARY OF SHUTIN PERIODS

PERIOD	START ELAPSED TIME,MIN	END ELAPSED TIME,MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA	FINAL FLOW PRESSURE PSIA	PRODUCING TIME, MIN
1	1.81	18.95	17.14	729	4586	729	1.81
2	434.00	865.00	431.00	784	2417	784	417.61

TEST PHASE : FLOW PERIOD # 2

TIME OF DAY HH:MM:SS	DATE DD-MM	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA
********	*****	********	********	*********
17:41:12	20-JN	73.20	55.00	1118
17:46:12	20-JN	78.20	60.00	1157
17:51:12	20-JN	83.20	65.00	1193
17:56:12	20-JN	88.20	70.00	1203
18: 1:12	20-JN	93.20	75.00	1204
18: 6:12	20-JN	98.20	80.00	1202
18:11:12	20-JN	103.20	85.00	1200
18:16:12	20-JN	108.20	90.00	1198
18:21:12	20-JN	113.20	95.00	1195
18:26:12	20-JN	118.20	100.00	1192
18:31:12	20-JN	123.20	105.00	1186
18:36:12	20-JN	128.20	110.00	1179
18:41:12	20-JN	133.20	115.00	1172
18:46:12	20-JN	138.20	120.00	1166
18:51:12	20-JN	143.20	125.00	1158
18:56:12	20-JN	148.20	130.00	1150
19: 1:12	20-JN	153.20	135.00	1142
19: 6:12	20-JN	158.20	140.00	1134
19:11:12	20-JN	163.20	145.00	1126
19:16:12	20-JN	168.20	150.00	1118
19:21:12	20-JN	173.20	155.00	1111
19:26:12	20-JN	178.20	160.00	1103
19:31:12	20-JN	183.20	165.00	1096
19:36:12	20-JN	188.20	170.00	1089
19:41:12	20-JN	193.20	175.00	1082
19:46:12	20-JN	198.20	180.00	1075
19:51:12	20-JN	203.20	185.00	1068
19:56:12	20-JN	208.20	190.00	1060
20: 1:12	20-JN	213.20	195.00	1050
20: 6:12	20-JN	218.20	200.00	1040
20:11:12	20-JN	223.20	205.00	1030
20:16:12	20-JN	228.20	210.00	1020
20:21:12	20-JN	233.20	215.00	1012
20:26:12	20-JN	238.20	220.00	997
20:31:12	20-JN	243.20	225.00	992
20:36:12	20-JN	248.20	230.00	985
20:41:12	20-JN	253.20	235.00	975
20:46:12	20-JN	258.20	240.00	967
20:51:12	20-JN	263.20	245.00	960
20:56:12	20-JN	268.20	250.00	953
21: 1:12	20-JN	273.20	255.00	948
21: 6:12	20-JN	278.20	260.00	940
21:11:12	20-JN	283.20	265.00	935
21:16:12	20-JN	288.20	270.00	923
21:21:12	20-JN	293.20	275.00	917
21:26:12	20-JN	298.20	280.00	912
21:31:12	20-JN	303.20	285.00	905
21:36:12	20-JN	308.20	290.00	899
21:41:12	20-JN	313.20	295.00	892

TEST PHASE : FLOW PERIOD # 2

TIME OF DAY HH:MM:SS	DATE DD-MM	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA
21:46:12	20-JN	318.20	300.00	886
21:51:12	20-JN	323.20	305.00	880
21:56:12	20-JN	328.20	310.00	874
22: 1:12	20-JN	333.20	315.00	868
22: 6:12	20-JN	338.20	320.00	862
22:11:12	20-JN	343.20	325.00	856
22:16:12	20-JN	348.20	330.00	850
22:21:12	20-JN	353.20	335.00	846
22:26:12	20-JN	358.20	340.00	842
22:31:12	20-JN	363.20	345.00	837
22:36:12	20-JN	368.20	350.00	833
22:41:12	20-JN	373.20	355.00	829
22:46:12	20-JN	378.20	360.00	825
22:51:12	20-JN	383.20	365.00	821
22:56:12	20-JN	388.20	370.00	817
23: 1:12	20-JN	393.20	375.00	812
23: 6:12	20-JN	398.20	380.00	808
23:11:12	20-JN	403.20	385.00	804
23:16:12	20-JN	408.20	390.00	800
23:21:12	20-JN	413.20	395.00	797
23:26:12	20-JN	418.20	400.00	793
23:31:12	20-JN	423.20	405.00	790
23:36:12	20-JN	428.20	410.00	786
23:41:12	20-JN	433.20	415.00	784
23:42: 0	20-JN	434.00	415.80	784

TEST PHASE : SHUTIN PERIOD # 2
FINAL FLOW PRESSURE [PSIA] = 784
PRODUCING TIME [MIN] = 417.61

TIME OF DAY HH:MM:SS	DATE DD-MM	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
23:42: 0	20-JN	434.00	0.00	784	0	
23:43: 0	20-JN	435.00	1.00	870	86	2.622
23:44: 0	20-JN	436.00	2.00	903	119	2.322
23:45: 0	20-JN	437.00	3.00	918	134	2.147
23:46: 0	20-JN	438.00	4.00	928	144	2.023
23:47: 0	20-JN	439.00	5.00	936	152	1.927
23:48: 0	20-JN	440.00	6.00	943	159	1.849
23:49: 0	20-JN	441.00	7.00	951	167	1.783
23:50: 0	20-JN	442.00	8.00	958	174	1.726
23:51: 0	20-JN	443.00	9.00	965	181	1.676
23:52: 0	20-JN	444.00	10.00	971	187	1.631
23:54: 0	20-JN	446.00	12.00	985	201	1.554
23:56: 0	20-JN	448.00	14.00	998	214	1.489

TEST PHASE : SHUTIN PERIOD # 2
FINAL FLOW PRESSURE [PSIA] = 784
PRODUCING TIME [MIN] = 417.61

TIME OF DAY HH:MM:SS	DATE DD-MM	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
23:58: 0	20-JN	450.00	16.00	1011	227	1.433
0: 0: 0	21-JN	452.00	18.00	1024	240	1.384
0: 2: 0	21-JN	454.00	20.00	1037	253	1.340
0: 4: 0	21-JN	456.00	22.00	1049	265	1.301
0: 6: 0	21-JN	458.00	24.00	1061	277	1.265
0: 8: 0	21-JN	460.00	26.00	1073	289	1.232
0:10: 0	21-JN	462.00	28.00	1084	300	1.202
0:12: 0	21-JN	464.00	30.00	1095	311	1.174
0:17: 0	21-JN	469.00	35.00	1121	337	1.112
0:22: 0	21-JN	474.00	40.00	1148	364	1.058
0:27: 0	21-JN	479.00	45.00	1175	391	1.012
0:32: 0	21-JN	484.00	50.00	1200	416	0.971
0:37: 0	21-JN	489.00	55.00	1224	440	0.934
0:42: 0	21-JN	494.00	60.00	1248	464	0.901
0:47: 0	21-JN	499.00	65.00	1271	488	0.871
0:52: 0	21-JN	504.00	70.00	1295	511	0.843
0:57: 0	21-JN	509.00	75.00	1319	535	0.817
1: 2: 0	21-JN	514.00	80.00	1341	557	0.794
1: 7: 0	21-JN	519.00	85.00	1363	579	0.772
1:12: 0	21-JN	524.00	90.00	1384	600	0.751
1:17: 0	21-JN	529.00	95.00	1405	621	0.732
1:22: 0	21-JN	534.00	100.00	1427	643	0.714
1:27: 0	21-JN	539.00	105.00	1447	663	0.697
1:32: 0	21-JN	544.00	110.00	1466	682	0.681
1:37: 0	21-JN	549.00	115.00	1484	700	0.666
1:42: 0	21-JN	554.00	120.00	1502	718	0.651
1:47: 0	21-JN	559.00	125.00	1521	737	0.638
1:52: 0	21-JN	564.00	130.00	1540	756	0.625
1:57: 0	21-JN	569.00	135.00	1560	776	0.612
2: 2: 0	21-JN	574.00	140.00	1580	796	0.600
2: 7: 0	21-JN	579.00	145.00	1599	815	0.589
2:12: 0	21-JN	584.00	150.00	1620	836	0.578
2:17: 0	21-JN	589.00	155.00	1641	857	0.568
2:22: 0	21-JN	594.00	160.00	1658	874	0.558
2:27: 0	21-JN	599.00	165.00	1674	890	0.548
2:32: 0	21-JN	604.00	170.00	1693	910	0.539
2:37: 0	21-JN	609.00	175.00	1714	930	0.530
2:42: 0	21-JN	614.00	180.00	1736	952	0.521
2:47: 0	21-JN	619.00	185.00	1754	970	0.513
2:52: 0	21-JN	624.00	190.00	1767	983	0.505
2:57: 0	21-JN	629.00	195.00	1788	1004	0.497
3: 2: 0	21-JN	634.00	200.00	1805	1021	0.490
3: 7: 0	21-JN	639.00	205.00	1814	1030	0.482
3:12: 0	21-JN	644.00	210.00	1830	1046	0.475
3:17: 0	21-JN	649.00	215.00	1851	1067	0.469
3:22: 0	21-JN	654.00	220.00	1869	1085	0.462
3:27: 0	21-JN	659.00	225.00	1884	1100	0.456
3:32: 0	21-JN	664.00	230.00	1904	1120	0.450

TEST PHASE : FLOW PERIOD # 1

TIME OF DAY HH:MM:SS	DATE DD-MM	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA
16:28: 0	20-JN	0.00	0.00	1102
16:29:49	20-JN	1.81	1.81	729

TEST PHASE : SHUTIN PERIOD # 1
FINAL FLOW PRESSURE [PSIA] = 729
PRODUCING TIME [MIN] = 1.81

TIME OF DAY HH:MM:SS	DATE DD-MM	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
16:29:49	20-JN	1.81	0.00	729	0	
16:30:49	20-JN	2.81	1.00	1421	692	0.449
16:31:49	20-JN	3.81	2.00	2128	1399	0.280
16:32:49	20-JN	4.81	3.00	2950	2221	0.205
16:33:49	20-JN	5.81	4.00	3676	2947	0.162
16:34:49	20-JN	6.81	5.00	4242	3514	0.134
16:35:49	20-JN	7.81	6.00	4459	3730	0.114
16:36:49	20-JN	8.81	7.00	4491	3762	0.100
16:37:49	20-JN	9.81	8.00	4505	3776	0.089
16:38:49	20-JN	10.81	9.00	4517	3788	0.080
16:39:49	20-JN	11.81	10.00	4527	3798	0.072
16:41:49	20-JN	13.81	12.00	4547	3818	0.061
16:43:49	20-JN	15.81	14.00	4564	3835	0.053
16:45:49	20-JN	17.81	16.00	4580	3851	0.047
16:46:57	20-JN	18.95	17.14	4586	3858	0.044

TEST PHASE : FLOW PERIOD # 2

TIME OF DAY HH:MM:SS	DATE DD-MM	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIA
16:46:12	20-JN	18.20	0.00	727
16:51:12	20-JN	23.20	5.00	577
16:56:12	20-JN	28.20	10.00	703
17: 1:12	20-JN	33.20	15.00	749
17: 6:12	20-JN	38.20	20.00	791
17:11:12	20-JN	43.20	25.00	856
17:16:12	20-JN	48.20	30.00	908
17:21:12	20-JN	53.20	35.00	954
17:26:12	20-JN	58.20	40.00	995
17:31:12	20-JN	63.20	45.00	1039
17:36:12	20-JN	68.20	50.00	1080

TEST PHASE : SHUTIN PERIOD # 2
FINAL FLOW PRESSURE [PSIA] = 784
PRODUCING TIME [MIN] = 417.61

TIME OF DAY HH:MM:SS	DATE DD-MM	ELAPSED TIME,MIN	DELTA TIME,MIN	BOT HOLE PRESSURE PSIG	DELTA P PSI	LOG HORNER TIME
3:37: 0	21-JN	669.00	235.00	1922	1138	0.444
3:42: 0	21-JN	674.00	240.00	1947	1163	0.438
3:47: 0	21-JN	679.00	245.00	1956	1172	0.432
3:52: 0	21-JN	684.00	250.00	1966	1184	0.427
3:57: 0	21-JN	689.00	255.00	1981	1197	0.421
4: 2: 0	21-JN	694.00	260.00	1994	1210	0.416
4: 7: 0	21-JN	699.00	265.00	2008	1224	0.411
4:12: 0	21-JN	704.00	270.00	2018	1234	0.406
4:17: 0	21-JN	709.00	275.00	2028	1244	0.401
4:22: 0	21-JN	714.00	280.00	2042	1258	0.396
4:27: 0	21-JN	719.00	285.00	2055	1271	0.392
4:32: 0	21-JN	724.00	290.00	2094	1310	0.387
4:37: 0	21-JN	729.00	295.00	2126	1342	0.383
4:42: 0	21-JN	734.00	300.00	2149	1365	0.379
4:47: 0	21-JN	739.00	305.00	2168	1384	0.375
4:52: 0	21-JN	744.00	310.00	2182	1398	0.371
4:57: 0	21-JN	749.00	315.00	2197	1413	0.367
5: 2: 0	21-JN	754.00	320.00	2213	1429	0.363
5: 7: 0	21-JN	759.00	325.00	2218	1434	0.359
5:12: 0	21-JN	764.00	330.00	2247	1463	0.355
5:17: 0	21-JN	769.00	335.00	2262	1478	0.352
5:22: 0	21-JN	774.00	340.00	2266	1482	0.348
5:27: 0	21-JN	779.00	345.00	2281	1497	0.344
5:32: 0	21-JN	784.00	350.00	2293	1509	0.341
5:37: 0	21-JN	789.00	355.00	2300	1516	0.338
5:42: 0	21-JN	794.00	360.00	2305	1521	0.334
5:47: 0	21-JN	799.00	365.00	2319	1535	0.331
5:52: 0	21-JN	804.00	370.00	2322	1538	0.328
5:57: 0	21-JN	809.00	375.00	2329	1545	0.325
6: 2: 0	21-JN	814.00	380.00	2336	1552	0.322
6: 7: 0	21-JN	819.00	385.00	2342	1558	0.319
6:12: 0	21-JN	824.00	390.00	2347	1563	0.316
6:17: 0	21-JN	829.00	395.00	2351	1567	0.313
6:22: 0	21-JN	834.00	400.00	2368	1584	0.310
6:27: 0	21-JN	839.00	405.00	2399	1615	0.308
6:32: 0	21-JN	844.00	410.00	2399	1615	0.305
6:37: 0	21-JN	849.00	415.00	2417	1633	0.302
6:42: 0	21-JN	854.00	420.00	2420	1636	0.300
6:47: 0	21-JN	859.00	425.00	2419	1635	0.297
6:52: 0	21-JN	864.00	430.00	2418	1634	0.295
6:53: 0	21-JN	865.00	431.00	2417	1633	0.294

WGS WELLSITE GEOLOGICAL SUPERVISION, INC.
4138 Timbervale Drive, P.O. Box 2698
Evergreen, Colorado 80439 (303) 893-8507

GEOLOGICAL REPORT

DAVIS OIL CO.

Logan Federal #2A
NW SE SEC 26
T3N R7E
Summit County, Utah

Geology by
Michael E. Barber
Ogden, Utah

GEOLOGICAL REPORT

DAVIS OIL CO.

Logan Federal #2A
NW SE SEC 26
T3N R7E
Summit County, Utah

Geology by
Michael E. Barber
Ogden, Utah

RECEIVED
JUL 26 1983
DIVISION OF
OIL, GAS & MINING

TABLE OF CONTENTS

RESUME..... 1
SUMMARY & CONCLUSIONS..... 3
FORMATION TOPS..... 4
SONIC & DIL THROUGH NUGGET..... 5
S_W VALUES THROUGH NUGGET..... 11
DST #1..... 12
SURVEYS & DRILLING FUNCTIONS..... 13
MUD RECORD..... 16
BIT RECORD..... 20
DAILY DRILLING CHRONOLOGY..... 21
GENERAL LITHOLOGY..... 32
LITHOLOGIC LOG IN BACK FLAP

RESUME

OPERATOR:	Davis Oil Company
WELL NAME & NUMBER:	Logan Federal #2A
LOCATION:	2297 FEL 2567 FSL NWSE SEC 26 T3N R7E
AREA:	North Pineview
COUNTY:	Summit
STATE:	Utah
ELEVATION:	GL 7480.9 KB 7507.1
ENGINEER:	Jack Krug, Dave Hildreth
GEOLOGIST:	Mike Barber
SPUD DATE:	2-14-83 3:30 a.m.
COMPLETION DATE:	Pending
HOLE SIZE:	26" Surface to 1037'; 17½" 1037'-5730'; 12¼" 5730'-11500'; 8½" 11500'-13372'; 7 7/8" 13372-13440'-
CASING:	Conductor at 54.2'; 20" @ 1031'; 13 3/8" @ 5730'; 9 5/8" @ 11494'
CEMENTING:	Halliburton, Dowell
CONTRACTOR:	Parker Drlg. Rig 183
EQUIPMENT:	Omine 1500P
TOOLPUSHER:	Steve Smith, Curt Childers; Lee Jessen
DRILLERS:	A. Miller; D. Daley; J. Malone; M. Holler
PUMP:	#1 National 9P100 9¼"; #2 Con-Emsco FB1300 12"
DRILL COLLARS:	10", 9" to 11500'; 7" to T.D.
DRILL PIPE:	5" 19.50 #/ft EX95 4½ IF
DRILLING MUD:	Baroid
MUD TYPE:	LSND; Salt Saturated 11360'-11500'
MUD ENGINEER:	Matt Kerr, Doug Moore
DRILL STEM TESTS:	Johnston-Macco/Schlumberger
MUD LOGGING:	Tooke Engineering
TYPE UNIT:	2 man Hotwire, Chromatograph, % Flow, Standpipe Pressure, Drill Rate Plotter
MUD LOGGING ENGINEERS:	Lloyd Kitzmiller; Patricia LeJeune

RESUME (Continued)

OPEN HOLE LOGS:	RUN #	INTERVAL	TYPE
Cased Hole:	1	Surface-988'	GR/CNL-CCL
Open Hole:	1	1027-5718	DIL/SFL
	1	1027-5690	BHC Sonic
	1	1027-5717	FDC-CNL
	1	1027-5723	SHDT Dipmeter
	1	1027-5723	Cyberdip
	2	5726-11320	DIL-SFL
	2	5726-11326	BHC-Sonic
	2	5726-11306	FDC-CNL
	2	5726-11324	Dipmeter
	2	5726-11324	Cyberdip Volan
	3	11490-13434	DIL-SFL
	3	11490-13406	BHC-Sonic
	3	11300-13437	FDC-CNL
	3	11505-13438	Dipmeter
	3	11505-13438	Cyberdip
	3	11490-13410	Cyberlook Volan

SUMMARY & CONCLUSIONS

Davis Oil Company's Logan Federal #2A was drilled to a T.D. of 13451'. In the Nugget SS total drilling time was 139 days. Primary objectives were the Twin Creek and Nugget formations, although hydrocarbon shows are possible in nearly all formations encountered in the area.

Logan Federal #2A was preconceived to be structurally high to Logan Federal #1 on the westerly dipping limb of a northeasterly trending, gently overturned anticline. The anticline is slightly overturned on the eastern limb against a thrust fault imbricated within the tunp plate. This and other imbricates isolate North Pineview field from Pineview and East Anschutz.

Logan Federal #2A spudded in the Bear River fm. on the overriding plate of an unnamed thrust fault. The fault was crossed at 1918' into the Dry Hollow member of the Frontier fm. With the exception of a minor thrust fault in the Coalville mbr., a normal sequence was drilled to T.D. Below the Coalville mbr., Logan Federal #2A maintained 50' subsea high to Logan Federal #1, until the Preuss Salt was encountered. The combination of a thicker salt section and perhaps a thrust fault at the base of the salt put Logan Federal #2A as much as 240' subsea low to Logan Federal #1 to T.D.

Drilling problems were not as severe as those on Logan Federal #1. Some problems encountered were lost circulation and lack of bit selection in the 26" hole; some sloughing coals and swelling clays in the 17½" hole; some torque, sloughing and swelling clays and shales, especially at the salt top in the 12¼" hole; high torque, abrasive sandstone, some mud loss in the 8½" hole. Pinched casing in the 9 5/8" casing across the salt section resulted in reduced hole size (7 7/8") from 13372 to T.D.

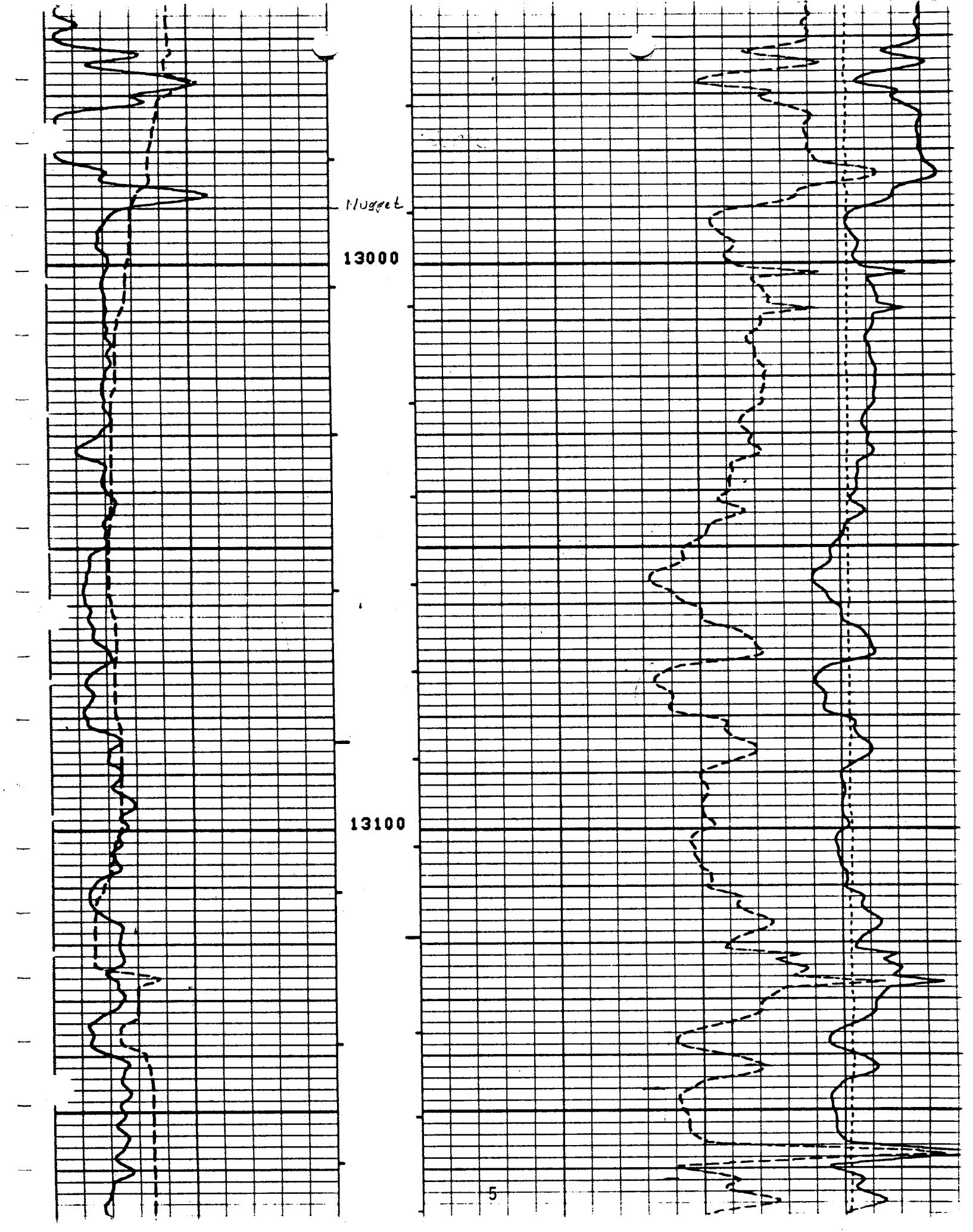
No hydrocarbon shows were encountered until the Twin Ck. fm., with the exception of traces of C-1 through C-4 in the Aspen fm. A small hydrocarbon show was seen in the Boundary Ridge mbr., and a larger show was tested in the Sliderock mbr. The Sliderock was highly fractured and was equivalent subsea to the Upper Nugget of Logan Federal #1. The test flowed gas to surface immediately, and recovered a small amount of condensate, although the test depleted the fractures. This zone may be productive with acidization. The Nugget formation appeared oil bearing from 12996 to 13180. E-logs showed porosities from 6-12%, and calculated water saturations were <50% in this interval. Below 13180, the Nugget was tighter and wet. Based on the E-log data and visual show, this Nugget zone has good production potential for Davis Oil. No cores were taken, and no DST's were run in the Nugget. Completion is pending.

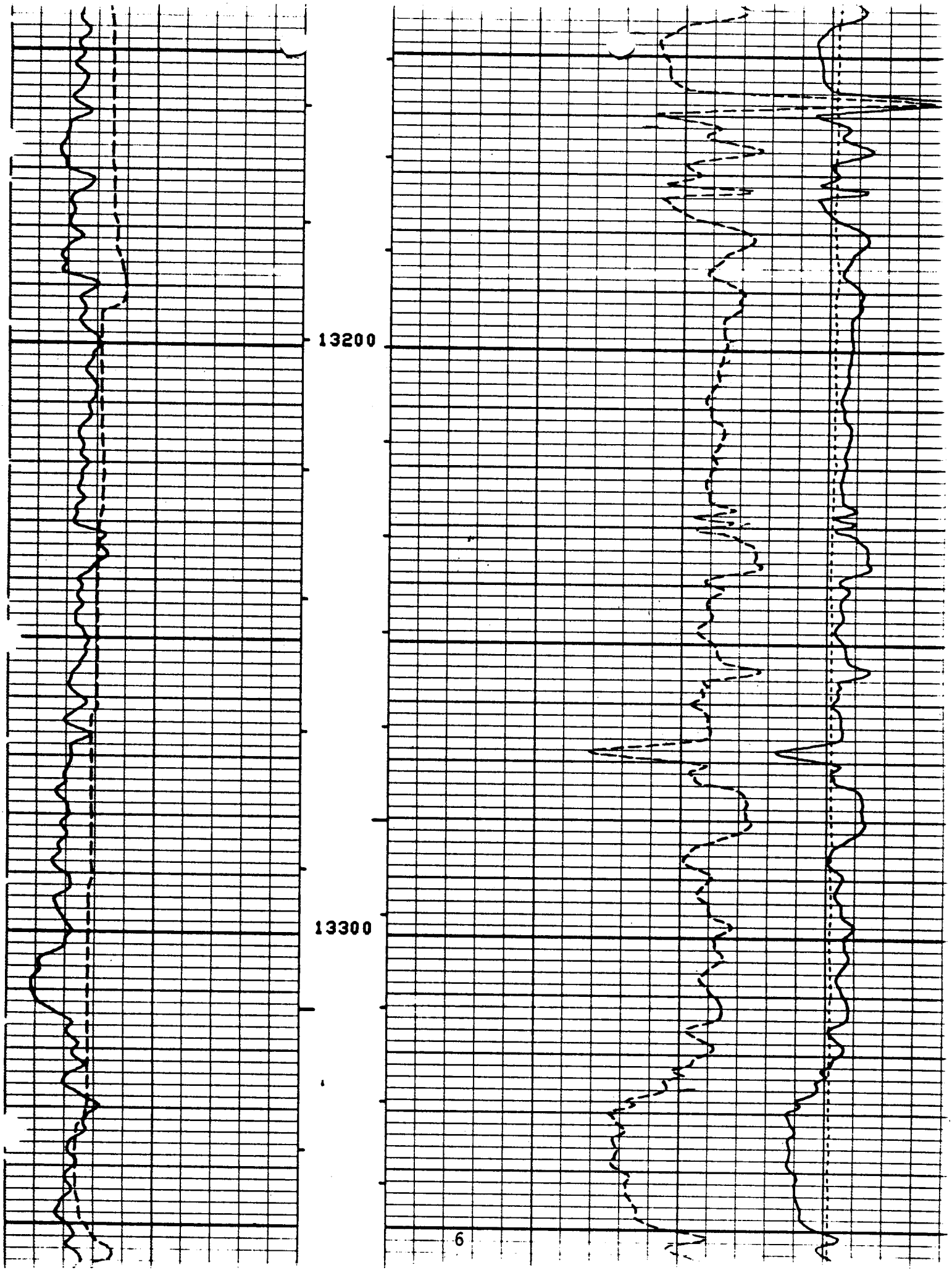
FORMATION TOPS

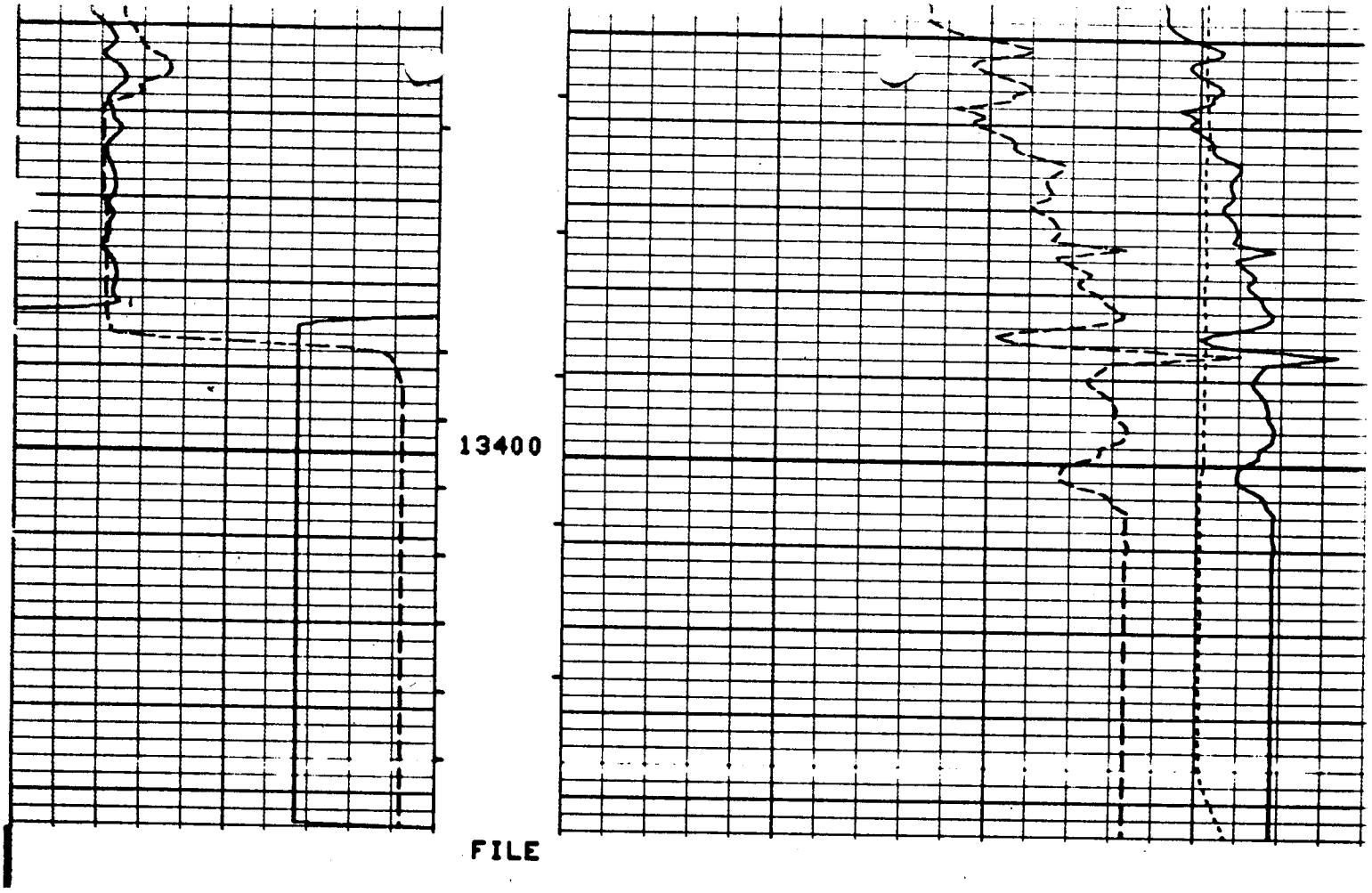
All depths from KB = 7507
GL = 7480.9

Subsea depths from E-log tops

FORMATION	SAMPLE TOPS	E-LOG TOPS	SUBSEA
Bear River Fm.	Surface		
Kelvin Fm.	156	172	7335
Thrust Fault/Frontier Fm.	1918	1918	5589
Dry Hollow Mbr.	1918	1918	5589
Oyster Ridge Mbr.		2802	4705
Allan Hollow Mbr.		2960	4547
Coalville Mbr.		3045	4462
Thrust Fault/Coalville Mbr.	3278	3210	4297
Chalk Ck. Mbr.	3425	3590	3917
Spring Cny. Mbr.	5160	5190	2317
Longwall Mbr.	5478	5478	2029
Aspen Fm.	5732	5732	1775
Bear River Fm.	5990	5976	1531
Kelvin Fm.	6269	6240	1267
Stump Fm.	10119	10124	-2617
Preuss Fm.	10356	10365	-2858
Salt Section	11313-11380	11314-11380	
Thrust at base of salt?			
Twin Crk. Fm.-Giraffe Ck. Mbr.	11449	11450	-3943
Leeds Ck. Mbr.	11950	11938	-4431
Watton Cny. Mbr.	12270	12290	-4783
Boundary Ridge Mbr.	12502	12462	-4955
Rich Mbr.	12575	12564	-5057
Sliderock Mbr.	12821	12808	-5301
Gypsum Springs Mbr.	12908	12912	-5405
Nugget Fm.	12996	12988	-5481


Nugget
13000
13100


13200
13300



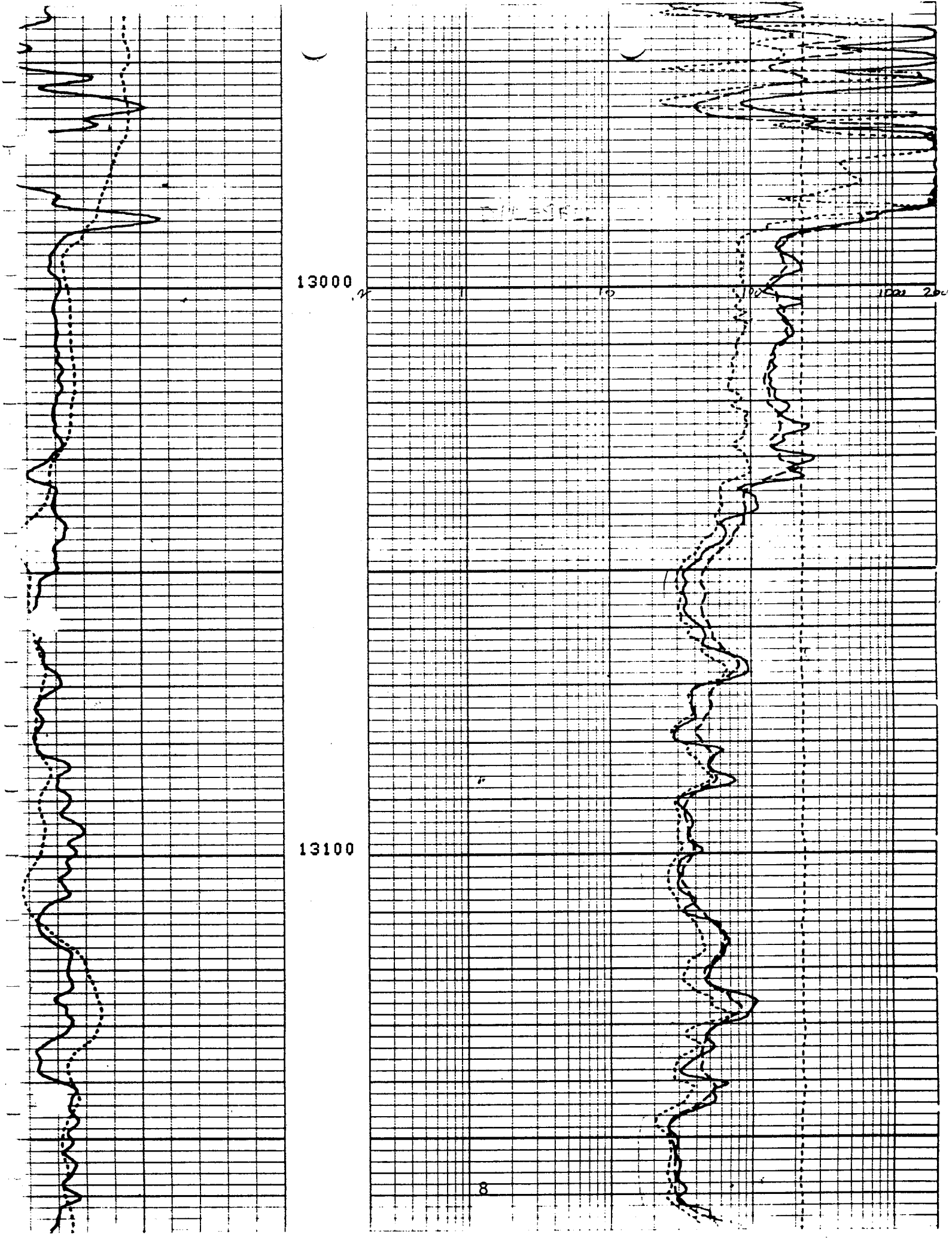
CALI(IN) 6.0000 — 16.000		TENS(LB) 10000. — 0.
GR (GAPI) 0.0 — 150.00		DT (US/F) 140.00 — 40.00
		DT (US/F) 240.00 — 140.0
		SPHI( ) 0.3000 — -0.10

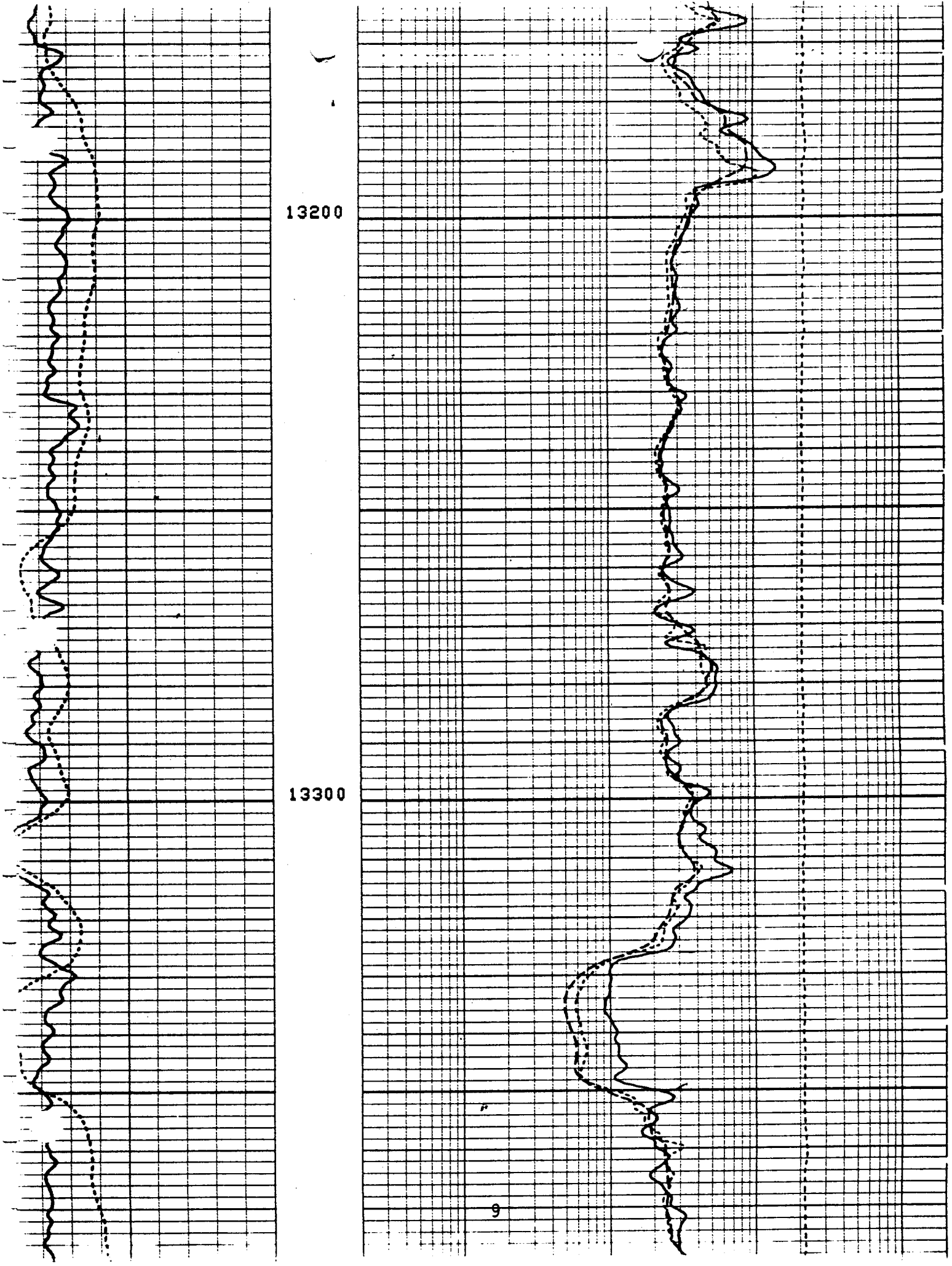
SENSOR MEASURE POINT TO TENSION REFERENCE POINT

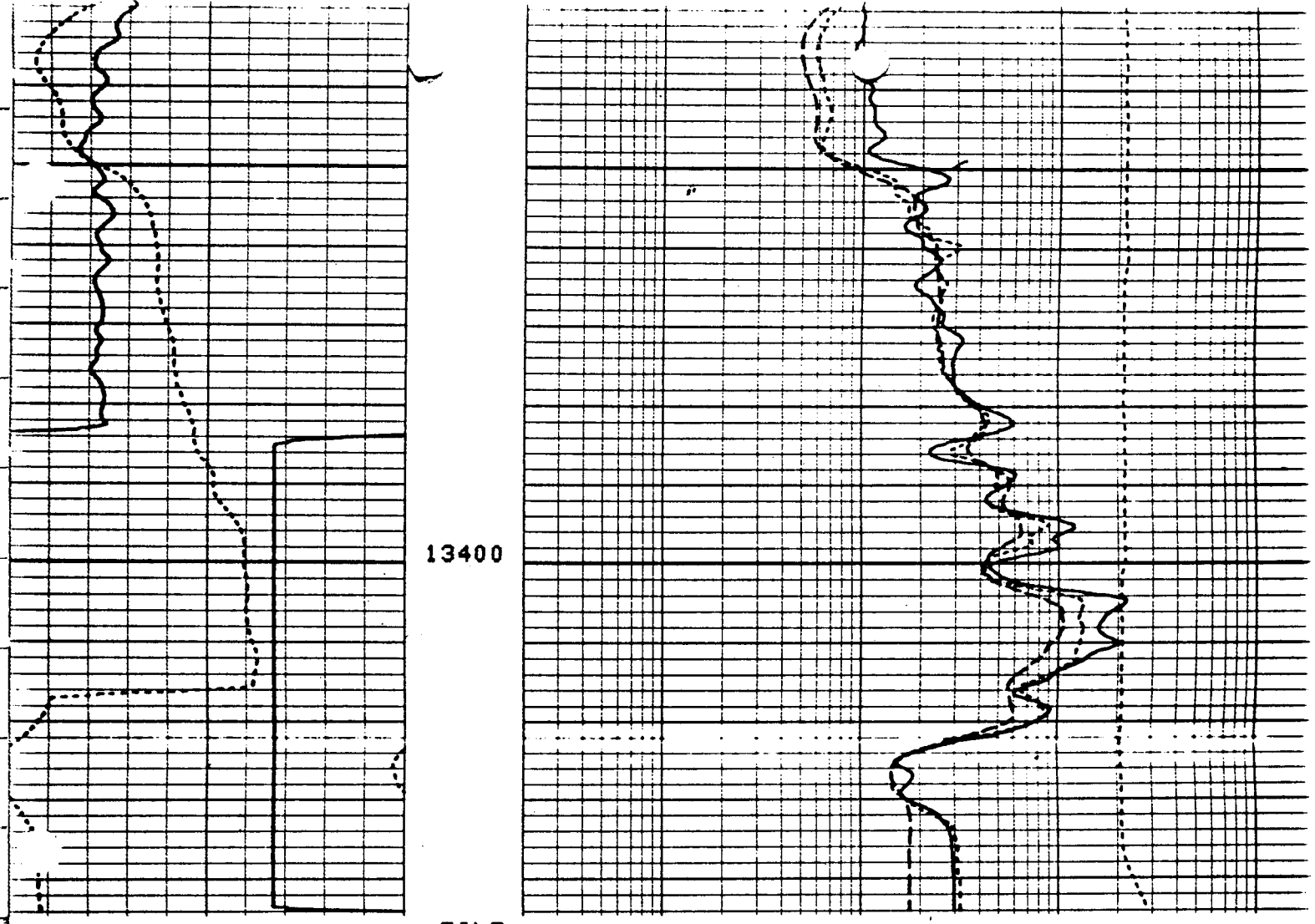
AMPL	34.6	FEET	DT	32.1	FEET
SRAT	32.1	FEET	CBL	34.6	FEET
GR	59.6	FEET	TT	34.6	FEET
ILD	6.9	FEET	CALI	51.7	FEET
ILM	3.3	FEET	SFL	3.9	FEET
SPAR	.0	FEET	SP	.0	FEET
NOIS	26.3	FEET	TENS	.0	FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
CDTS	100.000		BS	8.50000	IN
DTF	189.000	US/F	DTM	51.3000	US/F
SBR	1.00000	OHMM	DSEC	6.20000	MMHO
BHS	OPEN		MSEC	7.90000	MMHO
DO	0.0	F			


13000
.2
1
10
100
1000
2000
13100


13200
13300



		TENS(LB) 10000. 0.0
		ILD (OHMM) 0.2000 2000.0
GR (GAPI) 0.0 150.00		ILM (OHMM) 0.2000 2000.0
SP (MV) -100.0 0.0		SFLU(OHMM) 0.2000 2000.0

SENSOR MEASURE POINT TO TENSION REFERENCE POINT

AMPL	34.6	FEET	DT	32.1	FEET
SRAT	32.1	FEET	CBL	34.6	FEET
GR	59.6	FEET	TT	34.6	FEET
ILD	6.9	FEET	CALI	51.7	FEET
ILM	3.3	FEET	SFL	3.9	FEET
SPAR	.0	FEET	SP	.0	FEET
NOIS	26.3	FEET	TENS	.0	FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT

S_W VALUES CALCULATED IN NUGGET
USING ARCHIE'S FORMULA FOR WATER SATURATION
ASSUMING AN R_W VALUE OF .095
(based on R_W from free water Logan Federal #1)

INTERVAL	SONIC Ø	R_T	S_W
13000-13034	6	150	42%
13050-13060	12.1	45	38%
13070-13080	12.1	46	38%
13090-13110	10	37	51%
13132-13141	9.2	45	50%
13146-13156	11.5	28	51%
13156-13174	Noise		
13196-13230	8	30	70%
13302-13312	8	30	70%
13326-13350	13.5	6	93%

DRILL STEM TESTS

DST #1

Interval: 12799-12924 Formation: Twin Ck., Rich & Sliderock Mbrs.

Mud Condition:

Wt:	8.8
Vis:	54
Fil:	7.2
Cl:	2450

Field Information

	Time	Blow Description	Pressures
IHP	15 sec.		6002 psi
IFP	2 min.		1085-665 psi
ISIP	15 min.		4570 psi
FFP	420 min.	Opened to production unit after 60 min. Flowed gas to surface immed.	549-762 psi
FSIP			2395 psi
FHP			5806 psi
BHT			213°F

Recovery: 1025' water cushion; 170' (17 bbls) 54° API condensate; max. flow rate 719 MCFD.

SURVEYS AND DRILLING FUNCTIONS

DEPTH	DEVIATION		W.O.B.	R.P.M.		S.P.P.
63'	1/2°		3-8,000	40/70		800
96	1/2°		4-15,000	160	Dyna Drill	750
164	1°		4-15,000	160		750
195	1 1/8°		22-25,000	160		750
226	1°		30-35,000	165	Dyna Drill	850/1050
325	1°		30-35,000	165		850/1050
386	1°		30-35,000	165		850/1050
452	1 1/2° ?		15-30,000	165	Dyna Drill	850/1050
494	1°		30,000	165		850/1050
529	1°		30,000	165		850/1050
581	1°		20-30,000	165	Dyna Drill	1200/1000
612	1°		20-30,000	165		1200/1000
643	1°		20-30,000	165		1200/1000
730	2° ?	Bent Crows Foot	25-30,000	135	Dyna Drill	900
753	2° ?		25-30,000	135		900
797	1 3/4°		25-30,000	135		1200
824	1°		25-30,000	135	Dyna Drill	1200
858	1°		25-30,000	135		1200
889	3/4°		30,000	135		900
1015	1 1/4°		5-25,000	60		1200
1054	1 3/4°	S56E	30-40,000	60		1400
1131	1 1/4°	S60W	35,000	55/60		1500
1193	1 1/4°	S67W	35,000	55/60		1500
1273	1 3/4°	S68W	33,000	80		1600
1364	1 1/2°	S60W	33,000	80		1600
1458	1 1/8°	S70W	35,000	80		1600
1553	1°	S28W	35,000	80		1600
1664	7/8°	S20W	40,000	70		1800
1740	1 1/2°	S40W	40,000	70		1800
1802	1°	S53W	40,000	85		1500
1909	1 1/2°	S42W	40,000	85		1500
1971	1°	S21W	40,000	85		1500
2072	1 1/2°	S8E	45,000	75		1600
2140	1°	S18W	40,000	78		1750
2244	1 3/8°	S4W	35/30,000	110		1675
2322	1°	S2W	35/30,000	110		1675
2416	1 1/8°	S3E	35/25,000	110		2100
2510	1 1/2°	S9W	"	"		"
2602	2°	S1E	"	"		"
2695	1 7/8°	S12W	"	"		"
2791	3°	S20W	35/25,000	110		2100
2803	3°	S20W	35/25,000	110		2100
2858	2 1/2°	S20W	25/30,000	80		1900
2919	2°	S17W	25/30,000	80		1900
2982	2°	S24W	35,000	80		2000
3055	2°	S18W	35,000	80		2000
3138	2 3/4°	S18W	30/35,000	80		2150
3230	2 1/2°	S15W	30/40,000	80		2150
3324	2°	S16W	35/40,000	80		2125

SURVEYS AND DRILLING FUNCTIONS (Continued)

DEPTH	DEVIATION		W.O.B.	R.P.M.	S.P.P.
3373	1 3/4°	S15W	20/35,000	75	2200
3540	2 1/4°	due S	25/35,000	80	1950
3636	1 3/4°	S10W	25/35,000	90	1950
3726	2°	S12E	25/35,000	90	1950
3819	2°	S16W	25/30,000	90	1950
3910	1 3/4°	S15E	25/30,000	90	1950
3985	1 5/8°	S23W	25,000	80	1950
4088	1 5/8°	S5W	40/28,000	80	1950
4181	1 1/2°	S14E	20/35,000	80	1950
4260	1 3/4°	S18E	40,000	110	2000
4378	1 1/2°	S28E	30/45,000	110	2000
4459	2 1/2°	S32E	20/35,000	80	1950
4548	2 1/2°	S36E	30/50,000	110	2150
4646	2 7/8°	S31E	30/45,000	110	2150
4740	3°	S37E	30/45,000	110	2025
4833	3 1/16°	S48E	30/45,000	110	2025
4937	3 1/4°	S37E	30/45,000	110	2000
5023	3 1/4°	S37E	45,000	100	2300
5148	2 7/8°	S28E	45,000	100	2300
5251	3°	S24E	40,000	82	2450
5378	3 1/4°	S25E	40,000	80/110	2450
5534	3°	S52E	45,000	105	2350
5600	3°	S50E	45,000	105	2350
5797	4°10'	S39E	40/20,000	80/105	1500
5828	4°25'	S39E	40/20,000	80/105	1500
5893	4°25'	S39E	40/20,000	80/105	1500
5954	4°40'	S39E	30/35,000	105	1200
6017	4°30'	S39E	30/35,000	105	1200
6080	4°50'	S39E	25/30,000	105	1600
6142	4°50'	S36E	25/30,000	105	1600
6201	4°50'	S35E	20/35,000	105	1600
6278	4°58'	S35E	40,000	85	2100
6371	4°30'	S37E	40/50,000	85	2100
6463	3°50'	S35E	40/50,000	85	2100
6556	3°30'	S48E	55,000	88	2150
6647	3°	S39E	55,000	88	2150
6742	3°30'	S38E	55,000	88	2150
6834	3°10'	S40E	55,000	88	2150
6975	2 3/4°	S59E	55,000	88	2400
7068	2 3/8°	S54E	40/55,000	80/88	2300
7160	2 1/2°	S43E	40/55,000	80/88	2300
7253	3°	S40E	55,000	88	2400
7345	2°55'	S41E	55,000	88	2400
7470	2°50'	S50E	55,000	88	2300
7597	2°20'	S33E	50,000	108	2400
7692	1°45'	S55E	50,000	108	2400
7801	2 3/8°	S56E	55	88	2350
7895	2 3/8°	S55E	55	88	2350

SURVEYS AND DRILLING FUNCTIONS (Continued)

DEPTH	DEVIATION	W.O.B.	R.P.M.	S.P.P.
7990	2 1/4° S41E	50/60	88	2350
8083	2 1/8° S41E	50/60	88	2350
8178	2 1/8° S50E	60/65	90	1850
8274	2 3/8° S45E	60/65	90	1850
8368	2 3/4° S43E	60/65	92	2300
8454	2°55' S45E	50	85	2350
8549	2°10' S40E	48	88	2000/2400
8644	2° S50E	45/50	88	2450
8771	2° S52E	15/50	88	2450
8850	1°50' S48E	35/50	68/88	2200
8954	1°50' S51E	45/50	75/88	2250
9040	1°50' S48E	50	85	2250
9135	1°40' S45E	40/50	80	2350
9261	1°45' S43E	40/50	80	2350
9386	2°5' S36E	50	85	2300
9450	2°25' S33E	50	88	2300
9573	2°15' S30E	48	88	2300
9805	2°50' S30E	40/50,000	80	2300
9901	2°45' S30E	35/50,000	65	2300
9996	2°35' S33E	35/50,000	65	2300
10106	3 1/8° S27E	45/50,000	64	2350
10202	3 5/8° S27E	50,000	60	2300
10297	3 3/4° S29E	52,000	70	2300
10427	3 3/4° S25E	60,000	70	2300
10522	3 7/8° S23E	60,000	70	2300
10614	3 3/4° S23E	63,000	65	2300
10710	3 3/4° S20E	65,000	65/70	2300
10805	3 7/8° S19E	65,000	65/70	2300
10932	3 3/8° S19E	65,000	60	2300
11111	3° S20E	65,000	65	2300
11185	2 5/8° S19E	65,000	65	2300
11499	3° S32E	20/35,000	60	1600
11594	4° S45E	20/35,000	60	1600
11726	5°15' S49E	40,000	65/70	1850
11823	5°50' S51E	40,000	65/70	1850
11917	6°25' S51E	25/28,000	70	1900
12012	6°30' S55E	25/30,000	70	1975
12098	6°30' S57E	25/30,000	70	1975
12106	6°30' S57E	30/34,000	75	1975
12198	6°30' S58E	30/34,000	75	1975
12296	7° S56E	34,000	70	1950
12387	7° S55E	34,000	70	1950
12483	7° S56E	35,000	65	1950
12565	6°45' S61E	37,000	60	1950
12629	7° S67E	37,000	60	1950
12723	7°25' S72E	37,000	60	1950
12812	8° S78E	35,000	70	1950
12944	7°30' S84E	35,000	70	2000
13104	7°45' S86E	30/35,000	60/70	1900

MUD RECORD

DATE	DEPTH	WT	F.VIS.	PH	FILTR.	CK	CHLOR.	CAL	SOLIDS	COST	PV	YP
2/14	Surface	8.5	51	9.6	14.8	1+	150	20	1.5	6093	13	17
2/15	105	8.6	58	9.7	12.0	1+	200	tr	2.2	874	11	16
2/16	243	8.7	50	9.6	11.9	1+	200	tr	2.9	2161	14	14
2/17	465	9.0	53	8.6	9.9	2	200	16	5.0	1594	16	14
2/18	578	8.9+	40	9.5	11.0	2	200	0	4.7	1163	8	9
2/19	714	9.0	60	9.4	8.4	1	200	0	5.0	3517	10	22
2/20	827	9.1	50	9.4	8.1	1	150	tr	5.7	2456	16	17
2/21	913	9.1+	49	9.3	7.8	1	150	tr	6.0	1712	16	16
2/22	950	9.1	50	9.4	7.8	1	150	tr	5.7	648	16	17
2/23	966	9.1	48	9.4	7.5	1	150	tr	5.7	551	10	29
2/24	1033	9.0+	54	9.0	7.7	1+	150	10	5.4	1204	18	19
2/25	1037	9.0	55	9.1	7.9	1+	150	tr	5.0	371	19	17
2/26	1037	9.1	58	9.4	7.5	1+	150	tr	5.7	649	22	19
2/27	1037	9.0	60	9.7	7.8	1	150	tr	5.0	646	18	19
2/28	1037	9.1	56	8.8	8.3	2	100	tr	5.7	0	19	19
3/1	1037	9.1	57	9.1	8.2	2	100	tr	5.7	0	18	19
3/2	1039	8.6	52	11.0	9.7	2	100	tr	2.2	2939	13	14
3/3	1137	8.7	52	10.3	8.0	2	100	tr	2.9	926	14	15
3/4	1255	8.8	50	10.0	7.5	2	100	tr	3.6	1087	19	19
3/5	1438	8.9	49	9.5	7.4	2	130	tr	4.3	678	19	19
3/6	1638	8.9	50	9.0	7.5	2	130	tr	4.3	1341	19	18
3/7	1863	9.0	57	8.1	7.4	2	130	30	5.0	1266	26	22
3/8	2034	9.1	53	8.6	7.0	1+	150	10	5.7	990	19	20
3/9	2127	9.0+	54	8.6	7.8	2	200	10	5.4	870	16	17
3/10	2273	9.0	54	8.2	8.2	2	200	10	5.0	2440	19	18
3/11	2561	9.0	51	9.5	9.8	2	200	tr	5.0	785	17	15
3/12	2791	9.0+	55	9.1	8.8	2	200	tr	5.4		10	19
3/13	2866	9.1	46	9.1	7.5	2	200	tr	5.7	4367	11	15
3/14	2950	9.0	52	9.1	8.1	2	200	tr	5.1	2047	10	15
3/15	3071	9.0+	57	9.7	7.6	2	300	tr	5.4	1984	22	21
3/16	3202	9.1	53	9.6	6.8	2	300	tr	5.7	1653	21	20
3/17	3334	9.1	46	9.5	8.0	1	250	10	5.7	421	14	15
3/18	3391	9.1	57									
3/19	3415	9.0	71	9.4	5.8	1	250	20	6.0	1057	23	25
3/20	3481	9.0+	56	9.5	6.5	1	250	12	6.0	337	18	19
3/21	3643	9.0+	52	9.0	6.9	1+	250	10	5.0+	764	16	18

MUD RECORD (Continued)

DATE	DEPTH	WT	F.VIS.	PH	FILTR.	CK	CHLOR.	CAL	SOLIDS	COST	PV	YP
3/22	3803	9.1+	50	8.5	8.0	2	250	20	6.0	530	15	15
3/23	3945	9.0+	57	9.0	11.1	2+	250	50	5+	1112	14	14
3/24	3969	9.0+	52	9.0	10.0	2	250	40	5+	341	10	11
3/25	4072	9.1	45	8.0	9.9	2	250	40	5.7	666	13	12
3/26	4190	9.1+	55	9.3	7.7	2	250	40	6.4	1106	18	17
3/27	4214	9.1+	48	8.5	8.0	2	250	40	6.4	3075	14	15
3/28	4350	9.2+	52	9.7	7.2	2	250	40	7	--	15	16
3/29	4475	9.2	50	9.3	6.9	2	300	30	6+	2080	18	17
3/30	4591	9.1+	52	9.2	7.6	2	300	0	6	3075	18	17
3/31	4618	9.2	52	9.3	7.4	2	300	tr	6.5	148	19	17
4/1	4772	9.1	48	9.4	8.1	2	300	tr	5.8	748	16	14
4/2	4902	9.0+	48	9.7	8.4	2	250	10	5.5	630	16	15
4/3	5028	9.0+	47	9.4	6.0	1	250	tr	5.3	1031	15	11
4/4	5028	9.0+	47	9.4	6.0	1	250	tr	5.3	464	15	11
4/5	5176	9.0+	49	9.3	7.9	1	250	tr	5.4	1069	15	13
4/6	5360	9.1	52	9.6	7.6	1+	300	tr	5.8	1942	18	16
4/7	5499	9.0+	50	9.3	7.8	2	300	tr	5.5	1430	18	16
4/8	5561	9.0	58	9.9	6.8	2	300	tr	5.0	1020	20	20
4/9	5672	9.0	59	9.4	6.2	2	300	tr	5.3	1098	24	20
4/10	5723	9.0+	59	9.3	6.4	2	300	tr	5.3	510	26	24
4/11	5730	9.0+	57	9.2	6.4	2	300	tr	5.3	0	23	22
4/12	5730	9.2	53	9.2	7.1	2	300	tr	6.5	0	24	18
4/13	no report											
4/14	5730	8.5+	31	8.9	17.5	1	300	25	1.8	777	3	0
4/15	5730	8.5+	32	11.4	16.2	1	300	tr	1.8	915	4	0
4/16	5832	8.7	48	11.0	8.8	1	300	15	2.9	2085	15	10
4/17	6001	8.7+	50	9.5	7.6	1	300	20	3.3	605	19	12
4/18	6108	8.7	50	9.5	8.0	1	300	20	3.3	144	21	12
4/19	6225	8.8	60	10.2	8.0	2	300	20	3.6	736	25	18
4/20	6258	8.8+	52	9.4	6.8	1	300	24	4.0	236	20	12
4/21	6404	8.8	52	9.9	8.0	1	300	20	3.6	765	19	12
4/22	6580	8.9	58	9.3	8.0	2	300	30	4.3	230	22	18
4/23	6815	9.0	48	9.9	8.8	1+	300	24	5.0		18	13
4/24	6956	9.0+	58	9.8	7.4	1	300	15	5.3	561	25	18

MUD RECORD (Continued)

DATE	DEPTH	WT	F.VIS.	PH	FILTR.	CK	CHLOR	CAL	SOLIDS	COST	PV	YP
4/25	7070	9.0	53	9.4	7.0	1	300	tr	5.0	1301	18	10
4/26	7261	9.1	66	9.4	7.4	1	300	16	5.7	878	20	12
4/27	7438	9.1+	60	9.5	6.9	1	300	14	6.0	2541	19	12
4/28	7610	9.1+	79	9.2	6.4	1	250	8	6.0	668	25	20
4/29	7760	9.1+	55	9.2	6.6	1+	300	tr	6.0	1256	25	23
4/30	7766	9.1+	52	9.1	6.2	1	300	tr	6.0	618	23	20
5/1	7828	9.2	59	9.2	6.0	1	300	tr	6.4	731	26	24
5/2	8018	9.2	59	9.2	5.6	1	300	4	6.4	472	28	24
5/3	8245	9.2	53	9.0	6.8	2	300	tr	6.4	833	24	16
5/4	8381	9.2+	51	8.9	6.4	1	300	tr	6.7	3337	23	15
5/5	8448	9.3	51	9.1	5.8	1	300	tr	7.1	1474	21	17
5/6	8541	9.1	56	9.4	6.0	1+	300	tr	5.7	2196	24	18
5/7	8766	9.0	58	9.0	6.0	1	300	tr	5.5	748	26	20
5/8	8810	9.1	57	9.1	5.8	1	300	tr	5.8	1748	24	19
5/9	8965	9.0	58	9.2	5.8	1	300	tr	5.3	1385	24	21
5/10	9088	9.0	55	8.9	5.9	1	300	20	5.5	131	23	19
5/11	9211	9	58	9.0	6.4	1+	300	20	5.5	241	24	20
5/12	9423	9	53	8.9	7.2	1+	300	20	5.0	338	21	17
5/13	9602	9	53	8.9	7.3	1	300	30	5.1	700	21	16
5/14	9731	8.9	49	9.0	6.9	1	300	20	4.8	840	20	18
5/15	9785	8.9	52	9.0	6.8	1	300	25	4.8	292	20	18
5/16	9870	9.0	52	9.0	6.8	1	300	25	4.8		20	18
5/17	9937	9.0	65	9.4	5.4	1	300	30	5.0	718	25	23
5/18	10093	9.0	55	9.1	6.6	1	300	30	5.0	881	22	18
5/19	10138	9.0	52	9.1	7.9	1	300	35	5.0	799	18	15
5/20	10250	8.95	52	9.4	7.6	1+	300	15	4.8	631	19	17
5/21	10375	9.0+	57	9.2	7.0	1	400	20	5.4	888	22	21
5/22	10456	9.0+	53	9.0	7.0	1	450	40	5.4	2631	18	19
5/23	10518	8.9+	54	8.9	6.9	1	400	50	4.8	847	19	18
5/24	10617	8.9	61	9.4	6.3	1	750	35	4.3	1513	21	18
5/25	10668	8.9	52	8.9	6.1	1	1200	30	4.3	1727	19	15
5/26	10787	8.8+	55	8.9	6.6	1	1500	55	3.8	3831	20	15
5/27	10893	8.8+	56	8.9	6.8	1	2350	45	3.8	2080	19	16
5/28	10956	8.9	55	9.2	7.0	1	3800	60	4.1	2124	16	12

MUD RECORD (Continued)

DATE	DEPTH	WT	F.VIS.	PH	FILTR.	CK	CHLOR.	CAL	SOLIDS	COST	PV	YP
5/29	11016	8.8+	51	8.6	6.5	1	4100	110	3.7	1451	16	13
5/30	11050	8.8+	51	8.7	6.8	1	4100	140	3.7	676	17	13
5/31	11150	8.9	54	8.6	6.6	1+	4000	250	4.1	943	15	21
6/1	11262	8.9	52	8.7	7.6	1	3900	220	4.1	1000	15	19
6/2	11357	8.9+	52	8.9	7.6	1+	8400	140	4.3	1710	14	18
6/3	no report while saturating mud											
6/4	11356	9.7	52	9.1	16.0	3	103K	100	4.0	7950	12	24
6/5	11425	10.1	52	8.7	15.8	2+	150K	220	3.9	9203	17	18
6/6	no report									3719		
6/7	11500	10.2	49	8.6	7.5	1	160K	300	4.0	0	17	16
6/8	no report while changing mud to LSND											
6/9	11500	8.5+	53	9.6	14.2	1	2500	80	1.7	--	14	14
6/10	11500	8.5+	53	9.6	14.2	1	2500	80	1.7	1552	14	14
6/11	11540	8.6	52	9.5	7.2	1	2400	100	2.2	6537	17	8
6/12	11670	8.7	43	9.7	7.0	1	2500	80	2.8	457	10	12
6/13	11672	8.7	44	9.3	6.6	1	2000	48	3.0	755	13	12
6/14	11956	8.7+	54	9.8	7.0	1	2800	44	3.0	1033	20	15
6/15	12174	8.8	52	9.2	7.9	1	2350	30	3.5	334	17	12
6/16	12345	8.8	54	9.1	7.6	1	2300	80	3.5	428	17	13
6/17	12533	8.8	53	9.5	7.1	1	2350	20	3.5	741	17	15
6/18	12533	8.8+	59	8.9	7.0	1	2400	90	3.8	535	18	16
6/19	12850	8.8	54	9.4	7.2	1	2450	25	3.5	1838	18	17
6/20	no report while running DST									869		
6/21	no report while running DST											
6/22	13011	8.8+	58	8.4	9.4	1+	2600	220	3.8	4554	15	16
6/23	13033	8.9	47	8.5	8.2	1	2550	135	4.2	1263	13	11
6/24	13033	8.9	55	8.7	7.6	1+	2400	96	4.2	625	16	14
6/25	13038	8.9	55	9.5	7.8	1+	2500	tr	4.2	1310	17	15
6/26	13206	8.9	54	8.8	7.8	1+	2900	12	4.1	475	17	16
6/27	13277	8.8+	52	9.3	7.4	1+	2700	tr	3.9	1079	14	18
6/28	13371	8.8	52	9.5	7.2	1+	2400	8	3.5	832	17	18
6/29	13371	8.8	54	9.0	7.0	1+	2100	8	3.5	3230	16	17
6/30	no report									245		
7/1	13371	8.8	55	9.2	7.6	1+	2100	48	3.5	0	18	18

BIT RECORD

NO.	MAKE	TYPE	SIZE	IN	OUT	FOOTAGE	HOURS	T B G
1	HTC	OSC 1GJ	26"	56	105	51	19	
2	STC	DSJ	26	105	299	194	14 3/4	6,2,I
3	STC	DSJ	26	299	578	279	27	6,1,1/4
4	STC	DSJ	26	578	747	169	20 1/2	3,5,I
5	Reed	Y11	26	747	836	89	14 3/4	4,6,I
6	HTC	OSC	26	836	913	77	10 1/2	5,7,I
7	HTC	OSC 1GJ	26	913	944	31	7	4,6,I
8	Reed	Y11	26	944	966	22	7 3/4	3,6,I
9	HTC	OSC 1GJ	26	966	966	0	3	1,7,I
10	SEC	S84	17 1/2	966	1037	71	9	2,2,I
11	Grant	H.O.	26			Ream & Open Hole		2,3,I
12	STC	DSG	26			Ream Hole		2,4,I
13	HTC	OSC 1GJ	17 1/2	1037	1124	87	19 1/4	3,6,I
14	HTC	X22	17 1/2	1124	2035	911	100 1/4	2,7,I
15	HTC	X11	17 1/2	2035	2129	94	15 1/2	6,3,I
16	SEC	S84	17 1/2	2129	2866	737	67 1/2	3,3,I
17	HTC	X22	17 1/2	2866	3391	525	86 3/4	3,7,I
18	SEC	S84	17 1/2	3391	3430	34	10 1/2	1,2,I
19	HTC	X22	17 1/2	3430	3949	519	70	3.7.I
20	Reed	S51J	17 1/2	3949	4213	264	49	2,7,1/16
21	STC	2JS	17 1/2	4213	4618	405	62 3/4	3,5,I
22	HTC	X22	17 1/2	4618	5028	410	57 1/2	6,6,10/32
23	HTC	X22	17 1/2	5028	5500	472	56 1/2	5,7,1/16
24	SEC	S84	17 1/2	5500	5723	223	39.5	2,4,I
25	SEC	M44N	12 1/4	5730	5730		drilled cement	
26	HTC	J-22	12 1/4	5730	6263	533	87 1/4	4,6,1/8
27	STC	F-2	12 1/4	6258	6956	798	88 1/2	4,4,1/4
28	STC	F-2	12 1/4	6956	7766	811	92	6,3,1/4
29	STC	F-2	12 1/4	7766	8447	681	82 3/4	6,3,1/4
30	HTC	J-22	12 1/4	8447	8804	357	39 3/4	8,4,I
31	HTC	J-33	12 1/4	8804	9127	323	54 1/4	3,4,1/8
32	STC	F-2	12 1/4	9127	9731	604	68	6,4,1/8
33	STC	F-3	12 1/4	9731	9870	139	18 3/4	8,4,1/16
34	HTC	J55R	12 1/4	9870	10122	252	47	5,SE,1/16
35	HTC	J55R	12 1/4	10122	10455	333	63 1/4	7,4,3/32
36	STC	F3	12 1/4	10455	10602	147	31 1/4	8,4,3/16
37	STC	F5	12 1/4	10602	10943	341	70	6,4,5/32
38	STC	F4	12 1/4	10943	11033	90	17 1/4	8,3,1/4
39	HTC	J55R	12 1/4	11033	11356	323	49 1/4	4,3,1/4
40	STC	F3	12 1/4	11356	11500	144	22 3/4	3,3,I
41	SEC	M44NG	8 1/2	11500	11670	170	19 3/4	7,4,I
42	SEC	S84F	8 1/2	11670	11968	298	24	2,2,I
43	SEC	S84F	8 1/2	11968	12533	565	72 1/2	6,4,1/16
44	HTC	J22	8 1/2	12533	12924	391	33 1/4	4,3,I
45	SEC	S86F	8 1/2	12924	13033	109	14 1/4	8,8,0
46	HTC	J-4	8 1/2	13033	13039	6	2 3/4	8,2,1/16
47	HTC	J55R	8 1/2	13039	13204	165	21 1/4	7,4,3/32
48	SEC	M89TF	8 1/2	13204	13372	168	25	7,4,5/32
49	HTC	J55R	8 1/2	13372	13372	0	0	--
50	HTC	J77	7 7/8	13372	13451	80	14 1/2	6,3,I

DAILY DRILLING CHRONOLOGY

DATE	FOOTAGE	RIG ACTIVITY
2-13-83	0'	Mix mud and LCM; lost 430 bbls water and spud mud while circ. thru fill up line @ 30" shoe; spud @ 3:30 AM 2-14-83; drlg.
2-14-83	12'	Drlg; service rig; P.U. 10" D.C. - unplug bit jet; survey and drlg; lost 85 bbls; increase LCM; P.U. Dyna Drill & Bit #2; drlg.
2-15-83	39'	Drlg; P.U. 10" D.C.; change out NRS for 3 pt. reamer and RIH; survey and service rig, drilling, repair mud line and drawworks.
2-16-83	147'	Drlg; P.U. 10" D.C.; change out NRS; RIH; service rig and survey; drlg to 299'; circ. ½ H.R.; POOH for bit; change out NRS sleeve; RIH w/Bit #3 - Ream 10.
2-17-83	223'	Drlg and survey; work on #1 pump; ream tight spot @ 568'; drlg; trip for bit; change out bit and NRS; RIH w/Bit #4.
2-18-83	103'	Wash and ream 60' to BTM; drlg and survey - ream out all bent strgrs; circ. and work pipe w/working on #2 pump, drlg; circ. and work thru tight hole; drilling & survey.
2-19-83	140'	Drlg; trip for bit - 2K Drag; RIH w/Bit #5; wash and ream 60' to BTM; drlg dropped 2 balls; survey drop 1 ball; drlg and survey.
2-20-83	112'	Drlg; trip for bit, lay down 12" Dyna Drill - P.U. new motor; RIH w/Bit #6; service rig; break in bit, drlg and survey; circ. Dyna Drill quit-torqued up; POOH for Dyna Drill.
2-21-83	83'	POOH for Dyna Drill; P.U. Dyna Drill and new bit; RIH w/Bit #7; drlg & survey; circ. and work pipe; level derrick; trip for bit; RIH w/Bit #8; wash ream 50' to BTM; drlg.
2-22-83	39'	Drlg and work pipe; drlg circ. and pump sweeps; trip out; service rig - lay down Dyna Drill; RIH w/Bit #9; drlg - ream torque; circ. and POOH; P.U. NB #10 (17½"); RIH w/Bit #10; circ. hole clean.
2-23-83	13'	Repair rotary chain; wash and ream to BTM; drlg 17½" pilot hole; circ. and POOH; P.U. BHA to drill 17½" hole; rig service; RIH w/new BHA; ream 30' to BTM; drlg and ream out torque.

2-24-83	69'	Circ. and survey @ 1015; POOH; rig service; P.U. new BHA and RIH; tag up w/26" hole opener @ 56'; ream 56'-63'; POOH; move 3 pt reamer 30' up; work H.O. and 26" 3 pt RMR @ 62'; RIH; open hole 966'-1004'.
2-25-83	0	Ream out 17½" hole w/H.O. 1004-1037'; circ. and cond. hole; POOH and laydown 26" tools; rig up CSG crew; P.U. 20" shoe, 1 jt 20" CSG; D.C., 1 jt 20" CSG; RIH; tag up @ 64"; rotate pipe - fell thru to 77'; shoe won't pass; rig down CSG crew; P.U. new BHA.
2-26-83	0	Finish P.U. BHA; ream to BTM w/26", H.O.; hard w/ledges 56'-165'; not bad 165-880'; bridges and ledges 880'-1035'; circ. hole; POOH (short trip) some drag (5/10 K).
2-27-83	0	Finish trip out; circ. hole clean; ream 50'-124'; lay down 26" tools; RIH w/shoe to 80'; rig up CSG crew; RIH w/float shoe; 1 jt 20"; float collar; 25 jts 20"; landed CSG @ 1031; float collar @ 986'; rig down CSG crew; P.U. Halco Stngr; RIH w/5" D.P.; tag up @ 986'; stung in w/10K; circ. hole; rig up Halliburton; pump 30 bbl H_2O; 1290 sks lite w/.25#/sk Floseal; 500 sks "A" 25#/sk Floseal and 2% $CaCL_2$; displaced w/16½ bbl mud plug; bumped 1200 psi-released float; circ. 120 bbl Halco lite - rig down Halliburton; POOH; WOC.
2-28-83	0	Cut CSG off; weld on head; nipple up 2000# Hydril; PUN GR/CNL-CCL; rig down flow line; pressure test Hydril to 2000 psi-check OK.
3-1-83	0	Finish press test Hydril; install 20" wear ring and finish nipple up flow line; P.U. BHA and Magnaflux; circ. and cond. mud @ 986; drill float collar and 39 cement to 1029; circ. and press test CSG to 1400 psi - OK; drilled shoe and open hole @ 1032-1037; run P.I.T. 700⟶200 psi; P_M=669 psi (.645 psi/ft.); drlg new hole.
3-2-83	22'	Drlg and survey; rig service; drlg and work on #1 Pump; drlg, circ. and POOH; RIH w/NB #14; wash and ream 30' to BTM; drlg.
3-3-83	93'	Drlg; repair #1 pump pop-off; drlg and survey; rig service; drlg; engines overhtg. Change out #1 liner to lower HHP; drlg and survey, drlg.
3-4-83	122'	Drlg; service rig; drlg and survey.
3-5-83	169'	Drlg; service rig; drlg and survey.
3-6-83	208'	Drlg; rig service; drlg and survey; work on #1 pump.

3-7-83	225'	Drlg; circ. and survey; cond. hole; POOH; change out both NRS, MONEL and shock sub.
3-8-83	159'	P.U. tempered DC string and RIH; slip drlg line; wash and ream 68' to BTM - no fill; break in Bit #15; drlg and survey.
3-9-83	88'	Drlg; cond. hole; POOH; RIH w/Bit #16; wash and ream 68' to BTM; no fill; drlg and survey.
3-10-83	159'	Drlg and survey; rig service.
3-11-83	293'	Drlg and survey; rebuild #2 pump; control drlg w/#1 pump; drlg and survey.
3-12-83	216'	Drlg; rig service; drlg and survey; POOH; lay down 6 pt and 3 pt RMR; P.U. new BHA; Magnaflux - laydown 1 10" D.C.; pulled thread.
3-13-83	75'	Magnaflux HWDP; RIH w/Bit #17; wash and ream 115' to BTM; no fill; drlg and survey.
3-14-83	84'	Survey; drlg; rig repair - compound chain; drlg; rig service; drlg and survey.
3-15-83	125'	Circ. and survey; drlg; rig service; drlg; circ. and work tight spot @ 3140' drlg and survey' circ. and work on Pump #2; drlg.
3-16-83	128'	Drlg and rig service; drlg and survey; drlg; rig repair #1 pump - pop out seat washed out; drlg.
3-17-83	137'	Drlg and survey; drlg and circ.; rig service; drlg. circ. and work pipe while changing oil in #3 motor; drlg and circ.; POOH; tight @ 2799; ream out tight spot 2799-2848; IBS and 3 pt balled up; POOH 3 STDS to 2525; ream 2525-2560; POOH.
3-18-83	51'	POOH; lay down NRS, SDC, 3 pt, IBS, bit sub; P.U. new BHA and P.U. Dyna Drill; RIH w/Bit #18; ream 105' to BTM; last 30' tight; drlg.
3-19-83	26'	Drlg w/Dyna Drill; circ. and survey; drlg; circ. and POOH; SLM, lay down Dyna Drill, 6 pt; P.U. BHA; (SLM+5') RIH w/Bit #19; ream 60' to BTM; drlg.
3-20-83	72'	Drlg; ream out torque; drlg; rig service; drlg circ. while repacking #1 pump; drlg and survey.
3-21-83	160'	Ream tight spot; drlg and reaming; drlg; rig repair #1 pump; drlg and survey.

3-22-83	154'	Drlg and survey; drlg. unplug flow line (NRS rubber) drlg and survey; circ. and trip out to XO bullwheel and fluid coupling.
3-23-83	146'	POOH; XO bullwheel w/bit @ 20" shoe; LD 3 pt and XO subs; rig service; repair torque converter; install 44" bullwheel on FP 1300 pump; RIH w/bit 20; break circ. twice on trip in; ream 60' to BTM work on kill line; lost 500 psi, dropped flag; POOH.
3-24-83	20'	Found washout 16 stds out; RIH; wash and ream 55' to BTM; drlg; service rig; drlg and survey; ream 2 hrs while drlg.
3-25-83	107'	Drlg; service rig; survey.
3-26-83	122'	Drlg; replace swab #2 pump; drlg and survey; trip 10 stds; replace TOTCO rotary torque; POOH; inspect BHA; LD SS, 3 DC's, 3 pt RMR; P.U. 3 10" DC's and make up BHA.
3-27-83	15'	RIH w/Bit #21; ream 210'; torque @ 4168-4213; no fill; break in bit; service rig; drlg; work out tight spot 4280-4310; survey @ 4310; drlg.
3-28-83	125'	Drlg; service rig; drlg and survey; drlg; repair #1 pump; drlg; repair #2 pump.
3-29-83	137'	Replace swab #2 pump; drlg; rig service; drlg and survey; replace swab #2 pump; drlg; replace swab #2 pump; drlg and survey.
3-30-83	126'	Drlg and service rig; POOH; LD IBS, NRS; P.U. soft shock; IBS, NRS/NRS; RIH w/Bit #22; stuck pipe @ 4495; work pipe free; break down remaining stands and ream to BTM.
3-31-83	27'	Ream to BTM; service rig-BOP drill; survey and drlg; ream throughout day; tight @ 4758.
4-1-83	159'	Drlg; circ. and survey; service and repair chain oiler #1 pump; drlg; circ. and survey; drlg; ream while drlg.
4-2-83	133'	Drlg; service rig; drlg and survey; drlg; bit balled; pump walnut sweep; ream-repair swab #2 pump, drlg.
4-3-83	105'	Drlg; short trip through bentonite beds; ream 3 jts to BTM; work hole clean; circ. sweep; trip out; P.U. 3 pt, 2 NRS boots; LD IBS; ream 4900-5028 - very tight 5000-5028.
4-4-83	13'	Ream to BTM; break in Bit #23; drlg and survey; repair #2 pump; drlg and reaming.

4-5-83	152'	Drlg; service rig; drlg - control drlg w/one pump while XO liners on #1; fuel line plugged to motors-will not run @ full capacity; survey and drlg.
4-6-83	183'	Drlg and survey; circ. sweep; POOH; pulled tight 5094, 5001, 4717; strapped out.
4-7-83	136'	Finish trip; RIH w/Bit #24; wash and ream 160' to BTM; 6' fill; drlg; XO swab on #2 pump; drlg and survey.
4-8-83	61'	Drlg; work tight spot; rig repair #2 swab; drlg; rig service; survey; drlg; rig repair #2 swab; drlg.
4-9-82	116'	Drlg; rig service; drlg; circ. and short trip 33 stds; no fill; bridge 7' off BTM; circ. and POOH; no drag; rig up loggers, loggers to 5724.
4-10-83	46'	Logging w/Schlum; RIH w/DC's and HWDP; cut drlg line; RIH and tag fill @ 5712; break circ. and wash to BTM; circ. and work pipe; POOH for CSG; no drag.
4-11-83	0	POOH for CSG; tried to pull wear bushing-unable; rig up CSG crew; ran Baker diff shoe; (2.70') 1 jt 13 3/8 72# CSG (38.17') Baker diff collar (2.02') 44 jts 13 3/8 72# N-80 (1776'); 86 jts 68# S-80 (3707'); 5 jts 13 3/8 72# N-80 (204') landed CSG @ 5730; PBTD 5687; rig up Dowell; rig down CSG crew; circ.; cement w/1100 sks 10-0 RFC/10#/sks Kolite; 350 sks 10-0 RFS; good circ. throughout job; displaced w/855 bbls mud @ 11 bbl/min; plug didn't bump w/1000 psi on CSG; shut floats; wo CEM.
4-12-83	0	WO cement; pull wear ring; set slips w/225,000#; cut CSG; install 20" 3 x 13 5/8-5" CSG head. P_T to 2000 psi; nipple up BOP's.
4-13-83	0	Nipple up BOP's; P_T BOP's to 5000 psi; blinds, rams, manifold-2500 psi, Hydril check OK; lay down 17½" BHA; P.U. 12¼" BHA; Magnaflux BHA; RIH w/Bit #25.
4-14-83	0	RIH w/Bit #25; Magnaflux DC's and HWDP; LD 6 DC's; rig service; tag cement 5662; break circ. and drill cement to 5727; tag shoe @ 5727; P_T CSG to 1100 psi; check OK; drlg shoe-lost 800 psi; drop flag; POOH for WO - no hole; RIH w/Bit #26.
4-15-83	0	Trip in to 90'; check pumps; RIH to shoe; circ. and cond. mud; drlg on shoe; drlg new hole; circ. and P.I.T.; pumped into @ 900 psi w/8.6 mud wt.; frac pt. @ shoe - 11.6 #/gal (3462 psi) drlg.

4-16-83	113'	Drlg and survey.
4-17-83	163'	Drlg and survey; rig service; drlg and survey (misrun) drlg and survey; drlg.
4-18-83	104'	Drlg; circ. and survey; drlg and survey; drlg.
4-19-83	116'	Drlg; circ. and survey; POOH; LD BHA: P.U. new BHA; LD 12 jts HWDP "E"; P.U. 10 jts HWDP "E"; install DP rubbers; RIH w/Bit #27.
4-20-83	32'	Finish trip in; install D.P. rubbers; ream 160' to BTM; drlg; rig service; drlg and survey.
4-21-83	148'	Drlg and survey; drlg; rig service; survey; drlg; ream bentonite bed @ 6560.
4-22-83	181'	Drlg and survey.
4-23-83	197'	Survey and drlg; rig service; drlg-called 5 jts D.P. when making up; survey and drlg.
4-24-83	157'	Drlg; POOH - LD 3 pt, SDC; redress BTM 3-pt P.U. NB, IBS, NRS boot; RIH w/Bit #28; LD 14 jts "E" pipe; P.U. 1 7" D.C.; RIH; ream 120 to BTM; drlg (25 K overpull 4-6 jts off BTM).
4-25-83	82'	Survey and drlg; service rig; drlg and survey; replace TOTCO rotary torque gauge; drlg; circ. and survey; trip 20 stds to retrieve survey line; drlg.
4-26-83	200'	Drlg; service rig; drlg and survey.
4-27-83	202'	Drlg; rig service; drlg; lost partial returns @ 7477; (28 bbls over 15 min) well flowed back 25 bbls over next 2 hrs. Drlg and survey; drlg.
4-28-83	165'	Drlg; rig service; drlg and survey.
4-29-83	153'	Drlg; POOH - max overpull 28,000 @ 6403; inspect BHA; LD 4-7" DC's; jars, 2-9" DC's, NRS, 10" SS, DC, P.U. 4-10" DC's, 1-9" DC, 3-7" DC's Jars and new BHA; trip out; lay down 2 jts D.P.
4-30-83	29'	P.U. BHA; remove D.P. rubbers; stuck @ 7147; would not release-jarring up; P.U. Kelly and circ.; no plugging of hole; good returns; bump down to release; would not ream or pull through 7147; ream and wash to BTM; BTM 45' out of gauge; drlg-lost 80 bbls 7770-7779; partial returns.

5-1-83	41'	Drlg; service; drlg and survey; lost partial returns @ 7880-7890 (58 bbls over 30 min)
5-2-83	187'	Drlg; rig service; drlg and survey.
5-3-83	206'	Lost returns @ 8201 (58 bbls); pump LCM; drlg; circ. and make short trip to 7722'; drlg and survey; lost partial returns @ 8299 (120 bbls over 30 min); repair #2 pump for 7 hours.
5-4-83	148'	Drlg; repair rotary chain; drlg and survey; pump pill; POOH, (max. overpull 45K @ 7238 to 7052.
5-5-83	98'	P.U. new BHA while RIH; cut drlg line; TIH (no excessive drag); break circ. and unplug jets; wash and ream 91' to bottom (no fill); break bit in and drlg; unplug bit jet; circ.; drlg and survey.
5-6-83	122'	Drlg and survey; (350-500 ft # of torque from 8707' to 8766') reaming out torque spots; drlg.
5-7-83	200'	Drlg (can't keep bit on bottom - high torque 500 ft #); circ.; POOH for Bit #31 LD NRS (¼") 2 IBS (1/8") 3 pt; lost 1 snap ring on rollers; 1 SDC P.U. 3 pt's; RIH to 8490' (tagged up 25,000; circ. through spot @ 8490'; RI to 8714'; wash and ream 90' to bottom; break in bit; drlg.
5-8-83	46'	Drlg; circ. and survey; change to Totco guage; drlg and survey.
5-9-83	138'	Drlg and survey; drlg and circ. survey; drlg.
5-10-83	139'	Ream torque; drlg; circ. and survey; drlg; POOH; change bit, RIH; wash and ream 90' to bottom; drlg.
5-11-83	86'	Drlg; circ. and survey; work torque (300 - 600) out.
5-12-83	213'	Drlg; work and ream torque; drlg; circ. and survey; drlg.
5-13-83	196'	Drlg; survey; drlg; survey; drlg; survey; drlg.
5-14-83	138'	Drlg; circ.; POOH; LD 10 jt HWE 25.60 min wall 10; Magnaflux BHA LD - crossover sub, 19" DC cracked boxes; LD = jar, SS, 3 pt, P.U. new Jar 55 3 pt crossover sub; test BOP's blind rams, manifold, Kelly & Kelly cocks to 50,000 psi Hydril to 2500 psi; RIH; P.U. 12 jts 5" 50 lb HWDP; RIH.
5-15-83	6'	Finish RIH; wash and ream 110' to bottom; drlg; survey; drlg; survey; drlg; survey; drlg; survey; drlg.

5-16-83	124'	Drlg; POOH; XO bit; rig service; RIH w/Bit #34; wash and ream 98' to BTM, drlg and survey.
5-17-83	64'	Drlg; rig service; drlg and survey.
5-18-83	148'	Circ. and survey; drlg; rig service; drlg; circ. and POOH - strap out; XO bit; lay down 2 DC's; RIH w/Bit #35.
5-19-83	55'	Cut drlg line; rig service; finish RIH; wash and ream 110' to BTM; 3' fill - no tight spots; drlg and survey; repair rotary chain.
5-20-83	109'	Drlg; work out torque @ 10271; drlg and survey.
5-21-83	120'	Drlg; circ. and survey; drlg.
5-22-83	97'	Drlg; pump pill and POOH; lay down 2 3 pt and bit; P.U. NB, 3 pt, IBS, NRS, 1 10" DC, 1 9½" DC; RIH w/Bit #36; tight @ 8192 (lost circ. zone) worked through; wash and ream 92' to BTM - no fill drlg.
5-23-83	55'	Drlg; rig service; drlg and survey; began lowering bentonite and start salt slowly.
5-24-83	96'	Drlg; rig service; POOH; unplug jets; wash and ream 110' - no fill; not tight; drlg.
5-25-83	59'	Drlg and survey.
5-26-83	110'	Drlg and survey.
5-27-83	105'	Drlg and survey; drlg break 10900-10909; POOH.
5-28-83	70'	Inspect BHA; RIH w/NB #38; ream 36' to BTM; (BTM under-gauged) drlg and ream; work out tight spot @ 10955; drlg and survey.
5-29-83	69'	Survey and drlg; pull 1 STD and ream to BTM; POOH; XO bit, NRS: cut drlg line; RIH w/NB #39; unplug jets and break circ.; ream 100' to BTM.
5-30-83	21'	Drlg; service rig; drlg - lost PP; pump rope; hole @ 8880'; COOH.
5-31-83	117'	Finish COOH - found hole @ 10168 in DP; P.U. Kelly and check JGTS; RIH to 7485; break circ.; RIH to 11150; no fill; drlg and survey.

6-1-83	88'	Drlg and survey; drlg salt 11313-11356; P.U. w/15K overpull; ream to BTM; lost 10' hole; P.U. above salt to 11302; circ. hole and cond. for logs; strap out.
6-2-83	118'	POOH for logs; restring blocks to 10 lines; rig up loggers; logging w/Schlumberger; rig down loggers; RIH w/NB #40.
6-3-83	0	Finish RIH; LD SDC, IBS, 3 pt, NRS, SDC, TIH to 11065; circ. and sat mud w/salt.
6-4-83	0	Circ. and cond mud w/salt; CL = 118,000; RIH to 11200; wash 11200-11356; drlg salt to 11361.
6-5-83	83'	Drlg; rig service; drlg; circ. and short trip into shoe; ck. for sloughing; RIH to TD; <1' fill; unplug jet; circ. hole and work pipe; COOH.
6-6-83	61'	Finish COOH; cut drlg line; LD DC; pull wear bushing; run 9 5/8 CSG.
6-7-83	0	Finish running 9 5/8 CSG to 11500; P.U. 4' to set slip below CSG collar @ 11413; BTM, shoe @ 11496; RU Halco and circ. CSG; cement; displace w/971.5 bbls aired up drlg mud; bump plug w/2100 psi; float held; WOC; set slip w/485,000 on slip; cut CSG.
6-8-83	0	Finish cutting CSG; install 13 3/8 5K 10" CSG head P_T to 5000 psi; check OK; NU BOP's; P_T BOP's to 5000 psi; check OK; P_T Hydril to 2500 psi; check OK; P.U. BHA.
6-9-83	0	RIH w/NB #41 (8½"); install DP rubbers; break circ. @ 5000' and 10350' tag @ 11352' tight; POOH 4 jts; wash 11228-11413; tag diff collar; drlg through to 11494; circ. and clean pits; build mud and circ. hole.
6-10-83	0	Circ. and cond. mud; P_T CSG to 1500 psi w/8.8 ppg mud; check OK; drlg shoe; drlg 8½ hole; rig service; drlg and survey.
6-11-83	164'	Drlg; rig repair (right angle drive); rig service; POOH; run CBL - VDL; ΔT; Gamma Ray 11492-8350; cement top @ 8400'; 100% bonding in salt; P.U. Bit #42 and RIH; LD 15 jts 5" x 95' P.U. 15 jts lite "E"; rig repair rotary chain; RIH.
6-12-83	6'	Finish RIH to 11600; wash and ream 70' to BTM; drlg; rig service; drlg and survey.
6-13-83	251'	Drlg and survey; circ. and POOH; change BHA from 77' to 92' pendulum; RIH w/NB 43; ream to BTM; drlg.

6-14-83	79'	Drlg and rig service; drlg and survey.
6-15-83	154'	Survey and drlg; rig service and rig repair (bolts on rotary sprockets) drlg and survey.
6-16-83	166'	Drlg and survey.
6-17-83	204'	Drlg and survey; POOH; LD 29 jts "Lite E"; P.U. 29 jts "X"; XO DP rubbers; cut drlg line; RIH w/NB 44; ream 72' to BTM; drlg.
6-18-83	32'	Drlg and survey.
6-19-83	243'	Drlg; service rig; drlg and survey; circ. hole; pump sweep; POOH; P.U. DST tools; Johnston left pressure gauge sub f/wireline SPRO in Casper; wait on sub.
6-20-83	125'	Wait on SPRO sub; P.U. DST tools, SPRO barrel; RIH; RU lubricator and RIH w/wireline SPRO equip; BHP gauge malfunction; set pkr @ 12799; open tool 30 secs. Shut in 15 min.; open tool for closed chamber test; after 1 hr. divert flow to separator; SI well for PBU and nighttime; pkr held throughout test.
6-21-83	0	Shut in DST; pump reverse out plugs; only 1½" port sheared open; unseat pkrs; will not reverse out; attempted 3 times; tool plugged after 10 bbls; circ. drill string; did not observe any wellbore fluids; saw gascut mud and OCC oil droplets; POOH LD test tools; recovered 3 gal gas and oil cut mud 1 gal condensate below MFC tools; P.U. BHA; RIH w/NB 45; ream and wash 130'; cond. hole; drlg.
6-22-83	10'	Drlg; rig service; drlg and survey; high torque after conn; drld to 13033 - stopped drlg pump pill and COOH; inspect BHA - all good; 3 cones missing; only shanks left; call out magnet; LD 3-3 pts.
6-23-83	99'	Make up fishing tools; RIH; fish w/magnet; POOH w/mag run #1; recovered 2 cones w/nose spears cored out and middle row, 18 brgs; misc. junk; cut drlg line; TIH w/mag run #2; work magnet; gained 2' hole; POOH.
6-24-83	0	COOH w/magnet; recovered 3rd cone; misc. small parts; make up 3 pt and J3 bit; TIH; drill and work book bskt; no metal on BTM; torque smooth; cond. mud and POOH; make up BHA and RIH w/NB 47.
6-25-83	6'	RIH; no apparent junk in hole; wash and ream 46'; service rig; drlg and survey.

6-26-83	157'	Drlg; POOH; drill stuck on top 3 pt @ 12815 - 12746 (above sliderock in frac Rich Mbr.) stuck numerous times (have circ. throughout operation) work pipe above stuck pipe and ream 120' till free; POOH; XO BHA - 3 pt OOG 5/32; RIH; bridge @ 12840; wash and ream to TD.
6-27-83	8'	Reaming to BTM w/NB 48; drlg and rig service; drlg - lost 151 bbls @ 13286.
6-28-83	132'	Drlg; circ. btms up; drop survey; pump pill and POOH; pulled into tight spot @ 12750; work pipe; jar up and free down; back ream 9½'; jar up 5'; run sweeps; ream tight spots; retrieve survey tools; lost 149 bbls w/working pipe; short trip; ream 12793 - 12818; 12830 - 12838; 12996 - 13011; 13019 - 13029; spot 75 bbls of 25% multi-seal on BTM; POOH to 12659; pump pill - POOH; lost 34 bbls on trip.
6-29-83	36'	Make up BHA and RIH; driller made up wrong BHA; POOH and fix BHA; RIH; cut drlg line; rig service RIH; bit stopped @ 11323; (stapped depth) will not pass; strap out; change BHA to pendulum; RIH; bit will not pass 11323; max set down wt. 70,000 lbs; activated jars - jar out; pump pill.
6-30-83	0	POOH; RU dialog; RIH w/min ID tool; logged 11400 - 11300 3 times; mind dia. 8 3/8" over 6'; 11324 - 11318; POOH; RD dialog; RIH w/DC; check OD on fishing neck; LD 8½" BHA; RIH w/NB50 (7 7/8") to 1/300; P.U. Kelly; work through pinched CSG @ 11322 - no drag; RIH to 13270; wash and ream 13270 - 13371; drlg.
7-1-83	8'	Drlg; rig service; drld to TD @ 13451; circ. and work pipe f/logs; POOH; RU loggers.
7-2-83	72'	Logging w/Schlumberger; RIH to condition f/CSG; geologist released.

GENERAL LITHOLOGY

FORMATION	DEPTH	DESCRIPTION
Bear River Fm.	Surface-156'	White to light gray medium-coarse grained calcareous sandstones, some FeO_x staining, interbedded with gray to gray brown siltstones with disseminated carbonaceous material. Trace of bentonite is present near bottom; siltstones become pyritic and interbed with chert and pebbly sandstones of Kelvin contact.
Kelvin Fm.	156-1918'	A large sequence of reddish brown to orange, gray to gray brown shales and claystones, tan, reddish orange, gray, occasionally carbonaceous siltstones, white to light gray, occasionally reddish brown fine to medium grained sandstones. Sandstone is occasionally pebbly to conglomeratic. Claystones grade into bentonite beds in lower half. Some tan to mottled white/brown limestone stringers and nodules are present throughout most of the section.
Frontier Fm.	1918'	Thrust fault.
Dry Hollow Mbr.	1918-2802'	Interbedded pebbly-conglomeratic gray and s+p sandstones; gray, brown and gray/green bentonitic shales, commonly carbonaceous grading to coal in part; gray to gray brown siltstones. Pebbly sandstones coarsens into a thick cherty conglomerate at base of member.
Oyster Ridge Mbr.	2802-2960'	Gray to gray green, brown shales, gray gray-brown siltstones with carbonaceous flakes and veining; light gray to white very fine to fine grained sandstones (calcareous) with occasional clay fill. Occasional dolomite and limestone nodules at bottom.
Allen Hollow Mbr.	2960-3045'	Gray green to gray, and varicolored calcareous and carbonaceous shales; dark brown, gray to gray brown calcareous siltstones with carbonaceous flecks and veining interbedded with white, gray and s+p calcareous sandstone.

Coalville Mbr.	3045-3210'	Green to green gray claystones, gray to dark gray calcareous and carbonaceous siltstones interbedded with white to light gray very fine to fine grained sandstones. Claystones grade to/from bentonite beds.
	3210'	Thrust fault.
Coalville Mbr.	3210-3590'	Repeat section as above; some carbonaceous shale grading to coal.
Chalk Ck. Mbr.	3590-5190'	Lt. green, brown, varicolored maroon, orange, lavender, calcareous and bentonitic shales and claystones, some carbonaceous grading to coal in part; gray to brown gray carbonaceous siltstones; white to light gray and s+p fine to very fine grained sandstones, some tuffaceous; bentonite and coal beds increase toward the bottom. Occasional limestone nodules are present throughout, and fossil fragments increase in bottom half.
Spring Cny. Mbr.	5190-5478'	Dark brown to brown gray calcareous and carbonaceous shales grading to/from coal. Occasional brown to brown gray siltstones interbedded with white to light gray medium to coarse grained calcareous sandstones, occasionally pyritic + fossiliferous.
Longwall Mbr.	5478-5732'	White to light gray and s+p fine to medium grained occasional glavconitic sandstone; dark gray to gray brown shale and siltstones, carbonaceous, pyritic and fossiliferous.
Aspen Fm.	5732-5976'	Predominantly dark gray to black splintery and silaceous shale with fish scales and carbonaceous debris throughout. Shale is interbedded with bentonite and some tuff beds.
Bear River Fm.	5976-6240'	Dark brown to dark gray and black calcareous and carbonaceous shales, occasionally bentonitic grading to claystone. Coal marker bed in upper half is shaley. White to light gray very fine to medium grained sandstones become quartzitic and some are tuffaceous toward bottom. Siltstones are gray to dark gray, and occasionally pyritic.

Kelvin Fm.	6240-10124'	A very thick sequence of brown to brownish orange, variegated, and gray to gray green calcareous silty shales and claystones; siltstones are generally tan to brown and brownish orange grading to/from shale. Sandstones are white to clear, gray and occasionally reddish orange, becoming increasingly pebbly and grading downward into the Ephraim conglomerate at the base, consisting of limestone, chert, quartzite with a coarse to medium grained matrix. Cream to tan nodules are present throughout and become bedded limestone near the bottom.
Stump Fm. (Redwater Mbr.)	10124-10142'	Gray, white and light green calcareous, glavconitic, very fine to fine grained sandstone, occ. pebbly with chert and quartz fragments, interbedded with green to green gray shale and claystone.
Curtis Mbr.	10142-10365'	Unconformity at 10142; varicolored brown, maroon, lavander, brown orange gray-gray green shales and claystones, bentonitic, micaceous (biotite); interbedded with brown-brownish orange calcareous siltstones and white to clear, lt. green glavconitic sandstones.
Preuss Fm.	10365-11450'	Dark brown, reddish brown, tan, orange shales, siltstones and sandstones bentonite and white clay fill present throughout; sandstones and siltstones are pebbly with chert and quartz fragments. Siltstone predominates within 200' of salt section. Interbedded salt, shale, anhydrites and siltstones 11313-11380 with a possible thrust fault within the salt section. Limestone nodules and thin stringers are common throughout.
Twin Ck. (Giraffe Ck. Mbr.)	11450-11938'	Gray to medium gray shaley, silty and sandy limestone, oolitic in part, interbedded with gray shale, gray to white fine to very fine grained oolitic sandstone, occ. glavconitic. Limestone is biotitic toward mid-member, and anhydrite is present throughout. Sandstone is occ. tuffaceous.

Leeds Ck. Mbr.	11938-12290'	Predominantly gray to medium gray shaly to sandy limestone, occ. oolitic. Minor beds of green, gray green and varicolored shale and anhydrite present; some bentonitic and tuffaceous. Some brown to brownish red siltstones, and gray to light gray sandstones, near bottom.
Watton Cny. Mbr.	12290-12462'	Brown gray to lt. gray limestone, occ. oolitic; clay fill and calcite fracture filling throughout. Gray to light gray siltstone and sandstone at base. Occasional anhydrite stringers throughout.
Boundary Ridge Mb.	12462-12564'	Gray-light gray, reddish orange to reddish brown siltstones with some anhydrite stringers interbedded with gray to gray-green limestone; some oolitic. Gray to dark gray-brown siltstone showed slight oil stain, yellow-gold fluorescence, slow streaming yellow cut with yellow residue.
Rich Member	12564-12808'	Gray-dark gray, gray brown limestone; clay fracture filling to fair fracture porosity in btm 20'. Interbedded with abundant claystone beds. Limestone is occasionally biotitic.
Sliderock Mbr.	12808-12912'	Brown to brown gray-gray waxy limestone highly fractured throughout, becoming oolitic at bottom; dull green fluorescence, v. slow bleeding cut (2nd cut), yellow-gold residue in top half. Good gas shows from fractures at top half.
Gypsum Springs Mbr.	12912-12988'	Red orange-red brown non calcareous siltstones interbedded with white chalky sucrosic anhydrite, and gray brown mottled oolitic limestone. Occasional chert fragments in part.
Nugget	12988-13034'	Clear to white and frosted fine-medium grained, rounded moderately well sorted sandstone w/fair to poor porosity. No to some black oil stain, yellow to yellow green fluorescence, slow streaming-slow blooming cut, yellow-blue residue.

Nugget	13034-13080'	Clear-white and frosted medium-fine grained round to subround moderately well sorted sandstone, fair to good porosity, mostly brown to black oil stain, light green to greenish yellow fluorescence, fast blooming to streaming cut w/yellow residue; brown calcareous siltstone on bottom.
Nugget	13080-13140'	Clear to frosted, medium-fine grained round to subround, moderately well sorted sandstone, poor to good porosity, yellow-green fluorescence, slow-some fast streaming yellow cut w/yellow residue.
Nugget	13140-13200'	White to clear and frosted, fine-medium grained, round to subround, moderately well sorted, fair to some good porosity, black to light brown oil stain, greenish yellow fluorescence, fast streaming cut, with yellow blue-yellow green residue.
Nugget	13200-13300'	Light orange to pink and white fine grained, subround to round, well sorted, hard to slightly friable sandstone, poor porosity, some black oil stain, yellow green fluorescence, fast streaming cut, yellow residue sandstone is occasionally clay-filled.
Nugget	13300-13400'	White, cream and clear, fine to medium grained, subround to round, moderately well sorted, sandstone, hard, poor porosity, with some fracture porosity; black oil stained and flecked, greenish-yellow fluorescence; slow ring cut to occ. fast streaming cut, yellow-blue residue; traces of brown siltstones.
Nugget	13400-13451'	Light orange to pinkish orange, medium-fine grained, subround to round, moderately well sorted sandstone, tight, poor porosity, some fracture-fill quartz, increasing brown calcareous siltstones, trace black oil stain, no fluorescence or cut.

GEOLOGICAL REPORT

DAVIS OIL CO.

Logan Federal #2A
NW SE SEC 26
T3N R7E
Summit County, Utah

Geology by
Michael E. Barber
Ogden, Utah

RECEIVED
JUL 26 1983
DIVISION OF
OIL, GAS & MINING

TABLE OF CONTENTS

RESUME..... 1
SUMMARY & CONCLUSIONS..... 3
FORMATION TOPS..... 4
SONIC & DIL THROUGH NUGGET..... 5
S_W VALUES THROUGH NUGGET..... 11
DST #1..... 12
SURVEYS & DRILLING FUNCTIONS..... 13
MUD RECORD..... 16
BIT RECORD..... 20
DAILY DRILLING CHRONOLOGY..... 21
GENERAL LITHOLOGY..... 32
LITHOLOGIC LOG IN BACK FLAP

RESUME

OPERATOR:	Davis Oil Company
WELL NAME & NUMBER:	Logan Federal #2A
LOCATION:	2297 FEL 2567 FSL NWSE SEC 26 T3N R7E
AREA:	North Pineview
COUNTY:	Summit
STATE:	Utah
ELEVATION:	GL 7480.9 KB 7507.1
ENGINEER:	Jack Krug, Dave Hildreth
GEOLOGIST:	Mike Barber
SPUD DATE:	2-14-83 3:30 a.m.
COMPLETION DATE:	Pending
HOLE SIZE:	26" Surface to 1037'; 17½" 1037'-5730'; 12¼" 5730'-11500'; 8½" 11500'-13372'; 7 7/8" 13372-13440'-
CASING:	Conductor at 54.2'; 20" @ 1031'; 13 3/8" @ 5730'; 9 5/8" @ 11494'
CEMENTING:	Halliburton, Dowell
CONTRACTOR:	Parker Drlg. Rig 183
EQUIPMENT:	Omine 1500P
TOOLPUSHER:	Steve Smith, Curt Childers; Lee Jessen
DRILLERS:	A. Miller; D. Daley; J. Malone; M. Holler
PUMP:	#1 National 9P100 9¼"; #2 Con-Emsco FB1300 12"
DRILL COLLARS:	10", 9" to 11500'; 7" to T.D.
DRILL PIPE:	5" 19.50 #/ft EX95 4½ IF
DRILLING MUD:	Baroid
MUD TYPE:	LSND; Salt Saturated 11360'-11500'
MUD ENGINEER:	Matt Kerr, Doug Moore
DRILL STEM TESTS:	Johnston-Macco/Schlumberger
MUD LOGGING:	Tooke Engineering
TYPE UNIT:	2 man Hotwire, Chromatograph, % Flow, Standpipe Pressure, Drill Rate Plotter
MUD LOGGING ENGINEERS:	Lloyd Kitzmiller; Patricia LeJeune

RESUME (Continued)

OPEN HOLE LOGS:	RUN #	INTERVAL	TYPE
Cased Hole:	1	Surface-988'	GR/CNL-CCL
Open Hole:	1	1027-5718	DIL/SFL
	1	1027-5690	BHC Sonic
	1	1027-5717	FDC-CNL
	1	1027-5723	SHDT Dipmeter
	1	1027-5723	Cyberdip
	2	5726-11320	DIL-SFL
	2	5726-11326	BHC-Sonic
	2	5726-11306	FDC-CNL
	2	5726-11324	Dipmeter
	2	5726-11324	Cyberdip
			Volan
	3	11490-13434	DIL-SFL
	3	11490-13406	BHC-Sonic
	3	11300-13437	FDC-CNL
	3	11505-13438	Dipmeter
	3	11505-13438	Cyberdip
	3	11490-13410	Cyberlook
			Volan

SUMMARY & CONCLUSIONS

Davis Oil Company's Logan Federal #2A was drilled to a T.D. of 13451'. In the Nugget SS total drilling time was 139 days. Primary objectives were the Twin Creek and Nugget formations, although hydrocarbon shows are possible in nearly all formations encountered in the area.

Logan Federal #2A was preconceived to be structurally high to Logan Federal #1 on the westerly dipping limb of a northeasterly trending, gently overturned anticline. The anticline is slightly overturned on the eastern limb against a thrust fault imbricated within the tunp plate. This and other imbricates isolate North Pineview field from Pineview and East Anschutz.

Logan Federal #2A spudded in the Bear River fm. on the overriding plate of an unnamed thrust fault. The fault was crossed at 1918' into the Dry Hollow member of the Frontier fm. With the exception of a minor thrust fault in the Coalville mbr., a normal sequence was drilled to T.D. Below the Coalville mbr., Logan Federal #2A maintained 50' subsea high to Logan Federal #1, until the Preuss Salt was encountered. The combination of a thicker salt section and perhaps a thrust fault at the base of the salt put Logan Federal #2A as much as 240' subsea low to Logan Federal #1 to T.D.

Drilling problems were not as severe as those on Logan Federal #1. Some problems encountered were lost circulation and lack of bit selection in the 26" hole; some sloughing coals and swelling clays in the 17½" hole; some torque, sloughing and swelling clays and shales, especially at the salt top in the 12¼" hole; high torque, abrasive sandstone, some mud loss in the 8½" hole. Pinched casing in the 9 5/8" casing across the salt section resulted in reduced hole size (7 7/8") from 13372 to T.D.

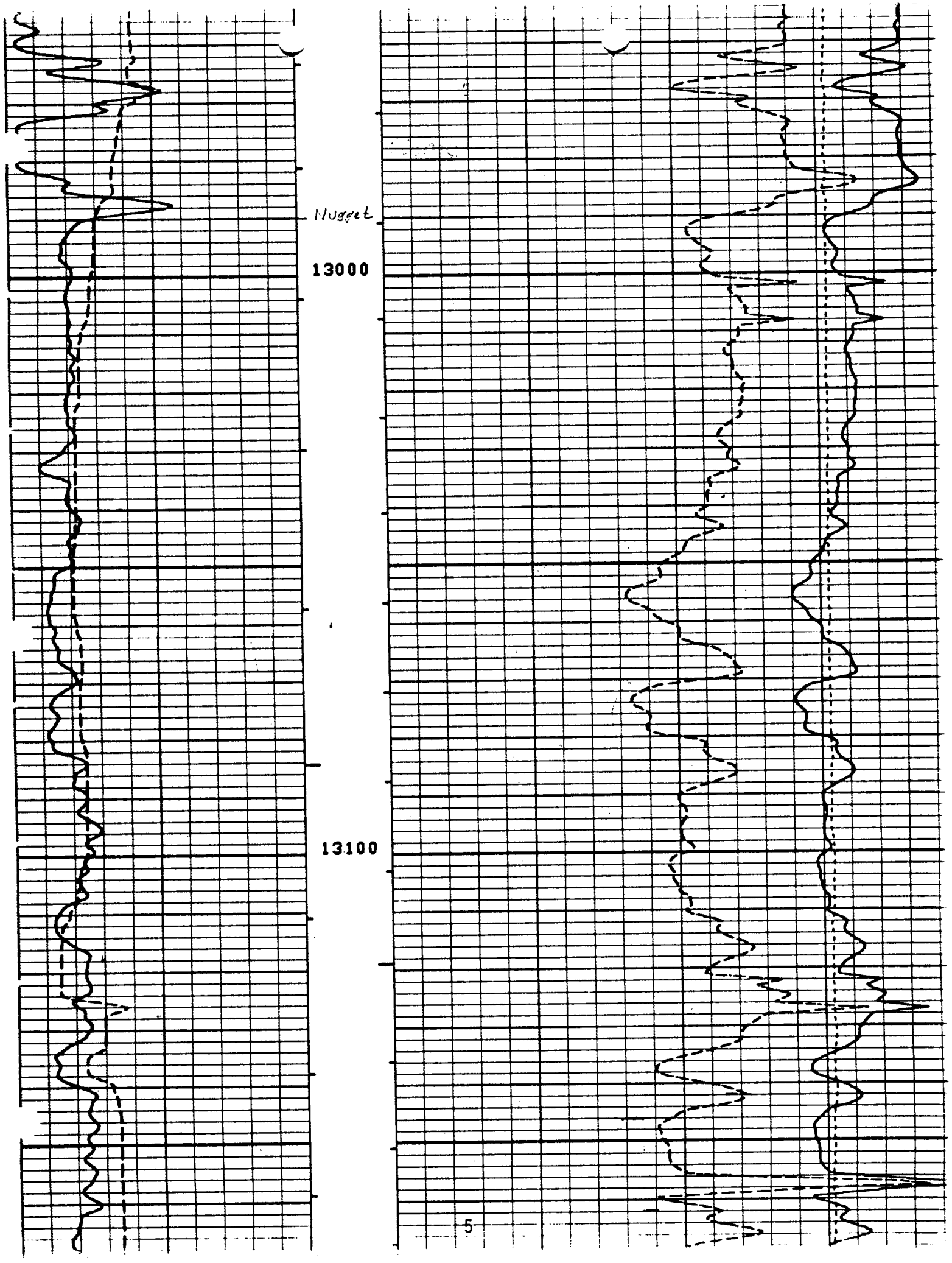
No hydrocarbon shows were encountered until the Twin Ck. fm., with the exception of traces of C-1 through C-4 in the Aspen fm. A small hydrocarbon show was seen in the Boundary Ridge mbr., and a larger show was tested in the Sliderock mbr. The Sliderock was highly fractured and was equivalent subsea to the Upper Nugget of Logan Federal #1. The test flowed gas to surface immediately, and recovered a small amount of condensate, although the test depleted the fractures. This zone may be productive with acidization. The Nugget formation appeared oil bearing from 12996 to 13180. E-logs showed porosities from 6-12%, and calculated water saturations were <50% in this interval. Below 13180, the Nugget was tighter and wet. Based on the E-log data and visual show, this Nugget zone has good production potential for Davis Oil. No cores were taken, and no DST's were run in the Nugget. Completion is pending.

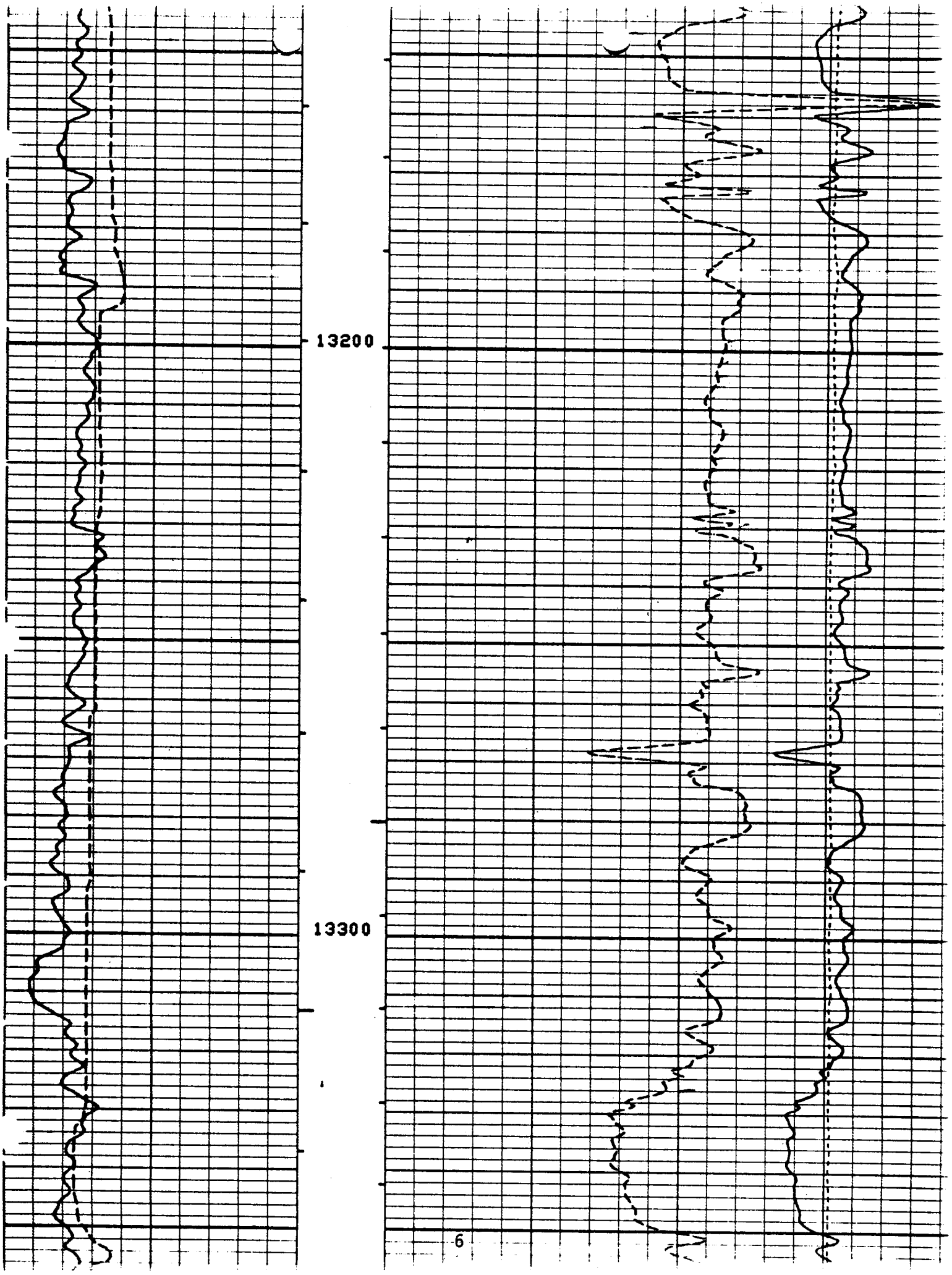
FORMATION TOPS

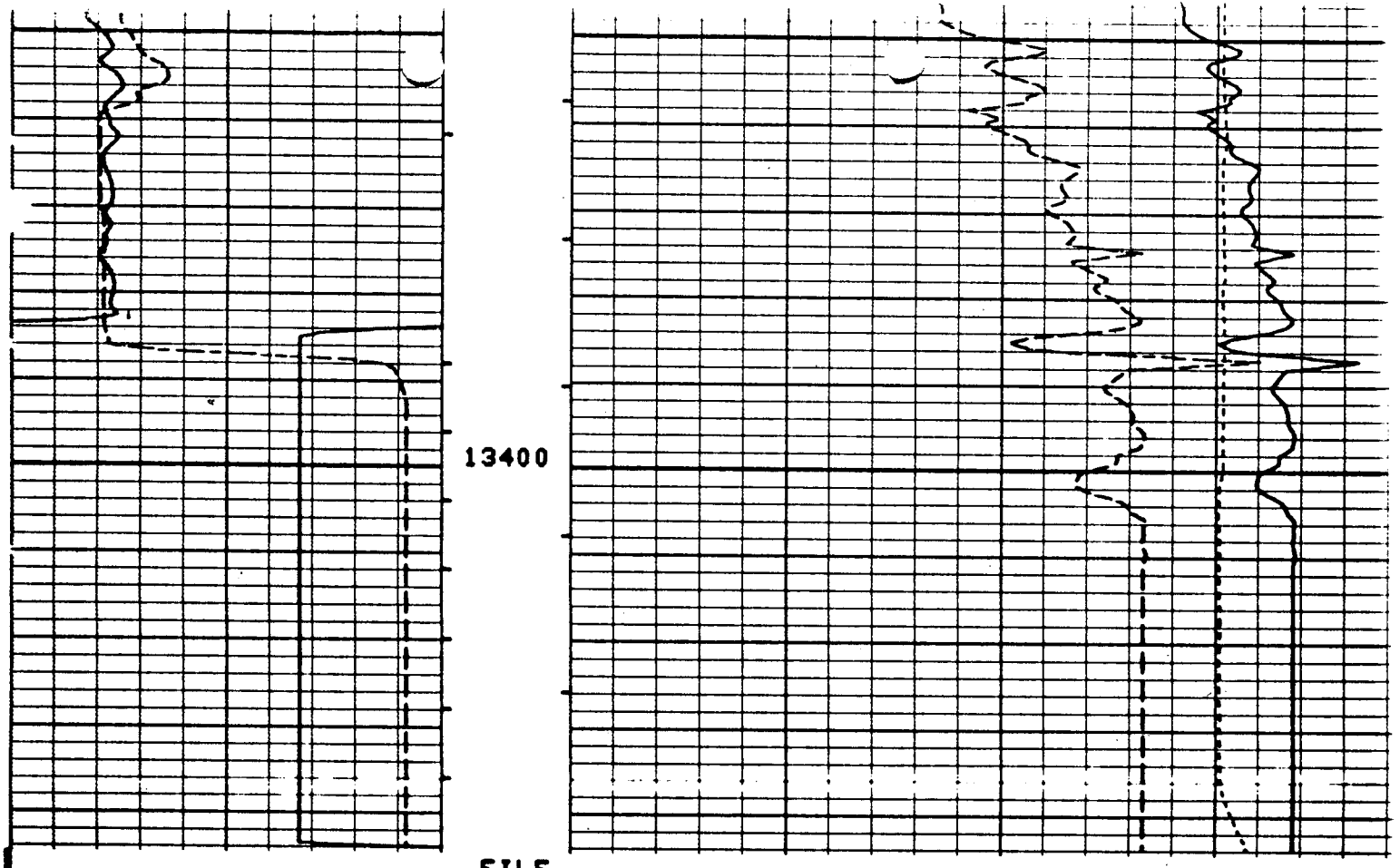
All depths from KB = 7507
GL = 7480.9

Subsea depths from E-log tops

FORMATION	SAMPLE TOPS	E-LOG TOPS	SUBSEA
Bear River Fm.	Surface		
Kelvin Fm.	156	172	7335
Thrust Fault/Frontier Fm.	1918	1918	5589
Dry Hollow Mbr.	1918	1918	5589
Oyster Ridge Mbr.		2802	4705
Allan Hollow Mbr.		2960	4547
Coalville Mbr.		3045	4462
Thrust Fault/Coalville Mbr.	3278	3210	4297
Chalk Ck. Mbr.	3425	3590	3917
Spring Cny. Mbr.	5160	5190	2317
Longwall Mbr.	5478	5478	2029
Aspen Fm.	5732	5732	1775
Bear River Fm.	5990	5976	1531
Kelvin Fm.	6269	6240	1267
Stump Fm.	10119	10124	-2617
Preuss Fm.	10356	10365	-2858
Salt Section	11313-11380	11314-11380	
Thrust at base of salt?			
Twin Crk. Fm.-Giraffe Ck. Mbr.	11449	11450	-3943
Leeds Ck. Mbr.	11950	11938	-4431
Watton Cny. Mbr.	12270	12290	-4783
Boundary Ridge Mbr.	12502	12462	-4955
Rich Mbr.	12575	12564	-5057
Sliderock Mbr.	12821	12808	-5301
Gypsum Springs Mbr.	12908	12912	-5405
Nugget Fm.	12996	12988	-5481


Nugget
13000
13100


13200
13300



FILE

9

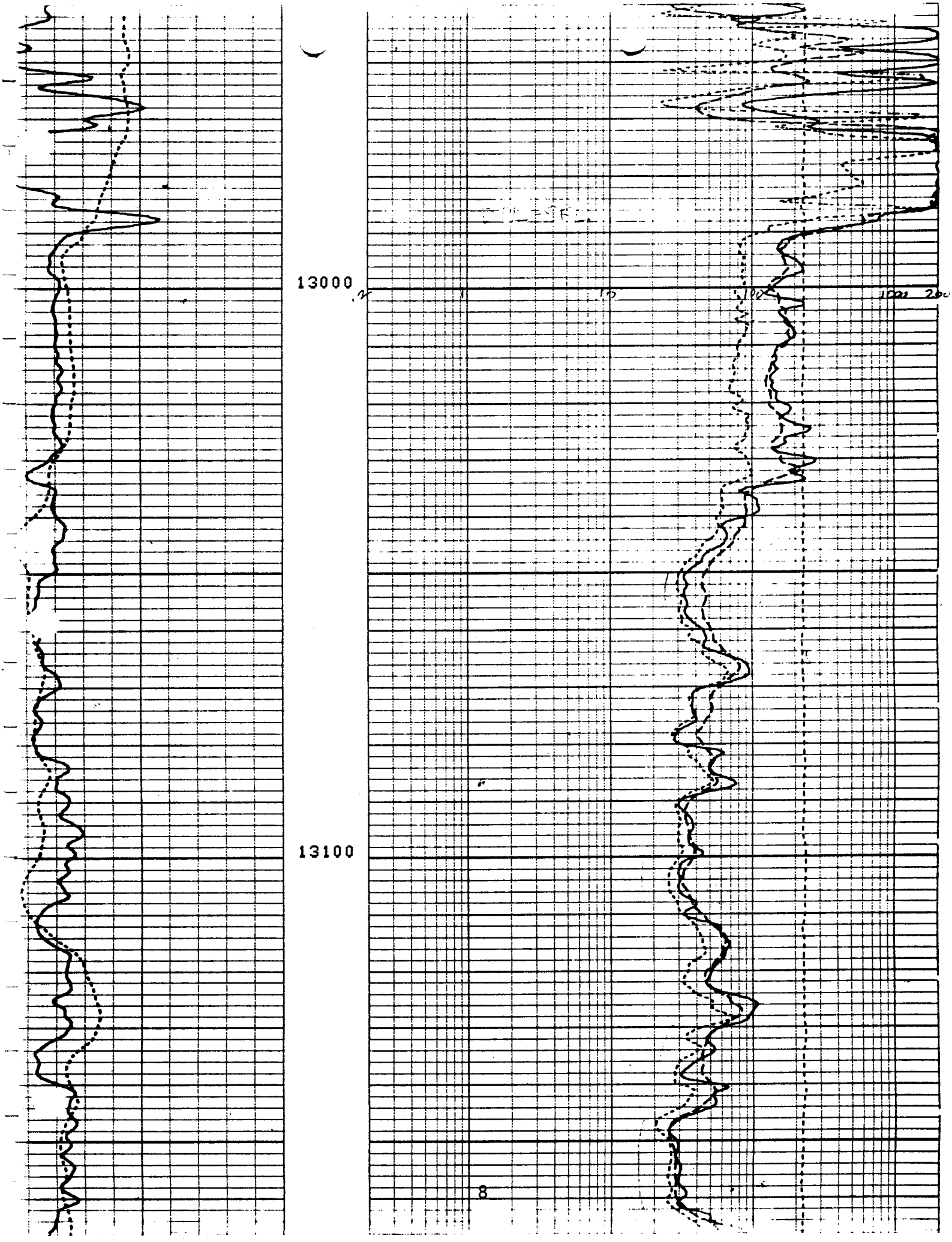
CALI(IN) 6.0000 — 16.000		TENS(LB) 10000. — 0.
GR (GAPI) 0.0 — 150.00		DT (US/F) 140.00 — 40.00
		DT (US/F) 240.00 — 140.0
		SPHI( ) 0.3000 — -0.10

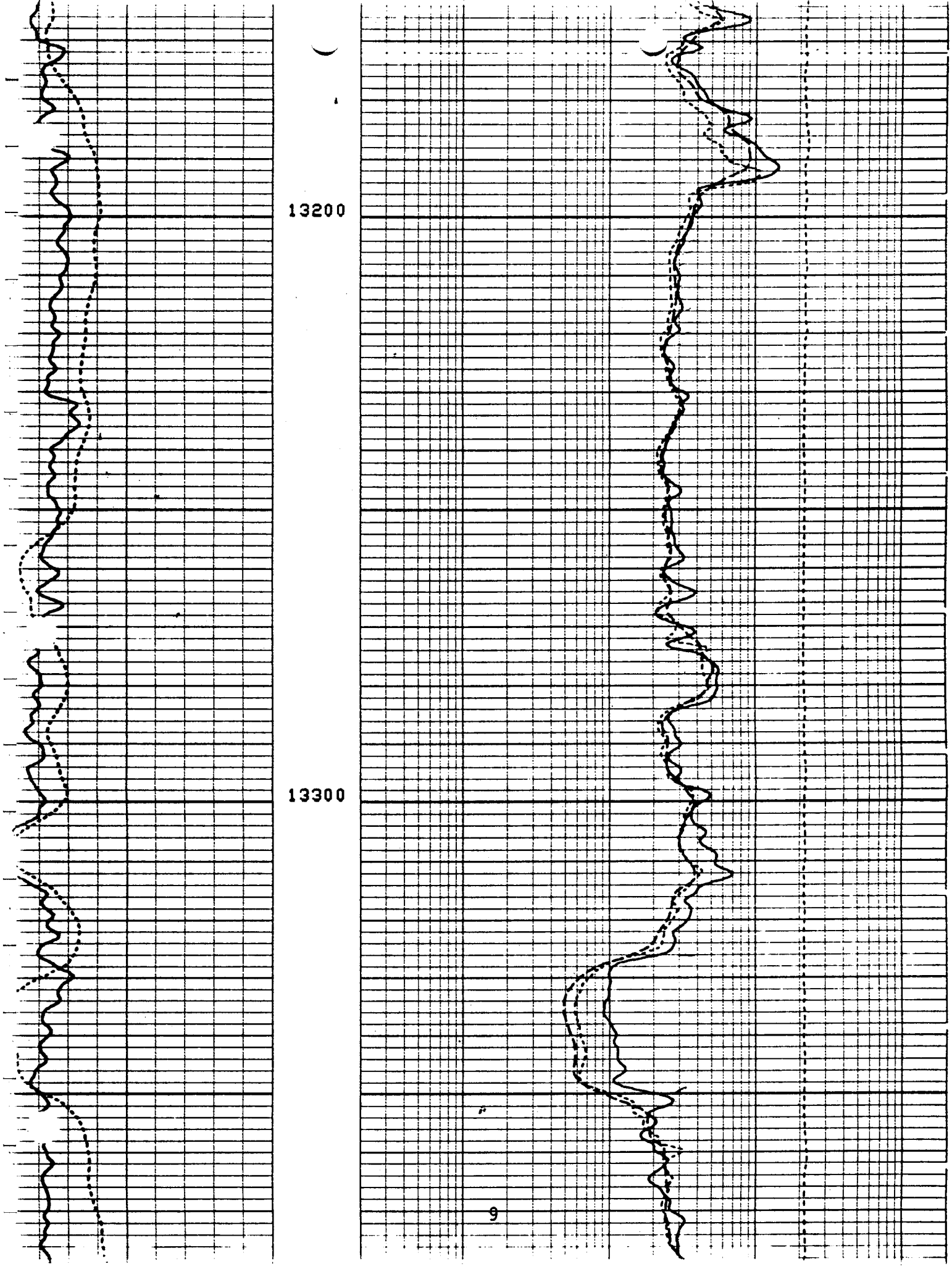
SENSOR MEASURE POINT TO TENSION REFERENCE POINT

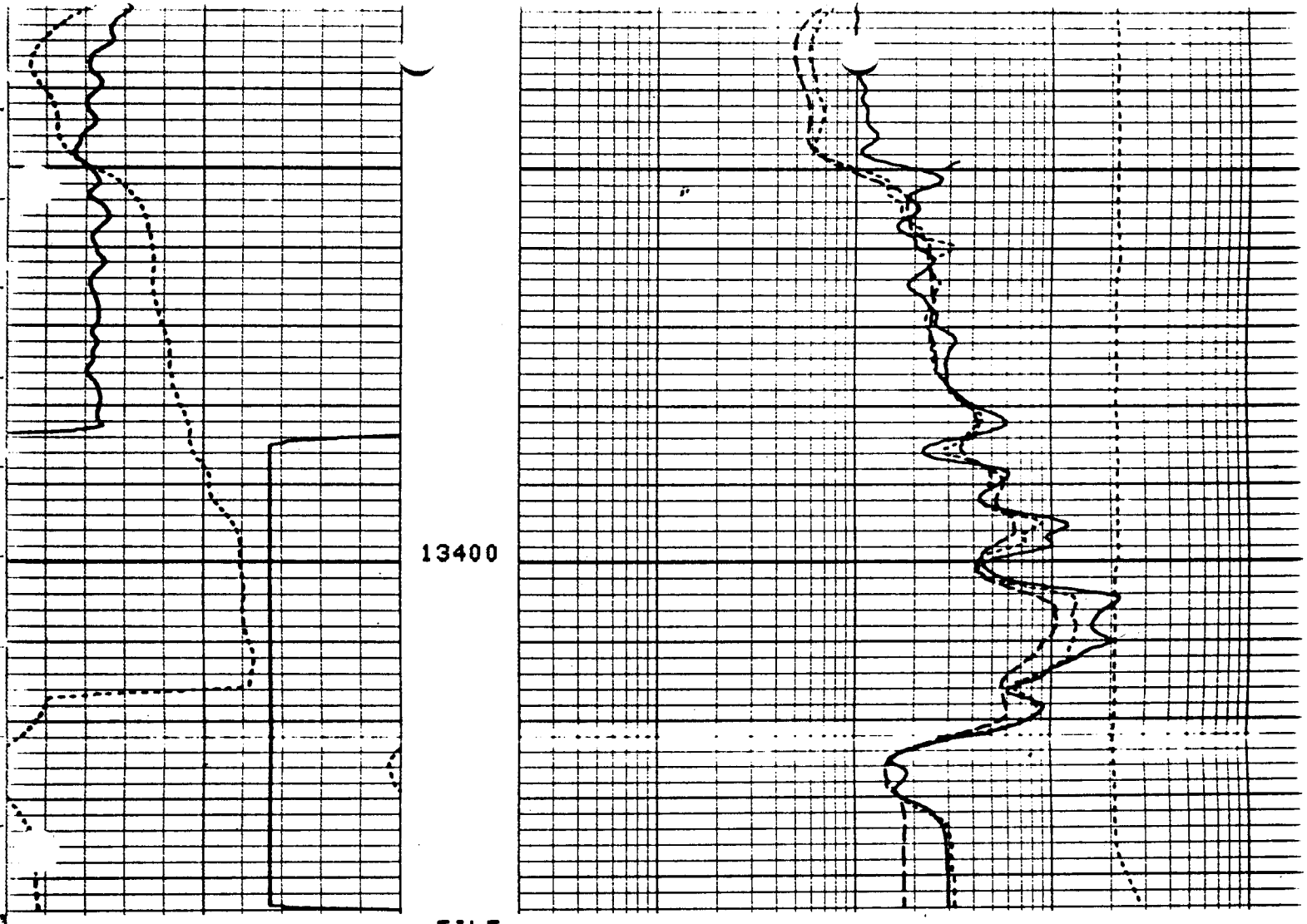
AMPL	34.6	FEET	DT	32.1	FEET
SRAT	32.1	FEET	CBL	34.6	FEET
GR	59.6	FEET	TT	34.6	FEET
ILD	6.9	FEET	CALI	51.7	FEET
ILM	3.3	FEET	SFL	3.9	FEET
SPAR	.0	FEET	SP	.0	FEET
NOIS	26.3	FEET	TENS	.0	FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
CDTS	100.000		BS	8.50000	IN
DTF	189.000	US/F	DTM	51.3000	US/F
SBR	1.00000	OHMM	DSEC	6.20000	MMHO
BHS	OPEN		MSEC	7.90000	MMHO
DO	0.0	F			


13000
13100
.2
1
10
100
1000
2000


13200
13300



GR (GAPI) 0.0 – 150.00		TENS(LB) 10000. – 0.0
SP (MV) -100.0 – 0.0		ILD (OHMM) 0.2000 – 2000.0
		ILM (OHMM) 0.2000 – 2000.0
		SFLU(OHMM) 0.2000 – 2000.0

SENSOR MEASURE POINT TO TENSION REFERENCE POINT

AMPL	34.6	FEET	DT	32.1	FEET
SRAT	32.1	FEET	CBL	34.6	FEET
GR	59.6	FEET	TT	34.6	FEET
ILD	6.9	FEET	CALI	51.7	FEET
ILM	3.3	FEET	SFL	3.9	FEET
SPAR	.0	FEET	SP	.0	FEET
NOIS	26.3	FEET	TENS	.0	FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT

S_W VALUES CALCULATED IN NUGGET
USING ARCHIE'S FORMULA FOR WATER SATURATION
ASSUMING AN R_W VALUE OF .095
(based on R_W from free water Logan Federal #1)

INTERVAL	SONIC Ø	R_T	S_W
13000-13034	6	150	42%
13050-13060	12.1	45	38%
13070-13080	12.1	46	38%
13090-13110	10	37	51%
13132-13141	9.2	45	50%
13146-13156	11.5	28	51%
13156-13174	Noise		
13196-13230	8	30	70%
13302-13312	8	30	70%
13326-13350	13.5	6	93%

DRILL STEM TESTS

DST #1

Interval: 12799-12924 Formation: Twin Ck., Rich & Sliderock Mbrs.

Mud Condition:

Wt:	8.8
Vis:	54
Fil:	7.2
Cl:	2450

Field Information

	Time	Blow Description	Pressures
IHP	15 sec.		6002 psi
IFP	2 min.		1085-665 psi
ISIP	15 min.		4570 psi
FFP	420 min.	Opened to production unit after 60 min. Flowed gas to surface immed.	549-762 psi
FSIP			2395 psi
FHP			5806 psi
BHT			213°F

Recovery: 1025' water cushion; 170' (17 bbls) 54° API condensate; max. flow rate 719 MCFD.

SURVEYS AND DRILLING FUNCTIONS

DEPTH	DEVIATION		W.O.B.	R.P.M.		S.P.P.
63'	1/2°		3-8,000	40/70		800
96	1/2°		4-15,000	160)	Dyna	750
164	1°		4-15,000	160)	Drill	750
195	1 1/8°		22-25,000	160)		750
226	1°		30-35,000	165)	Dyna	850/1050
325	1°		30-35,000	165)	Drill	850/1050
386	1°		30-35,000	165)		850/1050
452	1 1/2° ?		15-30,000	165)		850/1050
494	1°		30,000	165)	Dyna	850/1050
529	1°		30,000	165)	Drill	850/1050
581	1°		20-30,000	165)		1200/1000
612	1°		20-30,000	165)	Dyna	1200/1000
643	1°		20-30,000	165)	Drill	1200/1000
730	2° ?)	Bent	25-30,000	135)		900
753	2° ?)	Crows	25-30,000	135)	Dyna	900
797	1 3/4°	Foot	25-30,000	135)	Drill	1200
824	1°		25-30,000	135)		1200
858	1°		25-30,000	135)	Dyna	1200
889	3/4°		30,000	135)	Drill	900
1015	1 1/4°		5-25,000	60		1200
1054	1 3/4°	S56E	30-40,000	60		1400
1131	1 1/4°	S60W	35,000	55/60		1500
1193	1 1/4°	S67W	35,000	55/60		1500
1273	1 3/4°	S68W	33,000	80		1600
1364	1 1/2°	S60W	33,000	80		1600
1458	1 1/8°	S70W	35,000	80		1600
1553	1°	S28W	35,000	80		1600
1664	7/8°	S20W	40,000	70		1800
1740	1 1/2°	S40W	40,000	70		1800
1802	1°	S53W	40,000	85		1500
1909	1 1/2°	S42W	40,000	85		1500
1971	1°	S21W	40,000	85		1500
2072	1 1/2°	S8E	45,000	75		1600
2140	1°	S18W	40,000	78		1750
2244	1 3/8°	S4W	35/30,000	110		1675
2322	1°	S2W	35/30,000	110		1675
2416	1 1/8°	S3E	35/25,000	110		2100
2510	1 1/2°	S9W	"	"		"
2602	2°	S1E	"	"		"
2695	1 7/8°	S12W	"	"		"
2791	3°	S20W	35/25,000	110		2100
2803	3°	S20W	35/25,000	110		2100
2858	2 1/2°	S20W	25/30,000	80		1900
2919	2°	S17W	25/30,000	80		1900
2982	2°	S24W	35,000	80		2000
3055	2°	S18W	35,000	80		2000
3138	2 3/4°	S18W	30/35,000	80		2150
3230	2 1/2°	S15W	30/40,000	80		2150
3324	2°	S16W	35/40,000	80		2125

SURVEYS AND DRILLING FUNCTIONS (Continued)

DEPTH	DEVIATION		W.O.B.	R.P.M.	S.P.P.
3373	1 3/4°	S15W	20/35,000	75	2200
3540	2 1/4°	due S	25/35,000	80	1950
3636	1 3/4°	S10W	25/35,000	90	1950
3726	2°	S12E	25/35,000	90	1950
3819	2°	S16W	25/30,000	90	1950
3910	1 3/4°	S15E	25/30,000	90	1950
3985	1 5/8°	S23W	25,000	80	1950
4088	1 5/8°	S5W	40/28,000	80	1950
4181	1 1/2°	S14E	20/35,000	80	1950
4260	1 3/4°	S18E	40,000	110	2000
4378	1 1/2°	S28E	30/45,000	110	2000
4459	2 1/2°	S32E	20/35,000	80	1950
4548	2 1/2°	S36E	30/50,000	110	2150
4646	2 7/8°	S31E	30/45,000	110	2150
4740	3°	S37E	30/45,000	110	2025
4833	3 1/16°	S48E	30/45,000	110	2025
4937	3 1/4°	S37E	30/45,000	110	2000
5023	3 1/4°	S37E	45,000	100	2300
5148	2 7/8°	S28E	45,000	100	2300
5251	3°	S24E	40,000	82	2450
5378	3 1/4°	S25E	40,000	80/110	2450
5534	3°	S52E	45,000	105	2350
5600	3°	S50E	45,000	105	2350
5797	4°10'	S39E	40/20,000	80/105	1500
5828	4°25'	S39E	40/20,000	80/105	1500
5893	4°25'	S39E	40/20,000	80/105	1500
5954	4°40'	S39E	30/35,000	105	1200
6017	4°30'	S39E	30/35,000	105	1200
6080	4°50'	S39E	25/30,000	105	1600
6142	4°50'	S36E	25/30,000	105	1600
6201	4°50'	S35E	20/35,000	105	1600
6278	4°58'	S35E	40,000	85	2100
6371	4°30'	S37E	40/50,000	85	2100
6463	3°50'	S35E	40/50,000	85	2100
6556	3°30'	S48E	55,000	88	2150
6647	3°	S39E	55,000	88	2150
6742	3°30'	S38E	55,000	88	2150
6834	3°10'	S40E	55,000	88	2150
6975	2 3/4°	S59E	55,000	88	2400
7068	2 3/8°	S54E	40/55,000	80/88	2300
7160	2 1/2°	S43E	40/55,000	80/88	2300
7253	3°	S40E	55,000	88	2400
7345	2°55'	S41E	55,000	88	2400
7470	2°50'	S50E	55,000	88	2300
7597	2°20'	S33E	50,000	108	2400
7692	1°45'	S55E	50,000	108	2400
7801	2 3/8°	S56E	55	88	2350
7895	2 3/8°	S55E	55	88	2350

SURVEYS AND DRILLING FUNCTIONS (Continued)

DEPTH	DEVIATION	W.O.B.	R.P.M.	S.P.P.
7990	2 1/4° S41E	50/60	88	2350
8083	2 1/8° S41E	50/60	88	2350
8178	2 1/8° S50E	60/65	90	1850
8274	2 3/8° S45E	60/65	90	1850
8368	2 3/4° S43E	60/65	92	2300
8454	2°55' S45E	50	85	2350
8549	2°10' S40E	48	88	2000/2400
8644	2° S50E	45/50	88	2450
8771	2° S52E	15/50	88	2450
8850	1°50' S48E	35/50	68/88	2200
8954	1°50' S51E	45/50	75/88	2250
9040	1°50' S48E	50	85	2250
9135	1°40' S45E	40/50	80	2350
9261	1°45' S43E	40/50	80	2350
9386	2°5' S36E	50	85	2300
9450	2°25' S33E	50	88	2300
9573	2°15' S30E	48	88	2300
9805	2°50' S30E	40/50,000	80	2300
9901	2°45' S30E	35/50,000	65	2300
9996	2°35' S33E	35/50,000	65	2300
10106	3 1/8° S27E	45/50,000	64	2350
10202	3 5/8° S27E	50,000	60	2300
10297	3 3/4° S29E	52,000	70	2300
10427	3 3/4° S25E	60,000	70	2300
10522	3 7/8° S23E	60,000	70	2300
10614	3 3/4° S23E	63,000	65	2300
10710	3 3/4° S20E	65,000	65/70	2300
10805	3 7/8° S19E	65,000	65/70	2300
10932	3 3/8° S19E	65,000	60	2300
11111	3° S20E	65,000	65	2300
11185	2 5/8° S19E	65,000	65	2300
11499	3° S32E	20/35,000	60	1600
11594	4° S45E	20/35,000	60	1600
11726	5°15' S49E	40,000	65/70	1850
11823	5°50' S51E	40,000	65/70	1850
11917	6°25' S51E	25/28,000	70	1900
12012	6°30' S55E	25/30,000	70	1975
12098	6°30' S57E	25/30,000	70	1975
12106	6°30' S57E	30/34,000	75	1975
12198	6°30' S58E	30/34,000	75	1975
12296	7° S56E	34,000	70	1950
12387	7° S55E	34,000	70	1950
12483	7° S56E	35,000	65	1950
12565	6°45' S61E	37,000	60	1950
12629	7° S67E	37,000	60	1950
12723	7°25' S72E	37,000	60	1950
12812	8° S78E	35,000	70	1950
12944	7°30' S84E	35,000	70	2000
13104	7°45' S86E	30/35,000	60/70	1900

MUD RECORD

DATE	DEPTH	WT	F.VIS.	PH	FILTR.	CK	CHLOR.	CAL	SOLIDS	COST	PV	YP
2/14	Surface	8.5	51	9.6	14.8	1+	150	20	1.5	6093	13	17
2/15	105	8.6	58	9.7	12.0	1+	200	tr	2.2	874	11	16
2/16	243	8.7	50	9.6	11.9	1+	200	tr	2.9	2161	14	14
2/17	465	9.0	53	8.6	9.9	2	200	16	5.0	1594	16	14
2/18	578	8.9+	40	9.5	11.0	2	200	0	4.7	1163	8	9
2/19	714	9.0	60	9.4	8.4	1	200	0	5.0	3517	10	22
2/20	827	9.1	50	9.4	8.1	1	150	tr	5.7	2456	16	17
2/21	913	9.1+	49	9.3	7.8	1	150	tr	6.0	1712	16	16
2/22	950	9.1	50	9.4	7.8	1	150	tr	5.7	648	16	17
2/23	966	9.1	48	9.4	7.5	1	150	tr	5.7	551	10	29
2/24	1033	9.0+	54	9.0	7.7	1+	150	10	5.4	1204	18	19
2/25	1037	9.0	55	9.1	7.9	1+	150	tr	5.0	371	19	17
2/26	1037	9.1	58	9.4	7.5	1+	150	tr	5.7	649	22	19
2/27	1037	9.0	60	9.7	7.8	1	150	tr	5.0	646	18	19
2/28	1037	9.1	56	8.8	8.3	2	100	tr	5.7	0	19	19
3/1	1037	9.1	57	9.1	8.2	2	100	tr	5.7	0	18	19
3/2	1039	8.6	52	11.0	9.7	2	100	tr	2.2	2939	13	14
3/3	1137	8.7	52	10.3	8.0	2	100	tr	2.9	926	14	15
3/4	1255	8.8	50	10.0	7.5	2	100	tr	3.6	1087	19	19
3/5	1438	8.9	49	9.5	7.4	2	130	tr	4.3	678	19	19
3/6	1638	8.9	50	9.0	7.5	2	130	tr	4.3	1341	19	18
3/7	1863	9.0	57	8.1	7.4	2	130	30	5.0	1266	26	22
3/8	2034	9.1	53	8.6	7.0	1+	150	10	5.7	990	19	20
3/9	2127	9.0+	54	8.6	7.8	2	200	10	5.4	870	16	17
3/10	2273	9.0	54	8.2	8.2	2	200	10	5.0	2440	19	18
3/11	2561	9.0	51	9.5	9.8	2	200	tr	5.0	785	17	15
3/12	2791	9.0+	55	9.1	8.8	2	200	tr	5.4		10	19
3/13	2866	9.1	46	9.1	7.5	2	200	tr	5.7	4367	11	15
3/14	2950	9.0	52	9.1	8.1	2	200	tr	5.1	2047	10	15
3/15	3071	9.0+	57	9.7	7.6	2	300	tr	5.4	1984	22	21
3/16	3202	9.1	53	9.6	6.8	2	300	tr	5.7	1653	21	20
3/17	3334	9.1	46	9.5	8.0	1	250	10	5.7	421	14	15
3/18	3391	9.1	57									
3/19	3415	9.0	71	9.4	5.8	1	250	20	6.0	1057	23	25
3/20	3481	9.0+	56	9.5	6.5	1	250	12	6.0	337	18	19
3/21	3643	9.0+	52	9.0	6.9	1+	250	10	5.0+	764	16	18

MUD RECORD (Continued)

DATE	DEPTH	WT	F.VIS.	PH	FILTR.	CK	CHLOR.	CAL	SOLIDS	COST	PV	YP
3/22	3803	9.1+	50	8.5	8.0	2	250	20	6.0	530	15	15
3/23	3945	9.0+	57	9.0	11.1	2+	250	50	5+	1112	14	14
3/24	3969	9.0+	52	9.0	10.0	2	250	40	5+	341	10	11
3/25	4072	9.1	45	8.0	9.9	2	250	40	5.7	666	13	12
3/26	4190	9.1+	55	9.3	7.7	2	250	40	6.4	1106	18	17
3/27	4214	9.1+	48	8.5	8.0	2	250	40	6.4	3075	14	15
3/28	4350	9.2+	52	9.7	7.2	2	250	40	7	--	15	16
3/29	4475	9.2	50	9.3	6.9	2	300	30	6+	2080	18	17
3/30	4591	9.1+	52	9.2	7.6	2	300	0	6	3075	18	17
3/31	4618	9.2	52	9.3	7.4	2	300	tr	6.5	148	19	17
4/1	4772	9.1	48	9.4	8.1	2	300	tr	5.8	748	16	14
4/2	4902	9.0+	48	9.7	8.4	2	250	10	5.5	630	16	15
4/3	5028	9.0+	47	9.4	6.0	1	250	tr	5.3	1031	15	11
4/4	5028	9.0+	47	9.4	6.0	1	250	tr	5.3	464	15	11
4/5	5176	9.0+	49	9.3	7.9	1	250	tr	5.4	1069	15	13
4/6	5360	9.1	52	9.6	7.6	1+	300	tr	5.8	1942	18	16
4/7	5499	9.0+	50	9.3	7.8	2	300	tr	5.5	1430	18	16
4/8	5561	9.0	58	9.9	6.8	2	300	tr	5.0	1020	20	20
4/9	5672	9.0	59	9.4	6.2	2	300	tr	5.3	1098	24	20
4/10	5723	9.0+	59	9.3	6.4	2	300	tr	5.3	510	26	24
4/11	5730	9.0+	57	9.2	6.4	2	300	tr	5.3	0	23	22
4/12	5730	9.2	53	9.2	7.1	2	300	tr	6.5	0	24	18
4/13	no report											
4/14	5730	8.5+	31	8.9	17.5	1	300	25	1.8	777	3	0
4/15	5730	8.5+	32	11.4	16.2	1	300	tr	1.8	915	4	0
4/16	5832	8.7	48	11.0	8.8	1	300	15	2.9	2085	15	10
4/17	6001	8.7+	50	9.5	7.6	1	300	20	3.3	605	19	12
4/18	6108	8.7	50	9.5	8.0	1	300	20	3.3	144	21	12
4/19	6225	8.8	60	10.2	8.0	2	300	20	3.6	736	25	18
4/20	6258	8.8+	52	9.4	6.8	1	300	24	4.0	236	20	12
4/21	6404	8.8	52	9.9	8.0	1	300	20	3.6	765	19	12
4/22	6580	8.9	58	9.3	8.0	2	300	30	4.3	230	22	18
4/23	6815	9.0	48	9.9	8.8	1+	300	24	5.0		18	13
4/24	6956	9.0+	58	9.8	7.4	1	300	15	5.3	561	25	18

MUD RECORD (Continued)

DATE	DEPTH	WT	F.VIS.	PH	FILTR.	CK	CHLOR	CAL	SOLIDS	COST	PV	YP
4/25	7070	9.0	53	9.4	7.0	1	300	tr	5.0	1301	18	10
4/26	7261	9.1	66	9.4	7.4	1	300	16	5.7	878	20	12
4/27	7438	9.1+	60	9.5	6.9	1	300	14	6.0	2541	19	12
4/28	7610	9.1+	79	9.2	6.4	1	250	8	6.0	668	25	20
4/29	7760	9.1+	55	9.2	6.6	1+	300	tr	6.0	1256	25	23
4/30	7766	9.1+	52	9.1	6.2	1	300	tr	6.0	618	23	20
5/1	7828	9.2	59	9.2	6.0	1	300	tr	6.4	731	26	24
5/2	8018	9.2	59	9.2	5.6	1	300	4	6.4	472	28	24
5/3	8245	9.2	53	9.0	6.8	2	300	tr	6.4	833	24	16
5/4	8381	9.2+	51	8.9	6.4	1	300	tr	6.7	3337	23	15
5/5	8448	9.3	51	9.1	5.8	1	300	tr	7.1	1474	21	17
5/6	8541	9.1	56	9.4	6.0	1+	300	tr	5.7	2196	24	18
5/7	8766	9.0	58	9.0	6.0	1	300	tr	5.5	748	26	20
5/8	8810	9.1	57	9.1	5.8	1	300	tr	5.8	1748	24	19
5/9	8965	9.0	58	9.2	5.8	1	300	tr	5.3	1385	24	21
5/10	9088	9.0	55	8.9	5.9	1	300	20	5.5	131	23	19
5/11	9211	9	58	9.0	6.4	1+	300	20	5.5	241	24	20
5/12	9423	9	53	8.9	7.2	1+	300	20	5.0	338	21	17
5/13	9602	9	53	8.9	7.3	1	300	30	5.1	700	21	16
5/14	9731	8.9	49	9.0	6.9	1	300	20	4.8	840	20	18
5/15	9785	8.9	52	9.0	6.8	1	300	25	4.8	292	20	18
5/16	9870	9.0	52	9.0	6.8	1	300	25	4.8		20	18
5/17	9937	9.0	65	9.4	5.4	1	300	30	5.0	718	25	23
5/18	10093	9.0	55	9.1	6.6	1	300	30	5.0	881	22	18
5/19	10138	9.0	52	9.1	7.9	1	300	35	5.0	799	18	15
5/20	10250	8.95	52	9.4	7.6	1+	300	15	4.8	631	19	17
5/21	10375	9.0+	57	9.2	7.0	1	400	20	5.4	888	22	21
5/22	10456	9.0+	53	9.0	7.0	1	450	40	5.4	2631	18	19
5/23	10518	8.9+	54	8.9	6.9	1	400	50	4.8	847	19	18
5/24	10617	8.9	61	9.4	6.3	1	750	35	4.3	1513	21	18
5/25	10668	8.9	52	8.9	6.1	1	1200	30	4.3	1727	19	15
5/26	10787	8.8+	55	8.9	6.6	1	1500	55	3.8	3831	20	15
5/27	10893	8.8+	56	8.9	6.8	1	2350	45	3.8	2080	19	16
5/28	10956	8.9	55	9.2	7.0	1	3800	60	4.1	2124	16	12

MUD RECORD (Continued)

DATE	DEPTH	WT	F.VIS.	PH	FILTR.	CK	CHLOR.	CAL	SOLIDS	COST	PV	YP
5/29	11016	8.8+	51	8.6	6.5	1	4100	110	3.7	1451	16	13
5/30	11050	8.8+	51	8.7	6.8	1	4100	140	3.7	676	17	13
5/31	11150	8.9	54	8.6	6.6	1+	4000	250	4.1	943	15	21
6/1	11262	8.9	52	8.7	7.6	1	3900	220	4.1	1000	15	19
6/2	11357	8.9+	52	8.9	7.6	1+	8400	140	4.3	1710	14	18
6/3	no report while saturating mud											
6/4	11356	9.7	52	9.1	16.0	3	103K	100	4.0	7950	12	24
6/5	11425	10.1	52	8.7	15.8	2+	150K	220	3.9	9203	17	18
6/6	no report									3719		
6/7	11500	10.2	49	8.6	7.5	1	160K	300	4.0	0	17	16
6/8	no report while changing mud to LSND											
6/9	11500	8.5+	53	9.6	14.2	1	2500	80	1.7	--	14	14
6/10	11500	8.5+	53	9.6	14.2	1	2500	80	1.7	1552	14	14
6/11	11540	8.6	52	9.5	7.2	1	2400	100	2.2	6537	17	8
6/12	11670	8.7	43	9.7	7.0	1	2500	80	2.8	457	10	12
6/13	11672	8.7	44	9.3	6.6	1	2000	48	3.0	755	13	12
6/14	11956	8.7+	54	9.8	7.0	1	2800	44	3.0	1033	20	15
6/15	12174	8.8	52	9.2	7.9	1	2350	30	3.5	334	17	12
6/16	12345	8.8	54	9.1	7.6	1	2300	80	3.5	428	17	13
6/17	12533	8.8	53	9.5	7.1	1	2350	20	3.5	741	17	15
6/18	12533	8.8+	59	8.9	7.0	1	2400	90	3.8	535	18	16
6/19	12850	8.8	54	9.4	7.2	1	2450	25	3.5	1838	18	17
6/20	no report while running DST									869		
6/21	no report while running DST											
6/22	13011	8.8+	58	8.4	9.4	1+	2600	220	3.8	4554	15	16
6/23	13033	8.9	47	8.5	8.2	1	2550	135	4.2	1263	13	11
6/24	13033	8.9	55	8.7	7.6	1+	2400	96	4.2	625	16	14
6/25	13038	8.9	55	9.5	7.8	1+	2500	tr	4.2	1310	17	15
6/26	13206	8.9	54	8.8	7.8	1+	2900	12	4.1	475	17	16
6/27	13277	8.8+	52	9.3	7.4	1+	2700	tr	3.9	1079	14	18
6/28	13371	8.8	52	9.5	7.2	1+	2400	8	3.5	832	17	18
6/29	13371	8.8	54	9.0	7.0	1+	2100	8	3.5	3230	16	17
6/30	no report									245		
7/1	13371	8.8	55	9.2	7.6	1+	2100	48	3.5	0	18	18

BIT RECORD

NO.	MAKE	TYPE	SIZE	IN	OUT	FOOTAGE	HOURS	T B G
1	HTC	OSC 1GJ	26"	56	105	51	19	
2	STC	DSJ	26	105	299	194	14 3/4	6,2,I
3	STC	DSJ	26	299	578	279	27	6,1,1/4
4	STC	DSJ	26	578	747	169	20 1/2	3,5,I
5	Reed	Y11	26	747	836	89	14 3/4	4,6,I
6	HTC	OSC	26	836	913	77	10 1/2	5,7,I
7	HTC	OSC 1GJ	26	913	944	31	7	4,6,I
8	Reed	Y11	26	944	966	22	7 3/4	3,6,I
9	HTC	OSC 1GJ	26	966	966	0	3	1,7,I
10	SEC	S84	17 1/2	966	1037	71	9	2,2,I
11	Grant	H.O.	26			Ream & Open Hole		2,3,I
12	STC	DSG	26			Ream Hole		2,4,I
13	HTC	OSC 1GJ	17 1/2	1037	1124	87	19 1/4	3,6,I
14	HTC	X22	17 1/2	1124	2035	911	100 1/4	2,7,I
15	HTC	X11	17 1/2	2035	2129	94	15 1/2	6,3,I
16	SEC	S84	17 1/2	2129	2866	737	67 1/2	3,3,I
17	HTC	X22	17 1/2	2866	3391	525	86 3/4	3,7,I
18	SEC	S84	17 1/2	3391	3430	34	10 1/2	1,2,I
19	HTC	X22	17 1/2	3430	3949	519	70	3.7.I
20	Reed	S51J	17 1/2	3949	4213	264	49	2,7,1/16
21	STC	2JS	17 1/2	4213	4618	405	62 3/4	3,5,I
22	HTC	X22	17 1/2	4618	5028	410	57 1/2	6,6,10/32
23	HTC	X22	17 1/2	5028	5500	472	56 1/2	5,7,1/16
24	SEC	S84	17 1/2	5500	5723	223	39.5	2,4,I
25	SEC	M44N	12 1/4	5730	5730		drilled cement	
26	HTC	J-22	12 1/4	5730	6263	533	87 1/4	4,6,1/8
27	STC	F-2	12 1/4	6258	6956	798	88 1/2	4,4,1/4
28	STC	F-2	12 1/4	6956	7766	811	92	6,3,1/4
29	STC	F-2	12 1/4	7766	8447	681	82 3/4	6,3,1/4
30	HTC	J-22	12 1/4	8447	8804	357	39 3/4	8,4,I
31	HTC	J-33	12 1/4	8804	9127	323	54 1/4	3,4,1/8
32	STC	F-2	12 1/4	9127	9731	604	68	6,4,1/8
33	STC	F-3	12 1/4	9731	9870	139	18 3/4	8,4,1/16
34	HTC	J55R	12 1/4	9870	10122	252	47	5,SE,1/16
35	HTC	J55R	12 1/4	10122	10455	333	63 1/4	7,4,3/32
36	STC	F3	12 1/4	10455	10602	147	31 1/4	8,4,3/16
37	STC	F5	12 1/4	10602	10943	341	70	6,4,5/32
38	STC	F4	12 1/4	10943	11033	90	17 1/4	8,3,1/4
39	HTC	J55R	12 1/4	11033	11356	323	49 1/4	4,3,1/4
40	STC	F3	12 1/4	11356	11500	144	22 3/4	3,3,I
41	SEC	M44NG	8 1/2	11500	11670	170	19 3/4	7,4,I
42	SEC	S84F	8 1/2	11670	11968	298	24	2,2,I
43	SEC	S84F	8 1/2	11968	12533	565	72 1/2	6,4,1/16
44	HTC	J22	8 1/2	12533	12924	391	33 1/4	4,3,I
45	SEC	S86F	8 1/2	12924	13033	109	14 1/4	8,8,0
46	HTC	J-4	8 1/2	13033	13039	6	2 3/4	8,2,1/16
47	HTC	J55R	8 1/2	13039	13204	165	21 1/4	7,4,3/32
48	SEC	M89TF	8 1/2	13204	13372	168	25	7,4,5/32
49	HTC	J55R	8 1/2	13372	13372	0	0	--
50	HTC	J77	7 7/8	13372	13451	80	14 1/2	6,3,I

DAILY DRILLING CHRONOLOGY

DATE	FOOTAGE	RIG ACTIVITY
2-13-83	0'	Mix mud and LCM; lost 430 bbls water and spud mud while circ. thru fill up line @ 30" shoe; spud @ 3:30 AM 2-14-83; drlg.
2-14-83	12'	Drlg; service rig; P.U. 10" D.C. - unplug bit jet; survey and drlg; lost 85 bbls; increase LCM; P.U. Dyna Drill & Bit #2; drlg.
2-15-83	39'	Drlg; P.U. 10" D.C.; change out NRS for 3 pt. reamer and RIH; survey and service rig, drilling, repair mud line and drawworks.
2-16-83	147'	Drlg; P.U. 10" D.C.; change out NRS; RIH; service rig and survey; drlg to 299'; circ. ½ H.R.; POOH for bit; change out NRS sleeve; RIH w/Bit #3 - Ream 10.
2-17-83	223'	Drlg and survey; work on #1 pump; ream tight spot @ 568'; drlg; trip for bit; change out bit and NRS; RIH w/Bit #4.
2-18-83	103'	Wash and ream 60' to BTM; drlg and survey - ream out all bent strgrs; circ. and work pipe w/working on #2 pump, drlg; circ. and work thru tight hole; drilling & survey.
2-19-83	140'	Drlg; trip for bit - 2K Drag; RIH w/Bit #5; wash and ream 60' to BTM; drlg dropped 2 balls; survey drop 1 ball; drlg and survey.
2-20-83	112'	Drlg; trip for bit, lay down 12" Dyna Drill - P.U. new motor; RIH w/Bit #6; service rig; break in bit, drlg and survey; circ. Dyna Drill quit-torqued up; POOH for Dyna Drill.
2-21-83	83'	POOH for Dyna Drill; P.U. Dyna Drill and new bit; RIH w/Bit #7; drlg & survey; circ. and work pipe; level derrick; trip for bit; RIH w/Bit #8; wash ream 50' to BTM; drlg.
2-22-83	39'	Drlg and work pipe; drlg circ. and pump sweeps; trip out; service rig - lay down Dyna Drill; RIH w/Bit #9; drlg - ream torque; circ. and POOH; P.U. NB #10 (17½"); RIH w/Bit #10; circ. hole clean.
2-23-83	13'	Repair rotary chain; wash and ream to BTM; drlg 17½" pilot hole; circ. and POOH; P.U. BHA to drill 17½" hole; rig service; RIH w/new BHA; ream 30' to BTM; drlg and ream out torque.

2-24-83	69'	Circ. and survey @ 1015; POOH; rig service; P.U. new BHA and RIH; tag up w/26" hole opener @ 56'; ream 56'-63'; POOH; move 3 pt reamer 30' up; work H.O. and 26" 3 pt RMR @ 62'; RIH; open hole 966'-1004'.
2-25-83	0	Ream out 17½" hole w/H.O. 1004-1037'; circ. and cond. hole; POOH and laydown 26" tools; rig up CSG crew; P.U. 20" shoe, 1 jt 20" CSG; D.C., 1 jt 20" CSG; RIH; tag up @ 64"; rotate pipe - fell thru to 77'; shoe won't pass; rig down CSG crew; P.U. new BHA.
2-26-83	0	Finish P.U. BHA; ream to BTM w/26", H.O.; hard w/ledges 56'-165'; not bad 165-880'; bridges and ledges 880'-1035'; circ. hole; POOH (short trip) some drag (5/10 K).
2-27-83	0	Finish trip out; circ. hole clean; ream 50'-124'; lay down 26" tools; RIH w/shoe to 80'; rig up CSG crew; RIH w/float shoe; 1 jt 20"; float collar; 25 jts 20"; landed CSG @ 1031; float collar @ 986'; rig down CSG crew; P.U. Halco Stngr; RIH w/5" D.P.; tag up @ 986'; stung in w/10K; circ. hole; rig up Halliburton; pump 30 bbl H_2O; 1290 sks lite w/.25#/sk Floseal; 500 sks "A" 25#/sk Floseal and 2% $CaCL_2$; displaced w/16½ bbl mud plug; bumped 1200 psi-released float; circ. 120 bbl Halco lite - rig down Halliburton; POOH; WOC.
2-28-83	0	Cut CSG off; weld on head; nipple up 2000# Hydril; PUN GR/CNL-CCL; rig down flow line; pressure test Hydril to 2000 psi-check OK.
3-1-83	0	Finish press test Hydril; install 20" wear ring and finish nipple up flow line; P.U. BHA and Magnaflux; circ. and cond. mud @ 986; drill float collar and 39 cement to 1029; circ. and press test CSG to 1400 psi - OK; drilled shoe and open hole @ 1032-1037; run P.I.T. 700⟶200 psi; P_M=669 psi (.645 psi/ft.); drlg new hole.
3-2-83	22'	Drlg and survey; rig service; drlg and work on #1 Pump; drlg, circ. and POOH; RIH w/NB #14; wash and ream 30' to BTM; drlg.
3-3-83	93'	Drlg; repair #1 pump pop-off; drlg and survey; rig service; drlg; engines overhtg. Change out #1 liner to lower HHP; drlg and survey, drlg.
3-4-83	122'	Drlg; service rig; drlg and survey.
3-5-83	169'	Drlg; service rig; drlg and survey.
3-6-83	208'	Drlg; rig service; drlg and survey; work on #1 pump.

3-7-83	225'	Drlg; circ. and survey; cond. hole; POOH; change out both NRS, MONEL and shock sub.
3-8-83	159'	P.U. tempered DC string and RIH; slip drlg line; wash and ream 68' to BTM - no fill; break in Bit #15; drlg and survey.
3-9-83	88'	Drlg; cond. hole; POOH; RIH w/Bit #16; wash and ream 68' to BTM; no fill; drlg and survey.
3-10-83	159'	Drlg and survey; rig service.
3-11-83	293'	Drlg and survey; rebuild #2 pump; control drlg w/#1 pump; drlg and survey.
3-12-83	216'	Drlg; rig service; drlg and survey; POOH; lay down 6 pt and 3 pt RMR; P.U. new BHA; Magnaflux - laydown 1 10" D.C.; pulled thread.
3-13-83	75'	Magnaflux HWDP; RIH w/Bit #17; wash and ream 115' to BTM; no fill; drlg and survey.
3-14-83	84'	Survey; drlg; rig repair - compound chain; drlg; rig service; drlg and survey.
3-15-83	125'	Circ. and survey; drlg; rig service; drlg; circ. and work tight spot @ 3140' drlg and survey' circ. and work on Pump #2; drlg.
3-16-83	128'	Drlg and rig service; drlg and survey; drlg; rig repair #1 pump - pop out seat washed out; drlg.
3-17-83	137'	Drlg and survey; drlg and circ.; rig service; drlg. circ. and work pipe while changing oil in #3 motor; drlg and circ.; POOH; tight @ 2799; ream out tight spot 2799-2848; IBS and 3 pt balled up; POOH 3 STDS to 2525; ream 2525-2560; POOH.
3-18-83	51'	POOH; lay down NRS, SDC, 3 pt, IBS, bit sub; P.U. new BHA and P.U. Dyna Drill; RIH w/Bit #18; ream 105' to BTM; last 30' tight; drlg.
3-19-83	26'	Drlg w/Dyna Drill; circ. and survey; drlg; circ. and POOH; SLM, lay down Dyna Drill, 6 pt; P.U. BHA; (SLM+5') RIH w/Bit #19; ream 60' to BTM; drlg.
3-20-83	72'	Drlg; ream out torque; drlg; rig service; drlg circ. while repacking #1 pump; drlg and survey.
3-21-83	160'	Ream tight spot; drlg and reaming; drlg; rig repair #1 pump; drlg and survey.

3-22-83	154'	Drlg and survey; drlg. unplug flow line (NRS rubber) drlg and survey; circ. and trip out to XO bullwheel and fluid coupling.
3-23-83	146'	POOH; XO bullwheel w/bit @ 20" shoe; LD 3 pt and XO subs; rig service; repair torque converter; install 44" bullwheel on FP 1300 pump; RIH w/bit 20; break circ. twice on trip in; ream 60' to BTM work on kill line; lost 500 psi, dropped flag; POOH.
3-24-83	20'	Found washout 16 stds out; RIH; wash and ream 55' to BTM; drlg; service rig; drlg and survey; ream 2 hrs while drlg.
3-25-83	107'	Drlg; service rig; survey.
3-26-83	122'	Drlg; replace swab #2 pump; drlg and survey; trip 10 stds; replace TOTCO rotary torque; POOH; inspect BHA; LD SS, 3 DC's, 3 pt RMR; P.U. 3 10" DC's and make up BHA.
3-27-83	15'	RIH w/Bit #21; ream 210'; torque @ 4168-4213; no fill; break in bit; service rig; drlg; work out tight spot 4280-4310; survey @ 4310; drlg.
3-28-83	125'	Drlg; service rig; drlg and survey; drlg; repair #1 pump; drlg; repair #2 pump.
3-29-83	137'	Replace swab #2 pump; drlg; rig service; drlg and survey; replace swab #2 pump; drlg; replace swab #2 pump; drlg and survey.
3-30-83	126'	Drlg and service rig; POOH; LD IBS, NRS; P.U. soft shock; IBS, NRS/NRS; RIH w/Bit #22; stuck pipe @ 4495; work pipe free; break down remaining stands and ream to BTM.
3-31-83	27'	Ream to BTM; service rig-BOP drill; survey and drlg; ream throughout day; tight @ 4758.
4-1-83	159'	Drlg; circ. and survey; service and repair chain oiler #1 pump; drlg; circ. and survey; drlg; ream while drlg.
4-2-83	133'	Drlg; service rig; drlg and survey; drlg; bit balled; pump walnut sweep; ream-repair swab #2 pump, drlg.
4-3-83	105'	Drlg; short trip through bentonite beds; ream 3 jts to BTM; work hole clean; circ. sweep; trip out; P.U. 3 pt, 2 NRS boots; LD IBS; ream 4900-5028 - very tight 5000-5028.
4-4-83	13'	Ream to BTM; break in Bit #23; drlg and survey; repair #2 pump; drlg and reaming.

4-5-83	152'	Drlg; service rig; drlg - control drlg w/one pump while XO liners on #1; fuel line plugged to motors-will not run @ full capacity; survey and drlg.
4-6-83	183'	Drlg and survey; circ. sweep; POOH; pulled tight 5094, 5001, 4717; strapped out.
4-7-83	136'	Finish trip; RIH w/Bit #24; wash and ream 160' to BTM; 6' fill; drlg; XO swab on #2 pump; drlg and survey.
4-8-83	61'	Drlg; work tight spot; rig repair #2 swab; drlg; rig service; survey; drlg; rig repair #2 swab; drlg.
4-9-82	116'	Drlg; rig service; drlg; circ. and short trip 33 stds; no fill; bridge 7' off BTM; circ. and POOH; no drag; rig up loggers, loggers to 5724.
4-10-83	46'	Logging w/Schlum; RIH w/DC's and HWDP; cut drlg line; RIH and tag fill @ 5712; break circ. and wash to BTM; circ. and work pipe; POOH for CSG; no drag.
4-11-83	0	POOH for CSG; tried to pull wear bushing-unable; rig up CSG crew; ran Baker diff shoe; (2.70') 1 jt 13 3/8 72# CSG (38.17') Baker diff collar (2.02') 44 jts 13 3/8 72# N-80 (1776'); 86 jts 68# S-80 (3707'); 5 jts 13 3/8 72# N-80 (204') landed CSG @ 5730; PBTD 5687; rig up Dowell; rig down CSG crew; circ.; cement w/1100 sks 10-0 RFC/10#/sks Kolite; 350 sks 10-0 RFS; good circ. throughout job; displaced w/855 bbls mud @ 11 bbl/min; plug didn't bump w/1000 psi on CSG; shut floats; wo CEM.
4-12-83	0	WO cement; pull wear ring; set slips w/225,000#; cut CSG; install 20" 3 x 13 5/8-5" CSG head. P_T to 2000 psi; nipple up BOP's.
4-13-83	0	Nipple up BOP's; P_T BOP's to 5000 psi; blinds, rams, manifold-2500 psi, Hydril check OK; lay down 17½" BHA; P.U. 12¼" BHA; Magnaflux BHA; RIH w/Bit #25.
4-14-83	0	RIH w/Bit #25; Magnaflux DC's and HWDP; LD 6 DC's; rig service; tag cement 5662; break circ. and drill cement to 5727; tag shoe @ 5727; P_T CSG to 1100 psi; check OK; drlg shoe-lost 800 psi; drop flag; POOH for WO - no hole; RIH w/Bit #26.
4-15-83	0	Trip in to 90'; check pumps; RIH to shoe; circ. and cond. mud; drlg on shoe; drlg new hole; circ. and P.I.T.; pumped into @ 900 psi w/8.6 mud wt.; frac pt. @ shoe - 11.6 #/gal (3462 psi) drlg.

4-16-83	113'	Drlg and survey.
4-17-83	163'	Drlg and survey; rig service; drlg and survey (misrun) drlg and survey; drlg.
4-18-83	104'	Drlg; circ. and survey; drlg and survey; drlg.
4-19-83	116'	Drlg; circ. and survey; POOH; LD BHA: P.U. new BHA; LD 12 jts HWDP "E"; P.U. 10 jts HWDP "E"; install DP rubbers; RIH w/Bit #27.
4-20-83	32'	Finish trip in; install D.P. rubbers; ream 160' to BTM; drlg; rig service; drlg and survey.
4-21-83	148'	Drlg and survey; drlg; rig service; survey; drlg; ream bentonite bed @ 6560.
4-22-83	181'	Drlg and survey.
4-23-83	197'	Survey and drlg; rig service; drlg-called 5 jts D.P. when making up; survey and drlg.
4-24-83	157'	Drlg; POOH - LD 3 pt, SDC; redress BTM 3-pt P.U. NB, IBS, NRS boot; RIH w/Bit #28; LD 14 jts "E" pipe; P.U. 1 7" D.C.; RIH; ream 120 to BTM; drlg (25 K overpull 4-6 jts off BTM).
4-25-83	82'	Survey and drlg; service rig; drlg and survey; replace TOTCO rotary torque gauge; drlg; circ. and survey; trip 20 stds to retrieve survey line; drlg.
4-26-83	200'	Drlg; service rig; drlg and survey.
4-27-83	202'	Drlg; rig service; drlg; lost partial returns @ 7477; (28 bbls over 15 min) well flowed back 25 bbls over next 2 hrs. Drlg and survey; drlg.
4-28-83	165'	Drlg; rig service; drlg and survey.
4-29-83	153'	Drlg; POOH - max overpull 28,000 @ 6403; inspect BHA; LD 4-7" DC's; jars, 2-9" DC's, NRS, 10" SS, DC, P.U. 4-10" DC's, 1-9" DC, 3-7" DC's Jars and new BHA; trip out; lay down 2 jts D.P.
4-30-83	29'	P.U. BHA; remove D.P. rubbers; stuck @ 7147; would not release-jarring up; P.U. Kelly and circ.; no plugging of hole; good returns; bump down to release; would not ream or pull through 7147; ream and wash to BTM; BTM 45' out of gauge; drlg-lost 80 bbls 7770-7779; partial returns.

5-1-83	41'	Drlg; service; drlg and survey; lost partial returns @ 7880-7890 (58 bbls over 30 min)
5-2-83	187'	Drlg; rig service; drlg and survey.
5-3-83	206'	Lost returns @ 8201 (58 bbls); pump LCM; drlg; circ. and make short trip to 7722'; drlg and survey; lost partial returns @ 8299 (120 bbls over 30 min); repair #2 pump for 7 hours.
5-4-83	148'	Drlg; repair rotary chain; drlg and survey; pump pill; POOH, (max. overpull 45K @ 7238 to 7052.
5-5-83	98'	P.U. new BHA while RIH; cut drlg line; TIH (no excessive drag); break circ. and unplug jets; wash and ream 91' to bottom (no fill); break bit in and drlg; unplug bit jet; circ.; drlg and survey.
5-6-83	122'	Drlg and survey; (350-500 ft # of torque from 8707' to 8766') reaming out torque spots; drlg.
5-7-83	200'	Drlg (can't keep bit on bottom - high torque 500 ft #); circ.; POOH for Bit #31 LD NRS (¼") 2 IBS (1/8") 3 pt; lost 1 snap ring on rollers; 1 SDC P.U. 3 pt's; RIH to 8490' (tagged up 25,000; circ. through spot @ 8490'; RI to 8714'; wash and ream 90' to bottom; break in bit; drlg.
5-8-83	46'	Drlg; circ. and survey; change to Totco guage; drlg and survey.
5-9-83	138'	Drlg and survey; drlg and circ. survey; drlg.
5-10-83	139'	Ream torque; drlg; circ. and survey; drlg; POOH; change bit, RIH; wash and ream 90' to bottom; drlg.
5-11-83	86'	Drlg; circ. and survey; work torque (300 - 600) out.
5-12-83	213'	Drlg; work and ream torque; drlg; circ. and survey; drlg.
5-13-83	196'	Drlg; survey; drlg; survey; drlg; survey; drlg.
5-14-83	138'	Drlg; circ.; POOH; LD 10 jt HWE 25.60 min wall 10; Magnaflux BHA LD - crossover sub, 19" DC cracked boxes; LD = jar, SS, 3 pt, P.U. new Jar 55 3 pt crossover sub; test BOP's blind rams, manifold, Kelly & Kelly cocks to 50,000 psi Hydril to 2500 psi; RIH; P.U. 12 jts 5" 50 lb HWDP; RIH.
5-15-83	6'	Finish RIH; wash and ream 110' to bottom; drlg; survey; drlg; survey; drlg; survey; drlg; survey; drlg.

5-16-83	124'	Drlg; POOH; XO bit; rig service; RIH w/Bit #34; wash and ream 98' to BTM, drlg and survey.
5-17-83	64'	Drlg; rig service; drlg and survey.
5-18-83	148'	Circ. and survey; drlg; rig service; drlg; circ. and POOH - strap out; XO bit; lay down 2 DC's; RIH w/Bit #35.
5-19-83	55'	Cut drlg line; rig service; finish RIH; wash and ream 110' to BTM; 3' fill - no tight spots; drlg and survey; repair rotary chain.
5-20-83	109'	Drlg; work out torque @ 10271; drlg and survey.
5-21-83	120'	Drlg; circ. and survey; drlg.
5-22-83	97'	Drlg; pump pill and POOH; lay down 2 3 pt and bit; P.U. NB, 3 pt, IBS, NRS, 1 10" DC, 1 9½" DC; RIH w/Bit #36; tight @ 8192 (lost circ. zone) worked through; wash and ream 92' to BTM - no fill drlg.
5-23-83	55'	Drlg; rig service; drlg and survey; began lowering bentonite and start salt slowly.
5-24-83	96'	Drlg; rig service; POOH; unplug jets; wash and ream 110' - no fill; not tight; drlg.
5-25-83	59'	Drlg and survey.
5-26-83	110'	Drlg and survey.
5-27-83	105'	Drlg and survey; drlg break 10900-10909; POOH.
5-28-83	70'	Inspect BHA; RIH w/NB #38; ream 36' to BTM; (BTM undergauged) drlg and ream; work out tight spot @ 10955; drlg and survey.
5-29-83	69'	Survey and drlg; pull 1 STD and ream to BTM; POOH; XO bit, NRS: cut drlg line; RIH w/NB #39; unplug jets and break circ.; ream 100' to BTM.
5-30-83	21'	Drlg; service rig; drlg - lost PP; pump rope; hole @ 8880'; COOH.
5-31-83	117'	Finish COOH - found hole @ 10168 in DP; P.U. Kelly and check JGTS; RIH to 7485; break circ.; RIH to 11150; no fill; drlg and survey.

6-1-83	88'	Drlg and survey; drlg salt 11313-11356; P.U. w/15K overpull; ream to BTM; lost 10' hole; P.U. above salt to 11302; circ. hole and cond. for logs; strap out.
6-2-83	118'	POOH for logs; restring blocks to 10 lines; rig up loggers; logging w/Schlumberger; rig down loggers; RIH w/NB #40.
6-3-83	0	Finish RIH; LD SDC, IBS, 3 pt, NRS, SDC, TIH to 11065; circ. and sat mud w/salt.
6-4-83	0	Circ. and cond mud w/salt; CL = 118,000; RIH to 11200; wash 11200-11356; drlg salt to 11361.
6-5-83	83'	Drlg; rig service; drlg; circ. and short trip into shoe; ck. for sloughing; RIH to TD; <1' fill; unplug jet; circ. hole and work pipe; COOH.
6-6-83	61'	Finish COOH; cut drlg line; LD DC; pull wear bushing; run 9 5/8 CSG.
6-7-83	0	Finish running 9 5/8 CSG to 11500; P.U. 4' to set slip below CSG collar @ 11413; BTM, shoe @ 11496; RU Halco and circ. CSG; cement; displace w/971.5 bbls aired up drlg mud; bump plug w/2100 psi; float held; WOC; set slip w/485,000 on slip; cut CSG.
6-8-83	0	Finish cutting CSG; install 13 3/8 5K 10" CSG head P_T to 5000 psi; check OK; NU BOP's; P_T BOP's to 5000 psi; check OK; P_T Hydril to 2500 psi; check OK; P.U. BHA.
6-9-83	0	RIH w/NB #41 (8½"); install DP rubbers; break circ. @ 5000' and 10350' tag @ 11352' tight; POOH 4 jts; wash 11228-11413; tag diff collar; drlg through to 11494; circ. and clean pits; build mud and circ. hole.
6-10-83	0	Circ. and cond. mud; P_T CSG to 1500 psi w/8.8 ppg mud; check OK; drlg shoe; drlg 8½ hole; rig service; drlg and survey.
6-11-83	164'	Drlg; rig repair (right angle drive); rig service; POOH; run CBL - VDL; ΔT; Gamma Ray 11492-8350; cement top @ 8400'; 100% bonding in salt; P.U. Bit #42 and RIH; LD 15 jts 5" x 95' P.U. 15 jts lite "E"; rig repair rotary chain; RIH.
6-12-83	6'	Finish RIH to 11600; wash and ream 70' to BTM; drlg; rig service; drlg and survey.
6-13-83	251'	Drlg and survey; circ. and POOH; change BHA from 77' to 92' pendulum; RIH w/NB 43; ream to BTM; drlg.

6-14-83	79'	Drlg and rig service; drlg and survey.
6-15-83	154'	Survey and drlg; rig service and rig repair (bolts on rotary sprockets) drlg and survey.
6-16-83	166'	Drlg and survey.
6-17-83	204'	Drlg and survey; POOH; LD 29 jts "Lite E"; P.U. 29 jts "X"; XO DP rubbers; cut drlg line; RIH w/NB 44; ream 72' to BTM; drlg.
6-18-83	32'	Drlg and survey.
6-19-83	243'	Drlg; service rig; drlg and survey; circ. hole; pump sweep; POOH; P.U. DST tools; Johnston left pressure gauge sub f/wireline SPRO in Casper; wait on sub.
6-20-83	125'	Wait on SPRO sub; P.U. DST tools, SPRO barrel; RIH; RU lubricator and RIH w/wireline SPRO equip; BHP gauge malfunction; set pkr @ 12799; open tool 30 secs. Shut in 15 min.; open tool for closed chamber test; after 1 hr. divert flow to separator; SI well for PBU and nighttime; pkr held throughout test.
6-21-83	0	Shut in DST; pump reverse out plugs; only 1½" port sheared open; unseat pkrs; will not reverse out; attempted 3 times; tool plugged after 10 bbls; circ. drill string; did not observe any wellbore fluids; saw gascut mud and OCC oil droplets; POOH LD test tools; recovered 3 gal gas and oil cut mud 1 gal condensate below MFC tools; P.U. BHA; RIH w/NB 45; ream and wash 130'; cond. hole; drlg.
6-22-83	10'	Drlg; rig service; drlg and survey; high torque after conn; drld to 13033 - stopped drlg pump pill and COOH; inspect BHA - all good; 3 cones missing; only shanks left; call out magnet; LD 3-3 pts.
6-23-83	99'	Make up fishing tools; RIH; fish w/magnet; POOH w/mag run #1; recovered 2 cones w/nose spears cored out and middle row, 18 brgs; misc. junk; cut drlg line; TIH w/mag run #2; work magnet; gained 2' hole; POOH.
6-24-83	0	COOH w/magnet; recovered 3rd cone; misc. small parts; make up 3 pt and J3 bit; TIH; drill and work book bskt; no metal on BTM; torque smooth; cond. mud and POOH; make up BHA and RIH w/NB 47.
6-25-83	6'	RIH; no apparent junk in hole; wash and ream 46'; service rig; drlg and survey.

6-26-83	157'	Drlg; POOH; drill stuck on top 3 pt @ 12815 - 12746 (above sliderock in frac Rich Mbr.) stuck numerous times (have circ. throughout operation) work pipe above stuck pipe and ream 120' till free; POOH; XO BHA - 3 pt OOG 5/32; RIH; bridge @ 12840; wash and ream to TD.
6-27-83	8'	Reaming to BTM w/NB 48; drlg and rig service; drlg - lost 151 bbls @ 13286.
6-28-83	132'	Drlg; circ. btms up; drop survey; pump pill and POOH; pulled into tight spot @ 12750; work pipe; jar up and free down; back ream 9½'; jar up 5'; run sweeps; ream tight spots; retrieve survey tools; lost 149 bbls w/working pipe; short trip; ream 12793 - 12818; 12830 - 12838; 12996 - 13011; 13019 - 13029; spot 75 bbls of 25% multi-seal on BTM; POOH to 12659; pump pill - POOH; lost 34 bbls on trip.
6-29-83	36'	Make up BHA and RIH; driller made up wrong BHA; POOH and fix BHA; RIH; cut drlg line; rig service RIH; bit stopped @ 11323; (stapped depth) will not pass; strap out; change BHA to pendulum; RIH; bit will not pass 11323; max set down wt. 70,000 lbs; activated jars - jar out; pump pill.
6-30-83	0	POOH; RU dialog; RIH w/min ID tool; logged 11400 - 11300 3 times; mind dia. 8 3/8" over 6'; 11324 - 11318; POOH; RD dialog; RIH w/DC; check OD on fishing neck; LD 8½" BHA; RIH w/NB50 (7 7/8") to 1/300; P.U. Kelly; work through pinched CSG @ 11322 - no drag; RIH to 13270; wash and ream 13270 - 13371; drlg.
7-1-83	8'	Drlg; rig service; drld to TD @ 13451; circ. and work pipe f/logs; POOH; RU loggers.
7-2-83	72'	Logging w/Schlumberger; RIH to condition f/CSG; geologist released.

GENERAL LITHOLOGY

FORMATION	DEPTH	DESCRIPTION
Bear River Fm.	Surface-156'	White to light gray medium-coarse grained calcareous sandstones, some FeO_x staining, interbedded with gray to gray brown siltstones with disseminated carbonaceous material. Trace of bentonite is present near bottom; siltstones become pyritic and interbed with chert and pebbly sandstones of Kelvin contact.
Kelvin Fm.	156-1918'	A large sequence of reddish brown to orange, gray to gray brown shales and claystones, tan, reddish orange, gray, occasionally carbonaceous siltstones, white to light gray, occasionally reddish brown fine to medium grained sandstones. Sandstone is occasionally pebbly to conglomeratic. Claystones grade into bentonite beds in lower half. Some tan to mottled white/brown limestone stringers and nodules are present throughout most of the section.
Frontier Fm.	1918'	Thrust fault.
Dry Hollow Mbr.	1918-2802'	Interbedded pebbly-conglomeratic gray and s+p sandstones; gray, brown and gray/green bentonitic shales, commonly carbonaceous grading to coal in part; gray to gray brown siltstones. Pebbly sandstones coarsens into a thick cherty conglomerate at base of member.
Oyster Ridge Mbr.	2802-2960'	Gray to gray green, brown shales, gray gray-brown siltstones with carbonaceous flakes and veining; light gray to white very fine to fine grained sandstones (calcareous) with occasional clay fill. Occasional dolomite and limestone nodules at bottom.
Allen Hollow Mbr.	2960-3045'	Gray green to gray, and varicolored calcareous and carbonaceous shales; dark brown, gray to gray brown calcareous siltstones with carbonaceous flecks and veining interbedded with white, gray and s+p calcareous sandstone.

Coalville Mbr.	3045-3210'	Green to green gray claystones, gray to dark gray calcareous and carbonaceous siltstones interbedded with white to light gray very fine to fine grained sandstones. Claystones grade to/from bentonite beds.
	3210'	Thrust fault.
Coalville Mbr.	3210-3590'	Repeat section as above; some carbonaceous shale grading to coal.
Chalk Ck. Mbr.	3590-5190'	Lt. green, brown, varicolored maroon, orange, lavender, calcareous and bentonitic shales and claystones, some carbonaceous grading to coal in part; gray to brown gray carbonaceous siltstones; white to light gray and s+p fine to very fine grained sandstones, some tuffaceous; bentonite and coal beds increase toward the bottom. Occasional limestone nodules are present throughout, and fossil fragments increase in bottom half.
Spring Cny. Mbr.	5190-5478'	Dark brown to brown gray calcareous and carbonaceous shales grading to/from coal. Occasional brown to brown gray siltstones interbedded with white to light gray medium to coarse grained calcareous sandstones, occasionally pyritic + fossiliferous.
Longwall Mbr.	5478-5732'	White to light gray and s+p fine to medium grained occasional glavconitic sandstone; dark gray to gray brown shale and siltstones, carbonaceous, pyritic and fossiliferous.
Aspen Fm.	5732-5976'	Predominantly dark gray to black splintery and silaceous shale with fish scales and carbonaceous debris throughout. Shale is interbedded with bentonite and some tuff beds.
Bear River Fm.	5976-6240'	Dark brown to dark gray and black calcareous and carbonaceous shales, occasionally bentonitic grading to claystone. Coal marker bed in upper half is shaley. White to light gray very fine to medium grained sandstones become quartzitic and some are tuffaceous toward bottom. Siltstones are gray to dark gray, and occasionally pyritic.

Kelvin Fm.	6240-10124'	A very thick sequence of brown to brownish orange, variegated, and gray to gray green calcareous silty shales and claystones; siltstones are generally tan to brown and brownish orange grading to/from shale. Sandstones are white to clear, gray and occasionally reddish orange, becoming increasingly pebbly and grading downward into the Ephraim conglomerate at the base, consisting of limestone, chert, quartzite with a coarse to medium grained matrix. Cream to tan nodules are present throughout and become bedded limestone near the bottom.
Stump Fm. (Redwater Mbr.)	10124-10142'	Gray, white and light green calcareous, glavconitic, very fine to fine grained sandstone, occ. pebbly with chert and quartz fragments, interbedded with green to green gray shale and claystone.
Curtis Mbr.	10142-10365'	Unconformity at 10142; varicolored brown, maroon, lavander, brown orange gray-gray green shales and claystones, bentonitic, micaceous (biotite); interbedded with brown-brownish orange calcareous siltstones and white to clear, lt. green glavconitic sandstones.
Preuss Fm.	10365-11450'	Dark brown, reddish brown, tan, orange shales, siltstones and sandstones bentonite and white clay fill present throughout; sandstones and siltstones are pebbly with chert and quartz fragments. Siltstone predominates within 200' of salt section. Interbedded salt, shale, anhydrites and siltstones 11313-11380 with a possible thrust fault within the salt section. Limestone nodules and thin stringers are common throughout.
Twin Ck. (Giraffe Ck. Mbr.)	11450-11938'	Gray to medium gray shaley, silty and sandy limestone, oolitic in part, interbedded with gray shale, gray to white fine to very fine grained oolitic sandstone, occ. glavconitic. Limestone is biotitic toward mid-member, and anhydrite is present throughout. Sandstone is occ. tuffaceous.

Leeds Ck. Mbr.	11938-12290'	Predominantly gray to medium gray shaly to sandy limestone, occ. oolitic. Minor beds of green, gray green and varicolored shale and anhydrite present; some bentonitic and tuffaceous. Some brown to brownish red siltstones, and gray to light gray sandstones, near bottom.
Watton Cny. Mbr.	12290-12462'	Brown gray to lt. gray limestone, occ. oolitic; clay fill and calcite fracture filling throughout. Gray to light gray siltstone and sandstone at base. Occasional anhydrite stringers throughout.
Boundary Ridge Mb.	12462-12564'	Gray-light gray, reddish orange to reddish brown siltstones with some anhydrite stringers interbedded with gray to gray-green limestone; some oolitic. Gray to dark gray-brown siltstone showed slight oil stain, yellow-gold fluorescence, slow streaming yellow cut with yellow residue.
Rich Member	12564-12808'	Gray-dark gray, gray brown limestone; clay fracture filling to fair fracture porosity in btm 20'. Interbedded with abundant claystone beds. Limestone is occasionally biotitic.
Sliderock Mbr.	12808-12912'	Brown to brown gray-gray waxy limestone highly fractured throughout, becoming oolitic at bottom; dull green fluorescence, v. slow bleeding cut (2nd cut), yellow-gold residue in top half. Good gas shows from fractures at top half.
Gypsum Springs Mbr.	12912-12988'	Red orange-red brown non calcareous siltstones interbedded with white chalky sucrosic anhydrite, and gray brown mottled oolitic limestone. Occasional chert fragments in part.
Nugget	12988-13034'	Clear to white and frosted fine-medium grained, rounded moderately well sorted sandstone w/fair to poor porosity. No to some black oil stain, yellow to yellow green fluorescence, slow streaming-slow blooming cut, yellow-blue residue.

Nugget	13034-13080'	Clear-white and frosted medium-fine grained round to subround moderately well sorted sandstone, fair to good porosity, mostly brown to black oil stain, light green to greenish yellow fluorescence, fast blooming to streaming cut w/yellow residue; brown calcareous siltstone on bottom.
Nugget	13080-13140'	Clear to frosted, medium-fine grained round to subround, moderately well sorted sandstone, poor to good porosity, yellow-green fluorescence, slow-some fast streaming yellow cut w/yellow residue.
Nugget	13140-13200'	White to clear and frosted, fine-medium grained, round to subround, moderately well sorted, fair to some good porosity, black to light brown oil stain, greenish yellow fluorescence, fast streaming cut, with yellow blue-yellow green residue.
Nugget	13200-13300'	Light orange to pink and white fine grained, subround to round, well sorted, hard to slightly friable sandstone, poor porosity, some black oil stain, yellow green fluorescence, fast streaming cut, yellow residue sandstone is occasionally clay-filled.
Nugget	13300-13400'	White, cream and clear, fine to medium grained, subround to round, moderately well sorted, sandstone, hard, poor porosity, with some fracture porosity; black oil stained and flecked, greenish-yellow fluorescence; slow ring cut to occ. fast streaming cut, yellow-blue residue; traces of brown siltstones.
Nugget	13400-13451'	Light orange to pinkish orange, medium-fine grained, subround to round, moderately well sorted sandstone, tight, poor porosity, some fracture-fill quartz, increasing brown calcareous siltstones, trace black oil stain, no fluorescence or cut.

Form DOGC-4

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS CONSERVATION
4241 STATE OFFICE BUILDING
SALT LAKE CITY, UTAH 84114
533-5771

State Lease No.
Federal Lease No. U-47812
Indian Lease No.
Fee & Pat.

REPORT OF OPERATIONS AND WELL STATUS REPORT

STATE Utah COUNTY Summit FIELD/LEASE Wildcat Logan Federal #2-A

The following is a correct report of operations and production (including drilling and producing wells) for the month of: AUGUST, 19 83.

Agent's Address 410 17th Street, Suite 1400, Denver, CO 80202
Phone No. (303) 623-1000

Company Davis Oil Company
Signed Pamela Leighton
Title Production Services Manager

Sec. and ¼ of ¼	Twp.	Range	Well No.	Days Produced	Barrels of Oil	Gravity	Cu. Ft. of Gas (In thousands)	Gallons of Gasoline Recovered	Barrels of Water (if none, so state)	API NUMBER/REMARKS (If drilling, depth; if shut down, cause; date and result of test for gasoline content of gas)
26 NWSE	3N	7E	2-A	-0-	-0-	-0-	-0-	-0-	-0-	API # - 30223 7/4/83 MICT. 7-11-83 THROUGH 8-31-83, FISHING FOR 3 1/2" DRILL-PIPE.

SEP 30 1983

GAS: (MCF)
Sold NONE
Flared/Vented
Used On/Off Lease

OIL or CONDENSATE: (To be reported in Barrels)
On hand at beginning of month NONE
Produced during month
Sold during month
Unavoidably lost
Reason:
On hand at end of month

DRILLING/PRODUCING WELLS: This report must be filed on or before the sixteenth day of the succeeding month following production for each well. Where a well is temporarily shut-in, a negative report must be filed. *THIS REPORT MUST BE FILED IN DUPLICATE.*

Note: The API number must be listed on each well.

Form DOGC-4

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS CONSERVATION
4241 STATE OFFICE BUILDING
SALT LAKE CITY, UTAH 84114
533-5771

State Lease No.
Federal Lease No. U-47812
Indian Lease No.
Fee & Pat.

REPORT OF OPERATIONS AND WELL STATUS REPORT

Logan Federal #2-A

STATE Utah COUNTY Summit FIELD/LEASE Wildcat

The following is a correct report of operations and production (including drilling and producing wells) for the month of: SEPTEMBER, 19 83

Agent's Address 410 17th Street, Suite 1400, Denver, CO 80202
Phone No. (303) 623-1000

Company Davis Oil Company
Signed Pamela Leighton
Title Production Services Manager

Sec. and ¼ of ¼	Twp.	Range	Well No.	Days Produced	Barrels of Oil	Gravity	Cu. Ft. of Gas (In thousands)	Gallons of Gasoline Recovered	Barrels of Water (If none, so state)	API NUMBER/REMARKS (If drilling, depth; If shut down, cause; date and result of test for gasoline content of gas)
26 NWSE	3N	7E	2-A	0	NONE	—	NONE	NONE	NONE	API # - 30223 9/1/83 THRU 9/14/83 - FISHING FOR 3½" DRILL PIPE. 9/17/83 CIRC. HOLE CLEAN, TIH TO LOG. 9/19/83 RUN DRILL PIPE & RELEASE RIG. 9/20/83 MIRU. 9/23/83 PERF. 4 SQZ. HOLES @ 1145'.

OCT 28 RECD

GAS: (MCF)
Sold NONE
Flared/Vented
Used On/Off Lease

OIL or CONDENSATE: (To be reported in Barrels)
On hand at beginning of month NONE
Produced during month
Sold during month
Unavoidably lost
Reason:
On hand at end of month

DRILLING/PRODUCING WELLS: This report must be filed on or before the sixteenth day of the succeeding month following production for each well. Where a well is temporarily shut-in, a negative report must be filed. *THIS REPORT MUST BE FILED IN DUPLICATE.*

Note: The API number must be listed on each well.

Form DOGC-4

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS CONSERVATION
4241 STATE OFFICE BUILDING
SALT LAKE CITY, UTAH 84114
533-5771

State Lease No.
Federal Lease No. U-47812
Indian Lease No.
Fee & Pat.

REPORT OF OPERATIONS AND WELL STATUS REPORT

Logan Federal #2-A

STATE Utah COUNTY Summit FIELD/LEASE Wildcat

The following is a correct report of operations and production (including drilling and producing wells) for the month of: OCTOBER, 19 83.

Agent's Address 410 17th Street, Suite 1400, Denver, CO 80202
Phone No. (303) 623-1000

Company Davis Oil Company
Signed Pamela Lashley
Title Production Services Manager

Sec. and ¼ of ¼	Twp.	Range	Well No.	Days Produced	Barrels of Oil	Gravity	Cu. Ft. of Gas (In thousands)	Gallons of Gasoline Recovered	Barrels of Water (If none, so state)	API NUMBER/REMARKS (If drilling, depth; If shut down, cause; date and result of test for gasoline content of gas)
26 NWSE	3N	7E	2-A	0	NONE	—	NONE	—	NONE	API # - 30223 9-27-83 TIH W/DRILL PIPE. 10/9/83 PERF. NUGGET: 13326-13332'; 2 JSPF. SWAB. 10/12/83: PERF 13,259-63; 13267-69; 13,285-88'. 2 JSPF. FLOW TEST. 10/15/83: PERF. 13,133-38; 13,144-61'; 13163-65; 13167-76'; 13178-81'. 2 JSPF. 2 MISSFIRED GUNS. 10/17/83 BREAK DOWN PERFS W/5000 GAL. CONDENSATE & 116 BALLS. FLOW TESTED THROUGH 10/20/83.

GAS: (MCF)
Sold NONE
Flared/Vented
Used On/Off Lease

OIL or CONDENSATE: (To be reported in Barrels)
On hand at beginning of month NONE
Produced during month
Sold during month
Unavoidably lost
Reason:
On hand at end of month

DRILLING/PRODUCING WELLS: This report must be filed on or before the sixteenth day of the succeeding month following production for each well. Where a well is temporarily shut-in, a negative report must be filed. *THIS REPORT MUST BE FILED IN DUPLICATE.*

Note: The API number must be listed on each well.

DAVIS OIL COMPANY 10 — 17TH STREET, SUITE 1400
DENVER, COLORADO 80202-4472
TELEPHONE: 303-623-1000

NEW ORLEANS
HOUSTON
TULSA

RECEIVED
NOV 4 1983
State of
Utah
State Land Board

November 1, 1983

MMS
1745 West & 1700 South
Room 2000 Administration Bldg.
Salt Lake City, Utah 84104

File: REB-907-WF
Re: Logan Federal #2-A
NWSE Sec. 26, T3N, R7E
Summit County, Utah

Gentlemen:

Enclosed is an original plus two (2) copies of the Well Completion Report on the above captioned well.

If I can be of further assistance, please advise.

Sincerely,

Robert Blaylock
Rocky Mountain Division Manager

Suzanne Brown

By: Suzanne Brown
Secretary to RMD Manager

/sb
Enclosure

Utah Division of Natural Resources
4241 State Office Bldg.
Salt Lake City, Utah 84114

RECEIVED
NOV 8 1983
DIVISION OF
OIL, GAS & MINING

Form 9-330
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE (See instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

RECEIVED NOV - 8 1983 DIV. OF OIL, GAS & MINING

1a. TYPE OF WELL: OIL WELL [XX] GAS WELL [ ] DRY [ ] Other

b. TYPE OF COMPLETION: NEW WELL [XX] WORK OVER [ ] DEEP-EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other

2. NAME OF OPERATOR: DAVIS OIL COMPANY

3. ADDRESS OF OPERATOR: 410-17th St., Suite 1400 Denver, CO 80202

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface 2297' FEL & 2567' FSL of Sec. 26, T3N, R7E
At top prod. interval reported below 1891' FEL & 2025' FSL
At total depth 1855' FEL & 2024' FSL

5. LEASE DESIGNATION AND SERIAL NO.: U-47812
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: -------
7. UNIT AGREEMENT NAME: -------
8. FARM OR LEASE NAME: Logan Federal
9. WELL NO.: #2-A
10. FIELD AND POOL, OR WILDCAT: Development
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 26, T3N, R7E
12. COUNTY OR PARISH: Summit
13. STATE: Utah

14. PERMIT NO.: 43-043-30223 DATE ISSUED: 1-26-83

15. DATE SPUDDED: 2-14-83
16. DATE T.D. REACHED: 7-1-83
17. DATE COMPL. (Ready to prod.): 10-24-83
18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*: 7494' GL & 7520' KB
19. ELEV. CASINGHEAD: ---------
20. TOTAL DEPTH, MD & TVD: 13,451'
21. PLUG, BACK T.D., MD & TVD: 13,250'
22. IF MULTIPLE COMPL., HOW MANY*: ----
23. INTERVALS DRILLED BY: → ROTARY TOOLS: 0-13,451' CABLE TOOLS: -------

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
Nugget 13,133' - 13,181'

25. WAS DIRECTIONAL SURVEY MADE: Yes ~~No~~

26. TYPE ELECTRIC AND OTHER LOGS RUN
DIL; GR-BHC; CNL-FDC; HDT; DIP

27. WAS WELL CORED: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
20"	133#	1031'	26"	1790 sx	--------
13 3/8"	72# & 68#	5723'	17 1/2"	1450 sx	--------
9 5/8-9 7/8"	53.5# & 62.8#	11,496'	12 1/4"	1200 sx	--------
7"	32# & 38#	13,451'	8 1/2"	500 sx	--------

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 7/8"	12,850'	12,850'

31. PERFORATION RECORD (Interval, size and number)

13,326-32' 0.4 13 Total Holes
13,259-88'* 0.4 21 Total Holes
13,133-81' 0.4 77 Total Holes

*Set CIBP @ 13,250'

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
13,133-81'	Brkdwn w/5000 Gal condensate w/5 Gal/1000 Hy-F10

33.* PRODUCTION

DATE FIRST PRODUCTION: 10-18-83
PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump): Flowing
WELL STATUS (Producing or shut-in): SI, WOGLC

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
10-20-83	22	14/64"	→	337	2700	23	7350:1

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
2450 psig	100 psig	→	367	2700	25	54.2° @ 60° F

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): To be sold
TEST WITNESSED BY: S. Krug

35. LIST OF ATTACHMENTS
Geological reports previously submitted

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED [signature] TITLE Rocky Mountain Division Manager DATE 11/2/83

*(See Instructions and Spaces for Additional Data on Reverse Side)

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: *"Sacks Cement":* Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; 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	TOP TRUE VERT. DEPTH
Kelvin Fm	172'	
Thrust Fault/ Frontier Fm	1918'	
Thrust Fault/ Coalville Mbr	3210'	
Chalk Ck Mbr	3590'	
Aspen Fm	5732'	
Bear River Fm	5976'	
Kelvin Fm	6240'	
Stump Fm	10,124'	
Preuss Fm	10,365'	
Salt Section	11,314'	
Base of Salt	11,380'	
Twin Crk Fm- Giraffe Ck Mbr	11,450'	
Gypsum Springs Mbr	12,912'	
Nugget Fm	12,988'	
TD	13,451'	

STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Dr. G. A. (Jim) Shirazi, Division Director

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

February 7, 1984

Davis Oil Company
410 17th St. Suite 1400
Denver CO 80202

RE: Well No. Logan Federal #2-A
API #43-043-30223
2567' FSL, 2297' FEL
Sec. 26, T. 3N, R. 7E.
Summit County, Utah

Gentlemen:

Thank you for your "Well Completion" Form 9-330 dated November 2, 1983.

It has been noted that according to this "Well Completion" a Directional Survey was not made.

We have enclosed a copy of the Approval to Drill letter on this well. It was stipulated that "directional drilling survey data shall be submitted at time of well completion."

It has been three months since this well was completed, we are therefore, requesting that this information be forwarded to our office within fifteen (15) days.

Your prompt attention will be appreciated.

Repectfully

Claudia Jones

Claudia Jones
Well Records Specialist

CJ/cj
Enclosure
cc: Dianne R. Nielson, Director
Harold Balthrop, Associate Director
Ronald J. Firth, Chief Engineer

STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Dr. G. A. (Jim) Shirazi, Division Director

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

February 7, 1984

Davis Oil Company
410 17th St. Suite 1400
Denver CO 80202

RE: Well No. Logan Federal #2-A
API #43-043-30223
2567' FSL, 2297' FEL
Sec. 26, T. 3N, R. 7E.
Summit County, Utah

Gentlemen:

Thank you for your "Well Completion" Form 9-330 dated November 2, 1983.

It has been noted that according to this "Well Completion" a Directional Survey was not made.

We have enclosed a copy of the Approval to Drill letter on this well. It was stipulated that "directional drilling survey data shall be submitted at time of well completion."

It has been three months since this well was completed, we are therefore, requesting that this information be forwarded to our office within fifteen (15) days.

Your prompt attention will be appreciated.

Repectfully

Claudia Jones

Claudia Jones
Well Records Specialist

CJ/cj
Enclosure
cc: Dianne R. Nielson, Director
Harold Balthrop, Associate Director
Ronald J. Firth, Chief Engineer

FEB 09 1984

DAVIS OIL COMPANY
410 — 17TH STREET, SUITE 1400
DENVER, COLORADO 80202-4472
TELEPHONE: 303-623-1000

NEW ORLEANS
HOUSTON
TULSA

RECEIVED
FEB 14 1984
DIVISION OF
OIL, GAS & MINING

February 9, 1984

State of Utah
Natural Resources
Oil, Gas & Mining
4241 State Office Building
Salt Lake City, UT 84114

Attention: Claudia Jones
Well Records Specialist

File: REB-65-WF
Re: Directional Survey
Logan Federal #2-A
Sec. 26, T3N, R7E
Summit County, Utah

Dear Ms. Jones:

As per your attached letter dated February 7, 1984, please find enclosed the requested Directional Surveys on the above captioned well.

If I can be of further assistance, please advise.

Sincerely,

DAVIS OIL COMPANY

Robert Blaylock
Rocky Mountain Division Manager

/sb
Enclosure

Certified Receipt #P 225 817 990

Form 3160-5
(November 1983)
(Formerly 9-331)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☐ GAS WELL ☐ OTHER

2. NAME OF OPERATOR: Davis Oil Company

3. ADDRESS OF OPERATOR: 410 17th. St., Suite 1400 Denver, Colorado

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 2297' FEL & 2567' FSL Sec. 26 T3N R7E

RECEIVED FEB 20 1984 DIVISION OF OIL, GAS & MINING

5. LEASE DESIGNATION AND SERIAL NO.: U-47812

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: -------

7. UNIT AGREEMENT NAME: -------

8. FARM OR LEASE NAME: Logan Federal

9. WELL NO.: #2-A

10. FIELD AND POOL, OR WILDCAT: Development

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 26, T3N R7E

12. COUNTY OR PARISH: Summit

13. STATE: Utah

14. PERMIT NO.: 43-043-30223

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 7494'GL 7520'KB

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF		PULL OR ALTER CASING		WATER SHUT-OFF		REPAIRING WELL	
FRACTURE TREAT		MULTIPLE COMPLETE		FRACTURE TREATMENT		ALTERING CASING	
SHOOT OR ACIDIZE		ABANDON*		SHOOTING OR ACIDIZING		ABANDONMENT*	
REPAIR WELL	X	CHANGE PLANS		(Other)			
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. 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.)*

This is to confirm verbal approval obtained from Bill Martins (BLM Salt Lake City) on 2/17/84 to move in a workover rig on 2/20/84 and begin the following work to shut off water production channeling from below.

Nugget Perfs: 13,133-13,183' (gross)

1. MIRUSU
2. Mill & retrieve packer.
3. Squeeze cement current perfs (13,133'-13,183') gross.
4. Drill out, perf & squeeze at water zone ± 13,259'.
5. Drill out, check for isolation by perforating 13,172'-13,176' and testing.
6. Depending on test results, it is anticipated that the upper Nugget will be tested.
7. RDMOSU

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

SIGNED REB TITLE Rocky Mountain Division Manager DATE 2/17/84

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

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
(November 1983)
(Formerly 9-331)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 1004-0135
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL [X] GAS WELL [ ] OTHER

2. NAME OF OPERATOR: Davis Oil Company

3. ADDRESS OF OPERATOR: 410 17th St. Suite 1400 Denver, CO 80202

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface

SENE Sec. 26 T3N R7E Logan Federal #1
NWSE Sec. 26 T3N R7E Logan Federal #2-A

5. LEASE DESIGNATION AND SERIAL NO.: U-47812

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: -------

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: Logan Federal

9. WELL NO.: 1 & 2-A

10. FIELD AND POOL, OR WILDCAT: North Pineview

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 26 T3N R7E

12. COUNTY OR PARISH: Summit

13. STATE: Utah

14. PERMIT NO.: #1- 43-043-330816
~~#2-A - 43-043-30223~~

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 7498 GL, 7514 KB
~~7494 GL, 7520 KB~~

16. **Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data**

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other)			[ ]
(Other)		VRU Installation	[ ]	(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. 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.)*

Davis Oil Company here by requests approval for site disturbance to install a Vapor Recovery Unit on the Logan Federal #1 Location. The Logan #2-A and the Logan Federal #1 will be utilizing the VRU since both wells are produced through a common battery on the #1 Location. Estimated date of initial construction is 6/4/84. We anticipate that the installation will be complete by July 4, 1984. Attached is a plot plan showing the placement of the LNG Storage tanks, compressor building, and associated lines. Estimated recovery will be 55 MCFD and 29 BBL Natural Gas Liquids per million cubic feet of inlet gas. Capital Expenditure for this project will exceed $360,000.

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

SIGNED REB TITLE Rocky Mountain Division Manager DATE 5/21/84

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

***See Instructions on Reverse Side**

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 OGC-1b

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

SUBMIT IN TRIPLICATE
(Other instructions on reverse side)

3 10

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

5. LEASE DESIGNATION AND SERIAL NO.: 71-047812

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

1. OIL WELL ☒ GAS WELL ☐ OTHER

7. UNIT AGREEMENT NAME:

2. NAME OF OPERATOR: APACHE CORPORATION

8. FARM OR LEASE NAME: LOGAN FED #2-A

3. ADDRESS OF OPERATOR: 1700 LINCOLN STREET, SUITE 4900, DENVER, COLORADO 80203

9. WELL NO.:

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: NW SE SEC. 26 T3N R7E

10. FIELD AND POOL, OR WILDCAT: PINEVIEW N

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA:

14. PERMIT NO.: 43-043-30223

15. ELEVATIONS (Show whether DF, RT, GR, etc.):

12. COUNTY OR PARISH: SUMMIT

13. STATE: UTAH

16. **Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data**

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			☐
(Other)			☐	(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. 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.)*

PROPERTY WAS ACQUIRED BY:

APACHE CORPORATION
1700 LINCOLN, SUITE 4900
DENVER, COLORADO 80203

FROM: DAVIS OIL COMPANY

Apache SIGNED Diane Olson TITLE Mgr. - Compliance & Control DATE 5/23/85

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

Davis SIGNED Pamela Hazlitt TITLE Production Services Mgr. DATE 5/23/85

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form OGC-1b

SUBMIT IN TRIPLICATE
(Other instructions on reverse side)

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

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

RECEIVED
OCT 24 1985
DIVISION OF OIL GAS & MINING

5. LEASE DESIGNATION AND SERIAL NO.	U-47812
6. IF INDIAN, ALLOTTEE OR TRIBE NAME	---
7. UNIT AGREEMENT NAME	----
8. FARM OR LEASE NAME	Logan Federal
9. WELL NO.	#2
10. FIELD AND POOL, OR WILDCAT	Undetermined
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA	Section 26-T3N-R7E
12. COUNTY OR PARISH	Summit
13. STATE	Utah

1. OIL WELL [X] GAS WELL [ ] OTHER

2. NAME OF OPERATOR: DAVIS OIL COMPANY

3. ADDRESS OF OPERATOR: 410 - 17th St., Suite 1400, Denver, CO 80202

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface: NWSE 26-T3N-R7E; 2297' FEL 2567' FSL

14. PERMIT NO.: 43-043-30223

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 7494' GL 7520' KB

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other)			[ ]
(Other)			[X]	(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. 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.)*

DAVIS OIL COMPANY has sold its working interest in the #2 Logan Federal to:

APC Operating Partnership
One United Bank Center, Suite 4900
1700 Lincoln St.
Denver, CO 80203-4549

Tele (303) 831-6500

APC Operating Partnership began operating the #2 Logan Federal on June 1, 1985

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

SIGNED [signature] TITLE Chief Engineer DATE 10/17/85

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form OGCC-1 b

STATE OF UTAH

OIL & GAS CONSERVATION COMMISSION

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☐ GAS WELL ☒ OTHER

2. NAME OF OPERATOR: Apache Corporation

3. ADDRESS OF OPERATOR: 1700 Lincoln, Ste. 1900, Denver, CO 80203-4519

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 2297' FEL, 2567' FSL

5. LEASE DESIGNATION AND SERIAL NO.: U-47812

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A

7. UNIT AGREEMENT NAME: N/A

8. FARM OR LEASE NAME: Logan Federal

9. WELL NO.: #2A

10. FIELD AND POOL, OR WILDCAT:

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 26-T3N-R7E

14. PERMIT NO.: 43-043-30223

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 7494' GR

12. COUNTY OR PARISH: Summit

13. STATE: Utah

16. **Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data**

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			☐
(Other)			☐	(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. 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.)*

The above captioned well has been shut-in more than 30 consecutive days due to lack of gas market.

OIL AND GAS

DRN	
JRB	GLH
DTS	SLS
1-TAS	
2- MICROFILM	
3- FILE	

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

SIGNED Carolyn D. Hepp TITLE Engineering Technician DATE 1/3/90

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Forcenergy

FORCENERGY GAS EXPLORATION, INC.

2730 SW 3RD AVENUE -- SUITE 800
MIAMI, FLORIDA 33129-2237
(305) 856-8500 -- 856-4300 FAX

FAX COVER SHEET

DATE:

TO: Lisha Romero

FROM: Julio Leon

PAGES TO FOLLOW: 2

MESSAGE:

FAX (801) 359-3940

AS PER REQUEST

* Logan Fed. 2-A
43-043-30223

K:\ACCT\DIANE\FORCE\FORMS\FAX 10/12/92

BUREAU OF LAND MANAGEMENT

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.: UTU-47812
6. If Indian, Allottee or Tribe Name:
7. If Unit or CA, Agreement Designation:
8. Well Name and No.: Logan Federal #2-A
9. API Well No.: 43-043-30223
10. Field and Pool, or Exploratory Area: Pineview, North
11. County or Parish, State: Summit, Utah

1. Type of Well: [X] Oil Well [X] Gas Well [ ] Other
2. Name of Operator: Forcenergy Gas Exploration, Inc.
3. Address and Telephone No.: 2730 SW 3rd Avenue, #800, Miami, Florida 33129 (305) 856-8500
4. Location of Well (Footage, Sec., T., R., M., or Survey Description): At surface: 2297' FEL, 2567' FSL; At total depth: 1855' FEL, 2024' FSL; NW 1/4 SE 1/4 Section 26-T3N, R7E

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
[X] 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
	[X] Other Change of Operator	[ ] 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.)*

Please be advised, effective September 3, 1992, Forcenergy Gas Exploration, Inc. is considered to be Operator of the captioned well. Forcenergy Gas Exploration, Inc. will be responsible for its operations conducted under the terms of Lease UTU-47812.

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

Signed: Title: Stig Wennerstrom, President, Forcenergy Gas Exploration, Inc. Date: 9/2/92

(This space for Federal or State office use)

Approved by: Title: Date:
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.

*See Instruction on Reverse Side

DISAPPROVED. THE REASONS ARE SPECIFIED ON THE BACK OF THIS PAGE

Transferor: Oper. No. Bond No. Transferee: Oper. No. Bond No.

600 EAST BOULEVARD

UTAH NATURAL RESOURCES
Oil, Gas & Mining
55 West North Temple, 3 Triad Center, Suite 350, Salt Lake City, Ut 4180-1203. ● (801-538-5340)

DOGM 56-64-2
an equal opportunity employe

NOV 1992 RECEIVED ROCKY MTN REGION

MONTHLY OIL AND GAS PRODUCTION REPORT

RECEIVED
NOV 30 1992
DIVISION OF OIL GAS & MINING

Operator name and address:

• JOANN SMITH
APC OPERATING PARTNERSHIP
1700 LINCOLN STE 2000
DENVER CO 80203-4520

Utah Account No. N7180

Report Period (Month/Year) 10 / 92

Amended Report ☐

Well Name API Number	Entity	Location	Producing Zone	Days Oper	Production Volume Oil (BBL)	Gas (MSCF)	Water (BBL)
LOGAN FED #1 4304330186	02775	03N 07E 26	NGSD	—	U-47812		
LOGAN FED #2-A 4304330223	02775	03N 07E 26	NGSD	—	U-47812		
TOTAL							

N7180 - Sent blank ~~bec~~ turnaround for 10-92 AFC

LISHA 12-1-92

#921203 APC - Sending Sundries ASAP. Also referred to Bhm.
#921207 Forcenergy - Sundries Req.

VICKY

Comments (attach separate sheet if necessary)

THESE WELLS HAVE BEEN SOLD TO: Forcenergy Center
2730 SW 3rd Ave, #500
Miami, Florida 33129-2237
Attn: Julio Leon

#921215 Faxing "Forcenergy" (305) 856-8500

I have reviewed this report and certify the information to be accurate and complete. Date 11-25-92

Authorized signature

Telephone (303) 837-5438

PLEASE COMPLETE FORMS IN BLACK INK

Division of Oil, Gas and Mining
PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:
[ ] Well File Logan Fed. 2-A
(Location) Sec___ Twp___ Rng___
(API No.) 43-043-30223

[ ] Suspense
(Return Date) _____
(To - Initials) _____

[X] Other
Operator change

1. Date of Phone Call: 7-8-93 Time: 10:30

2. DOGM Employee (name) L. Cordova (Initiated Call [X])
Talked to:
Name Teresa (Initiated Call [ ]) - Phone No. (801) 539-4047
of (Company/Organization) BLM/S.L.

3. Topic of Conversation: U-47812 "Logan 1 & Logan 2-A" wells.

4. Highlights of Conversation:
Operator still Apache "APC". They have not received info. from Forcenergy Gas (self certification & bond req.). Forcenergy Gas has requested permission to PA, has not been approved.

JoAnn - APC Operating (303) 837-5438 notified.

* 930727 BLM/S.L. Approvals found - were misplaced. Approved 7-21-93 eff. 10-30-92. * Copies being mailed. (Rec'd 7-28-93)

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

5. Lease Designation and Serial No.
UTU-47812

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

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

1. Type of Well
[X] Oil Well [X] Gas Well [ ] Other

8. Well Name and No.
Logan Federal #2-A

2. Name of Operator
Forcenergy Gas Exploration, Inc.

9. API Well No.
43-043-30223

3. Address and Telephone No.
2730 SW 3rd Avenue, #800, Miami, Florida 33129 (305) 856-8500

10. Field and Pool, or Exploratory Area
Pineview, North

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
At surface: 2297' FEL, 2567' FSL
At total depth: 1855' FEL, 2024' FSL
NW 1/4 SE 1/4 Section 26-T3N, R7E

11. County or Parish, State
Summit, Utah

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
[X] 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
	[X] Other Change of Operator	[ ] 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.)*

Please be advised, effective September 3, 1992, Forcenergy Gas Exploration, Inc. is considered to be Operator of the captioned well. Forcenergy Gas Exploration, Inc. will be responsible for its operations conducted under the terms of Lease UTU-47812.

RECEIVED
JUL 28 1993
DIVISION OF
OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct
Signed [signature] Title Stig Wennerstrom, President Forcenergy Gas Exploration, Inc. Date 9/2/92

(This space for Federal or State office use)
Approved by [signature] Title Acting DM Date 7/21/93
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.

*See Instruction on Reverse Side

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Salt Lake District Office
2370 South 2300 West
Salt Lake City, Utah 84119

TAKE PRIDE IN AMERICA

IN REPLY REFER TO

3160
O&G 1005
O&G 2005
U-47812
(U-026)

RECEIVED
JUL 28 1993
DIVISION OF
OIL, GAS & MINING

JUL 21 1993

Stig Wennerstrom
Forcenergy Gas Exploration, Inc.
2730 SW 3rd Avenue, #800
Miami, Florida 33129

Dear Mr. Wennerstrom:

Enclosed are your copies of the approved Sundry Notices for a "Change of Operator" effective October 30, 1992 for Logan Federal #1, T3N, R7E, Sec. 26 SENE and Logan Federal #2-A, T3N, R7E, Sec. 26 NWSE wells Summit County, Utah. Our review of these notices found them to be administratively and technically adequate. Therefore, approval is granted.

If you have any questions concerning this matter, please feel free to contact Dan Washington of my staff at (801) 977-4300.

Sincerely,

Acting For Deane H. Zeller
District Manager

Enclosure
Sundry Notice (2)

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

Routing:

1- LCR	7- LCR
2- DTS	
3- VLC	
4- RJF	
5- PL	
6- SJ	

Attach all documentation received by the division regarding this change.
Initial each listed item when completed. Write N/A if item is not applicable.

☒ Change of Operator (well sold) ☐ Designation of Agent
☐ Designation of Operator ☐ Operator Name Change Only

The operator of the well(s) listed below has changed (EFFECTIVE DATE: 9-03-92)

TO (new operator) FORCENERGY GAS EXPLOR INC
(address) 2730 S W 3RD AVE #800
MIAMI, FL 33129
phone (305) 856-8500
account no. N 3175

FROM (former operator) APC OPERATING PARTNERSHIP
(address) 1700 LINCOLN STE 2000
DENVER, CO 80203-4520
phone (303) 837-5438
account no. N 7180

Well(s) (attach additional page if needed):

Name	API	Entity	Sec	Twp	Rng	Lease Type
LOGAN FED 1/NGSD	43-043-30186	2775	26	3N	7E	U-47812
LOGAN FED 2-A/NGSD	43-043-30223	2775	26	3N	7E	U-47812

OPERATOR CHANGE DOCUMENTATION

N/A 1. (Rule R615-8-10) Sundry or other legal documentation has been received from former operator (Attach to this form). (Reg. 12-3-92) (Reg. 1-4-93) (Reg. 2-2-93) (Reg. 4-5-93) (Reg. 7-8-93)

Ltr 2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form). (Rec'd 12-15-92)

N/A 3. The Department of Commerce has been contacted if the new operator above is not currently operating any wells in Utah. Is company registered with the state? (yes/no) _____ If yes, show company file number: _____.

Lec 4. (For Indian and Federal Wells ONLY) The BLM has been contacted regarding this change (attach Telephone Documentation Form to this report). Make note of BLM status in comments section of this form. Management review of Federal and Indian well operator changes should take place prior to completion of steps 5 through 9 below.

Lec 5. Changes have been entered in the Oil and Gas Information System (Wang/IBM) for each well listed above. (7-28-93)

Lec 6. Cardex file has been updated for each well listed above. (7-28-93)

Lec 7. Well file labels have been updated for each well listed above. (7-28-93)

Lec 8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to State Lands and the Tax Commission. (7-28-93)

Lec 9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

– OVER –

ERATOR CHANGE WORKSHEET (CONTINUED) Initial each item when completed. Write N/A if item is not applicable.

ITITY REVIEW

1. (Rule R615-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes/no) ____ (If entity assignments were changed, attach copies of Form 6, Entity Action Form).

N/A 2. State Lands and the Tax Commission have been notified through normal procedures of entity changes.

)ND VERIFICATION (Fee wells only)

N/A 1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.

N/A 2. A copy of this form has been placed in the new and former operators' bond files.

N/A 3. The former operator has requested a release of liability from their bond (yes/no) ___. Today's date _____ 19___. If yes, division response was made by letter dated _____ 19___.

EASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

N/A 1. (Rule R615-2-10) The former operator/lessee of any fee lease well listed above has been notified by letter dated _____ 19___, of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested.

N/A 2. Copies of documents have been sent to State Lands for changes involving State leases.

ILMING

1. All attachments to this form have been microfilmed. Date: _____ 19____.

ILING

1. Copies of all attachments to this form have been filed in each well file.

2. The original of this form and the original attachments have been filed in the Operator Change file.

OMMENTS

930728 Unable to get doc. from APC Operating. (see Bhm approvals)

E71/34-35

RICHARDSON OPERATING COMPANY

309 West First Avenue P.O. Box 9808
Denver, Colorado 80209 (303) 698-9000
FAX (303) 777-0607

RECEIVED
JUL 29 1993
DIVISION OF
OIL, GAS & MINING

July 27, 1993

Department of Natural Resources
Division of Oil, Gas & Mining
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

Re: Transmittal of Sundry Notices
Change of Operator

Gentlemen:

Enclosed are two Sundry Notices, in duplicate, covering notice of change of operator to Richardson Operating Company, on the following wells:

Logan Federal #1
Township 3 North, Range 7 East
Section 26: SE/4NE/4
Summit County, UT

Logan Federal #2A
Township 3 North, Range 7 East
Section 26: NW/4SE/4
Summit County, UT

The Bureau of Land Management is holding our surety lease bond.

Please let me know if you need anything further in this regard.

Sincerely,

RICHARDSON OPERATING COMPANY

Cathleen Colby

Cathleen Colby
Landman

Form 9

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

6. Lease Designation and Serial Number: UTU-47812

7. Indian Allottee or Tribe Name: ---

8. Unit or Communitization Agreement: ---

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— for such proposals.

1. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other (specify)

9. Well Name and Number: Logan Federal #2A

2. Name of Operator: Richardson Operating Company

10. API Well Number: 43-043-30223

3. Address of Operator: P.O. Box 9808, Denver, CO 80209

4. Telephone Number: (303) 698-9000

11. Field and Pool, or Wildcat: North Pineview

5. Location of Well
Footage : 2297' FEL, 2567' FSL
QQ, Sec, T., R., M. : NW/4SE/4-Section 26-T3N-R7E
County : Summit
State : UTAH

12. 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
- ☐ New Construction
- ☐ Pull or Alter Casing
- ☐ Recompletion
- ☐ Shoot or Acidize
- ☐ Vent or Flare
- ☐ Water Shut-Off
- ☒ Other Transfer of operations

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 _____

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.

13. 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.)

Notice of change of operator. 52.5
Effective August 1, 1993, ~~seventy five~~ percent of the working interest elected Richardson Operating Company as operator of the above well. Richardson Operating Company is providing bond coverage under BLM Lease Bond, Surety Bond Number 123972095.

RECEIVED
JUL 29 1993
DIVISION OF
OIL, GAS & MINING

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

Name & Signature: RICHARDSON OPERATING COMPANY David B. Richardson — David B. Richardson Title: President Date: 7-26-93

(State Use Only)

(8/90) See Instructions on Reverse Side

RECEIVED
JUL 30 1993
BUREAU OF LAND MANAGEMENT
2370 SOUTH 2300 WEST
SALT LAKE CITY, UTAH 84119

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

5. Lease Designation and Serial No.
UTU 47812

6. If Indian, Allottee or Tribe Name
---

7. If Unit or CA, Agreement Designation

SUBMIT IN TRIPLICATE

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.
Logan Federal #2A

2. Name of Operator
Richardson Operating Company

9. API Well No.
43-043-30223

3. Address and Telephone No.
P.O. Box 9808, Denver, CO 80209 (303) 698-9000

10. Field and Pool, or Exploratory Area
North Pineview

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
2297' FEL, 2567' FSL
NW/4SE/4-Section 26-T3N-R7E

11. County or Parish, State
~~Summit County, 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 Transfer of operations	☐ 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.)*

Notice of change of operator. fifty-two point five
Effective August 1, 1993, ~~seventy-five~~ percent of the working interest elected Richardson Operating Company as operator of the above well. Richardson Operating Company does hereby certify that it is responsible under the terms and conditions of the lease to conduct lease operations. Bond coverage pursuant to 43 CFR 3104 for lease activities is being provided by Richardson Operating Company under BLM bond number UT0954

Post-It™ brand fax transmittal memo 7671 | # of pages ▸ 2

To Lisha Cordova	From Cathy Colby
Co.	Co.
Dept.	Phone #
Fax # (801) 359-3940	Fax #

14. I hereby certify that the foregoing is true and correct
RICHARDSON OPERATING COMPANY
Signed Aurel B. Arnold Title President Date July 23, 1993

(This space for Federal or State office use)
Approved by Deane H. Zeller Title District Manager Date Aug. 9, 1993
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.

*See Instruction on Reverse Side

STATE OF UTAH

UTU - 47812

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— for such proposals

7. Unit Agreement Name

8. Unit or Communitization Agreement

1. Type of Well: [X] Oil Well [ ] Gas Well [ ] Other (specify)

9. Well Name and Number: LOGAN FEDERAL #2A

2. Name of Operator: RICHARDSON OPERATING COMPANY

10. API Well Number: 43-043-30223

3. Address of Operator: 1700 LINCOLN, #1700, DENVER, COLORADO 80203

4. Telephone Number: (303) 830-8000

11. Field and Pool, or Wildcat: PINEVIEW, NORTH

5. Location of Well
Footage : 1658' FNL, 690' FEL
QQ, Sec, T., R., M. : SE/4 NE/4 SEC 26 T3N-R7E
County : SUMMIT
State : UTAH UT

12. 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
- [ ] New Construction
- [ ] Pull or Alter Casing
- [ ] Recompletion
- [ ] Shoot or Acidize
- [ ] Vent or Flare
- [ ] Water Shut-Off
- [X] Other Change of Operator

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 _____

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.

13. 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.)

Be advised, effective August 1, 1993, Richardson Operating Company took over operations of the above subject well from Forcenergy Gas Exploration, Inc.

RECEIVED
OCT 18 1993
DIVISION OF
OIL, GAS & MINING

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

Name & Signature: FORCENERGY GAS EXPLORATION, INC. Title: PRESIDENT Date: 10/8-93

(State Use Only) STIG WENNERSTROM

Forcenergy

Gas Exploration, Inc.

October 14, 1993

RECEIVED
OCT 18 1993
DIVISION OF
OIL, GAS & MINING

State of Utah
Department of Natural Resources
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

Attention: Lisha Cordova

RE: Logan Federal #1 & #2A
N. Pineview Field, Utah

Dear Ms. Cordova:

As per your request in your September 29, 1993 fax, enclosed please find three original sundry notices for each of the referenced wells.

This submittal is for the purpose of changing operator effective August 1, 1993 to Richardson Operating Company.

Should you require any additional information, please advise.

Sincerely,

FORCENERGY GAS EXPLORATION, INC.

M. J. Baiamonte
Land Manager

D184/MJB/yc

HEADQUARTERS
Forcenergy Center
2730 SW 3rd Avenue
Suite 800
Miami, Florida 33129-2237

TELEPHONE
305/856-8500
FAX
305/856-4300

REGIONAL OFFICE
Lakeway Three
3838 North Causeway Boulevard
Suite 2060
Metairie, Louisiana 70002

TELEPHONE
504/838-7022
FAX
504/838-7017

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

Routing:
1-LEC 7-SJ
2-DTS 8-FILE
3-VLC
4-RJF
5-LEC
6-PL

Attach all documentation received by the division regarding this change.
Initial each listed item when completed. Write N/A if item is not applicable.

XXX Change of Operator (well sold) ☐ Designation of Agent
☐ Designation of Operator ☐ Operator Name Change Only

The operator of the well(s) listed below has changed (EFFECTIVE DATE: 8-01-93)

TO (new operator) RICHARDSON OPERATING CO
(address) PO BOX 9808
DENVER, CO 80209
DAVID RICHARDSON, PRES.
phone (303) 698-9000
account no. N 2400

FROM (former operator) FORCENERGY GAS EXPLOR INC
(address) 2730 S W 3RD AVE #800
MIAMI, FL 33129
phone (305) 856-8500
account no. N 3175

Well(s) (attach additional page if needed):

Name	API	Entity	Sec	Twp	Rng	Lease Type
LOGAN FED 1/NGSD	43-043-30186	2775	26	3N	7E	U-47812
LOGAN FED 2-A/NGSD X	43-043-30223	2775	26	3N	7E	U-47812

OPERATOR CHANGE DOCUMENTATION

x 1. (Rule R615-8-10) Sundry or other legal documentation has been received from former operator (Attach to this form). (Reg. 7-29-93) (Reg. 8-26-93) (Reg. 9-29-93) (Rec'd 10-18-93)

Lec 2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form). (Rec'd 7-29-93)

N/A 3. The Department of Commerce has been contacted if the new operator above is not currently operating any wells in Utah. Is company registered with the state? (yes/no) _____ If yes, show company file number: _____.

Lec 4. **(For Indian and Federal Wells ONLY)** The BLM has been contacted regarding this change (attach Telephone Documentation Form to this report). Make note of BLM status in comments section of this form. Management review of **Federal and Indian** well operator changes should take place prior to completion of steps 5 through 9 below.

Lec 5. Changes have been entered in the Oil and Gas Information System (Wang/IBM) for each well listed above. (9-29-93)

Lec 6. Cardex file has been updated for each well listed above. (9-29-93)

Lec 7. Well file labels have been updated for each well listed above. (9-29-93)

Lec 8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to State Lands and the Tax Commission. (9-29-93)

Lec 9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

OPERATOR CHANGE WORKSHEET (CONTINUED) Initial each item when completed. Write N/A if item is not applicable.

ENTITY REVIEW

Lec 1. (Rule R615-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes/no) ____ (If entity assignments were changed, attach copies of Form 6, Entity Action Form).

N/A 2. State Lands and the Tax Commission have been notified through normal procedures of entity changes.

BOND VERIFICATION (Fee wells only)

N/A 1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.

N/A 2. A copy of this form has been placed in the new and former operators' bond files.

N/A Lec 3. The former operator has requested a release of liability from their bond (yes/no) ___. Today's date _____ 19___. If yes, division response was made by letter dated _____ 19___.

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

N/A 1. (Rule R615-2-10) The former operator/lessee of any **fee lease** well listed above has been notified by letter dated _____ 19___, of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested.

DTS 10/20/93

N/A 2. Copies of documents have been sent to State Lands for changes involving **State leases**.

FILMING

✓ 1. All attachments to this form have been microfilmed. Date: 10-21 1993.

FILING

Lec 1. Copies of all attachments to this form have been filed in each well file.

Lec 2. The original of this form and the original attachments have been filed in the Operator Change file.

COMMENTS

930929 BLM/SL Approved 8-9-93. (Unable to get doc. fr. Forcenergy)

931019 Rec'd doc. from Forcenergy.

IE71/34-35

RICHARDSON OPERATING COMPANY

1700 Lincoln, Suite 1700
Denver, Colorado 80203 (303) 830-8000
FAX (303) 830-8009

Owners
One-half Mile Radius Around
Logan Federal #2A
NW SE Section 26, T3N, R7E
Summit County, Utah

RE: Application for Salt Water Diosposal
Logan Federal #2A
NW SE Section 26, T3N, R7E
Summit County, Utah

March 31, 1994

Gentlemen:

On this date, Richardson Operating Company, as operator of the subject well, has filed application with the Utah Board of Oil, Gas and Mining to convert the Logan Federal #2A to water disposal.

Prusuant to the rules and regulations of the Utah Board, Richardson Operating Company is required to notify all owners within one-half mile of the Logan Federal #2 of our intent to convert the Logan Federal #2 to water disposal.

Any objection to the project should be made as soon as possible to:

Mr. Gil Hunt
Utah Division of Oil, Gas, and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

with a carbon copy sent to Richardson Operating Company.

If you have any questions regarding the application, please call.

Sincerely,

SM Smith

STEPHAN R SMITH - PE
Manager, Production and Engineering

September 27, 1993

To: Steve Smith

From: Cathy Colby

Re: North Pineview Prospect
Logan Federal #2A
Summit County, Utah

The following is a list of mineral, surface, leasehold, royalty, override and production payment owners within a half mile of the captioned well. Specific ownership is shown on the attached plat.

USA - royalty under federal lease

Thousand Peaks Ranch, Inc. (Mr. Lorin Moench)
Moench Investments
255 West 800 South
Salt Lake City, Utah 84101

Welby Aagard
2777 Wilshire Drive
Salt Lake City, UT 84109

Rocky Mountain Conference of United Church of Christ, Inc.
Methodist Church (50% co-owner)
2200 South University Blvd.
Denver, CO 80210

Fay T. and Donna W. Dearden
Box 691
Park City, Utah 84060

their attorney: Michael Gottfredson
68 South Main
Salt Lake City, UT 84101

B. A. Bingham & Sons
Earl Bingham
8005 North 3600 West
Honeyville, UT 84314

Haynes Land and Livestock Company
2245 Parleys Terrace
Salt Lake City, Utah 84109

Floyd David Williams
4479 Fortuna Way
Salt Lake City, UT 84117

Union Pacific Resources Company
P. O. Box 7, MS 3802
Fort Worth, Texas 76101-0007

Forcenergy Gas Exploration, Inc.
2730 SW 3rd Avenue, Suite 800
Miami, Florida 33129

Paul Messinger & Company
410 17th Street, Suite 1610
Denver, CO 80202

Edward E. Lafaye
1512 Larimer #25
Denver, CO 80202

Lynn S. Belcher
Peak Energy Company
475 17th Street, Suite 960
Denver, CO 80202-4019

Donald L. Rasmussen
RMGD
410 17th Street, Suite 1610
Denver, CO 80202

F. R. Lausen
c/o Davis Oil Company
1100 Poydras Street, Suite 1050
Energy Center
New Orleans, LA 70163

Samuel Logan, Jr. and Lizabeth D. Logan
Individually and as Trustees, The Storehouse Foundation
Cargan Resources
P.O. Box 1078
Camden, SC 29020

Mr. Robert H. Biehl
Trustee of the Logan Childrens' Trust
Nations Bank of Texas
7500 San Felipe, Suite 200
Houston, Texas 77063

Robert N. Patrick
P. O. Box 547
Wilson, Wyoming 83014

Peter U. Schlegel
Pelican Oil & Gas Inc.
2515 Poydras Center
650 Poydras Street
New Orleans, LA 70130

STATE OF UTAH
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

INJECTION WELL - PRESSURE TEST

Test Date: 9/8/97 Well Owner/Operator: JN Exploration

Disposal Well: X Enhanced Recovery Well: _____ Other: _____

API No.: 43-043 30223 Well Name/Number: Logan Federal 2-A

Section: 26 Township: 3N Range: 7E

Initial Conditions:

Tubing - Rate: _____ Pressure: 800 psi

Casing/Tubing Annulus - Pressure: 0 psi

Conditions During Test:

Time (Minutes)	Annulus Pressure	Tubing Pressure
0	0	600
5	1000	600
10	1000	600
15	1000	600
20		
25		
30		

Results: (Pass)/Fail

Conditions After Test:

Tubing Pressure: 600 psi

Casing/Tubing Annulus Pressure: 0 psi

REMARKS: Passed MIT

Operator Representative

DOGM Witness

RICHARDSON OPERATING COMPANY

1700 Lincoln, Suite 1700
Denver, Colorado 80203 (303) 830-8000
FAX (303) 830-8009

RECEIVED
APR 4 1994
DIV. OF OIL, GAS & MINING

March 31, 1994

Mr. Gil Hunt
Utah Division of Oil, Gas, and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: Application for Salt Water Disposal
Logan Federal #2A
NW SE Section 26, T3N, R7E
Summit County, Utah

Dear Sir:

Attached for your consideration is an application for Underground Injection of Saltwater pursuant to R649-5-2 utilizing the Logan Federal #2A (NW SE Section 26, T3N, R7E) to dispose of produced water from the Logan Federal #1 (SE NE 26-T3N-R7E, Summit County, Utah). A listing of attachments and/or comments follows:

R649-5-2: 2. DOMG-UIC-1 - attached

2.1 A plat showing the location of the injection well, (Logan Federal #2A), all abandoned or active wells within an one-half mile radius of the proposed injection well, and the surface owner and operator of any lands or producing leases within a one-half mile radius of the proposed injection well. - attached.

2.2 Open hole logs for the Logan Federal #2A have been previously filed with DOMG. Apache ran a cement bond log over the Twin Creek interval in 1987. The log is attached, in case Apache did not transmit the CBL to the DOMG previously.

2.5 A well status diagram is attached to show downhole configuration.

2.6 Type of fluid, its source, and estimated amounts:

Produced water comes from the Nugget Sandstone, Logan Federal #1, SE NE 26-T3N-R7E. The Logan Federal #1, in March, 1994 produced 45 bwpd which is being trucked to the Robinson disposal

pit. Water is expected to continue to rise and could reach 1000 bwpd.

2.7 Standard laboratory analysis of water to be injected.

A Nugget water analysis was attached to the May 21, 1986 Sundry Notice filed by Apache Corporation on the Logan Federal #1 regarding disposal of produced water into the Robinson Disposal Pit.

A subsequent Nugget water sample was taken on March 30, 1994. The analysis will be forwarded as soon as it is completed.

In 1987, during a Twin Creek completion attempt in the Logan Federal #2A, formation water was swabbed from the Twin Creek by Apache Corporation. However, the water was not sampled nor analyzed. No other Twin Creek completion attempts have been made within the North Pineview field, therefore there are no water analysis available for the Twin Creek. The DOMG would have Twin Creek water analysis on file from the Pineview Twin Creek and Lodgepole Twin Creek fields.

2.8 Proposed average and maximum injection pressures.

Expected average injection pressure: Less than 500 psi
Maximum injection pressure : 3000 psig surface

2.9 Statement and evidence to indicate injection will not initiate new fractures.

For a fracture gradient of 0.78 psi / ft, fractures would be created at 9984 psi at 12800 feet. Maximum injection pressure at the sand face will be 3000 psi +(12800' x .45 psi/ft) = 8760 psi. therefore fractures will not be generated at the maximum surface injection pressure of 3000 psig.

2.10 Appropriate geological data.

The wellsite geological report compiled by Michael E. Barber, Odgen, Utah is on file with the DOGM. That report describes, in detail, the geology of the Twin Creek formation along with other formations encountered during drilling of the Logan Federal #2A.

2.11 Review of mechanical condition of each well within a one half mile radius of the proposed injection well.

There are three wells within a one-half mile radius of the Logan Federal #2A:

Logan Federal #1 SE NE 26-T3N-R7E - the well was drilled through the Twin Creek and TD'd in the Nugget Sand at 13,492'. The well produces gas, condensate and water from the Nugget at 12804-12826 feet.

Howell Livestock #26-31 NW NE 26-T3N-R7E - the well was drilled through the Twin Creek and TD'd in the Nugget Sand at 14,552'. The Nugget Sand was extensively tested through casing before being plugged and abandoned on 1/15/83.

Protestant Camp #26-44 SE SE 26-T3N-R73 - the well was drilled through the Twin Creek and TD'd in the Nugget Sand at 12,638'. The Nugget Sand was extensively tested through casing before being plugged and abandoned on 12/16/84

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.

A list of all owners described above is attached. Today, March 31, 1994, the undersigned caused to be mailed, by registered mail, a copy of this application to all those on that owner list.

If additional information is required, please do not hesitate to call.

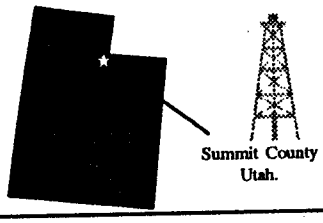
Sincerely,

STEPHAN R SMITH - PE
Manager, Production and Engineering

FILE: G:\wellfile\npnvw\LOGAN2A.PP

Well: Logan Federal #2-A

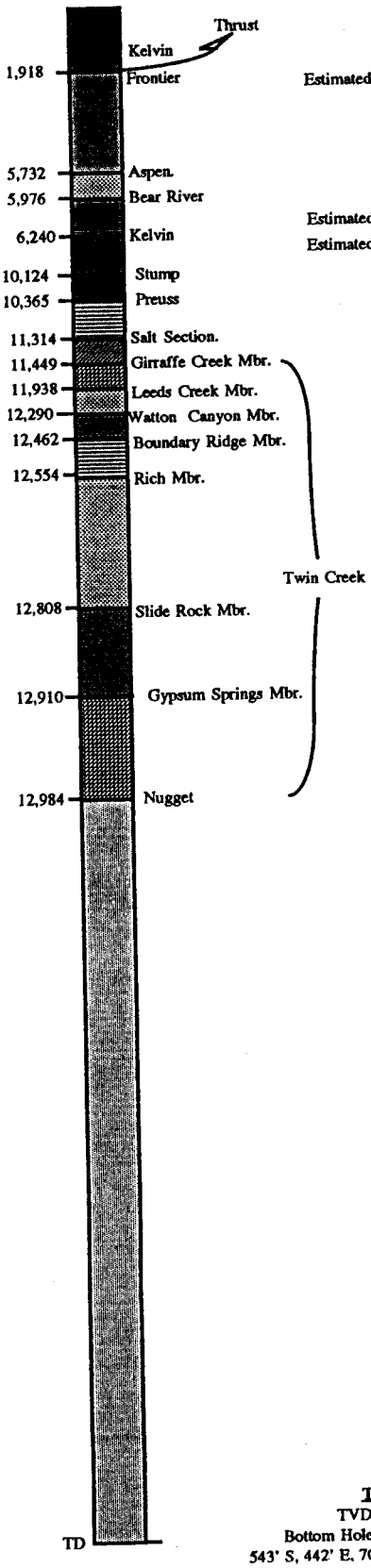
NW SE, Sec 26, T3N, R7E
Summit County, Utah
Surface Location: 2297' FEL, 2567' FSL
Bottomhole Location: 1855' FEL, 2024' FSL
Elevation: GL=7494', KB=7520'



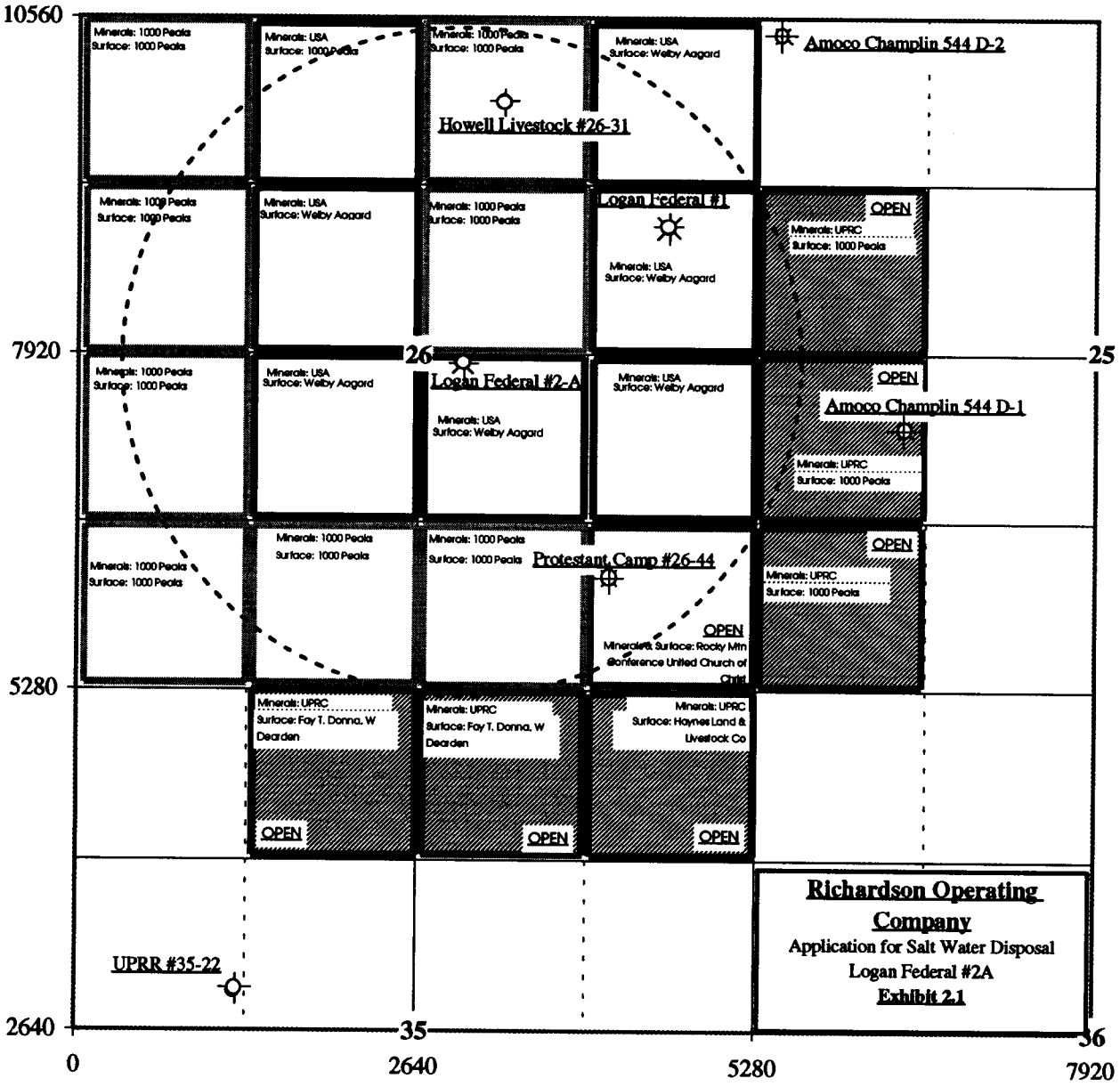
Wellbore Diagram as of 3/94

(Current Completion)

Compiled by: GDV, March 30, 1994



Township 3N, Range 7E, Summit County, Utah



Richardson Operating Company
Application for Salt Water Disposal
Logan Federal #2A
Exhibit 2.1

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR Richardson Operating Company
ADDRESS 1700 Lincoln, Suite 1700
Denver, Colorado 80203

Well name and number: Logan Federal #2A

Field or Unit name: North Pineview Lease no. U-47812

Well location: QQ NWSE section 26 township 3N range 7E county Summit

Is this application for expansion of an existing project? . . Yes [] No [X]

Will the proposed well be used for: Enhanced Recovery? . . Yes [] No []
Disposal? . . . . . Yes [X] No []
Storage? . . . . . Yes [] No []

Is this application for a new well to be drilled? . . . . . Yes [] No [X]

If this application is for an existing well,
has a casing test been performed on the well? . . . . . Yes [X] No []
Date of test: 11/21/87
API number: 43-043-30223

Proposed injection interval: from 12809 to 12833

Proposed maximum injection: rate 1000 bwpd pressure ~~3000 psi~~ psig

Proposed injection zone contains [] oil, [] gas, and/or [] fresh water within ½ mile of the well.

IMPORTANT: Additional information as required by R615-5-2 should accompany this form.

List of Attachments: See cover letter

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

Name Stephan R. Smith Signature S R Smith
Title Manager Production-Engineering Date 3/31/94
Phone No. (303) 830-8000

(State use only)
Application approved by _____ Title _____
Approval Date _____

Comments:

RICHARDSON OPERATING COMPANY

1700 Lincoln, Suite 1700
Denver, Colorado 80203 (303) 830-8000
FAX (303) 830-8009

April 13, 1994

Dan Jarvis
Utah Division of Oil, Gas, and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

APR 14 1994
DIV. OF OIL, GAS & MINING

Re: Application for Salt Water Disposal
Logan Federal #2A
NW SE Section 26-T3N-R7E
Summit County, Utah

Dear Dan:

Attached please find an Affidavit of Certification, certifying mailing of the subject application on March 31, 1994.

Also attached please find a copy of a water analysis taken from the Twin Creek after Apache's attempted completion from 12811-12833'. Forcenergy was able to find this analysis in the files they obtained from Apache.

If you have any questions or need additional information, please call.

Sincerely,

SM Smith

STEPHAN R SMITH - PE

Manager - Production and Enineering
Richardson Operating Company

RICHARDSON OPERATING COMPANY

1700 Lincoln, Suite 1700
Denver, Colorado 80203 (303) 830-8000
FAX (303) 830-8009

AFFIDAVIT OF CERTIFICATION

MAILING OF A COPY OF RICHARDSON OPERATING COMPANY's

APPLICATION FOR SALT WATER DISPOSAL
LOGAN FEDERAL #2A
NW SE SECTION 26, T3N, R73
SUMMIT COUNTY, UTAH

TO ALL OPERATORS, OWNERS, AND SURFACE OWNERS WITHIN A ONE-HALF MILE RADIUS OF THE PROPOSED INJECTION WELL

The undersigned, hereby certifies that, on March 31, 1994, a copy of said application was mailed, certified mail, to all those interest owners contained on the attached ownership list.

4/13/94

STEPHAN R SMITH - PE

Manager - Production and Enineering
Richardson Operating Company
1700 Lincoln, Suite 1700
Denver, Colorado 80203

ACKNOWLEDGEMENT FOR USE BY INDIVIDUAL

County of Denver)
) ss:
State of Colorado)

Before me, the undersigned Notary Public in and for said County and State, appeared Stephan R Smith, to me known to be the identical person named in the within and foregoing instrument, who acknowledged to me that said instrument was executed as his free and voluntary act and deed.

Dated this 13th day of April, 1994.

Peter A. Gowan, Notary Public

My commission expires April 27, 1996.

04-JAN-88

CORE LABORATORIES, INC.
ANALYTICAL REPORT

LAB #: 873226-1

APACHE CORPORATION

WELL #: LOGAN FEDERAL #2A
COUNTY: SUMMIT STATE: UT
FORMATION: TWIN CREEK
DATE SAMPLED:

FIELD:
LOCATION: SEC 26 3N 7E
INTERVAL:
SAMPLE ORIGIN:

REMARKS:

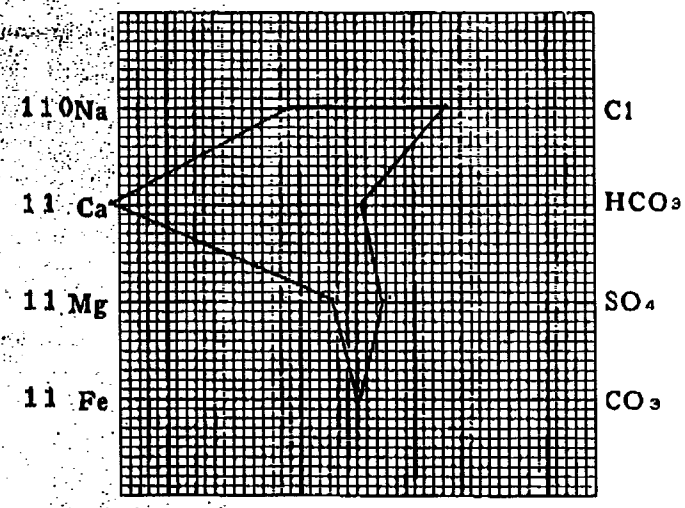
	MG/L	MEQ/L		MG/L	MEQ/L		MG/L
SODIUM	15000	652.50	SULFATE	1400	29.12	CALC. SODIUM	14849
POTASSIUM	2140	54.78	CHLORIDE	35200	992.64	NACL EQUIVALENT	59379
CALCIUM	5800	289.42	CARBONATE	0	0.00	CALC TDS* @356 F	59978
MAGNESIUM	400	32.88	BICARBONATE	76	1.25	API TDS* @221 F	60016
			HYDROXIDE	0	0.00		
TOTAL CATIONS		1029.58	TOTAL ANIONS		1023.01	* TOTAL DISSOLVED SOLIDS	

SPECIFIC RESISTANCE AT 68F (OHM-M):
OBSERVED 0.15
CALCULATED 0.12

OBSERVED pH 5.8

WATER ANALYSIS PATTERN

Scale
MEQ per Unit



(Na value in above graph includes Na and K)

NOTE: Mg/1 = milligrams per liter
Meq/1 = milligram equivalent per liter

Sodium chloride equivalent = by Dunlap & Hawthorne calculation from components

These analyses, opinions or interpretations are based on observations and material supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations, as to the productivity, proper operations, or profitableness of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon.

September 27, 1993

To: Steve Smith

From: Cathy Colby

Re: North Pineview Prospect
Logan Federal #2A
Summit County, Utah

The following is a list of mineral, surface, leasehold, royalty, override and production payment owners within a half mile of the captioned well. Specific ownership is shown on the attached plat.

USA - royalty under federal lease

Thousand Peaks Ranch, Inc. (Mr. Lorin Moench)
Moench Investments
255 West 800 South
Salt Lake City, Utah 84101

Welby Aagard
2777 Wilshire Drive
Salt Lake City, UT 84109

Rocky Mountain Conference of United Church of Christ, Inc.
Methodist Church (50% co-owner)
2200 South University Blvd.
Denver, CO 80210

Fay T. and Donna W. Dearden
Box 691
Park City, Utah 84060

their attorney: Michael Gottfredson
68 South Main
Salt Lake City, UT 84101

B. A. Bingham & Sons
Earl Bingham
8005 North 3600 West
Honeyville, UT 84314

Haynes Land and Livestock Company
2245 Parleys Terrace
Salt Lake City, Utah 84109

Floyd David Williams
4479 Fortuna Way
Salt Lake City, UT 84117

Union Pacific Resources Company
P. O. Box 7, MS 3802
Fort Worth, Texas 76101-0007

Forcenergy Gas Exploration, Inc.
2730 SW 3rd Avenue, Suite 800
Miami, Florida 33129

Paul Messinger & Company
410 17th Street, Suite 1610
Denver, CO 80202

Edward E. Lafaye
1512 Larimer #25
Denver, CO 80202

Lynn S. Belcher
Peak Energy Company
475 17th Street, Suite 960
Denver, CO 80202-4019

Donald L. Rasmussen
RMGD
410 17th Street, Suite 1610
Denver, CO 80202

F. R. Lausen
c/o Davis Oil Company
1100 Poydras Street, Suite 1050
Energy Center
New Orleans, LA 70163

Samuel Logan, Jr. and Lizabeth D. Logan
Individually and as Trustees, The Storehouse Foundation
Cargan Resources
P.O. Box 1078
Camden, SC 29020

Mr. Robert H. Biehl
Trustee of the Logan Childrens' Trust
Nations Bank of Texas
7500 San Felipe, Suite 200
Houston, Texas 77063

Robert N. Patrick
P. O. Box 547
Wilson, Wyoming 83014

Peter U. Schlegel
Pelican Oil & Gas Inc.
2515 Poydras Center
650 Poydras Street
New Orleans, LA 70130

North Pineview Field
Logan Federal #2A
2297' FEL, 2567' FSL
Section 26-3N-7E
Summit County, UT

AFE No: D87-0243-04
AFE Amt: $145,000
WI: 25%

11/17/87 Present Operation: Not reported.
MIRU Service Unit. Set 2 frac tanks. Fill up w/200 bbls lease water. Well dead, ND wellhead. NU BOP. SDFN.
DC: $3,700 CC: $3,700

11/18/87 Present Operation: Not reported.
Road crew to location. PU 7 jts 2 7/8" tbg, tagged PBTD w/7th jt. Reverse circulate 480 bbls filtered lease water. Returns had 1 bbl of floculated mud, 3 BO, remainder clean. Closed pipe rams and TRW valve. Pressure casing to 1100#, took water at 2/3 BPM. Pressure bled to 800# in 5 min. RU to pull tbg. Strap out of hole w/80 stands 2 7/8" tbg. SDON.
DC: $1,650 CC: $5,350

11/19/87 Present Operation: Finish TIH.
Thaw out equipment and POOH w/135 stands of 2 7/8" tbg. Change over to slip type elevators, the last 95 jts due to slim hole couplings. PBTD 13,222' KB (tbg measurement). PU RTTS packer, ball sub and TIH with 118 stands. Rig repair. SI SDON.
DWC: $4,000 CWC: $9,350

11/20/87 Present Operation: Prepare to set CIBP and run CET/CBL log.
TIH w/remaining tbg. Set the RTTS packer at 13,206', load tbg and casing with produced water. Test down tbg to 3500 psig bled to 3000 psig in 10 mins. Released packer. POOH to 12,896' and test casing to 2000 psig, held for 15 minutes with no bled off. Establish injection down the tbg. Rates and pressures as follows:

BPM	PSIG
0.5	500
0.8	1000
1.0	1800
1.25	3100

APACHE DAILY REPORT
COMPLETION OF WELL
INTO THE TWIN CREEK

ISIP 2500 psig, 2 min 1000 psig, 5 min 750 psig, 15 min 400 psig. elease packer. POOH, LD ' ;ker, SI SDON.
DC: $1,86ᴗ CC: $11,215

11/21/87 Present Operation: Not reported.
MIRU Schlumberger. TIH w/gauge ring and junk basket to 12,950'. TOOH. TIH w/Baker Model S CIBP. Correlate and set at 12,940'. Fill hole w/filtered brine water. Pressure tested plug to 2000#, held for 20 min, no leak off. Run CET/CBT log suites, made multiple runs w/pressure from 0# to 3000#.
DC: $15,100 CC: $26,315

11/22/87 Present Operation: Not reported.
Released rig crew. Run computer processing for cement scan log. Log indicates gas cut cement through pay section from 30' above to 12' below. SDON.

11/23/87 Present Operation: RU to perforate Twin Creek.
TIH w/5.79" gauge ring to 12,700'. RD Schlumberger. RU to run tbg. TIH w/tbg to 4200'. RU to swab. Swabbed FL down to 3500'. TOOH w/tbg. SDON.
DC: $1,575 CC: $28,840

11/24/87 Present Operation: Hydrotesting tbg in hole.
Road crew to location. RU lubricator, PU perforator gun. TIH w/gun, correlate to CBT log. Gun would not fire, TOOH, found wire shorted. Repaired cable, TIH w/gun, correlate and perforate the following interval: 12,811'-12,833' w/2 JSPF. TOOH w/gun, had slight blow on lubricator. PU Baker Model Retrieva-D-Packer. TIH to 12,674', set packer. RD Schlumberger, SDFN. Bottom hole assembly as follows: Baker Model A Retrieva-DB-Packer, length 7.12', crossover - length .65', 2 7/8" pup jt - length 10.13', 2 1/4" F Nipple - length 1', set at 12,692', 2 7/8" pup jt - length 10.15', 2.25" R nipple - length .81', set at 12,703'. Pump out plug and wireline re-entry guide .74' set at 12,704.6'.
DC: $19,145.00 CC: $47,985.00

11/25/87 Present Operation: Injecting water.
Injected 204.01 bbls in 16 hrs. Well SD at 3:30 a.m. on high discharge. 870 psi at 7:30 p.m. Started well.

11/26/87 Present Operation: SD for Thanksgiving.
Mixed 5 bbls NL coat B-1400 with 350 bbls of produced water. Circulate well with packer fluid. Sting into packer and land hanger. Test annulus to 1000 psig, ok. SI. SDON.
DWC: $2,425 CWC: $55,275

11/27/87 Present Operation: Pump out plug in packer.
SD for Than' giving.
DWC: $0 CWC: $55,275

11/28/87 Present Operation: Prepare to do MSR treatment on Twin Creek perfs 12,811'-33'.
Install new suction valve in rig pump. RD floor. NDBOP and NU tree. RU to pump out plug in BHA assembly. Pressured to 1800 psig on tbg, did not see pump out plug. RU to swab. Swabbed 6 hrs, 15 runs. Recovered 80 bbls of fluid with trace of condensate. Good show of oil after 7th swab run. FFL 8200 ft KB. SI, SDON.
DWC: $2,850 CWC: $58,125

11/29/87 Present Operation: SD for Sunday.
Overnight SITP 950 psig. Blew well down to the pit recovering gas and a small amount of condensate. RU to swab. Made 6 runs, IFL at 4300' with FFL at 9000'. Recovered 50 bbls of fluid. Estimate 6 bbls of condensate and 44 bbls was muddy salt water. All swab runs were very gassy. RU Dowell to treat perfs 12,811'-33' (Twin Creek). Pump 3300 gals of 30# gelled MSR water. Dropped 60-1.2 sp. gravity ball sealers spaced evenly throughout the job. Some ball action - did not ball off. Flushed with 90 bbls of produced water. AIR 5 BPM at 4700 psig. MIP 5050 psig at 5 BPM. Final rate 5 BPM at 4900 psig. ISIP - 3400 psig. 5 min - 2640 psig, 10 min - 2350 psig, 15 min - 2190 psig. 168 BLTR. RD Dowell. RU to swab. Made 10 swab runs and recovered 76 bbls. Estimate 3 bbls condensate and 73 bbls (81 BLTR). IFL at surface. FFL at 9500' KB. Well was very gassy on 6th, 7th, and 8th swab runs. The last two runs had very little gas. Recovering some fines in swab runs. SI, SDON.
DWC: $5,800 CWC: $63,925

11/30/87 Present Operation: Prepare to swab. SITP 350 psig.
SD for Sunday.
DWC: $0 CWC: $63,925

12/01/87 Present Operation: SD, waiting on sucker rods.
SITP - 350 psig. Blew well down to the pit immediately. RU to swab. IFL at 4500 ft KB. Pulled from 6000' with gas pockets throughout fluid. Sandline parted leaving an estimated 1000' of sandline, 25' of 1 1/8" sinker bar, jars, swab mandrel and cups in the hole. SD, SI.
DWC: $3,615 CWC: $67,540

12/02/87 Present Operation: Unload sucker rods, prepare to fish for sandline.
Wait on sucker rods.
DC: $200.00 CC: $67,740

12/03/87 Present Operation: TIH w/remainder of rods and spear.
ND wellhead, NU BOP. RU floor, change ill line to double line operations, unload sucker rods, NU companion flange and rod BOP. Rig to run rods, TIH w/235 7/8" rods (5875').
SDFN.
DC: $470.00 CC: $68,210

12/04/87 Present Operation: Continue out of hole w/rods.
Change over to single line operation, continue in hole w/rods, tag fish w/spear at 11,800', set down 3000#, turn four turns to the right. Have total of 347-7/8" rods, 131-1" rods, TOOH w/rods, unable to stand back in rod basket, laying down in singles, pulling 2000# over string weight, lost weight w/21 rods layed down. TIH w/1" rod and stacked 4000#, continue out of hole. TOOH w/131-1" rods, and 149-7/8" rods. SDFN.
DC: $720.00 CC: $68,930

12/05/87 Present Operation: Change out drilling line.
Finish TOOH w/341 7/8" rods, 131-1" rod, 5' fishing spear, recover approximately 2.5' of sandline. RD floor, RD BOP, NU companion flange, steel tee, ratigan, SI at 2:00 p.m. for rig repair, found break in drilling line. SD Operations.
DC: $605.00 CC: $68,815

12/06/87 Present Operation: TIH w/wireline spear and rods.
Rig repair 3.5 hrs. Change out drilling line, PU 5' spear w/2.25 No Go, 330 7/8" rods, 10 1" rods depth 8525'. SDFN.
DC: $605.00 CC: $69,420

12/07/87 Present Operation: Rig crew rolled pick-up on way to location. Condition unknown. SD, waiting on crew.
Finish PU 117-1" rods, tag fish at 11,420' work spear down 4', rotate rods 4 turns to right. PU 60' gained 1500-2000 on wt indicator, TOOH, w/6 triples out of hole lost 1500-2000# on wt indicator, attempt to go back down, took wt immediately, finish TOOH, had to LD 28 rods because rod basket was full, recover 4' of sandline, line was unraveled and balled up at top of the spear. PU spear and 28 rods, TIH to 7700. SDFN.
DC: $605.00 CC: $70,025

12/08/87 Present Operation: TIH w/rods and spear.
No operations because crew was injured in a vehical accident. No deaths, one man had broken arm and collar bone, others are believed to have only scratches and bruises.

12/09/87 Present Operation: Not reported.
Over night ITP 0 psi. Finish TIH w/r 's and spear. Tag fish at 11,200', worked spear down with 10,000#, set down weight, rotated rods 3 turns to right, PU had 2000# wt gain, LD 28-1" rods, TOOH slowly at 9880', suddenly lost 2.000# wt, stop TIH 40' started stacking wt, PU continue out of hole still have slight drag, recover 375' of sandline, PU spear, TIH w/66-7/8" rods. SDFN.
DC: $500 CC: $71,025

12/10/87 Present Operation: Not reported.
Over night SITP 0 psi. Finish TIH w/spear and rods, tag fish at 10,375', worked spear down 6' w/10,000# wt, rotate 3 turns right, PU, have 2000# gain on string wt, start TOOH slow, PU an additional 2000# wt at 10,100, suddenly lost wt at 9675', stop went down, started stacking at 20', set down 5000# rotate 3 turns, PU no gain in wt but dragging. Finish TOOH, recover 1.5' of sandline strand, balled at top of spear, PU spear, TIH w/292 7/8" rods to 7275'. SDFN.
DC: $120.00 CC: $71,135

12/11/87 Present Operation: Waiting on crew vehical, broke down.
Over night SITP 0 psi. Change over to single line operation. Change out wt indicator, finish TIH w/spear and rods, tag fish at 9700', work spear 7' into fish w/8000 wt, rotate 3 turns to right. PU have 2000# gain on string wt, start out of hole slowly, at 9650' gained additional 1000# wt, wt fluctuating, 9225'lost wt, attempted to go down 20' stack wt, finish TOOH, recover 6' of sandline, RU to swab. Made 3 runs, IFL 3800, FF 6000, no gas, some oil on top of first run. SDFN.
DC: $1,202 CC: $72,347

12/12/87 Present Operation: Trip out of hole with rods. SITP 430 psi.
WO rig crew, crew truck broke down. Crew on location at 11:00 a.m. Blew well to pit, no fluid to surface. Rig to swab, made 2 runs. IFL 4100', FFL 5900', no gas. Well on vacuum after each run. Recovered approximately 10 gal condensate on 1st run. LD swab, PU fishing spear. TIH with 110 triples of 7/8" rods, 14 triples of 1" rods. Tag fish at 9290' work spear 5' into fish with 4000# weight. Turn RT 3 turns. PU 80', did not have any weight. Went back down 80', work spear 7.5' into fish with 8000# weight down. Turn rods to RT 3 turns. PU 60', have very little drag. Attempt to go down. Stacked weight immediately, PU string weight. SDFN.
DC: $550 CC: $72,845

12/13/87 Present Operation: TOOH with rods, spear and fish.
TOOH with 1' triples of 1" and 110 triples of 7/8" rods, spear and fish. String weight fluctuating between 0-4000#. Recovered 950' of sandline, sinker bar, jars, swab cups and mandrels. Well very gassy all the way out. Install TRW valve. SITP 50 psi in 30 minutes. RU to pump. Pump 25 bbls lease brine on tubing. Changed to double line operation. TIH with 110 triples of 7/8" rods, 37 triples of 1" rods. SDFN.
DC $500 CC: $73,345

12/14/87 Present Operation: TOOH laying down rods. On SITP 0.
Start TOH laying down 1" rods. Rod tongs broke down. Count not repair. SD operations at 11:00 a.m. Laid down total of 112 1" rods.
DC: $500 CC: $73,845

12/15/87 Present Operation: Swabbing, ONSITP 0
Finish TOOH laying down 11 1" rods and 330 7/8" rods. RD rod equipment, RU Otis. RIH with gauge ring for tubing to 10,600'. Tubing was clean. TIH with model F collar stop. ID of stop is 1.17". Attempt to set collar stop at 10,500', would not set. Worked down, was able to set at 10,665'. RD Otis. RD floor, NU tree and swab equipment. Made 1 run. IFL at 1200', FFL 2500'. Recovered 3 BW, no gas. BLTR 82.
DC: $10,505 CC: 75,350

12/16/87 Present Operation: Blow well down. ONSITP 480 psi.
0 ONSITP, valves on tree were frozen, had to thaw out w/methonal. RU to swab, made 14 runs, IFL at 2500, FFL at 9600, recovered 71 BW and 1 BC, have 10 BLWTR. Started getting gas on 7th run at 6200', last 2 runs the gas pressure was 50 psi after each run, died to 10 psi in 30 seconds, 5 psi in 45 seconds, would then stay on slight blow, would buildup to 15 psi in 15 mins, and 25 psi in 30 minutes. Had 1 BC on first run, small amount of condensate at first of all other runs, all water swabbed was clean brine water, RU pump to flat tank, empty tank to pit.
DC: $2,955 CC: $78,305

12/15/87 Present Operation: Swabbing, ONSITP 0 psi.
Finish TOOH laying down 11 1" rods and 330 7/8" rods. RD rod equipment, RU Otis. RIH with gauge ring for tubing to 10,600'. Tubing was clean. TIH with model F collar stop. ID of stop is 1.17". Attempt to set collar stop at 10,500', would not set. Worked down, was able to set at 10,665'. RD Otis. RD floor, NU tree and swab equipment. Made 1 run. IFL at 1200', FFL 2500'. Recovered 3 BW, no gas. BLTR 82.
DC: $10,505 CC: $75,350

12/16/87 Present Operation: Blow well down. ONSITP 480 psi.
0 ONSITP, va es on tree were frozen, h to thaw out w/methonal. RU to swab, made 14 runs, IFL at 2500, FFL at 9600, recovered 71 BW and 1 BC, have 10 BLWTR. Started getting gas on 7th run at 6200', last 2 runs the gas pressure was 50 psi after each run, died to 10 psi in 30 seconds, 5 psi in 45 seconds, would then stay on slight blow, would buildup to 15 psi in 15 mins, and 25 psi in 30 minutes. Had 1 BC on first run, small amount of condensate at first of all other runs, all water swabbed was clean brine water, RU pump to flat tank, empty tank to pit.
DC: $2,955 CC: $78,305

12/17/87 Present Operation: Blow well down. Prepare to acidize, ONSITP - 420.
480 ONSITP, blew well down, no fluid to surface. RU to swab. Made 10 runs, IFL 8200, FFL 10,000, had gas blow after each run, would start at 50 psi blow down to zero in 25 min, FL staying at 9200'-9400'. Recovered 1 BC on 1st run, small amount w/each run after, with streaks of condensate in the water, recover total of 31 BW x 1 BC, 22 BWOL, load sucker rods on truck to be hauled back to Gillette, WY. 161-1" rods, 360-7/8" rods, 92-7/8" rod couplings, 15-1" rod couplings, 1-7/8" x 1" XO coupling. Pump water from rig tanto pit. SIFN.
DC: $2,162 CC: $80,467

12/18/87 Present Operation: ONSITP 250#, blow well down, continued to swab.
ONSITP 420#, Blew well down, no fluid to surface, RU to swab, made two runs, IFL 8800, FFL 10,000, RD swab equipment, RU Dowell, **acidized Twin Creek perfs** 12,811'-12,833' w/1000 gals 15% MSR acid w/6 gals of A250 followed w/3000 gals of 15% SGA w/additives. Dropped 60 7/8" ball sealers, 1 per bbl through last 60 bbl acid, flush w/88 bbls of filtered lease brine, over displace perfs 10 bbls, treatment detail w/12 bbls of acid into perfs pressure 3000 psi at 5 BPM, started to see ball action, pressure climbed to 5000 psi w/next 70 bbls at 5 BPM, with 85 bbl acid in perfs, balled out w/7900 psi, SD for 2 min, resumed pumping at 5 BPM at 5000 psi, ISIP 2500, 5 min 2010, 10 min 1770, 15 min 1640, BLWTR 184, RD Dowell, RU to swab, made 11 runs. IFL at surface. FFL at 4700, recovered 66 BW, had gas on 9th run, good blow after run, died in 20 mins. SIFN.
DC: $9,950 CC: $90,417

12/19/87 Present Operation: Blow down well, SITP 760#.
ONSITP 250#, blew well down, no fluid to surface. RU to swab, made 16 runs, IFL 3000#, FF 7100, recovered 75 BLW, have 23 BLWTR. Did not see any condensate, started getting gas after 8th run, got progressively stronger, last 3 runs had 50 psi blow after each run, would die to 5 psi in 10 min then stay on light blow. Pumped water out of flat tank to pit, SDFN.
DC: $2,301 CC: $92,718

12/20/87 Present Operation: SD for Sunday.
ONSITP 760 blew well down, no fluid surface. RU to swab. Made 19 runs, IFL 3500, FFL 6100. **Recovered 95 BW, 72 BWOL, FL stable at 4400-4600'** get small amount of condensate at first of each run, pressure after each run 40 psi would die to 5 psi in 12 min, stay on light blow, pump water from flat tank to pit, SDFN.
DC: $1,976 CC: $94,694

12/21/87 Present Operation: RD.
SD for Sunday.

12/22/87 Present Operation: ONSITP 700#. LD Derrick, prepare to move out rig.
ONSITP 700#, broke out and stacked out blow down line, NU flowline, clean out flat tank, clean up location, pump water from frac tanks to pit, hauled 20 bbl condensate to Logan #1 tank battery, move out frac tanks, BOP and accumulator, sanded roads to location.
DC: $1,936 CC: $96,630

12/23/87 Present Operation: Well SI. Plan to convert well to water disposal service.
SITP 700 psig, SICP 0 psig. Prepare to move rig off location. Due to high winds could not rig down. Cannon Well Service will move rig off location when conditions permit.
DWC: $2,676 CWC: $99,306

12/24/87 FINAL REPORT. **Waiting on water disposal system.**

@ FL 4400 BHFP = 3620 psi

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)

May 5, 1994

Newspaper Agency Corporation
Legal Advertising
157 Regent Street
Salt Lake City, Utah 84110

Gentlemen:

Re: Notice of Agency Action - Cause No. UIC-150

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,

Lisa D. Clement

Lisa D. Clement
Administrative Secretary

Enclosure
WOI168

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)

May 5, 1994

Summit County Bee
20 North Main
Coalville, Utah 84017

Gentlemen:

Re: Notice of Agency Action - Cause No. UIC-150

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,

Lisa D. Clement

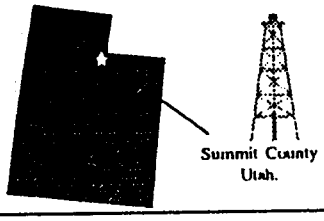
Lisa D. Clement
Administrative Secretary

Enclosure
WOI168

FILE: G:\wellfile\npnvw\LOGAN2A.PPT

Well: Logan Federal #2-A

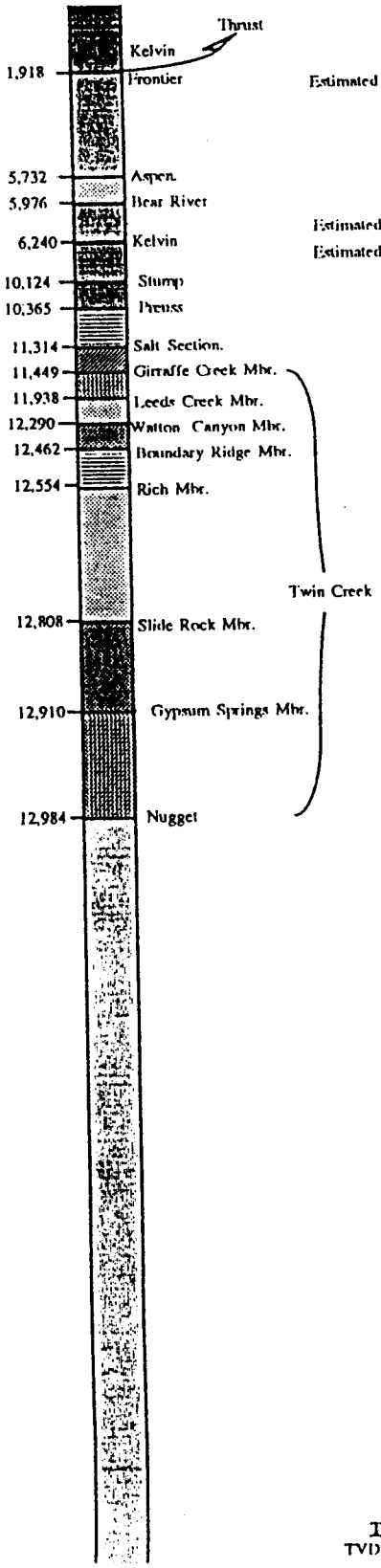
NW SE, Sec 26, T3N, R7E
Summit County, Utah
Surface Location: 2297' FEL, 2567' FSL
Bottomhole Location: 1855' FEL, 2024' FSL
Elevation: GL=7494', KB=7520'

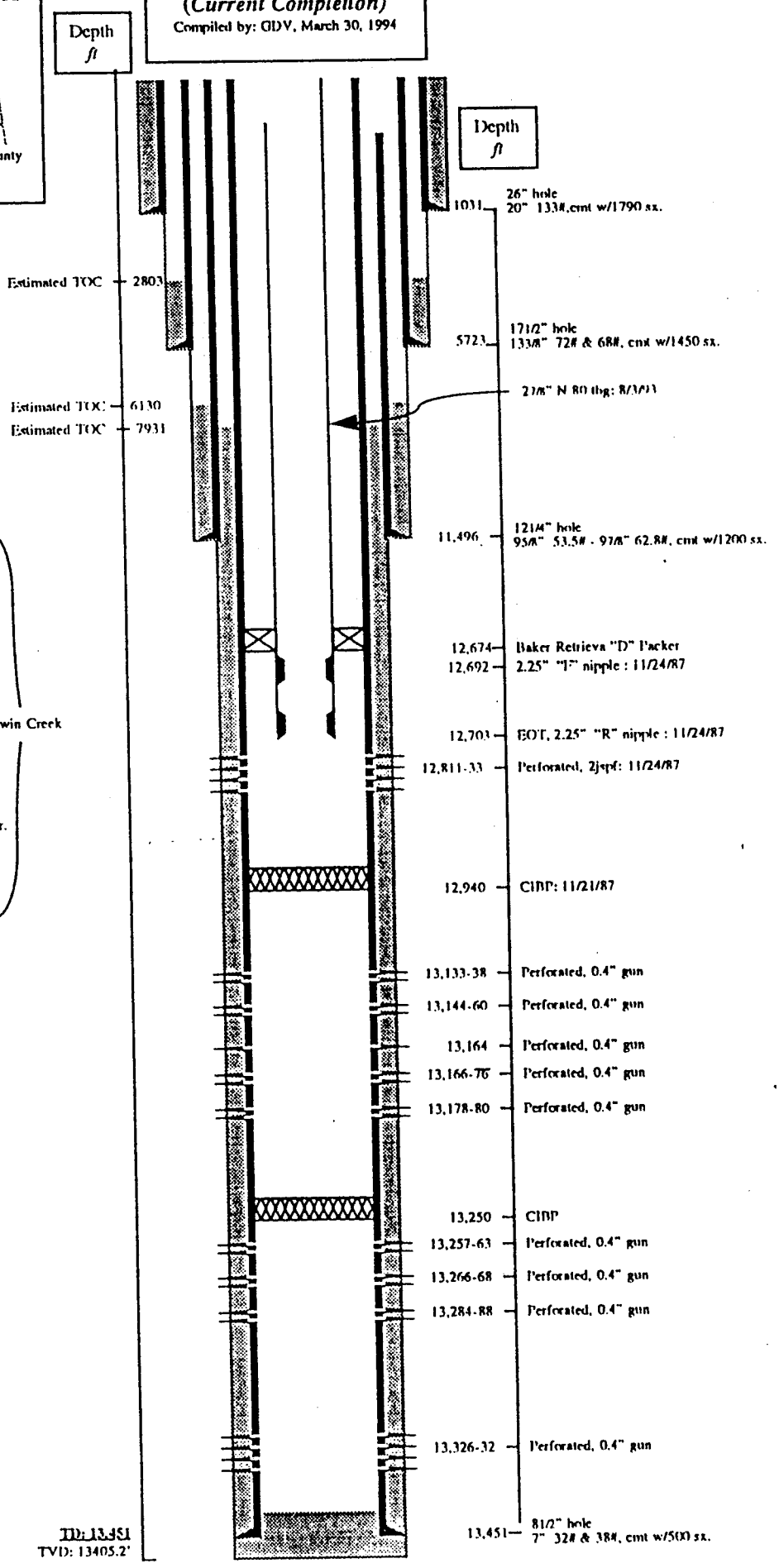


Wellbore Diagram as of 3/94

(Current Completion)

Compiled by: GDV, March 30, 1994





WESTERN ATLAS

05-04-1994 LAB #: 940750-1

Core Laboratories

RICHARDSON OPERATING CO.

WELL #: LOGAN FED #1
COUNTY: STATE:
FORMATION:
DATE SAMPLED:
REMARKS:

FIELD:
LOCATION:
INTERVAL:
SAMPLE ORIGIN:

	MG/L	MEQ/L		MG/L	MEQ/L
SODIUM	15950	693.83	SULFATE	1900	39.52
POTASSIUM	865	22.14	CHLORIDE	25492	718.87
CALCIUM	805	40.17	CARBONATE	0	0.00
MAGNESIUM	76	6.25	BICARBONATE	415	6.80
			HYDROXIDE	0	0.00
TOTAL CATIONS		762.39	TOTAL ANIONS		765.20

	MG/L
CALC. SODIUM	16015
NACL EQUIVALENT	44583
CALC TDS* @356 F	45292
API TDS* @221 F	45503

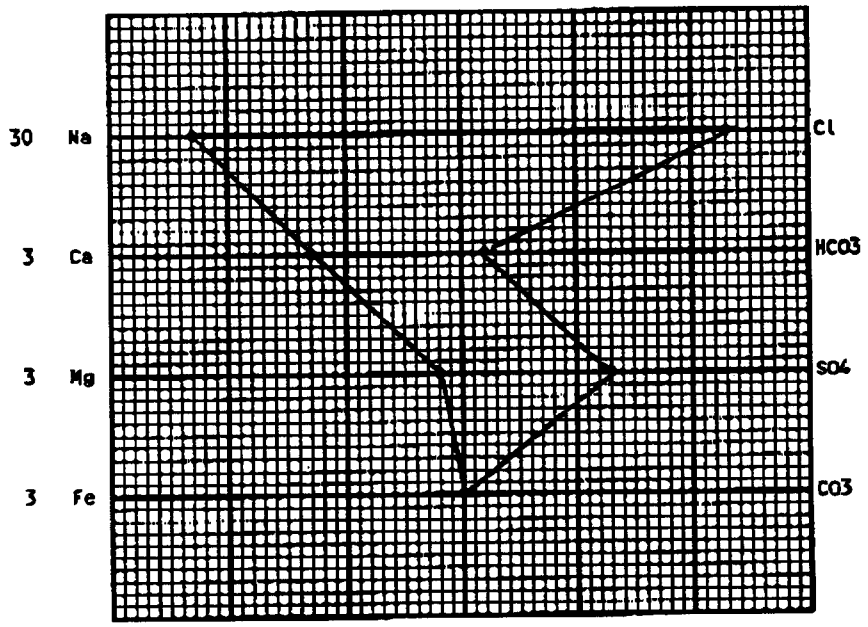
SPECIFIC RESISTANCE AT 68F (OHM-M):
OBSERVED 0.20

OBSERVED pH 6.47

* TOTAL DISSOLVED SOLIDS

WATER ANALYSIS PATTERN
Scale
MEQ per Unit

(Na value in graph includes Na and K)



NOTE: MG/L = milligrams per liter
MEQ/L = milligram equivalent per liter

Sodium Chloride equivalent by Dunlap & Hawthorne - calculation from components

APPROVED BY: Shari Davis

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitableness of any oil, gas, coal or other mineral property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.

PROOF OF PUBLICATION

STATE OF UTAH, }
County of Summit, } ss.

I, Nancy Ferris

being first duly sworn, depose and say that I am the bookkeeper of The Summit County Bee, a weekly newspaper of general circulation, published once each week at Coalville, Utah, that the notice attached hereto and which is a Class II injection well Cause no. UIC-150

was published in said newspaper for one consecutive issues, the first publication having been made on the 13 day of May, 1994, and the last on the 13 day of May, 1994, that said notice was published in the regular and entire issue of every number of the paper during the period and times of publication, and the same was published in the newspaper proper and not in any supplement.

Nancy Ferris

Subscribed and sworn to before me this 13 day of May, 1994.

Linda J. Bunge
Notary Public

My commission expires November 1, 1996.

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

IN THE MATTER OF THE APPLICATION OF RICHARDSON OPERATING CO. FOR ADMINISTRATIVE APPROVAL OF THE LOGAN FEDERAL 2-A WELL LOCATED IN SECTION 26, TOWNSHIP 3 NORTH, RANGE 7 EAST, S.L.M., SUMMIT COUNTY UTAH, AS A CLASS II INJECTION WELL

NOTICE OF AGENCY ACTION
CAUSE NO. UIC-150

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 Richardson Operating Company for administrative approval of the Logan Federal 2-A Well, located in Section 26, Township 3 North, Range 7 East, Summit 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 Twin Creek formation interval from 12,809 feet to 12,833 feet will be selectively perforated to facilitate the injection of produced water for the purpose of disposal. The average injection pressure is estimated to be 500 psig and the estimated maximum injection volume is 1000 barrels of water per day.

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 5th day of May 1994.

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING
R.J. Firth
Associate Director

Published in The Summit County Bee May 13, 1994.

RICHARDSON OPERATING COMPANY

1700 Lincoln, Suite 1700
Denver, Colorado 80203 (303) 830-8000
FAX (303) 830-8009

AFFIDAVIT OF CERTIFICATION

MAILING OF A COPY OF RICHARDSON OPERATING COMPANY's

APPLICATION FOR SALT WATER DISPOSAL
LOGAN FEDERAL #2A
NW SE SECTION 26, T3N, R73
SUMMIT COUNTY, UTAH

TO ALL OPERATORS, OWNERS, AND SURFACE OWNERS WITHIN A ONE-HALF MILE RADIUS OF THE PROPOSED INJECTION WELL

The undersigned, hereby certifies that, on September 2, 1994, a copy of said application was mailed, certified mail, to all those interest owners contained on the attached ownership list.

STEPHAN R SMITH - PE

Manager - Production and Enineering
Richardson Operating Company
1700 Lincoln, Suite 1700
Denver, Colorado 80203

ACKNOWLEDGEMENT FOR USE BY INDIVIDUAL

County of Denver)
) ss:
State of Colorado)

Before me, the undersigned Notary Public in and for said County and State, appeared Stephan R Smith, to me known to be the identical person named in the within and foregoing instrument, who acknowledged to me that said instrument was executed as his free and voluntary act and deed.

Dated this 2nd day of September, 1994.

Peter A. Gowan, Notary Public

My commission expires April 27, 1996.

STOEL RIVES BOLEY
JONES & GREY

ATTORNEYS AT LAW
SUITE 1100
ONE UTAH CENTER
201 SOUTH MAIN STREET
SALT LAKE CITY, UTAH 84111-4904

Telephone (801) 328-3131
Telecopier (801) 578-6999
Writer's Direct Dial Number

May 13, 1994

FILED
MAY 1 3 1994
SECRETARY, BOARD OF
OIL, GAS & MINING

Mr. R.J. Firth
Associate Director
Utah Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Re: ***PROTEST - Cause No. UIC-150***
In the Matter of the Application of Richardson Operating Co. for Administrative Approval of the Logan Federal 2-A Well Located in Section 26, Township 3 North, Range 7 East, S.L.M., Summit County Utah, as a Class II Injection Well

Dear Mr. Firth:

This office represents Union Pacific Resources Company ("UPRC") in its operations in the State of Utah. In response to the Notice of Agency Action in the above-captioned matter dated May 5, 1994, UPRC hereby objects to the conversion of the above-captioned well to a water injection well and hereby requests that a hearing be scheduled before the Board of Oil, Gas & Mining with respect to the application.

The substance of UPRC's objection is based upon UPRC's control of a well in Section 25 which is updip and directly East of the center location of the said Logan Federal #2A in Section 26. In the drilling of the above-captioned well there was an indication of water and hydrocarbons in the Sliderock formation. UPRC feels that updip oil production may be accessible from a horizontal wellbore in the Sliderock formation which is productive at Pineview.

UPRC is concerned that water injection into the Sliderock could result in the collapsing of the casing. The relatively low Sliderock matrix porosity when

SLC1-7715.1

compared to the high Nugget matrix porosity appears to offer little storage capacity. Thus, the water injection will affect a much larger reservoir area in a shorter period of time.

UPRC has been in contact with Richardson Operating Company with regard to its concerns in connection with this conversion. UPRC wishes to participate as a party in any and all proceedings before the Board and the Division. UPRC requests that it be given formal notice of any hearing scheduled with respect to the application and the opportunity to respond to the application in accordance with the Board's procedural rules. All correspondence with regard to this matter should be sent to UPRC at the following address:

Union Pacific Resources Company
Attn: D. G. (Dave) Kyte
Manager, Oil & Gas
Commission Affairs
P.O. Box 7, MS 3006
Fort Worth, Texas 76101-0007

with copy to:

John S. Kirkham
Stoel Rives Boley Jones & Grey
201 South Main Street, Suite 1100
Salt Lake City, Utah 84111-4904

If you have any questions with regard to the substance of this objection, please do not hesitate to contact the undersigned.

Very truly yours,

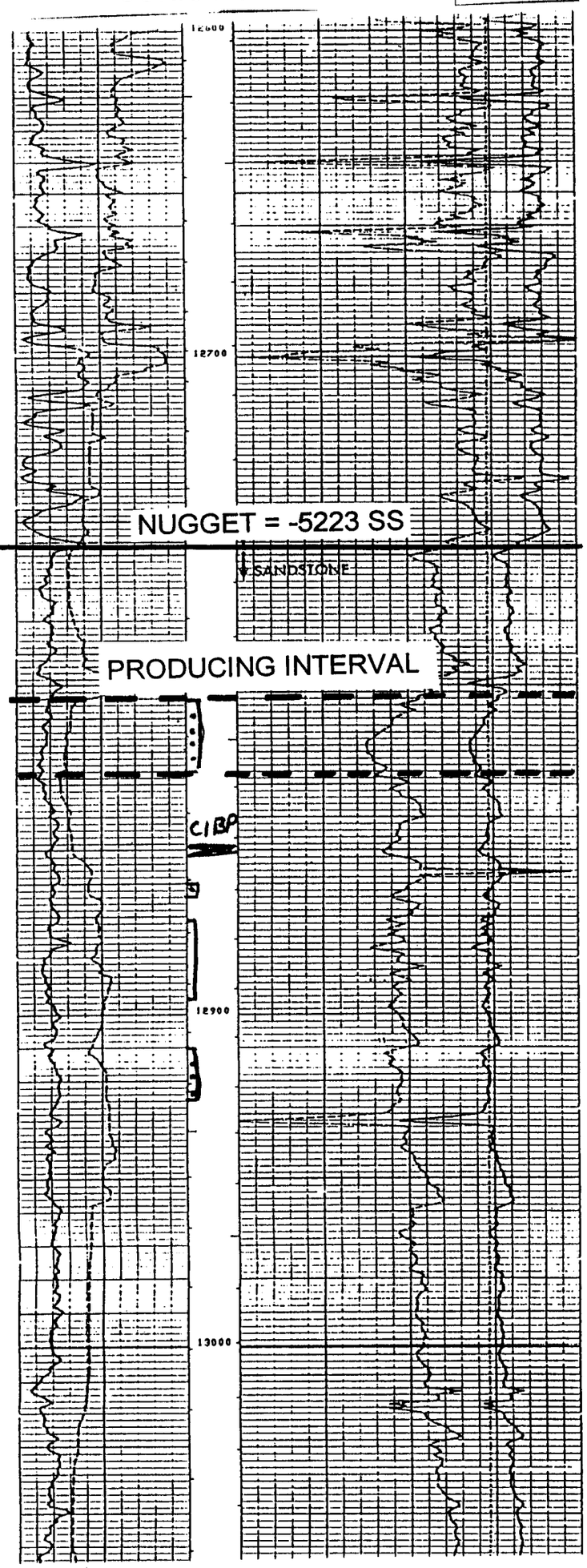
John S. Kirkham

JSK/ks

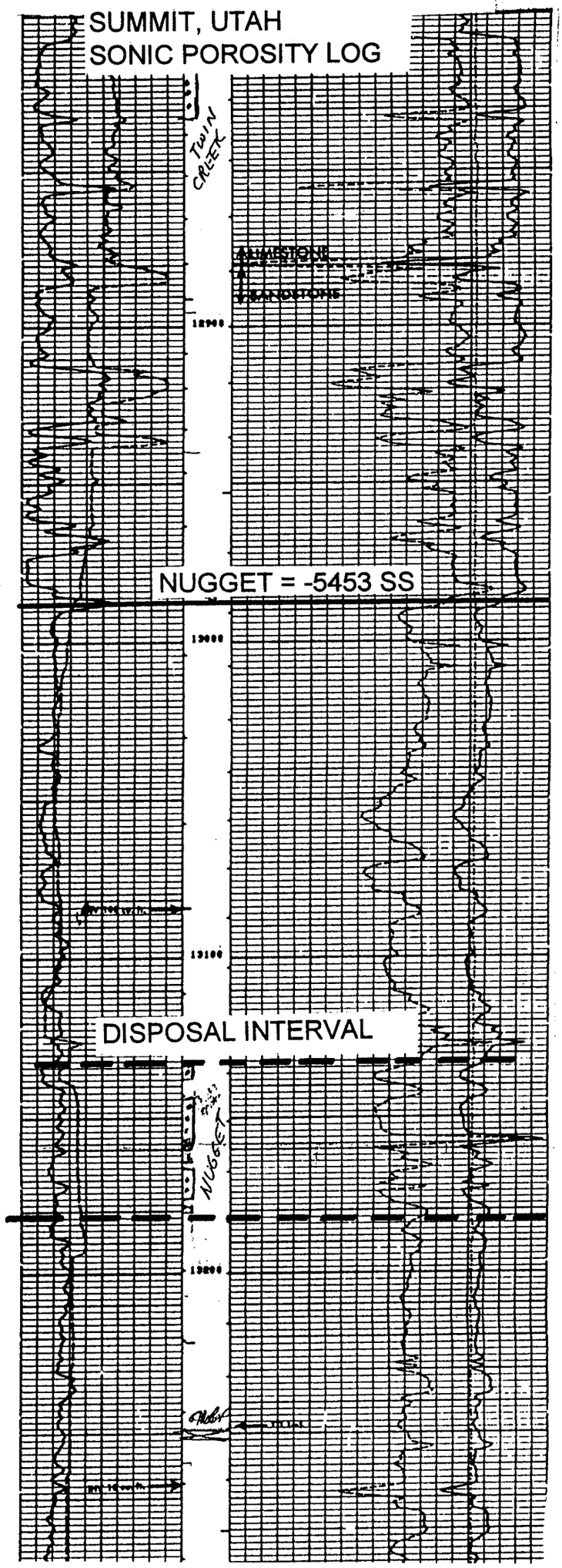
cc: Jan Brown, Secretary
Board of Oil, Gas and Mining

SLC1-7715.1

LOGAN FEDERAL #1
SE NE 26-T3N-R7E
SUMMIT, UTAH
SONIC POROSITY LOG



LOGAN FEDERAL #2A
NW SE 26-T3N-R7E
SUMMIT, UTAH
SONIC POROSITY LOG



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 DESERET NS

LEGAL ADVERTISING INVOICE

CUSTOMER'S COPY

CUSTOMER NAME AND ADDRESS	ACCOUNT NUMBER	BILLING DATE
DIV OF OIL, GAS & MINING 355 WEST NORTH TEMPLE 3 TRIAD CENTER #350 SLC, UT 84180	LE-5385340	05/10/94
	FOR BILLING INFORMATION CALL (801) 237-2822	

AFFIDAVIT OF PUBLICATION

AS NEWSPAPER AGENCY CORPORATION LEGAL BOOKKEEPER, I CERTIFY THAT THE ATTACHED ADVERTISEMENT OF NOTICE OF AGENCY ACTIONCAUSE NO. UIC-150BEFOR 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 CIRCURATION IN UTAH, AND PUBLISHED IN SALT LAKE CITY, SALT LAKE COUNTY IN THE STATE OF UTAH.

PUBLISHED ON MAY 10 1994

SIGNATURE

DATE 05/10/94

NOTICE OF AGENCY ACTION CAUSE NO. UIC-150 BEFORE THE DIVISION OF OIL, GAS AND MINING DEPARTMENT OF NATURAL RESOURCES, STATE OF UTAH

IN THE MATTER OF THE APPLICATION OF RICHARDSON OPERATING CO. FOR ADMINISTRATIVE APPROVAL OF THE LOGAN FEDERAL 2-A WELL LOCATED IN SECTION 26, TOWNSHIP 3 NORTH, RANGE 7 EAST, S.L.M., SUMMIT 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 Division of Oil, Gas and Mining (the "Division") is commencing an informal adjudicative proceeding to consider the application of Richardson Operating Company for administrative approval of Logan Federal 2-A Well, located in Section 26, Township 3 North, Range 7 East, Summit 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 Twin Creek formation interval from 12,809 feet to 12,833 feet will be selectively perforated to facilities the injection of produced water for the purpose of disposal. The average injection pressure is estimated to be 500 psig and the estimated maximum injection volume is 1000 barrels of water per day.

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 of the date of publication of this notice. If such a protest or notice of intervention is received, a hearing may 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 5th day of May, 1994.

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING
/s/ R. J. Firth
Associate Director, Oil and Gas
56820140

ACCOUNT NAME			TELEPHONE
IV OF OIL, GAS & MINING			801-538-5340
SCHEDULE			AD NUMBER
AY 10 1994			56820140
CUST. REF. NO.	CAPTION		MISC. CHARGES
E #UIC-150	NOTICE OF AGENCY ACTIONCAUSE NO. UIC-150BEFOR		.00
SIZE	TIMES	RATE	AD CHARGE
5 LINES 1 COLUMN	1	1.64	123.00
E AND PAYABLE ON RECEIPT OF THIS INVOICE		TOTAL AMOUNT DUE	123.00

THANK YOU FOR USING LEGAL ADVERTISING.

PLEASE RETURN THIS PORTION

WITH YOUR PAYMENT IN THE ENCLOSED ENVELOPE

LEGAL ADVERTISING ADV06-NT

ACCOUNT NUMBER	AD NUMBER	BILLING DATE	PAY THIS AMOUNT
LE-5385340	56820140	05/10/94	123.00

LEGAL ADVERTISING

PLEASE REMIT TO:

NEWSPAPER AGENCY CORPORATION
P.O. BOX 45838
SALT LAKE CITY, UTAH 84145-0838

MAKE CHECKS PAYABLE TO:
NEWSPAPER AGENCY CORPORATION

DIV OF OIL, GAS & MINING
355 WEST NORTH TEMPLE
3 TRIAD CENTER #350
SLC, UT 84180

0765667062014070000000000000123001876778173125181111111111111123411

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

---ooOoo---

IN THE MATTER OF THE APPLICATION OF RICHARDSON OPERATING CO. FOR ADMINISTRATIVE APPROVAL OF THE LOGAN FEDERAL 2-A WELL LOCATED IN SECTION 26, TOWNSHIP 3 NORTH, RANGE 7 EAST, S.L.M., SUMMIT COUNTY UTAH, AS A CLASS II INJECTION WELL	:	NOTICE OF AGENCY ACTION CAUSE NO. UIC-150

---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 Richardson Operating Company for administrative approval of the Logan Federal 2-A Well, located in Section 26, Township 3 North, Range 7 East, Summit 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 Twin Creek formation interval from 12,809 feet to 12,833 feet will be selectively perforated to facilitate the injection of produced water for the purpose of disposal. The average injection pressure is estimated to be 500 psig and the estimated maximum injection volume is 1000 barrels of water per day.

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 5th day of May 1994.

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

R.J. Firth
Associate Director

WUI101

Richardson Operating Company
Logan Federal #2-A Well
Cause No. UIC-150

Publication Notices were sent to the following:

Newspaper Agency Corporation
Legal Advertising
157 Regent Street
Salt Lake City, Utah 84110

Summit County Bee
20 North Main
Coalville, Utah 84017

Richardson Operating Company
1700 Lincoln Street, Suite 1700
Denver, Colorado 80202

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

John S. Kirkham
Stoel Rives Boley Jones & Grey
Suite 1100 One Utah Center
201 South Main Street
Salt Lake City, Utah 84111-4904

Lisa D. Clement

Lisa D. Clement
Administrative Secretary
May 5, 1994

RICHARDSON OPERATING COMPANY

1700 Lincoln, Suite 1700
Denver, Colorado 80203 (303) 830-8000
FAX (303) 830-8009

JUN - 3 1994

May 31, 1994

Dan Jarvis
Utah Division of Oil, Gas, and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Re: Application for Salt Water Disposal
Logan Federal #2A
NW SE Section 26-T3N-R7E
Summit County, Utah

Dear Dan:

On March 31, 1994, Richardson Operating Company filed with the Utah Division of Oil, Gas, and Mining, an application for administrative approval of the Logan Federal #2-A well, as a Class II injection well. On May 5, 1994 the Utah Division; of Oil, Gas, and Mining published notice of said application.

Because Richardson Operating Company has received a protest from Union Pacific Resources, Richardson Operating Company requests the application to dispose of produced from the Nugget formation, Logan Federal #1, into the Twin Creek Formation, Logan Federal #2-A be withdrawn. We will re-submit the application in the near future requesting approval to dispose of Nugget water from the Logan Federal #1 into the Nugget Formation, Logan Federal #2-A.

Thank you for your effort.

Sincerely,

SR Smith

STEPHAN R SMITH - PE

Manager - Production and Engineering
RICHARDSON Operating Company

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)

June 8, 1994

John S. Kirkham
Stoel Rives Boley Jones & Grey
201 South Main Street, Suite 1100
Salt Lake City, Utah 84114-4904

Re: Application of Richardson Operating Company for Administrative Approval of the Logan Federal 2-A Well Located in Section 26, Township 3 North, Range 7 East, S.L.M. Summit County, Utah, for a Class II Injection Well - Cause No. UIC-150

Dear Mr. Kirkham:

Pursuant to the referenced application, the Division of Oil, Gas and Mining (the "Division") issued its Notice of Agency Action on May 5, 1994, which was published by the Newspaper Agency Corporation on May 10, 1994. On May 13, 1994, the Division received your Protest-Cause No. UIC-150 filing on behalf of Union Pacific Resources Company.

Enclosed for your information is a copy of Richardson Oil Company's ("Richardson") letter dated May 31, 1994, which requests withdrawal of the referenced application. Richardson further indicates that the application will be re-submitted in the near future to request approval to dispose of produced water into the Nugget formation.

Please contact me if you require further information regarding this matter.

Sincerely,

R.J. Firth
Associate Director

ldc
Enclosure
cc: Richardson Operating Company
Janice Brown, Secretary, Board of Oil, Gas and Mining
WOI27

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

SEP - 6
DIV. OF OIL, GAS & MINING

OPERATOR Richardson Operating Company
ADDRESS 1700 Lincoln, Suite 1700
Denver, Colorado 80203

Well name and number: Logan Federal #2A

Field or Unit name: North Pineview Lease no. U-47812

Well location: QQ NWSE section 26 township 3N range 7E county Summit

Is this application for expansion of an existing project? . . Yes [] No [X]

Will the proposed well be used for: Enhanced Recovery? . . Yes [] No []
Disposal? . . . . . Yes [X] No []
Storage? . . . . . Yes [] No []

Is this application for a new well to be drilled? . . . . . Yes [] No [X]

If this application is for an existing well,
has a casing test been performed on the well? . . . . . Yes [X] No []
Date of test: 11/21/87
API number: 43-043-30223

Proposed injection interval: from 13133 to 13180

Proposed maximum injection: rate 1000 bwpd pressure 3000 psig

Proposed injection zone contains [X] oil, [X] gas, and/or [] fresh water within ½ mile of the well.

IMPORTANT: Additional information as required by R615-5-2 should accompany this form.

List of Attachments: See Cover Letter

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

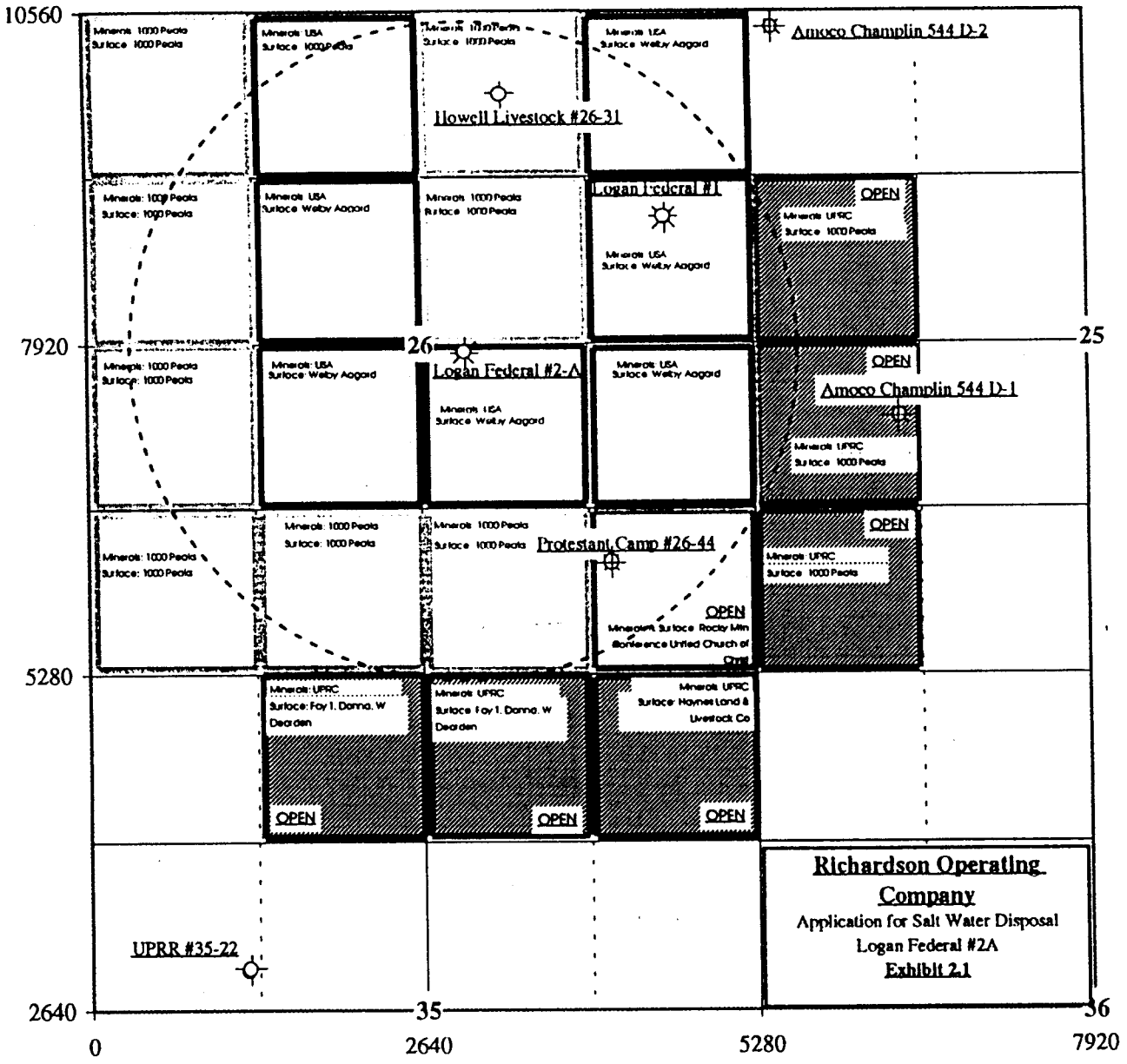
Name Stephan R Smith Signature S R Smith
Title Manager, Production & Engr Date 9/1/94
Phone No. (303) 830-8000

(State use only)
Application approved by _____ Title _____
Approval Date _____

Comments:

(3/89)

Township 3N, Range 7E, Summit County, Utah



RICHARDSON OPERATING COMPANY

1700 Lincoln, Suite 1700
Denver, Colorado 80203 (303) 830-8000
FAX (303) 830-8009

September 1, 1994

Mr. Gil Hunt
Utah Division of Oil, Gas, and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RECEIVED
SEP - 6
DIV. OF OIL, GAS & MINING

RE: Application for Salt Water Disposal
Logan Federal #2A
NW SE Section 26, T3N, R7E
Summit County, Utah

Dear Sir:

Attached for your consideration is an application for Underground Injection of Saltwater pursuant to R649-5-2 utilizing the Logan Federal #2A (NW SE Section 26, T3N, R7E) to dispose of produced water from the Logan Federal #1 (SE NE 26-T3N-R7E, Summit County, Utah). A listing of attachments and/or comments follows:

R649-5-2: 2. DOMG-UIC-1 - attached

2.1 A plat showing the location of the injection well, (Logan Federal #2A), all abandoned or active wells within an one-half mile radius of the proposed injection well, and the surface owner and operator of any lands or producing leases within a one-half mile radius of the proposed injection well. - attached.

2.2 Open hole logs for the Logan Federal #2A have been previously filed with DOMG. Davis Oil Company ran a cement bond log over the Nugget interval in 1984. The log is attached, in case Davis Oil Company did not transmit the CBL to the DOMG previously.

2.5 A well status diagram is attached to show downhole configuration. The Twin Creek perforations will be cement squeezed, the bridge plug at 12940 drilled out and water injected into Nugget perforations at 13133-38, 13144-60, 13164, 13166-76, and 13178-80. Geologically, these perforations correlate to porous intervals just below the porous interval currently producing in the Logan Federal #1.

2.11 Review of mechanical condition of each well within a one half mile radius of the proposed injection well.

There are three wells within a one-half mile radius of the Logan Federal #2A:

Logan Federal #1 SE NE 26-T3N-R7E - the well was drilled through the Twin Creek and TD'd in the Nugget

Sand at 13,492'. The well produces gas, condensate and water from the Nugget at 12804-12826 feet.

Howell Livestock #26-31 NW NE 26-T3N-R7E - the well was drilled through the Twin Creek and TD'd in the Nugget Sand at 14,552'. The Nugget Sand was extensively tested through casing before being plugged and abandoned on 1/15/83.

Protestant Camp #26-44 SE SE 26-T3N-R73 - the well was drilled through the Twin Creek and TD'd in the Nugget Sand at 12,638'. The Nugget Sand was extensively tested through casing before being plugged and abandoned on 12/16/84

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.

A list of all owners described above is attached with an affidavit certifying the application was mailed.

If additional information is required, please do not hesitate to call.

Sincerely,

SR Smith

STEPHAN R SMITH - PE
Manager, Production and Engineering

2.6 Type of fluid, its source, and estimated amounts:

Produced water comes from the Nugget Sandstone, Logan Federal #1, SE NE 26-T3N-R7E. The Logan Federal #1, in August, 1994 produced 75 bwpd which is being trucked to Richardson Operating

Company production facilities at the Chicken Creek Field, 31-T14N-R120W, Uinta County, Wyoming since the Robinson disposal pit was closed in. Water is expected to continue to rise and could reach 1000 bwpd.

2.7 Standard laboratory analysis of water to be injected.

A Nugget water analysis, dated 5/4/94 is attached.

2.8 Proposed average and maximum injection pressures.

Expected average injection pressure: Less than 500 psi
Maximum injection pressure : 3000 psig surface

2.9 Statement and evidence to indicate injection will not initiate new fractures.

For a fracture gradient of 0.78 psi / ft, fractures would be created at 9984 psi at 12800 feet. Maximum injection pressure at the sand face will be 3000 psi +(12800' x .45 psi/ft) = 8760 psi. therefore fractures will not be generated at the maximum surface injection pressure of 3000 psig.

2.10 Appropriate geological data.

The wellsite geological report compiled by Michael E. Barber, Odgen, Utah is on file with the DOGM. That report describes, in detail, the geology of the Nugget formation along with other formations encountered during drilling of the Logan Federal #2A.

Schlumberger

CEMENT EVALUATION AND ACOUSTIC CALIPER LOG

COMPANY DAVIS OIL COMPANY

WELL LOGAN FEDERAL NO.2-A

FIELD NORTH PINEVIEW

COUNTY SUMMIT STATE UTAH

SEP - 6

DIV. OF OIL, GAS & MINING

COUNTY SUMMIT
Field or NORTH PINEVIEW
LOCATION SEC 6-3N-7E
WELL LOGAN FEDERAL NO.2-A
COMPANY DAVIS

LOCATION API Serial No.
2297'FEL - 2567'FSL
NW/SE
Sec. 26 Twp. 3N Rge. 7E

Other Services:
DD

Permanent Datum: GL, Elev. 7494
Log Measured From KB, 27 Ft. Above Perm. Datum
Drilling Measured From KB

Elev.: K.B. 7521
D.F. ----
G.L. 7494

Date	4-7-84	Casing Fluid	2% KCL
Run No.	ONE	Fluid Level	APPROX.1000
Depth — Driller	13310(PBTD)	Max. Rec. Temp.	200 °F
Depth — Logger	13308(PBTD)	Est. Cement Top	-
Btm. Log Interval	13302	Unit / District	8212 / EVSTN PS
Top Log Interval	12685	Recorded By	LANDKAMER/NORDQUIST
Open Hole Size	B.S.8-1/2	Witnessed By	HAMPTON

CASING REC.	Size	Wt/Ft	Grade	Type Joint	Top	Bottom
Surface String	13-3/8				SURF	5630
Prot. String	9-5/8				SURF	11500
Prod. String	7	32,38			SURF	13455
Liner						

PRIMARY CEMENTING DATA

STRING	PRODUCTION	SQUEEZE	SQUEEZE	
Vol. of cement	500 SX	225 SX	50 SX	
Type of cement	50/50 POZ	CLASS H	CLASS H	
Additive				
DATE		2/25/84	3/9/84	
Retarder				
DEPTH		13259	13130	
Wt. of slurry				
Water loss				
Type fluid in csg.				
Fluid wt.				

FOLD HERE

The well name, location and borehole reference data were furnished by the c

REMARKS: DEPTHS CORRELATED TO SCHLUMBERGER LDT/CNL
RUN 7/2/83.
AGI'S 1-8: 4,7,5,4,4,7,4,6.
TOOLS: CEMS-773, CCCB-945, SGTL, CALY, FLEX JOINT.

Service Order Number 237981

Casing Collar Memory Distance CSU ft.
Radiation Log Memory Distance CSU ft.

Pipe reciprocated during Pumping: Yes ___ No ___
Pipe reciprocated after plug down: Yes ___ min, No ___

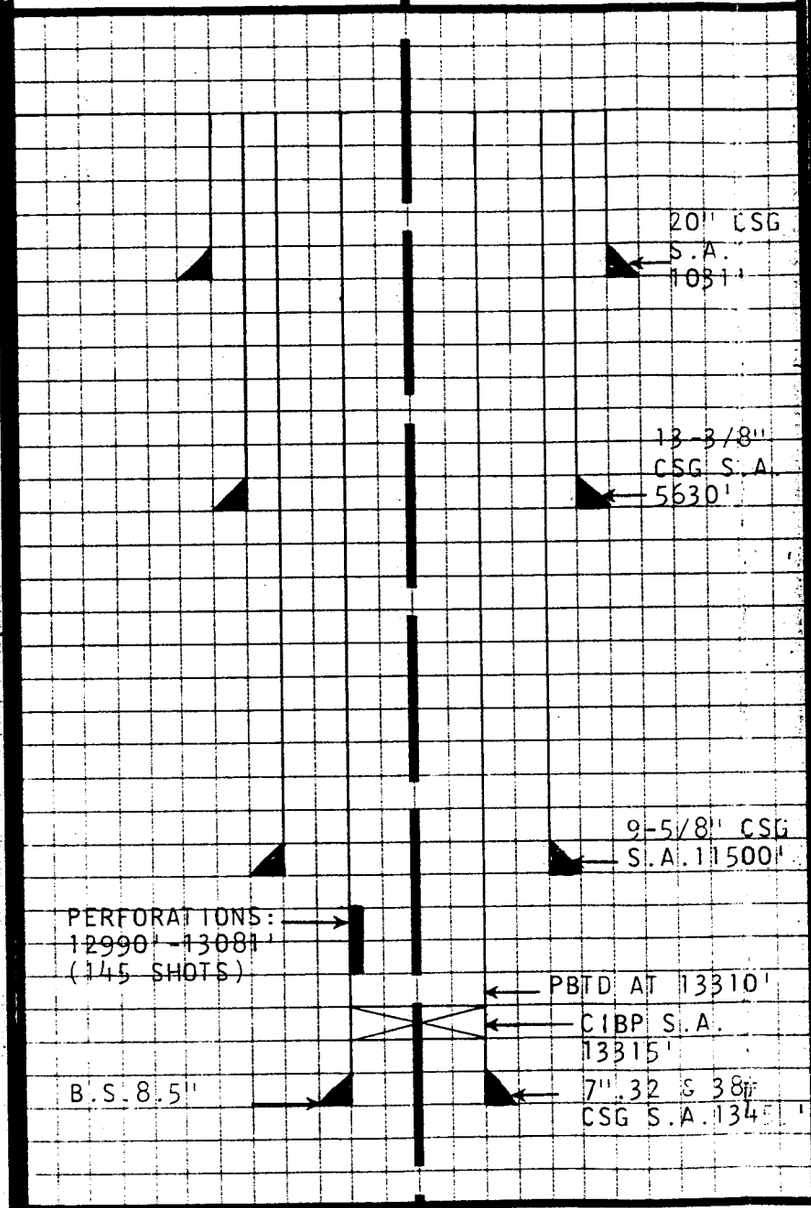
PRIMARY CEMENTING DATA

	Hour - Date
☐ Actual ☐ Estimated	
Started pumping cement	
Release pressure	
Start Cement Bond Log	
Finish Cement Bond Log	

Preceding fluid ___ Volume ___ bbls.
Cement pumped ___ bbls./minute

WELL SKETCH

Schlumberger Depths | Driller Depths



Depths of these records relate to: ☐ Schlumberger line measurements
■ Correlated by CCL to Radioactivity Log Measurements

Indicate: Hole deviation in production zone
Open hole diameter
Diameter and weight of casing and tubing
Position & nature of Perforations (SC, Capsules, etc.)

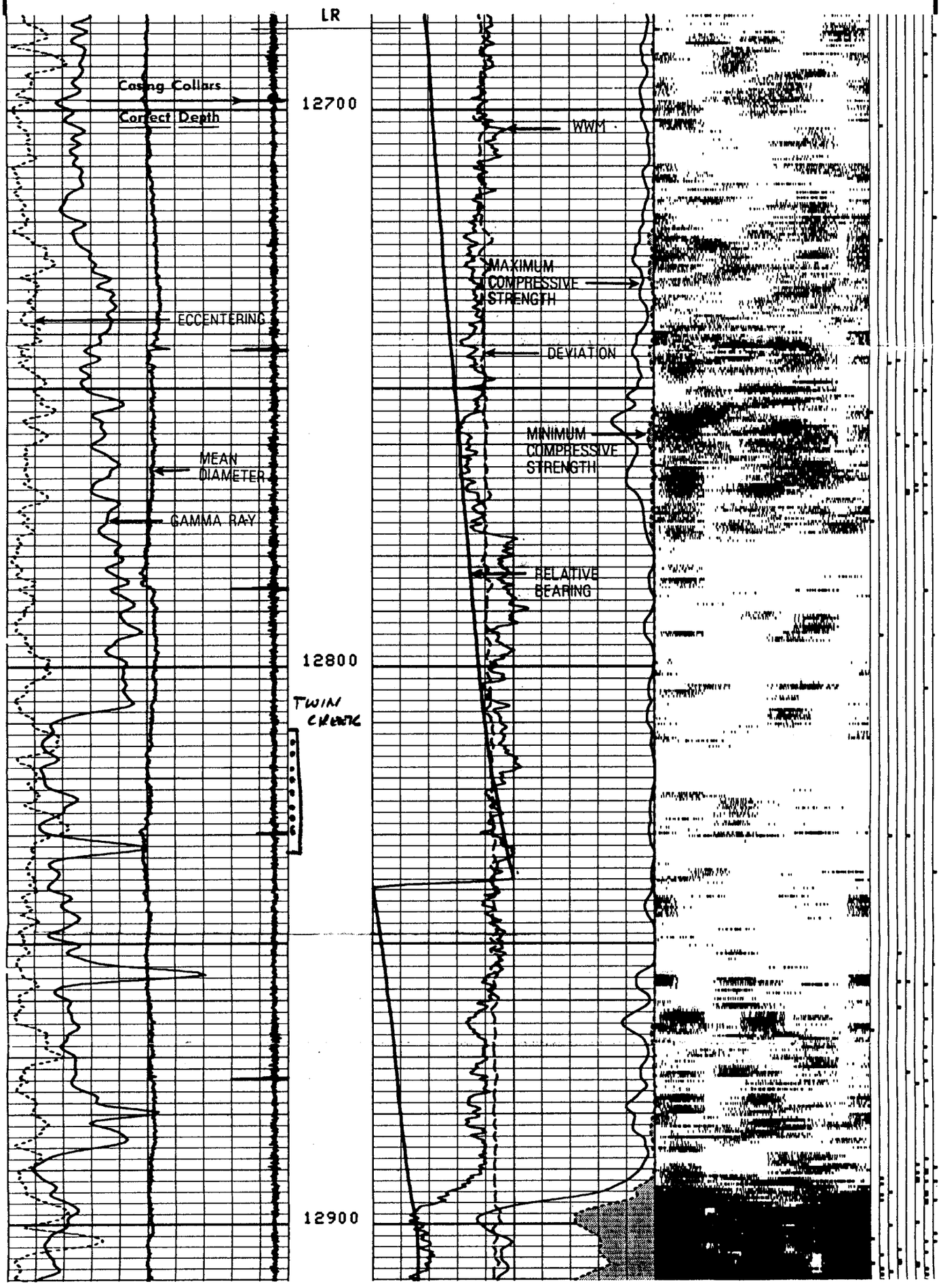
DEVI (DEG)	20.000		
0.0	WWM	2.0000	
0.0	CSMX	0.0	
10000.	CSMN	0.0	
10000.	RB (DEG)	720.00	
0.0			

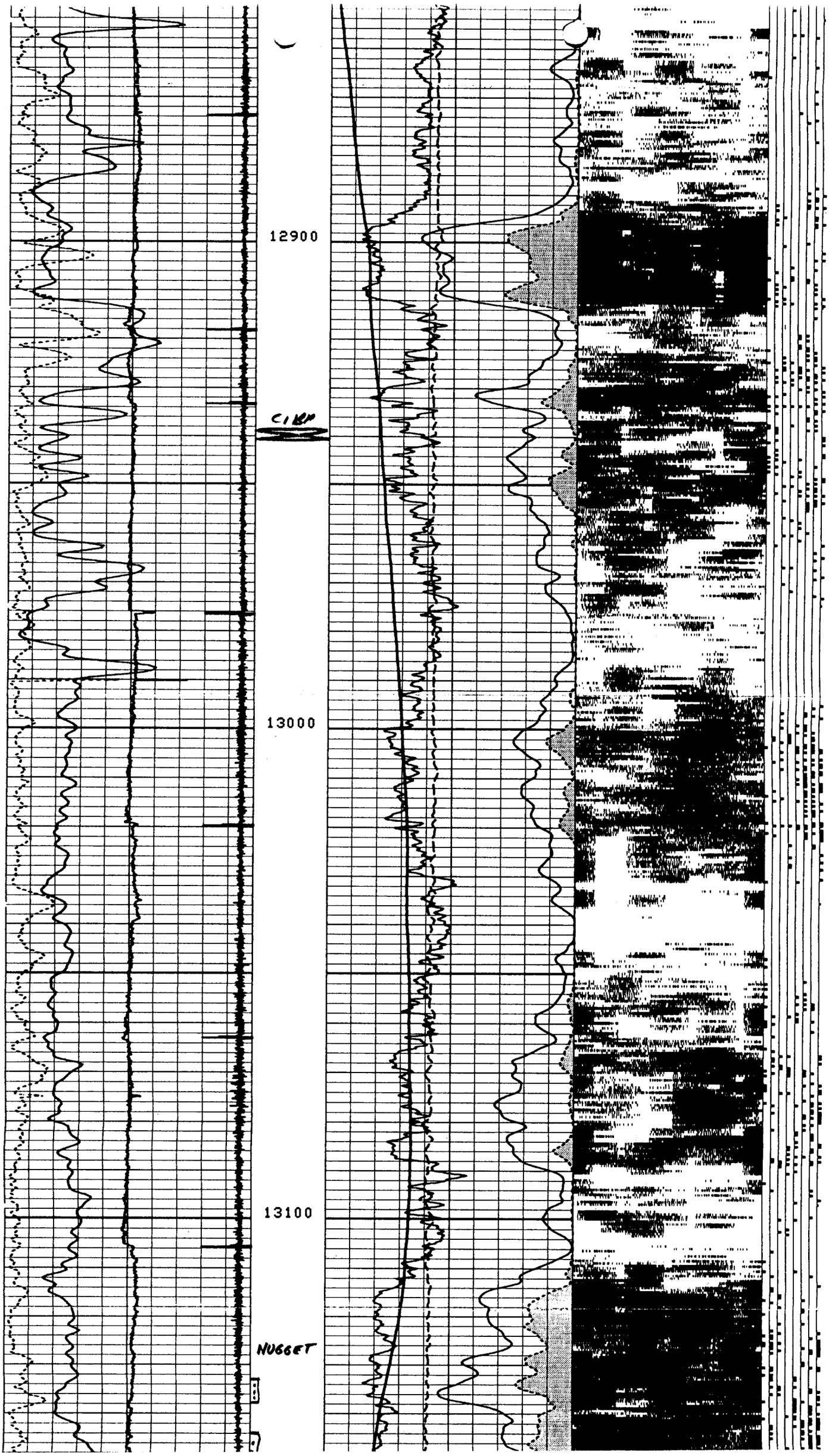
GR (GAPI)	100.00		
0.0	CCL	1.0000	
-19.00	ECCE(IN)	.50000	
0.0	CALU(IN)	6.5000	
5.5000			

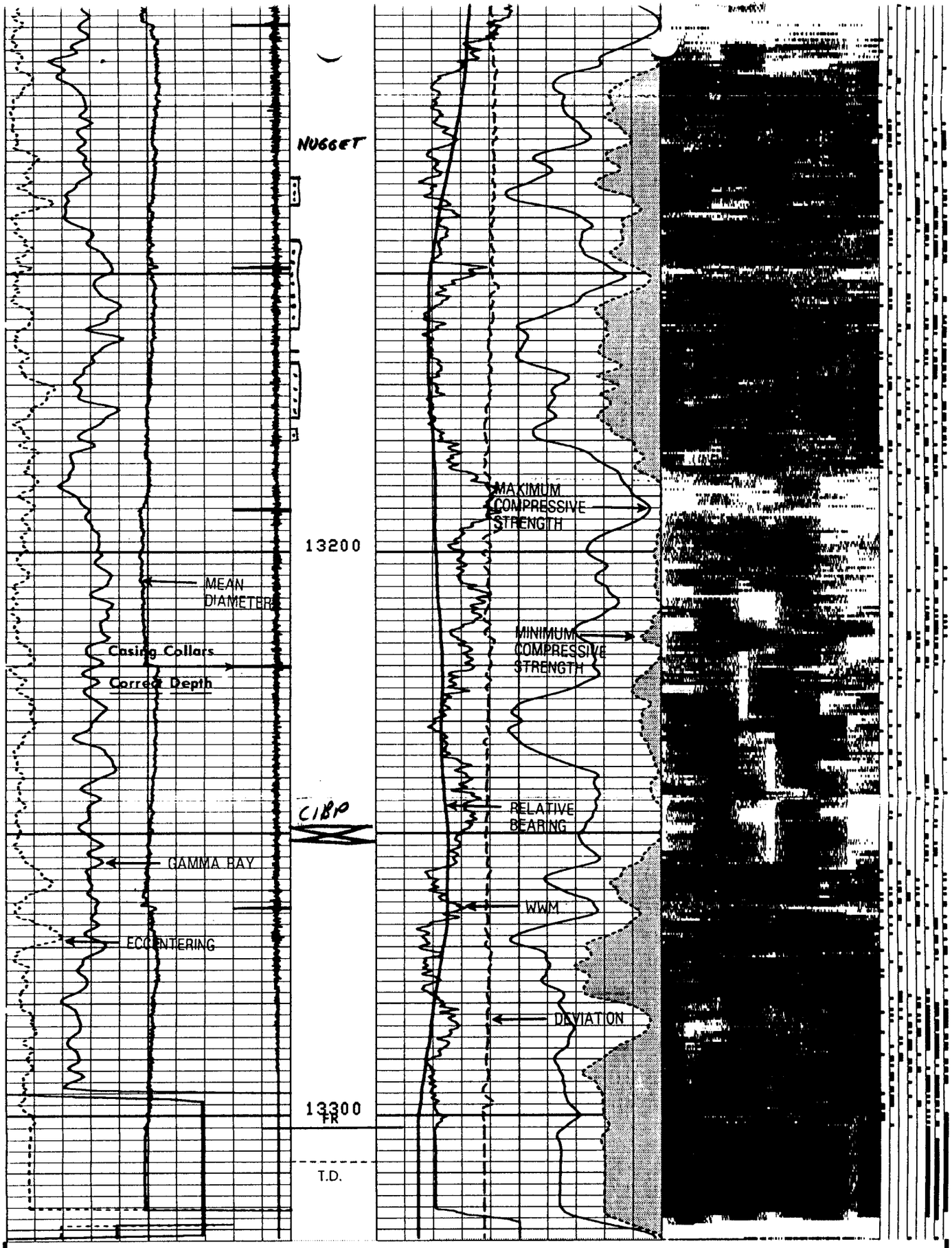
GR (GAPI)	
0.0	100.00
CCL	
-19.00	1.0000
ECCE(IN)	
0.0	.50000
CALU(IN)	
5.5000	6.5000

DEVI(DEG)	
0.0	20.000
WWM	
0.0	2.0000
CSMX	
10000.	0.0
CSMN	
10000.	0.0
RB (DEG)	
0.0	720.00

FILE 4 07-APR-84 13:36




12900
C1 KP
13000
13100
NUGGET



FILE 4 07-APR-84 13:24

		DEVI(DEG)	
		0.0	20.000
GR (GAPI)		WWM	
0.0	100.00	0.0	2.0000
CCL		CSMX	
-19.00	1.0000	10000.	0.0
ECCE(IN)		CSMN	
0.0	.50000	10000.	0.0
CALU(IN)		RB (DEG)	
5.5000	6.5000	0.0	720.00

SENSOR MEASURE POINT TO TOOL ZERO

STSG	23.7	FEET	GR	28.3	FEET
RB	6.5	FEET	DEVI	6.5	FEET
CCL	32.0	FEET	TENS	3.7	FEET
T2RD	5.7	FEET	T1RD	6.5	FEET
T4RD	6.3	FEET	T3RD	7.1	FEET

Schlumberger

CEMENT SCAN LOG

CSU

COMPANY: APACHE CORPORATION

WELL: LOGAN FEDERAL NO. 2-1

FIELD: NORTH PINEVIEW
COUNTY: SUMMIT
U.S.A.: UTAH
NATION: U.S.A.
LOCATION: 2297' FEL & 2567' FSL
NW/SE
SEC: 26 TWP: 3N RGE: 7E

OTHER SERVICES-
JB/GA
PLUG
CBT
CET
SCAN

PERMANENT DATUM: G.L.
ELEV. OF PERM. DATUM: 7494.0 F
LOG MEASURED FROM: K.B.
27.0 F ABOVE PERM. DATUM
DRLG. MEASURED FROM: K.B.

ELEVATIONS-
KB: 7521.0 F
DF:
GL: 7494.0 F

PROGRAM
TAPE NO:
27.656
SERVICE
ORDER NO:
313601

DATE: 25 JUL 87
RUN NO: TWO

Final Print

DEPTH-DRILLER: 13223.0 F
DEPTH-LOGGER: 12940.0 F
BTM. LOG INTERVAL: 12940.0 F
TOP LOG INTERVAL: 11350.0 F

CASING-DRILLER:	5630.0 F	11500.0 F	13445.0 F
CASING-LOGGER:			
CASING:	13 3/8"	9 5/8"	7"
WEIGHT:			
BIT SIZE:	17 1/2"	12 1/4"	
DEPTH:			

RECEIVED
APR 4 1994
DIV. OF OIL, GAS & MINING

TYPE FLUID IN HOLE:
DENSITY:
VISCOSITY:
PH:
FLUID LOSS:
SOURCE OF SAMPLE:
RM: AT
RMF: AT
RMC: AT
SOURCE RMF/RMC: AT 200. DEGF
RM AT BHT: AT 200. DEGF
RMF AT BHT: AT 200. DEGF
RMC AT BHT:

TIME CIRC. STOPPED:
TIME LOGGER ON BTM.: 11-21 0400

MAX. REC. TEMP: 200.0 DEGF

LOGGING UNIT NO: 8190
LOGGING UNIT LOC: EVANSTON
RECORDED BY: RICHTER
WITNESSED BY: TALBOTT

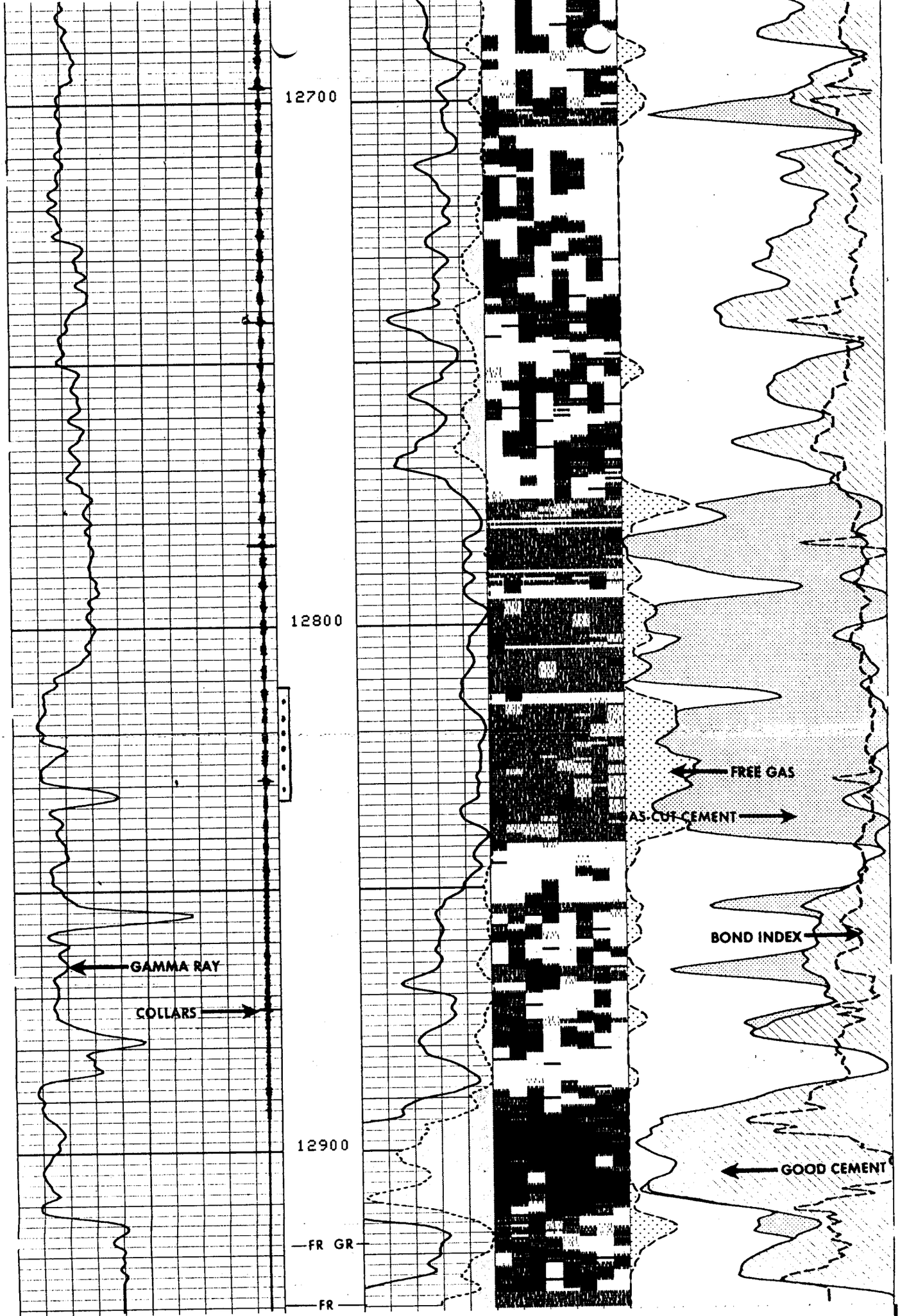
REMARKS:

DATA FOR THIS PRODUCT IS FROM THE CBT/CET FIELD LOGS
RUN ON 21 NOV 87

EQUIPMENT NUMBERS-

CBT	CET	SGT	CALY

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR



CP 27.656

FILE 101 21-NOV-87 12:53
DATA ACQUIRED 20-NOV-87 20:57
CASING PRESSURED TO 2000 PSI

GR (GAPI) 0.0 150.00	CSMX 5000.0 -5000.	DBI 1.0000 0.0
		FRGI 0.0 1.0000
		GGCI 1.0000 0.0
CCL -19.00 1.0000	CSMN 5000.0 -5000.	GOCI 1.0000 0.0

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)

September 20, 1994

Newspaper Agency Corporation
Legal Advertising
157 Regent Street
Salt Lake City, Utah 84110

Gentlemen:

Re: Notice of Agency Action - Cause No. UIC-153

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

Richardson Operating Company
Logan Federal #2-A Well
Cause No. UIC-153

Publication Notices were sent to the following:

Newspaper Agency Corporation
Legal Advertising
157 Regent Street
Salt Lake City, Utah 84110

Summit County Bee
20 North Main
Coalville, Utah 84017

Richardson Operating Company
1700 Lincoln Street, Suite 1700
Denver, Colorado 80202

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

Al McKee
Bureau of Land Management
P. O. Box 45155
Salt Lake City, Utah 84145-0155

Lisha Cordova

Lisha Cordova
Administrative Analyst
September 20, 1994

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)

September 20, 1994

Summit County Bee
20 North Main
Coalville, Utah 84017

Gentlemen:

Re: Notice of Agency Action - Cause No. UIC-153

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

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)

UTAH DIVISION OF OIL, GAS AND MINING
FACSIMILE COVER SHEET

DATE: Sept. 20, 1994

FAX # 1-654-1479

ATTN: Karen

COMPANY: Summit County Bee

FROM: Lisha Cordova

DEPARTMENT: Oil & Gas

NUMBER OF PAGES BEING SENT (INCLUDING THIS ONE): 4

If you do not receive all of the pages, or if they are illegible, please call (801) 538-5340.

We are sending from a Murata facsimile machine. Our telecopier number is (801) 359-3940.

MESSAGES:

Please publish on Friday the 23rd if at all possible. We would really appreciate it.

Thank You!

Call me if it is not possible.

Important: This message is intended for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited, If you have received this communication in error, please notify us immediately by telephone and return this original message to us at the above addressed via regular postal service. Thank you.

RICHARDSON OPERATING COMPANY

1700 Lincoln, Suite 1700
Denver, Colorado 80203 (303) 830-8000
FAX (303) 830-8009

Dan Jarvis
Utah Division of Oil, Gas, and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

September 16, 1994

RECEIVED
SEP 21 1994
DIV. OF OIL, GAS & MINING

Re: Application for Salt Water Disposal
Logan Federal #2A
NW SE Section 26-T3N-R7E
Summit County, Utah

Dear Dan:

Regarding our telephone conversation of September 16, 1994, the following is submitted for your consideration:

1. **NEW PLAN OF OPERATION**: Prusuant to your verbal approval to use a dual packer setup to isolate Twin Creek perforations from 12811-12833, attached is our complete procedure to convert the Logan Federal #2A to water disposal

2. **INJECTION INTO THE LOGAN FEDERAL #2A WILLNOT ADVERSELY AFFECT PRODUCTION FROM THE LOGAN FEDERAL #1**: Attached is a geologic cross-section from the Logan Federal #1 to the Logan Federal #2A. The cross-section shows the injection intervals in the Logan Federal #2A are present in the Logan Federal #1, but those zones in the Logan Federal #1 have produced and watered out and are isolated below a bridge plug.

3. **NUGGET FORMATION FRACTURE GRADIENT**: In 1987, when Apache attempted a Twin Creek completion in the Logan Federal #2A, they ran a 4 point injection test into the Nugget Formation. The plot of the injectivity test is attached showing that at 3100 psi surface and 1800 bwpd injection, the fracture pressure still had not been reached. The injectivity data was attached to an Application to Convert the Twin Creek to water injection, submitted by Richardson Operating Company on March 31, 1994 and subsequently withdrawn.

If you have any questions or need additional information, please call.

Sincerely,

SR Smith

STEPHAN R SMITH - PE

Manager - Production and Enineering
Richardson Operating Company

RICHARDSON OPERATING COMPANY
LOGAN FEDERAL #2A
Covnersion to water disposal

DAY 1 MIRU work over rig, pump tank and power swivel

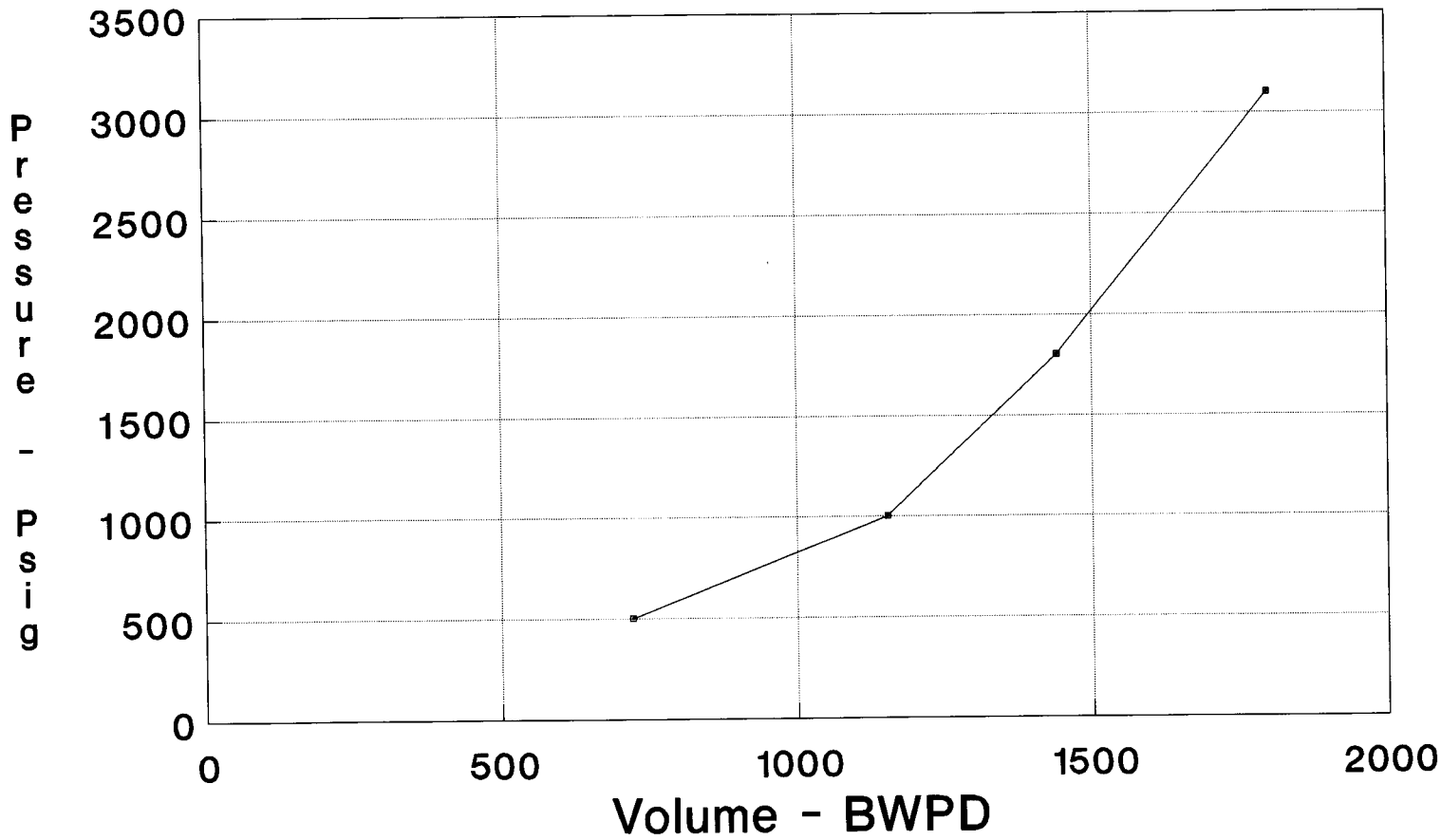
DAY 2 NDWH NUBOP Trip out of hole w/ tubing and seal assembly. Trip in hole with packer retrieving tool. Retrieve packer. Begin trip out of hole

DAY 3 Finish TOH. Pick up bit. TIH and drill out CIBP @ 12940. Tag PBTD @ 13250'.

DAY 4 TOH w/ bit. Run Retrieva D Packer packer on wireline & set @ 13000'. TIH w/ stinger & Baker Model R Packer. Top packer will be set above Twin Creek perfs from 12811-12833. Sting into D packer and set Model R packer.

DAY 5 NDBOP NUWH, release rig, pump and BOP

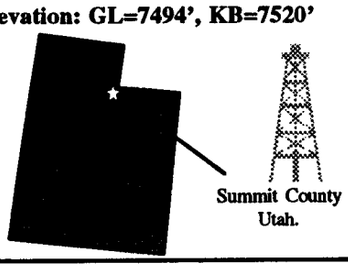
LOGAN FEDERAL #2A
INJECTIVITY TEST 11/20/87



FILE: G:\wellfile\npnvw\LOGAN2A.PPT

Well: Logan Federal #2-A

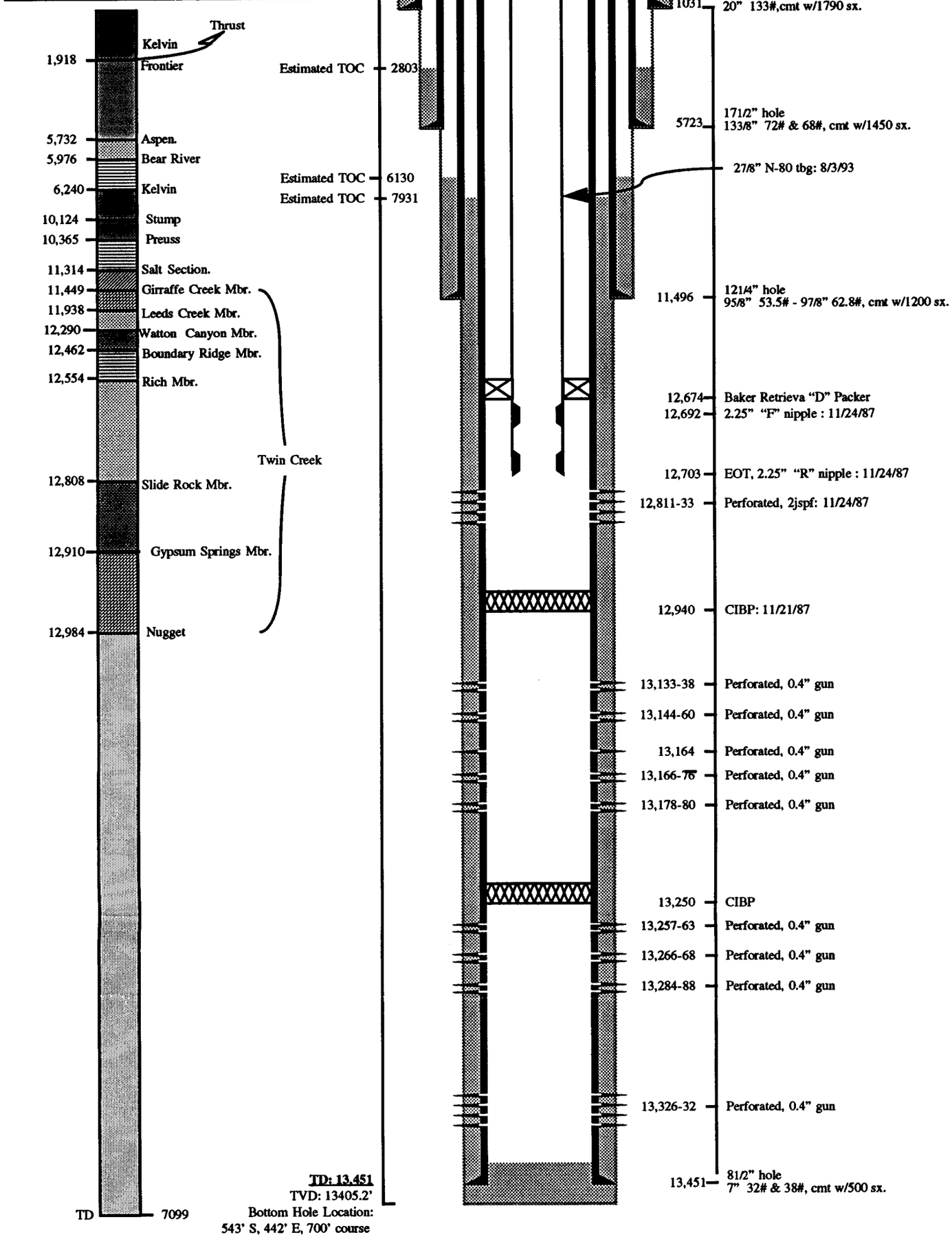
NW SE, Sec 26, T3N, R7E
Summit County, Utah
Surface Location: 2297' FEL, 2567' FSL
Bottomhole Location: 1855' FEL, 2024' FSL
Elevation: GL=7494', KB=7520'



Wellbore Diagram as of 3/94

(Current Completion)

Compiled by: GDV, March 30, 1994



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

---ooOoo---

IN THE MATTER OF THE APPLICATION OF RICHARDSON OPERATING CO. FOR ADMINISTRATIVE APPROVAL OF THE LOGAN FEDERAL 2-A WELL LOCATED IN SECTION 26, TOWNSHIP 3 NORTH, RANGE 7 EAST, S.L.M., SUMMIT COUNTY UTAH, AS A CLASS II INJECTION WELL	:	NOTICE OF AGENCY ACTION CAUSE NO. UIC-153

---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 Richardson Operating Company for administrative approval of the Logan Federal 2-A Well, located in Section 26, Township 3 North, Range 7 East, Summit 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 Nugget formation interval from 13,133 feet to 13,180 feet will be selectively perforated to facilitate the injection of produced water for the purpose of disposal. The average injection pressure is estimated to be 500 psig and the estimated maximum injection volume is 1000 barrels of water per day.

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 20th day of September 1994.

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

R.J. Firth
Associate Director, Oil & Gas

43-043-30273

United States Department of the Interior

OCT 7 1994

BUREAU OF LAND MANAGEMENT
Salt Lake District Office
2370 South 2300 West
Salt Lake City, Utah 84119

IN REPLY REFER TO:

3160
(UT-022)

OCT 6 1994

Richardson Operating Company
1700 Lincoln, Suite 1700
Denver, Colorado 80203

RE: **LOGAN FEDERAL #2A**
APPROVAL OF SUNDRY NOTICE

To whom it may concern:

On September 23, 1994 Richardson Operating Company submitted a sundry notice for Logan Federal #2A, on lease number UTU47812 located in NW1/4SE1/4, Section 26, T. 3 N., R. 7 E., SLBM.

Oral approval of this sundry notice was given by R. Allen McKee on September 26, 1994. This letter provides you with written confirmation of that oral approval. An approved, signed copy of the sundry notice is enclosed.

Sincerely,

for Nancy Golden

Nancy Golden
Acting District Manager

Enclosure:
Approved Sundry Notice

cc:
A. McKee, UT 922 w/enclosure
Utah Division of Oil, Gas, and Mining w/o enclosure

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 (NAC) DESERET NEWS

CUSTOMER'S COPY

LEGAL ADVERTISING INVOICE

CUSTOMER NAME AND ADDRESS	ACCOUNT NUMBER	BILLING DATE
DIV OF OIL, GAS & MINING 355 WEST NORTH TEMPLE 3 TRIAD CENTER #350 SLC, UT 84180	LE-5385340	09/27/94

FOR BILLING INFORMATION
CALL (801) 237-2822

AFFIDAVIT OF PUBLICATION

AS NEWSPAPER AGENCY CORPORATION LEGAL BOOKKEEPER, I CERTIFY THAT THE ATTACHED ADVERTISEMENT OF NOTICE OF AGENCY ACTIONCAUSE NO. UIC-153BEFOR 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 CIRCURATION IN UTAH, AND PUBLISHED IN SALT LAKE CITY, SALT LAKE COUNTY IN THE STATE OF UTAH.

PUBLISHED ON SEP 27 1994

SIGNATURE

DATE 09/27/94

NOTICE OF AGENCY ACTION CAUSE NO. UIC-153 BEFORE THE DIVISION OF OIL, GAS AND MINING DEPARTMENT OF NATURAL RESOURCES, STATE OF UTAH

IN THE MATTER OF THE APPLICATION OF RICHARDSON OPERATING CO. FOR ADMINISTRATIVE APPROVAL OF THE LOGAN FEDERAL 2-A WELL LOCATED IN SECTION 26, TOWNSHIP 3 NORTH, RANGE 7 EAST, S.L.M., SUMMIT 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 Division of Oil, Gas and Mining (the "Division") is commencing an informal adjudicative proceeding to consider the application of Richardson Operating Company for administrative approval of the Logan Federal 2-A Well, located in Section 26, Township 3 North, Range 7 East, Summit 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 Nugget formation interval from 13,133 feet to 13,180 feet well be selectively perforated to facilitate the injection of produced water for the purpose of disposal. The average injection pressure is estimated to be 500 psig and the estimated maximum injection volume is 1000 barrels of water per day.

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 may 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 20th day of September, 1994.

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING
/s/ R.J. Firth
Associate Director, Oil & Gas
9N820240

ACCOUNT NAME			TELEPHONE
IV OF OIL, GAS & MINING			801-538-5340
SCHEDULE			AD NUMBER
SEP 27 1994			9N820240
CUST. REF. NO.	CAPTION		MISC. CHARGES
SE #UIC-153	NOTICE OF AGENCY ACTIONCAUSE NO. UIC-153BEFOR		.00
SIZE	TIMES	RATE	AD CHARGE
74 LINES 1 COLUMN	1	1.64	121.36
E AND PAYABLE ON RECEIPT OF THIS INVOICE		TOTAL AMOUNT DUE	121.36

THANK YOU FOR USING LEGAL ADVERTISING.

PLEASE RETURN THIS PORTION

WITH YOUR PAYMENT IN THE ENCLOSED ENVELOPE

LEGAL ADVERTISING ADV06-NT

ACCOUNT NUMBER	AD NUMBER	BILLING DATE	PAY THIS AMOUNT
LE-5385340	9N820240	09/27/94	121.36

LEGAL ADVERTISING

PLEASE REMIT TO:

NEWSPAPER AGENCY CORPORATION
P.O. BOX 45838
SALT LAKE CITY, UTAH 84145-0838

MAKE CHECKS PAYABLE TO:
NEWSPAPER AGENCY CORPORATION

DIV OF OIL, GAS & MINING
355 WEST NORTH TEMPLE
3 TRIAD CENTER #350
SLC, UT 84180

PLEASE REMOVE THIS STUB

07 7116706202408 000121367 000121367 000121367

PROOF OF PUBLICATION

STATE OF UTAH, }
County of Summit, } ss.

I, Nancy Davis

being first duly sworn, depose and say that I am the

bookkeeper of The Summit County Bee, a weekly newspaper of general circulation, published once each week at Coalville, Utah, that the notice attached hereto and which is a

Cause No. UIC-153

was published in said newspaper for one consecutive issues, the first publication having been made on the 23 day of Sept, 1994, and the last on the 23 day of Sept, 1994, that said notice was published in the regular and entire issue of every number of the paper during the period and times of publication, and the same was published in the newspaper proper and not in any supplement.

Nancy Davis

Subscribed and sworn to before me this 23 day of Sept, 1994.

Susan F. Buys
Notary Public

My commission expires November 1, 1996.

Notary Public
SUSAN F. BUYS
345 North 600 East
Heber City, Utah 84032
My Commission Expires
November 1, 1996
State of Utah

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

IN THE MATTER OF THE APPLICATION OF RICHARDSON OPERATING CO. FOR ADMINISTRATIVE APPROVAL OF THE LOGAN FEDERAL 2-A WELL LOCATED IN SECTION 26, TOWNSHIP 3 NORTH, RANGE 7 EAST, S.L.M., SUMMIT COUNTY, UTAH, AS A CLASS II INJECTION WELL.

NOTICE OF AGENCY ACTION
CAUSE NO. UIC-153

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 Richardson Operating Company for administrative approval of the Logan Federal 2-A Well, located in Section 26, Township 3 North, Range 7 East, Summit 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 Nugget formation interval from 13,133 feet to 13,180 feet will be selectively perforated to facilitate the injection of produced water for the purpose of disposal. The average injection pressure is estimated to be 500 psig and the estimated maximum injection volume is 1000 barrels of water per day.

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 20th day of September, 1994.

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

Published in The Summit County Bee September 23, 1994.

PROOF OF PUBLICATION

STATE OF UTAH, }
County of Summit, } ss.

I, Nancy Davis

being first duly sworn, depose and say that I am the

bookkeeper of The Summit County Bee, a weekly newspaper of general circulation, published once each week at Coalville, Utah, that the notice attached hereto and which is a

Cause No. UIC-153

was published in said newspaper for One consecutive issues, the first publication having been made on the 23 day of Sept, 1994, and the last on the 23 day of Sept, 1994, that said notice was published in the regular and entire issue of every number of the paper during the period and times of publication, and the same was published in the newspaper proper and not in any supplement.

Nancy Davis

Subscribed and sworn to before me this 23 day of Sept, 1994.

Susan F. Buys
Notary Public

My commission expires November 1, 1996.

Notary Public
SUSAN F. BUYS
245 North 600 East
Heber City, Utah 84032
My Commission Expires
November 1, 1996
State of Utah

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

IN THE MATTER OF THE APPLICATION OF RICHARDSON OPERATING CO. FOR ADMINISTRATIVE APPROVAL OF THE LOGAN FEDERAL 2-A WELL LOCATED IN SECTION 26, TOWNSHIP 3 NORTH, RANGE 7 EAST, S.L.M., SUMMIT COUNTY, UTAH, AS A CLASS II INJECTION WELL.

NOTICE OF AGENCY ACTION
CAUSE NO. UIC-153

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 Richardson Operating Company for administrative approval of the Logan Federal 2-A Well, located in Section 26, Township 3 North, Range 7 East, Summit 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 Nugget formation interval from 13,133 feet to 13,180 feet will be selectively perforated to facilitate the injection of produced water for the purpose of disposal. The average injection pressure is estimated to be 500 psig and the estimated maximum injection volume is 1000 barrels of water per day.

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 20th day of September, 1994.

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

Published in The Summit County Bee September 23, 1994.

INJECTION PERMIT TRACKING RECORD

Company: Richardson Operating (N2400) **Well:** Logan Federal ~~#1~~ #2-A

Location: **Sec.** 26 **Twn:** 3N **Rng:** 7E **QtQt:** NENE

County: Summit **Field:** N. Pineview **Unit:**

API No.: 43-043-30186

Date Received: 4/4/94

Cause Number: 150

Notice Date: 9/23/94

Conversion Approval: 10/11/94

Permit Issued: 10/11/94

Commencement: 10/10/94

Drilled: Well is TD

Code: D

Hearing Date:

Wells In AOR: 1 P 2 PA

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-153

Operator: Richardson Operating Company

Well: Logan Federal #2A

Location: Section 26 , Township 3N, Range 7E, Summit County

API No.: 43-043-30223

Well Type: Disposal

Stipulations of Permit Approval

1. Approval for conversion to Injection Well issued on October 11, 1994.
2. Maximum Allowable Injection Pressure: 3000 psig
3. Maximum Allowable Injection Rate: 1000 barrels per day

Approved by: R.J. Firth — 10/11/94

R.J. Firth
Associate Director, Oil and Gas

Date

DIVISION OF OIL, GAS AND MINING
UNDERGROUND INJECTION CONTROL PROGRAM

PERMIT
DECISION DOCUMENT

Applicant: Richardson Operating **Well:** Logan Fed. #2A

Location: Sec. 26, T.3 N., R.7 E., Summit County

Ownership Issues:
The proposed well is located in section 26, township 3 north, range 7 east Summit County, Utah. The surface location is owned by Aagard Ranch. The Minerals are held by the BLM, all of which have been sent a notice of intent to convert. An affidavit has been filed stating that surface and mineral owners were notified.

Well Integrity:
The well proposed for injection is the Logan Fed. #2A. This well has a 20" surface casing set at 1031 feet and is cemented to surface. A 13 3/8" intermediate casing was set from surface to 5723 feet and cemented with 1450 sacks of cement. The cement top is at approximately 2803 feet and was verified with a cement bond log. A second intermediate casing was set at 11496 feet and cemented to 6130 feet. A 7" production casing was set from surface to 13451 feet and cemented with 500 sacks of cement with an estimated cement top at 7931 feet. The proposed zone of injection lies within the Nugget Formation at a depth of 13133 feet to 13180 feet. A dual packer system will be set to isolate Twin Creek perfs from 12811-12832. This construction should adequately protect all USDW's. There is one producing and two plugged and abandoned wells in the 1/2 mile area of review. All three of these wells have adequate constructions or plugging to protect any USDW's. A casing test should be performed at the time of conversion and a casing/tubing pressure test should be performed prior to injection.

Ground Water Protection:
The base of moderately saline water is at a depth of approximately 5000 feet located in the Frontier Formation in the area of the proposed well. Underground sources of drinking water in the area may be present in the surface alluvium and in shallow sands within the Kelvin and Frontier Formations. The upper confining zone consists of impermeable shale and limestone beds of the Twin Creek Formation. The lower confining zone consists of shale, and sand stringers of the Ankara Formation. Any shallow fresh water zones will be adequately protected by the existing construction and proposed remedial actions. No corrective action is needed on any of the offset wells or the proposed well.

Oil/Gas & Other Mineral Resources Protection:
Injection into this well should have no adverse affects on any offsetting production. Richardson has submitted a statement that the previously producing Nugget formation has watered out and is no longer productive.

Bonding:
Richardson Operating Company holds a statewide bond in the amount of $80,000 dollars.

Actions Taken and Further Approvals Needed:
A public notice for the injection well was published in both the Salt Lake Tribune and the Summit County Bee. Approval and concurrence from the BLM is needed. A pressure test was run on the casing and a casing tubing test was also run. Both tests were successful. Step rate data indicate a fracture gradient of .78 psi/ft. A maximum injection pressure of 3000 psi was requested and is well below the fracture pressure. If no objections are raised regarding the conversion of the well it is recommended that approval be granted.

DJJ
Reviewers

10-07-94
Date

43-013-30223

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)

October 11, 1994

Richardson Operating Company
1700 Lincoln, Suite 1700
Denver, Colorado 80203

Re: Logan Federal #2A Well, Section 26, Township 3 North, Range 7 East, Summit County, Utah

Gentlemen:

Pursuant to Utah Admin. Code R649-5-3-3, the Division of Oil, Gas and Mining (the "Division") issues its administrative approval for conversion of the referenced well to a Class II injection well. Accordingly, the following stipulations shall apply for full compliance with this approval:

1. Compliance with all applicable requirements for the operation, maintenance and reporting for Underground Injection Control ("UIC") Class II injection wells pursuant to Utah Admin. Code R649-1 et seq.

2. Conformance with all conditions and requirements of the complete application submitted by Richardson Operating Company.

Enclosed with this letter is the Underground Injection Control Permit for this well. If you have any questions regarding this approval or the necessary requirements, please contact Dan Jarvis at this office.

Sincerely,

R.J. Firth
Associate Director

cc: Dan Jackson, Environmental Protection Agency
Bureau of Land Management, Salt Lake City

MICROFICHE

JN Exploration & Production

550 N. 31st Street, Suite 300
P.O. Box 7167
Billings, Montana 59103-7167
(406) 248-2222
FAX (406) 248-5253

September 6, 1995

Utah Division of Oil, Gas & Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Re: Change of Operator

Logan Fed #1 Well	Logan Fed #2A SWD Well	Champlin 846 B-1
SE/NE Sec. 26, T3N-R7E	NW/SE Sec. 26, T3N-R7E	NW/NE Sec. 25, T5N-R7E
Summit Co., Utah	Summit Co., Utah	Summit Co., Utah

Gentlemen:

Included with this letter please find the required copies of the change of operator forms for the above referenced wells. Also included are the required copies of the UIC Form 5, Transfer of Authority to Inject for the Logan Federal #2A well.

If you have questions concerning these forms, please contact me at our Billings, Montana office.

Sincerely,

RECEIVED
SEP 11 1995
DIV. OF OIL, GAS & MINING

W.M. Belden

W. M. Belden
Senior Engineer
JN Exploration & Production

\ss

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

6. Lease Designation and Serial Number: UTU-47812

7. Indian Allottee or Tribe Name: –

8. Unit or Communitization Agreement: –

SUNDRY NOTICES AND REPORTS ON WELLS

Use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells. Use APPLICATION FOR PERMIT — for such proposals.

Type of Well: ☐ Oil Well ☐ Gas Well ☒ Other (specify) Salt Water Disposal

9. Well Name and Number: Logan Federal #2A

Name of Operator: JN Exploration & Production Limited Partnership

10. API Well Number: 43-043-30223

Address of Operator: 550 N. 31st Street, Suite 300, Billings, MT 59101

4. Telephone Number: (406) 248-2222

11. Field and Pool, or Wildcat: North Pineview

Location of Well

Footage : 2297' FEL and 2567' FSL — County : Summit

QQ, Sec, T., R., M. : NW/4SE/4-Section 26-T3N-R7E — State : UTAH

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 Transfer of operations
- ☐ 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 _____

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.

13. 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.)

Notice of change of operator.
Effective September 1, 1995, 100% of the working interest elected JN Exploration & Production Limited Partnership as operator of the above well. JN Exploration & Production Limited Partnership is providing bond coverage under BLM Bond No. WY-2395, Surety No. 5089867.

Richardson Operating Company
David B. Richardson
David B. Richardson, President

RECEIVED
SEP 11 1995
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct
JN Exploration & Production Limited Partnership, by JN Oil and Gas, Inc., its General Partner
Name & Signature C. K. [illegible] Title President Date 8-31-95

(State Use Only)

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

TRANSFER OF AUTHORITY TO INJECT - UIC FORM 5

Well name and number: Logan Federal #2A

Field or Unit name: North Pineview API no. 43-043-30223

Well location: QQ NWSE section 26 township 3N range 7E county Summit

Effective Date of Transfer: 9-1-95

CURRENT OPERATOR

Transfer approved by:

Name David B. Richardson

Signature David B. Richardson

Title President

Date 8-30-95

Company Richardson Operating Company

Address 1700 Lincoln, Suite 1700
Denver, CO 80203

Phone (303) 830-8000

Comments:

NEW OPERATOR

Transfer approved by:

Name Gary K. Nelson

Signature Gary K. N

Title President

Date

Company JN Exploration & Production Limited Partnership, by JN Oil and Gas, Inc., its General Partner

Address 550 N. 31st Street, Suite 300
Billings, MT 59101

Phone (406) 248-2222

Comments:

(State use only)
Transfer approved by M. Hunt Title Environ. Manager

Approval Date 9-29-95

RECEIVED
SEP 11 1995
DIV. OF OIL, GAS & MINING

(3/89)

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.: UTU-47812
6. If Indian, Allottee or Tribe Name: –
7. If Unit or CA, Agreement Designation: –
8. Well Name and No.: Logan Federal #2A
9. API Well No.: 43-043-30223
10. Field and Pool, or Exploratory Area: North Pineview
11. County or Parish, State: Summit County, UT

1. Type of Well: ☐ Oil Well ☐ Gas Well ☒ Other Salt Water Disposal
2. Name of Operator: JN Exploration & Production Limited Partnership
3. Address and Telephone No.: 550 N. 31st Street, Suite 300, Billings, MT 59101 (406) 248-2222
4. Location of Well (Footage, Sec., T., R., M., or Survey Description): 2297' FEL and 2567' FSL NW/4SE/4-Section 26-T3N-R7E

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
	☐ Recompletion	☐ New Construction
☐ Subsequent Report	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
☐ Final Abandonment Notice	☐ Altering Casing	☐ Conversion to Injection
	☒ Other Operator change	☐ 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.)*

Notice of change of operator.
Effective September 1, 1995, 100% of the working interest elected JN Exploration & Production Limited Partnership as operator of the above well. JN Exploration & Production Limited Partnership does hereby certify that it is responsible under the terms and conditions of the lease to conduct lease operations. Bond coverage pursuant to 43 CFR 3104 for lease activities is being provided by JN Exploration & Production Limited Partnership under BLM bond number WY-2395, Surety number 5089867.

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 2

To LISHA CORDOVA	From LOU TABORD
Co. DOGM	Co. BLM
Dept.	Phone # 4042
Fax # 359-3940	Fax # 4200

14. I hereby certify that the foregoing is true and correct.
Signed JN Exploration & Production Limited Partnership, by JN Oil and Gas, Inc., its General Partner Title President Date 8-2-95

(This space for Federal or State office use)
Approved by Title CHIEF, BRANCH OF FLUID MINERALS Date SEP 19 1995
Conditions of approval, if any:

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

Routing: (GIL)

1	LRC 7-PL
2	LWP 8-SJ
3	DTS 9-FILE
4	VLD ✓
5	RJF ✓
6	LWP ✓

Attach all documentation received by the division regarding this change.
Initial each listed item when completed. Write N/A if item is not applicable.

XXX Change of Operator (well sold) ☐ Designation of Agent
☐ Designation of Operator ☐ Operator Name Change Only

The operator of the well(s) listed below has changed (EFFECTIVE DATE: 9-1-95)

TO (new operator) JN EXPLORATION & PROD.
(address) 550 N 31ST ST STE 300
BILLINGS MT 59101

phone (406) 248-2222
account no. N 2955 (9-28-95)

FROM (former operator) RICHARDSON OPERATING CO
(address) 1700 LINCOLN ST STE 1700
DENVER CO 80202

phone (303) 830-8000
account no. N2400

Well(s) (attach additional page if needed): *WDW

Name	API	Entity	Sec	Twp	Rng	Lease Type
LOGAN FEDERAL 1/NGSD	43-043-30186	2775	26	3N	7E	U47812
*LOGAN FEDERAL 2-A/NGSD	43-043-30223	2775	26	3N	7E	U47812
CHAMPLIN 846 B-1/TWNCR	43-043-30253	9795	25	5N	7E	FEE

OPERATOR CHANGE DOCUMENTATION

LRC 1. (Rule R615-8-10) Sundry or other legal documentation has been received from former operator (Attach to this form). (Rec'd 9-11-95)

LRC 2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form). (Rec'd 9-11-95)

LRC 3. The Department of Commerce has been contacted if the new operator above is not currently operating any wells in Utah. Is company registered with the state? (yes/no) ____ If yes, show company file number: #dba 096211. (eff 3-2-89)

LRC 4. **(For Indian and Federal Wells ONLY)** The BLM has been contacted regarding this change (attach Telephone Documentation Form to this report). Make note of BLM status in comments section of this form. Management review of **Federal and Indian** well operator changes should take place prior to completion of steps 5 through 9 below.

LRC 5. Changes have been entered in the Oil and Gas Information System (Wang/IBM) for each well listed above. (9-28-95)

LWP 6. Cardex file has been updated for each well listed above. 10-3-95

LWP 7. Well file labels have been updated for each well listed above 10-3-95

LRC 8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to State Lands and the Tax Commission. (9-28-95)

LRC 9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

– OVER –

OPERATOR CHANGE WORKSHEET (CONTINUED) Initial each item when completed. Write N/A if item is not applicable.

ENTITY REVIEW

✓ 1. (Rule R615-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes/no) ___ (If entity assignments were changed, attach copies of Form 6, Entity Action Form).

N/A 2. State Lands and the Tax Commission have been notified through normal procedures of entity changes.

BOND VERIFICATION (Fee wells only)

Surety Bond No. 5845430/80,000 "Safeco Ins. Co. of America"

✓ 1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.

2. A copy of this form has been placed in the new and former operators' bond files. *Upon compl. of routing.

✓ 3. The former operator has requested a release of liability from their bond (yes/no) ___. Today's date _____ 19___. If yes, division response was made by letter dated _____ 19___.

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

N/A 1. (Rule R615-2-10) The former operator/lessee of any **fee lease** well listed above has been notified by letter dated _____ 19___, of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested. This is no longer being done at directive of RBP. DTS

DTS 10/4/95

N/A 2. Copies of documents have been sent to State Lands for changes involving **State leases**.

FILMING

✓ 1. All attachments to this form have been microfilmed. Date: October 20 19 95.

FILING

___ 1. Copies of all attachments to this form have been filed in each well file.

___ 2. The original of this form and the original attachments have been filed in the Operator Change file.

COMMENTS

950927 Blm/SL Aprv. 9-19-95.

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

1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

August 19, 1997

JN Exploration
550 North 31st Street, Suite 300
Billings, Montana 59101

Re: Pressure Test for Mechanical Integrity, Logan Federal 2-A Injection Well, Sec. 26, T. 3 N., R. 7 E., Summit County, Utah

Gentlemen:

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. Our records indicate the above referenced wells are due for testing. Please make arrangements and ready the wells for testing during the week of September 8, 1997 as outlined below:

1. Operator must furnish connections, and accurate pressure gauges, hot oil truck (or other means of pressuring annulus), as well as 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 me at (801)538-5338 to arrange a meeting time and place or negotiate a different date if this one is unacceptable.

Sincerely,

Dan Jarvis
UIC Geologist

lwp

FORM 9

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

5. LEASE DESIGNATION AND SERIAL NUMBER: UTU47812

SUNDRY NOTICES AND REPORTS ON WELLS

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

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.

7. UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER SWD

8. WELL NAME and NUMBER: LOGAN FEDERAL #2A-SWD

2. NAME OF OPERATOR: RIM OPERATING, INC.

9. API NUMBER: 43-043-30223

3. ADDRESS OF OPERATOR: 5 INVERNESS DRIVE EAST ENGLEWOOD, CO 80112 ZIP

PHONE NUMBER: 303-799-9828

10. FIELD AND POOL, OR WILDCAT: NORTH PINEVIEW

4. LOCATION OF WELL

FOOTAGES AT SURFACE:

COUNTY: SUMMIT

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NW SE SECTION 26-3N-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:	☐ 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 February 14, 2001, RIM Operating, Inc. will be responsible for compliance with all terms and conditions associated with that portion of the leases where the above well is located.

Bond coverage is provided by State of Utah Surety Bond RLB1427, Principal RIM Operating, Inc., Surety Underwriter's Indemnity, 10/7/99.

RIM Operating, Inc. is Agent for RIM LLP.

NAME (PLEASE PRINT): Rene' Morin TITLE: Vice President

SIGNATURE: Rene' Morin DATE: 2/15/01

(This space for State use only)

RECEIVED

FEB 20 2001

DIVISION OF OIL, GAS AND MINING

(5/2000) (See Instructions on Reverse Side)

Form 3160-5
(November 1994)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0135
Expires July 31, 1996

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

5. Lease Serial No. UTU47812
6. If Indian, Allottee or Tribe Name
7. If Unit or CA/Agreement, Name and/or No.
8. Well Name and No. LOGAN FEDERAL #2-A
9. API Well No. 4304330223
10. Field and Pool, or Exploratory Area NORTH PINEVIEW
11. County or Parish, State SUMMIT, UTAH

1. Type of Well: ☐ Oil Well ☐ Gas Well ☒ Other SWD
2. Name of Operator: RIM OPERATING, INC.
3a. Address: 5 INVERNESS DR.E., ENGLEWOOD, CO 80112
3b. Phone No. (Include area code): (303) 799-9828
4. Location of Well (Footage, Sec., T., R., M., or Survey Description): NWSE 26-T3N-R7E

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change of operator
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Effective February 14, 2001, RIM Operating, Inc. will be responsible for compliance with all terms and conditions associated with that portion of the leases where the above well is located.

Bond coverage is provided by State of Utah Surety Bond RLB1427, Principal RIM Operating, Inc., Surety Underwriter's Indemnity, 10/7/99.

RIM Operating, Inc. is Agent for RIM LLP.

14. I hereby certify that the foregoing is true and correct
Name (Printed/Typed): Rene' Morin
Title: Vice President
Signature: Rene' Morin
Date: 2/15/01

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by: Lloyd Carpenter
Title: Field Manager
Date: March 8, 2001
Office: Salt Lake Field Office

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

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: UTU47812

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:

8. Well Name and Number: LOGAN FEDERAL #2A-SWD

2. Name of Operator: JN EXPLORATION & PRODUCTION, LP

9. API Well Number: 43-043-30223

3. Address and Telephone Number: P O BOX 7167, BILLINGS, MT 59103 (406) 248-2222

10. Field and Pool, or Wildcat: NORTH PINEVIEW

4. Location of Well

Footages:

County: SUMMIT

QQ, Sec.,T.,R.,M.: NWSE Sec.26, T3N-R7E

State: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT (Submit In Duplicate)

- ☐ Abandon
- ☐ Repair Casing
- ☐ Change of Plans
- ☐ Convert to Injection
- ☐ Fracture Treat or Acidize
- ☐ Multiple Completion
- ☐ New Construction
- ☐ Pull or Alter Casing
- ☐ Recomplete
- ☐ Reperforate
- ☐ Vent or Flare
- ☐ Water Shut-Off
- ☒ Other CHANGE OF OPERATOR

Approximate date work will start _____

SUBSEQUENT REPORT (Submit Original Form Only)

- ☐ Abandon *
- ☐ Repair Casing
- ☐ Change of Plans
- ☐ Convert to Injection
- ☐ Fracture Treat or Acidize
- ☐ Other _____
- ☐ New Construction
- ☐ Pull or Alter Casing
- ☐ Reperforate
- ☐ Vent or Flare
- ☐ Water Shut-Off

Date of work completion _____

Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION REPORT 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.)

JN EXPLORATION & PRODUCTION, LP HAS SOLD ALL OF ITS INTEREST IN THE ABOVE REFERENCED WELL TO WILBANKS ACQUISITION I LLC, 1600 STOUT STREET, SUITE 1200, DENVER, CO 80202-3109

RIM OPERATING, INC. WILL ASSUME OPERATIONS OF THIS WELL FEBRUARY 14,2001

13.

Name & Signature: RICHARD WALLING R Walling Title: VP OPERATIONS Date: 2-8-01

(This space for State use only)

RECEIVED

FEB 20 2001

DIVISION OF
OIL, GAS AND MINING

(4\94)

(See Instructions on Reverse Side)

UIC FORM 5

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

TRANSFER OF AUTHORITY TO INJECT

Well Name and Number LOGAN FEDERAL #2-A	API Number 4304330223
Location of Well Footage : County : SUMMIT QQ, Section, Township, Range: NWSE 26 3N 7E State : UTAH	Field or Unit Name NORTH PINEVIEW Lease Designation and Number UTU47812

EFFECTIVE DATE OF TRANSFER: 2/14/2001

CURRENT OPERATOR

Company: JN EXPLORATION & PRODUCTION, LP
Address: POST OFFICE BOX 7167
city BILLINGS state MT zip 59103
Phone: (406) 248-2222
Comments:

Name: CHIP YOULDEN
Signature:
Title: PRESIDENT
Date: MAY 8, 2001

NEW OPERATOR

Company: RIM OPERATING, INC.
Address: 5 INVERNESS DRIVE EAST
city ENGLEWOOD state CO zip 80112
Phone: (303) 799-9828
Comments:

Name: RENE' MORIN
Signature:
Title: VICE PRESIDENT
Date: 5/1/2001

(This space for State use only)

Transfer approved by:
Title: Tech. Services Manager
Approval Date: 9-6-01

Comments:

RECEIVED
1 4 2001
DIVISION OF
OIL, GAS AND MINING

(5/2000)

Division of Oil, Gas and Mining

OPERATOR CHANGE WORKSHEET

ROUTING		
1. GLH	✓	4-KAS
2. CDW		5-LP ✓
3. JLT		6-FILE

Enter date after each listed item is completed

X Change of Operator (Well Sold) Designation of Agent

Operator Name Change (Only) Merger

The operator of the well(s) listed below has changed, effective: **2-14-2001**

FROM: (Old Operator):	**TO:** (New Operator):
J N EXPLORATION & PRODUCTION LP	RIM OPERATING INC
Address: P O BOX 7167	Address: 5 INVERNESS DR E
BILLINGS, MT 59103	ENGLEWOOD, CO 80112
Phone: 1-(406)-248-2222	Phone: 1-(303)-799-9828
Account N2955	Account N1045

CA No. **Unit:**

WELL(S)

NAME	API NO.	ENTITY NO.	SEC. TWN RNG	LEASE TYPE	WELL TYPE	WELL STATUS
LOGAN FEDERAL 2-A	43-043-30223	2775	26-03N-07E	FEDERAL	SWD	A
LOGAN FEDERAL 1	43-043-30186	2775	26-03N-07E	FEDERAL	OW	P

OPERATOR CHANGES DOCUMENTATION

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 02/20/2001
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 02/20/2001
3. The new company has been checked through the **Department of Commerce, Division of Corporations Database on:** 09/06/2001
4. Is the new operator registered in the State of Utah: YES Business Number: 1462814-0143
5. If **NO**, the operator was contacted contacted on: N/A
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: 03/08/2001
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 the BIA has approved the operator change for all wells listed involved in 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: 09/06/2001

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 09/06/2001
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 09/06/2001
3. Bond information entered in RBDMS on: N/A
4. Fee wells attached to bond in RBDMS on: N/A

STATE BOND VERIFICATION:

1. State well(s) covered by Bond No.: N/A

FEE WELLS - BOND VERIFICATION/LEASE INTEREST OWNER NOTIFICATION:

1. (R649-3-1) The **NEW** operator of any fee well(s) listed has furnished a bond: N/A
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
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: N/A

FEDERAL BOND VERIFICATION:

1. Federal well(s) covered by Bond No.: RLB 1427

FILMING:

1. All attachments to this form have been **MICROFILMED** on:

FILING:

1. **ORIGINALS/COPIES** of all attachments pertaining to each individual well have been filled in each well file on: _____

COMMENTS:

INSPECTION FORM 6

STATE OF UTAH
DIVISION OF OIL GAS AND MINING

INJECTION WELL - PRESSURE TEST

Well Name: Logan Fed. 2A API Number: 43-043-30223

Qtr/Qtr: NWSE Section: 26 Township: 3N Range: 7E

Company Name: Pinn Operating Inc.

Lease: State _____ Fee _____ Federal U-47812 (Fee Surface) Indian _____

Inspector: Lisha Cordova / Dan Jarvis Date: 10-1-2002

Initial Conditions:

Tubing - Rate: _____ Pressure: Ø psi

Casing/Tubing Annulus - Pressure: 400 psi

Conditions During Test:

Time (Minutes)	Annulus Pressure	Tubing Pressure
0	1000	
5	↓	
10		
15	1000	
20		
25		
30		

Results: Pass/Fail

Conditions After Test:

Tubing Pressure: Ø psi

Casing/Tubing Annulus Pressure: 400 psi

COMMENTS: Hooked up chart recorder, pressured up to 1000 PSI with no bleed off. Passed MIT.

Ken Kundale
Operator Representative

FORM 9

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

5. LEASE DESIGNATION AND SERIAL NUMBER: NOG 8702-1116

SUNDRY NOTICES AND REPORTS ON WELLS

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT or CA AGREEMENT NAME:

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 SWD

8. WELL NAME and NUMBER: LOGAN FEDERAL #2A SWD

2. NAME OF OPERATOR: RIM OPERATING, INC.

9. API NUMBER: 43-043-30223

3. ADDRESS OF OPERATOR: 5 Inverness Dr E CITY Englewood STATE CO ZIP 80112 PHONE NUMBER: 303-799-9828

10. FIELD AND POOL, OR WILDCAT: PINEVIEW

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 2297' FED & 2567' FSL COUNTY: SUMMIT

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWSE 26-3N-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:	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
10/1/02	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☒ OTHER: MIT Test
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

A Mechanical Integrity Test was conducted on October 1, 2002 on the above well. The annulus was pressured up to 1050 psi and maintained a pressure above 1040 psi for 15 minutes, with the tubing pressure at zero. The test was witnessed by Dan Jarvis and Lisha Cordova.

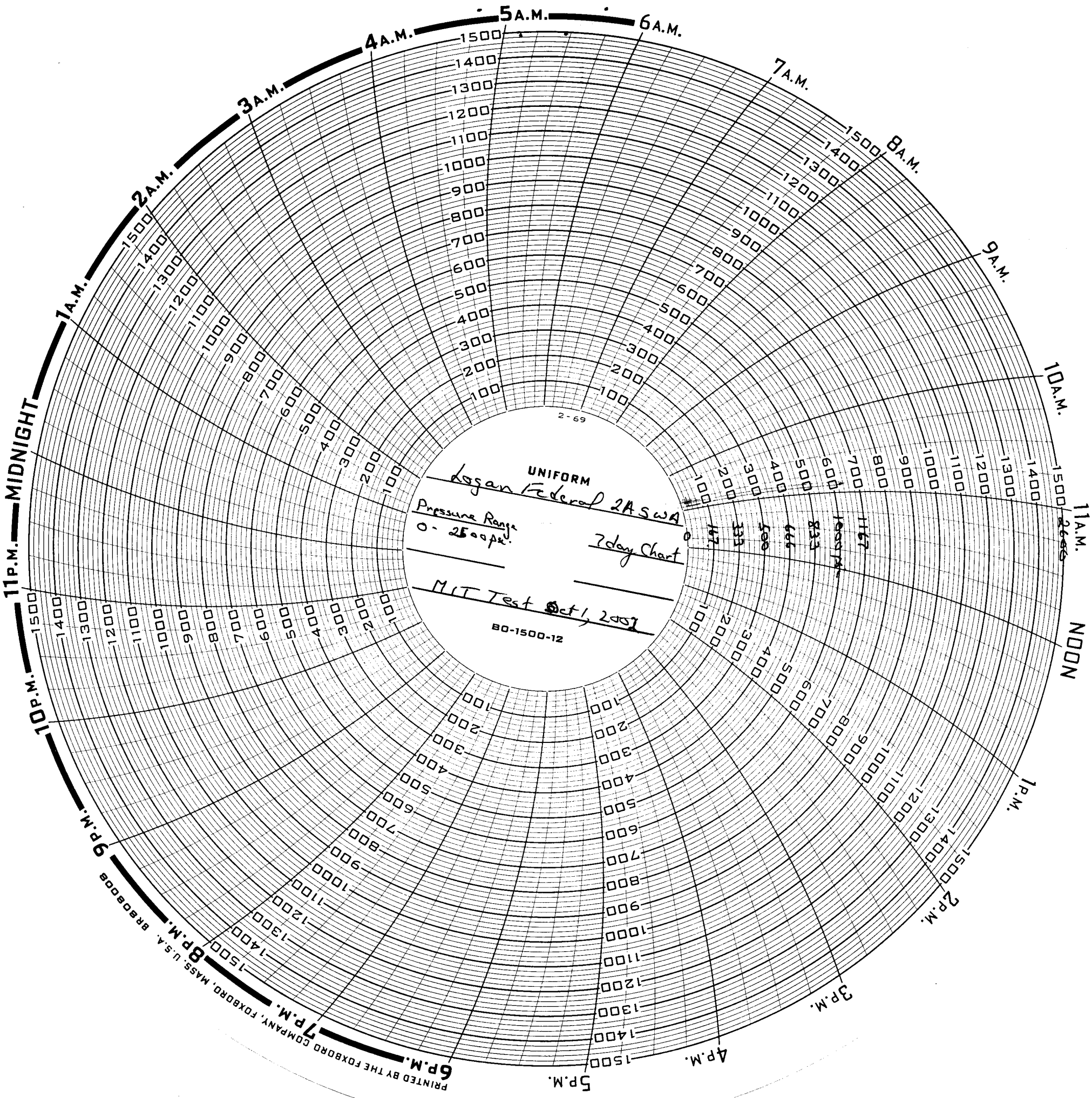
NAME (PLEASE PRINT) Ken Kundrik TITLE Operations Engineer

SIGNATURE Ken Kundrik DATE 10/3/02

(This space for State use only)

RECEIVED
OCT 07 2002
DIVISION OF
GAS AND MINING

(5/2000) (See Instructions on Reverse Side)


UNIFORM
Logan Federal 2ASWA
Pressure Range
0 - 2500 psi.
7day Chart
MIT Test Oct 1, 2001
BO-1500-12
2-69
PRINTED BY THE FOXBORO COMPANY, FOXBORO, MASS. U.S.A. BROOSOOS
MIDNIGHT
1A.M.
2A.M.
3A.M.
4A.M.
5A.M.
6A.M.
7A.M.
8A.M.
9A.M.
10A.M.
11A.M.
NOON
1P.M.
2P.M.
3P.M.
4P.M.
5P.M.
6P.M.
7P.M.
8P.M.
9P.M.
10P.M.
11P.M.

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
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

September 25, 2007

Jason Rouse
Rim Operating Inc.
5 Inverness Drive East
Englewood, Colorado 80112

Re: Pressure Test for Mechanical Integrity, Logan Fed 2-A Well, Section 26, Township 3 North, Range 7 East, API No. 43-043-30223, Summit County, Utah

Dear Mr. Rouse:

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 Logan Fed 2-A well for testing during the week of October 1-5, 2007, 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 Lisha Cordova at (801) 538-5296 to arrange a meeting time and place or to negotiate a different date, if the date(s) specified is unacceptable.

Sincerely,

Dan Jarvis
Field Operations Manager

lc
cc: Lisha Cordova, Petroleum Specialist
Well File

INSPECTION FORM 6

STATE OF UTAH
DIVISION OF OIL GAS AND MINING

INJECTION WELL - PRESSURE TEST

Well Name: Logan Fed. 2-A (WDW) API Number: 43-043-30223

Qtr/Qtr: NWSE Section: 26 Township: 3N Range: 7E

Company Name: Rim Operating Inc. (Kevin Orgill, Pumper)

Lease: State _____ Fee _____ Federal ✓ (Fee Surface) Indian _____

Inspector: Lisha Cordova Date: 10/8/07

*BJ Services / Dustin Aragon

Initial Conditions: Acidize perfs @ 13133-13180' (15% HCl)

Tubing - Rate: 4.2 bpm / Ø Pressure: 2800 / Ø psi

Casing/Tubing Annulus - Pressure: Ø psi

Conditions During Test:

Time (Minutes)	Annulus Pressure	Tubing Pressure
0	(#1) 1250 / 1250 (#2)	Ø
5	750 / 815	Ø
10	796	Ø
15	533	Ø
20		
25		
30		

Results: Pass/Fail

Conditions After Test:

Tubing Pressure: Ø psi

Casing/Tubing Annulus Pressure: < 533 psi (did not bleed off)

COMMENTS:

Prior to acidize tubing rate 160-180 bpd @ 400-500 psig.
BJ Chart to eng. for interpretation.

Kevin J Orgill
Operator Representative

STIMULATION TREATMENT REPORT

Date 08-OCT-07 District Rock Springs F.Receipt 224956185 Customer RIM Operating Inc
Lease Logan Fed. #2A SWD Well Name Logan Fed. #2A SWD
Field Pineview Location 26-T3N-R7E
County Summit State Utah Stage No 1 Well API - API 43043302230000

WELL DATA Well Type: OLD Well Class: GAS Depth TD/PB: 13250 Formation:

Geometry Type	Tubular Type	OD	Weight	ID	Grade	Top	Bottom
TUBULAR	TBG	2.875	6.5	2.441		0	12989
TUBULAR	CSG	7	38	5.92		12989	13250

Perf Intervals

Top	Bottom	SPF	Diameter
13133	13180	4	.3

Packer Type _____ Packer Depth _____ FT

TREATMENT DATA

Fluid Type	Fluid Desc	Pumped Volume(Gals)
PAD	15% HCL	2.500
PAD	Water	524

Prop. Description	Volume Pumped(Lbs)

Total Prop Qty: _____

LIQUID PUMPED AND CAPACITIES IN BBLS.

Tubing Cap.	74.7
Casing Cap.	7.9
Annular Cap.	0
Open Hole Cap.	0
Fluid to Load	0
Pad Volume	72
Treating Fluid	0
Flush	38
Overflush	
Fluid to Recover	110

Previous Treatment N/A Previous Production N/A
Hole Loaded With WATER Treat Via: Tubing [X] Casing [ ] Anul. [ ] Tubing & Anul. [ ]
Ball Sealers: _____ In _____ Stages Type _____
Auxiliary Materials SEE REC

PROCEDURE SUMMARY

Time AM/PM	Treating Pressure-Psi		Surface Slurry BBLS. Pumped		Slurry Rate BPM	Comments
	STP	Annulus	Stage	Total		
11:30						Safety Meeting
12:10	6500					Pressure Test Line
12:14	7				2	Open Well / Start Acid
12:18	2540		13	13	4.3	Established rate & Pressure
12:34	2815		59	72	3.8	Start Acid Flush
12:36	2876		12	84	3.6	Acid on Perfs
12:48	1755		26	110	0	Shut Down

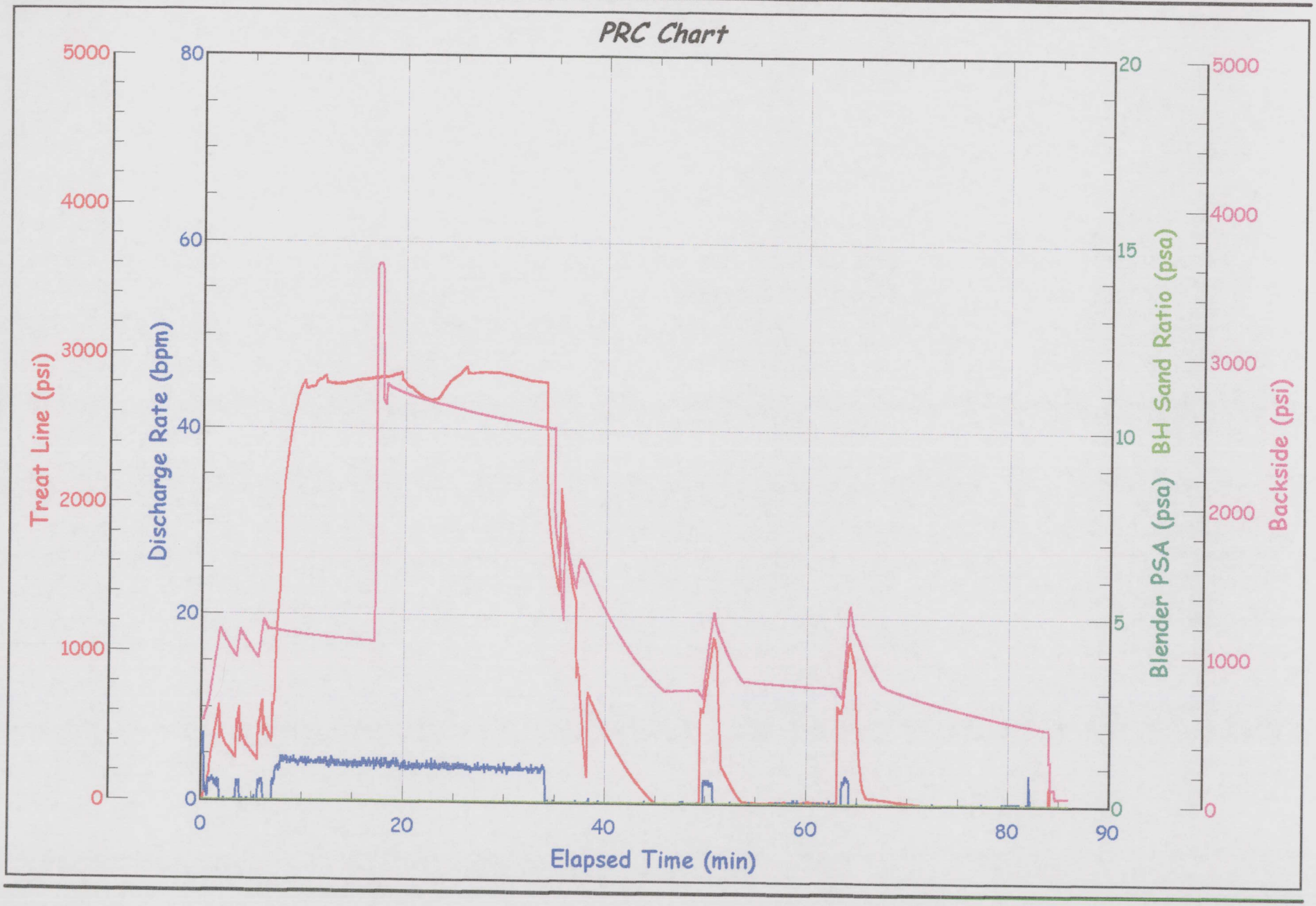
Treating Pressure		Injection Rates		Shut In Pressures		Customer Rep.	Kevin Orgill
Minimum	2675	Treating Fluid	3.8	ISDP	1775	BJ Rep.	DUSTIN C ARAGON
Maximum	2923	Flush	3.8	5 Min.	190	Job Number	224956185
Average	2840	Average	3.8	10 Min.	0	Rec. ID No.	
Operators Max. Pressure				15 Min.	0	Distribution	
3000				Final 7 In 9 Min.			
				Flush Dens. lb./gal.	8.34		

Report Printed on: October 8, 2007 1:50 PM

Jr6000

BJ Services JobMaster Program Version 3.10

Job Number: 224956185
Customer: RIM Operating
Well Name: Logan Fed 2A SWD



```
*************************
*                       *
*                       *
*                       *
*************************
*-----------------------*
*------SCHLUMBERGER-----*
*-----------------------*
*************************
```

SCHLUMBERGER DIRECTIONAL SURVEY

43-043-30223

DAVIS OIL COMPANY

LOGAN FEDERAL 2-A

NORTH PINEVIEW FIELD

SUMMIT COUNTY, UTAH

RUN NO.	1	1027 - 5715	10-APR-83	16154
RUN NO.	2	5752 - 11298	02-JUN-83	16208
RUN NO.	3	13438 - 11512	02-JUL-83	16232

START OF SURVEY IS CASING AT 1027 FT.

EXACT RADIUS OF CURVATURE METHOD

REFERENCE JOB 16232.

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
1027.0	2.5	229	1027.0	0.0	0.0	0.0
1058.4	2.5	229	1058.4	-0.9	-1.0	1.4
1060.0	2.6	229	1060.0	-0.9	-1.1	1.4
1080.0	2.8	230	1079.9	-1.6	-1.8	2.4
1100.0	2.7	228	1099.9	-2.2	-2.5	3.3
1120.0	2.7	231	1119.9	-2.8	-3.3	4.3
1140.0	2.7	232	1139.9	-3.4	-4.0	5.2
1160.0	2.8	230	1159.9	-4.0	-4.8	6.2
1180.0	2.9	232	1179.8	-4.6	-5.5	7.2
1200.0	2.8	234	1199.8	-5.2	-6.3	8.2
1220.0	2.8	236	1219.8	-5.8	-7.1	9.2
1240.0	2.8	238	1239.8	-6.3	-7.9	10.1
1260.0	2.9	238	1259.7	-6.8	-8.8	11.1
1280.0	2.9	237	1279.7	-7.4	-9.6	12.1
1300.0	2.9	237	1299.7	-7.9	-10.5	13.2
1320.0	3.0	238	1319.7	-8.5	-11.4	14.2
1340.0	2.9	240	1339.6	-9.0	-12.2	15.2
1360.0	2.8	240	1359.6	-9.5	-13.1	16.2
1380.0	2.9	240	1379.6	-10.0	-14.0	17.2
1400.0	2.9	239	1399.6	-10.5	-14.8	18.2
1420.0	2.9	240	1419.5	-11.0	-15.7	19.2
1440.0	2.9	239	1439.5	-11.6	-16.6	20.2
1460.0	2.9	238	1459.5	-12.1	-17.4	21.2
1480.0	2.9	239	1479.5	-12.6	-18.3	22.2
1500.0	2.8	240	1499.4	-13.1	-19.2	23.2
1520.0	2.8	238	1519.4	-13.6	-20.0	24.2
1540.0	2.9	239	1539.4	-14.1	-20.8	25.2
1560.0	2.8	239	1559.4	-14.7	-21.7	26.2
1580.0	2.7	238	1579.3	-15.2	-22.5	27.2
1600.0	2.7	237	1599.3	-15.7	-23.3	28.1
1620.0	2.7	236	1619.3	-16.2	-24.1	29.0
1640.0	2.7	234	1639.3	-16.7	-24.9	30.0
1660.0	2.6	232	1659.2	-17.3	-25.6	30.9
1680.0	2.6	230	1679.2	-17.9	-26.3	31.8
1700.0	2.5	229	1699.2	-18.4	-27.0	32.7
1720.0	2.6	230	1719.2	-19.0	-27.6	33.6
1740.0	2.5	231	1739.2	-19.6	-28.3	34.4
1760.0	2.5	230	1759.1	-20.1	-29.0	35.3
1780.0	2.5	229	1779.1	-20.7	-29.7	36.2
1800.0	2.5	229	1799.1	-21.3	-30.3	37.0
1820.0	2.5	230	1819.1	-21.8	-31.0	37.9
1840.0	2.5	230	1839.1	-22.4	-31.6	38.8
1860.0	2.4	229	1859.0	-23.0	-32.3	39.6
1880.0	2.4	227	1879.0	-23.5	-32.9	40.4
1900.0	2.4	228	1899.0	-24.1	-33.5	41.3
1920.0	2.4	228	1919.0	-24.6	-34.1	42.1

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
1940.0	2.4	228	1939.0	-25.2	-34.8	42.9
1960.0	2.5	227	1959.0	-25.8	-35.4	43.8
1980.0	2.6	229	1978.9	-26.4	-36.0	44.7
2000.0	2.5	230	1998.9	-26.9	-36.7	45.5
2020.0	2.5	228	2018.9	-27.5	-37.4	46.4
2040.0	2.3	224	2038.9	-28.1	-38.0	47.2
2060.0	2.2	222	2058.9	-28.7	-38.5	48.0
2080.0	2.2	222	2078.9	-29.2	-39.0	48.8
2100.0	2.0	223	2098.8	-29.8	-39.5	49.5
2120.0	1.9	228	2118.8	-30.3	-40.0	50.2
2140.0	1.8	233	2138.8	-30.7	-40.5	50.8
2160.0	1.8	232	2158.8	-31.1	-41.0	51.5
2180.0	1.5	235	2178.8	-31.4	-41.5	52.0
2200.0	1.4	238	2198.8	-31.7	-41.9	52.5
2220.0	1.1	244	2218.8	-31.9	-42.3	53.0
2240.0	0.8	257	2238.8	-32.0	-42.6	53.3
2260.0	0.5	273	2258.8	-32.1	-42.8	53.5
2280.0	0.3	185	2278.8	-32.1	-42.9	53.6
2300.0	0.3	189	2298.8	-32.2	-42.9	53.6
2320.0	0.3	193	2318.8	-32.3	-42.9	53.7
2340.0	0.1	195	2338.8	-32.4	-42.9	53.8
2360.0	0.2	197	2358.8	-32.4	-43.0	53.8
2380.0	0.2	199	2378.8	-32.5	-43.0	53.9
2400.0	0.2	200	2398.8	-32.6	-43.0	53.9
2420.0	0.3	200	2418.8	-32.6	-43.0	54.0
2440.0	0.3	199	2438.8	-32.7	-43.1	54.1
2460.0	0.2	220	2458.8	-32.8	-43.1	54.2
2480.0	0.6	202	2478.8	-32.9	-43.2	54.3
2500.0	1.0	198	2498.8	-33.2	-43.3	54.5
2520.0	1.4	197	2518.8	-33.6	-43.4	54.9
2540.0	1.8	202	2538.8	-34.1	-43.6	55.3
2560.0	2.1	200	2558.8	-34.8	-43.8	55.9
2580.0	2.3	199	2578.7	-35.5	-44.1	56.6
2600.0	2.5	198	2598.7	-36.3	-44.3	57.3
2620.0	1.2	187	2618.7	-36.9	-44.5	57.8
2640.0	0.9	185	2638.7	-37.2	-44.5	58.1
2660.0	1.1	184	2658.7	-37.6	-44.6	58.3
2680.0	1.2	186	2678.7	-38.0	-44.6	58.6
2700.0	1.2	190	2698.7	-38.4	-44.7	58.9
2720.0	1.5	193	2718.7	-38.9	-44.8	59.3
2740.0	2.0	193	2738.7	-39.5	-44.9	59.8
2760.0	2.7	193	2758.7	-40.3	-45.1	60.4
2780.0	3.0	194	2778.6	-41.2	-45.3	61.3
2800.0	3.3	192	2798.6	-42.3	-45.6	62.2
2820.0	3.6	199	2818.6	-43.4	-45.9	63.2
2840.0	3.6	192	2838.5	-44.6	-46.2	64.3

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
2860.0	3.8	194	2858.5	-45.9	-46.5	65.4
2880.0	3.7	194	2878.5	-47.1	-46.9	66.5
2900.0	3.7	195	2898.4	-48.4	-47.2	67.6
2920.0	3.7	196	2918.4	-49.6	-47.5	68.7
2940.0	3.5	196	2938.3	-50.8	-47.9	69.8
2960.0	3.4	194	2958.3	-52.0	-48.2	70.9
2980.0	3.5	195	2978.3	-53.2	-48.5	72.0
3000.0	3.7	194	2998.2	-54.4	-48.8	73.1
3020.0	3.6	194	3018.2	-55.6	-49.1	74.2
3040.0	3.6	192	3038.1	-56.9	-49.4	75.3
3060.0	3.6	195	3058.1	-58.1	-49.7	76.5
3080.0	3.9	193	3078.1	-59.4	-50.0	77.6
3100.0	3.9	192	3098.0	-60.7	-50.3	78.8
3120.0	3.9	192	3118.0	-62.0	-50.6	80.1
3140.0	4.0	194	3137.9	-63.4	-50.9	81.3
3160.0	4.0	195	3157.9	-64.7	-51.2	82.6
3180.0	3.9	195	3177.8	-66.1	-51.6	83.8
3200.0	3.9	193	3197.8	-67.4	-51.9	85.1
3220.0	4.0	192	3217.7	-68.7	-52.2	86.3
3240.0	4.0	191	3237.7	-70.1	-52.5	87.6
3260.0	4.1	188	3257.6	-71.5	-52.7	88.8
3280.0	4.1	186	3277.6	-72.9	-52.9	90.1
3300.0	4.2	189	3297.5	-74.3	-53.1	91.4
3320.0	4.0	184	3317.5	-75.7	-53.3	92.6
3340.0	3.8	182	3337.4	-77.1	-53.3	93.7
3360.0	3.6	187	3357.4	-78.4	-53.4	94.9
3380.0	3.5	184	3377.3	-79.6	-53.6	95.9
3400.0	3.5	184	3397.3	-80.8	-53.6	97.0
3420.0	3.4	187	3417.3	-82.0	-53.8	98.1
3440.0	3.5	185	3437.2	-83.2	-53.9	99.1
3460.0	3.5	183	3457.2	-84.4	-54.0	100.2
3480.0	3.4	184	3477.2	-85.6	-54.0	101.2
3500.0	3.4	184	3497.1	-86.8	-54.1	102.3
3520.0	3.5	186	3517.1	-88.0	-54.2	103.3
3540.0	3.3	185	3537.1	-89.2	-54.3	104.4
3560.0	3.4	184	3557.0	-90.3	-54.4	105.5
3580.0	3.4	184	3577.0	-91.5	-54.5	106.5
3600.0	3.3	185	3597.0	-92.7	-54.6	107.5
3620.0	3.2	185	3616.9	-93.8	-54.7	108.6
3640.0	3.2	183	3636.9	-94.9	-54.8	109.6
3660.0	3.2	182	3656.9	-96.0	-54.8	110.6
3680.0	3.0	184	3676.8	-97.1	-54.9	111.5
3700.0	3.0	183	3696.8	-98.1	-54.9	112.5
3720.0	2.9	184	3716.8	-99.1	-55.0	113.4
3740.0	2.8	183	3736.8	-100.1	-55.1	114.3
3760.0	2.9	184	3756.7	-101.1	-55.1	115.2

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
3780.0	2.9	184	3776.7	-102.1	-55.2	116.1
3800.0	2.8	182	3796.7	-103.1	-55.3	117.0
3820.0	3.0	185	3816.7	-104.1	-55.3	117.9
3840.0	2.8	182	3836.6	-105.2	-55.4	118.9
3860.0	2.8	184	3856.6	-106.1	-55.4	119.7
3880.0	2.8	184	3876.6	-107.1	-55.5	120.6
3900.0	2.7	185	3896.6	-108.1	-55.6	121.5
3920.0	2.6	183	3916.5	-109.0	-55.7	122.4
3940.0	2.7	183	3936.5	-109.9	-55.7	123.2
3960.0	2.6	183	3956.5	-110.8	-55.8	124.1
3980.0	2.4	182	3976.5	-111.7	-55.8	124.9
4000.0	2.4	181	3996.5	-112.5	-55.8	125.6
4020.0	2.5	181	4016.4	-113.4	-55.8	126.4
4040.0	2.6	179	4036.4	-114.3	-55.8	127.2
4060.0	2.5	177	4056.4	-115.1	-55.8	127.9
4080.0	2.6	176	4076.4	-116.0	-55.7	128.7
4100.0	2.6	177	4096.4	-116.9	-55.7	129.5
4120.0	2.5	176	4116.3	-117.8	-55.6	130.3
4140.0	2.5	175	4136.3	-118.7	-55.6	131.1
4160.0	2.6	177	4156.3	-119.6	-55.5	131.9
4180.0	2.7	179	4176.3	-120.5	-55.5	132.7
4200.0	2.7	178	4196.3	-121.5	-55.5	133.5
4220.0	2.5	179	4216.2	-122.4	-55.4	134.3
4240.0	2.4	174	4236.2	-123.2	-55.4	135.1
4260.0	2.5	175	4256.2	-124.1	-55.3	135.8
4280.0	2.3	174	4276.2	-124.9	-55.2	136.6
4300.0	2.5	170	4296.2	-125.8	-55.1	137.3
4320.0	2.6	166	4316.1	-126.6	-54.9	138.0
4340.0	2.3	170	4336.1	-127.5	-54.8	138.7
4360.0	2.3	162	4356.1	-128.2	-54.6	139.4
4380.0	2.1	168	4376.1	-129.0	-54.4	140.0
4400.0	2.1	165	4396.1	-129.7	-54.2	140.5
4420.0	2.3	169	4416.1	-130.4	-54.0	141.2
4440.0	2.4	167	4436.0	-131.2	-53.8	141.9
4460.0	2.4	162	4456.0	-132.1	-53.6	142.5
4480.0	2.4	162	4476.0	-132.9	-53.4	143.2
4500.0	2.5	161	4496.0	-133.7	-53.1	143.8
4520.0	2.7	164	4516.0	-134.5	-52.8	144.5
4540.0	2.7	160	4536.0	-135.4	-52.5	145.3
4560.0	2.7	156	4555.9	-136.3	-52.2	146.0
4580.0	3.2	155	4575.9	-137.3	-51.7	146.7
4600.0	3.1	155	4595.9	-138.2	-51.3	147.5
4620.0	3.1	153	4615.8	-139.2	-50.8	148.2
4640.0	3.2	154	4635.8	-140.2	-50.3	149.0
4660.0	3.2	152	4655.8	-141.2	-49.8	149.7
4680.0	3.2	149	4675.8	-142.2	-49.3	150.5

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
4700.0	3.2	149	4695.7	-143.1	-48.7	151.2
4720.0	3.4	149	4715.7	-144.1	-48.1	151.9
4740.0	3.6	148	4735.6	-145.1	-47.5	152.7
4760.0	3.5	147	4755.6	-146.2	-46.8	153.5
4780.0	3.6	146	4775.6	-147.2	-46.1	154.3
4800.0	3.7	145	4795.5	-148.3	-45.4	155.1
4820.0	3.8	143	4815.5	-149.3	-44.6	155.9
4840.0	3.8	142	4835.4	-150.4	-43.8	156.7
4860.0	3.9	141	4855.4	-151.5	-43.0	157.4
4880.0	4.0	138	4875.4	-152.5	-42.1	158.2
4900.0	4.0	139	4895.3	-153.6	-41.1	159.0
4920.0	4.3	137	4915.2	-154.6	-40.1	159.8
4940.0	4.3	134	4935.2	-155.7	-39.1	160.5
4960.0	4.0	134	4955.1	-156.7	-38.1	161.3
4980.0	4.0	134	4975.1	-157.7	-37.1	162.0
5000.0	4.2	132	4995.0	-158.7	-36.0	162.7
5020.0	4.0	130	5015.0	-159.6	-34.9	163.4
5040.0	3.6	131	5034.9	-160.5	-33.9	164.0
5060.0	3.3	137	5054.9	-161.3	-33.1	164.6
5080.0	3.3	138	5074.9	-162.1	-32.3	165.3
5100.0	3.2	139	5094.8	-163.0	-31.6	166.0
5120.0	3.3	142	5114.8	-163.8	-30.8	166.7
5140.0	3.4	141	5134.8	-164.7	-30.1	167.5
5160.0	3.3	140	5154.7	-165.6	-29.4	168.2
5180.0	3.4	141	5174.7	-166.6	-28.6	169.0
5200.0	3.5	141	5194.7	-167.5	-27.9	169.8
5220.0	3.5	142	5214.6	-168.5	-27.1	170.6
5240.0	3.6	142	5234.6	-169.4	-26.3	171.5
5260.0	3.6	143	5254.6	-170.4	-25.6	172.3
5280.0	3.7	144	5274.5	-171.5	-24.8	173.2
5300.0	3.7	142	5294.5	-172.5	-24.0	174.2
5320.0	3.7	144	5314.4	-173.5	-23.3	175.1
5340.0	3.5	147	5334.4	-174.6	-22.5	176.0
5360.0	3.7	146	5354.4	-175.6	-21.8	177.0
5380.0	3.7	146	5374.3	-176.7	-21.1	177.9
5400.0	3.8	146	5394.3	-177.8	-20.4	178.9
5420.0	3.9	144	5414.2	-178.8	-19.6	179.9
5440.0	3.8	146	5434.2	-179.9	-18.9	180.9
5460.0	3.9	148	5454.1	-181.1	-18.1	182.0
5480.0	3.8	147	5474.1	-182.2	-17.4	183.0
5500.0	3.6	145	5494.0	-183.3	-16.7	184.0
5520.0	3.5	143	5514.0	-184.3	-15.9	184.9
5540.0	3.5	142	5534.0	-185.2	-15.2	185.9
5560.0	3.6	140	5553.9	-186.2	-14.4	186.8
5580.0	3.7	137	5573.9	-187.2	-13.5	187.6
5600.0	3.6	136	5593.9	-188.1	-12.7	188.5

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
5620.0	3.7	135	5613.8	-189.0	-11.8	189.4
5640.0	4.0	139	5633.8	-190.0	-10.9	190.3
5660.0	4.1	139	5653.7	-191.0	-10.0	191.3
5680.0	4.2	139	5673.7	-192.1	-9.0	192.3
5700.0	4.4	138	5693.6	-193.2	-8.0	193.4
5720.0	4.0	137	5713.6	-194.3	-7.0	194.5
5740.0	4.3	138	5733.5	-195.4	-6.0	195.5
5760.0	4.5	138	5753.4	-196.5	-5.0	196.6
5780.0	4.5	138	5773.4	-197.7	-4.0	197.7
5800.0	4.6	138	5793.3	-198.9	-2.9	198.9
5820.0	4.7	136	5813.3	-200.0	-1.8	200.1
5840.0	4.8	135	5833.2	-201.2	-0.6	201.2
5860.0	4.9	136	5853.1	-202.4	0.6	202.4
5880.0	4.9	136	5873.0	-203.7	1.7	203.7
5900.0	4.9	135	5893.0	-204.9	2.9	204.9
5920.0	4.8	136	5912.9	-206.1	4.1	206.1
5940.0	5.1	137	5932.8	-207.3	5.3	207.4
5960.0	5.2	135	5952.7	-208.6	6.6	208.7
5980.0	5.2	135	5972.7	-209.9	7.8	210.1
6000.0	5.2	137	5992.6	-211.2	9.1	211.4
6020.0	5.3	137	6012.5	-212.6	10.3	212.8
6040.0	5.3	135	6032.4	-213.9	11.6	214.2
6060.0	5.3	135	6052.3	-215.2	12.9	215.6
6080.0	5.4	135	6072.2	-216.5	14.3	217.0
6100.0	5.4	135	6092.1	-217.8	15.6	218.4
6120.0	5.5	136	6112.1	-219.2	16.9	219.8
6140.0	5.5	135	6132.0	-220.6	18.3	221.3
6160.0	5.7	136	6151.9	-222.0	19.6	222.8
6180.0	5.6	136	6171.8	-223.4	21.0	224.4
6200.0	5.8	137	6191.7	-224.8	22.4	225.9
6220.0	5.8	136	6211.6	-226.3	23.8	227.5
6240.0	6.0	136	6231.5	-227.8	25.2	229.1
6260.0	6.0	135	6251.4	-229.2	26.6	230.8
6280.0	5.9	137	6271.2	-230.7	28.1	232.4
6300.0	5.9	136	6291.1	-232.2	29.5	234.1
6320.0	5.8	135	6311.0	-233.7	30.9	235.7
6340.0	5.9	135	6330.9	-235.1	32.3	237.3
6360.0	5.4	136	6350.8	-236.5	33.7	238.9
6380.0	5.4	136	6370.7	-237.9	35.0	240.4
6400.0	5.4	136	6390.7	-239.2	36.3	242.0
6420.0	5.3	137	6410.6	-240.6	37.6	243.5
6440.0	5.3	136	6430.5	-241.9	38.9	245.0
6460.0	5.3	136	6450.4	-243.2	40.2	246.5
6480.0	5.0	134	6470.3	-244.5	41.4	248.0
6500.0	5.0	135	6490.2	-245.7	42.7	249.4
6520.0	4.7	136	6510.2	-246.9	43.9	250.8

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
6540.0	4.7	136	6530.1	-248.1	45.0	252.2
6560.0	4.4	137	6550.0	-249.3	46.1	253.5
6580.0	4.7	138	6570.0	-250.4	47.2	254.8
6600.0	4.6	137	6589.9	-251.6	48.3	256.2
6620.0	4.5	138	6609.9	-252.8	49.3	257.6
6640.0	4.5	137	6629.8	-254.0	50.4	258.9
6660.0	4.3	139	6649.7	-255.1	51.4	260.2
6680.0	4.3	137	6669.7	-256.2	52.4	261.5
6700.0	4.3	136	6689.6	-257.3	53.5	262.8
6720.0	4.2	137	6709.6	-258.4	54.5	264.1
6740.0	4.3	136	6729.5	-259.4	55.5	265.3
6760.0	4.2	138	6749.5	-260.5	56.5	266.6
6780.0	4.1	136	6769.4	-261.6	57.5	267.8
6800.0	4.1	136	6789.3	-262.6	58.5	269.1
6820.0	3.8	136	6809.3	-263.6	59.5	270.2
6840.0	4.0	135	6829.3	-264.6	60.4	271.4
6860.0	4.0	135	6849.2	-265.6	61.4	272.6
6880.0	4.0	137	6869.2	-266.6	62.4	273.8
6900.0	4.0	134	6889.1	-267.6	63.3	275.0
6920.0	3.9	135	6909.1	-268.5	64.3	276.1
6940.0	4.1	133	6929.0	-269.5	65.3	277.3
6960.0	4.0	133	6949.0	-270.5	66.4	278.5
6980.0	3.9	132	6968.9	-271.4	67.4	279.6
7000.0	3.8	132	6988.9	-272.3	68.4	280.7
7020.0	3.8	131	7008.8	-273.2	69.4	281.8
7040.0	4.0	130	7028.8	-274.0	70.4	282.9
7060.0	3.9	131	7048.7	-274.9	71.5	284.1
7080.0	3.7	132	7068.7	-275.8	72.4	285.2
7100.0	3.9	131	7088.6	-276.7	73.4	286.3
7120.0	3.9	131	7108.6	-277.6	74.5	287.4
7140.0	3.7	131	7128.6	-278.5	75.5	288.5
7160.0	3.8	131	7148.5	-279.3	76.5	289.6
7180.0	3.8	130	7168.5	-280.2	77.5	290.7
7200.0	3.8	130	7188.4	-281.0	78.5	291.8
7220.0	3.8	129	7208.4	-281.9	79.5	292.9
7240.0	3.7	129	7228.3	-282.7	80.5	293.9
7260.0	3.8	128	7248.3	-283.5	81.5	295.0
7280.0	3.6	129	7268.3	-284.3	82.6	296.1
7300.0	3.6	127	7288.2	-285.1	83.5	297.1
7320.0	3.6	129	7308.2	-285.9	84.5	298.1
7340.0	3.6	125	7328.1	-286.6	85.5	299.1
7360.0	3.5	127	7348.1	-287.3	86.5	300.1
7380.0	3.6	127	7368.1	-288.1	87.5	301.1
7400.0	3.4	125	7388.0	-288.8	88.5	302.1
7420.0	3.5	127	7408.0	-289.5	89.5	303.0
7440.0	3.4	130	7427.9	-290.3	90.4	304.0

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	CO-ORDINATES + EAST - WEST	COURSE LENGTH FT
7460.0	3.4	128	7447.9	-291.0	91.3	305.0
7480.0	3.4	130	7467.9	-291.8	92.3	306.0
7500.0	3.2	131	7487.8	-292.5	93.1	307.0
7520.0	3.0	132	7507.8	-293.2	94.0	307.9
7540.0	3.1	135	7527.8	-294.0	94.7	308.8
7560.0	3.1	133	7547.8	-294.7	95.5	309.8
7580.0	3.1	133	7567.7	-295.4	96.3	310.7
7600.0	2.9	134	7587.7	-296.2	97.1	311.7
7620.0	2.9	132	7607.7	-296.9	97.8	312.5
7640.0	2.9	134	7627.6	-297.5	98.5	313.4
7660.0	2.8	133	7647.6	-298.2	99.3	314.3
7680.0	2.9	134	7667.6	-298.9	100.0	315.2
7700.0	2.9	132	7687.6	-299.6	100.7	316.1
7720.0	2.9	130	7707.5	-300.3	101.5	317.0
7740.0	3.1	129	7727.5	-300.9	102.3	317.8
7760.0	3.0	128	7747.5	-301.6	103.1	318.7
7780.0	2.9	128	7767.5	-302.2	103.9	319.6
7800.0	3.0	131	7787.4	-302.9	104.7	320.5
7820.0	2.9	130	7807.4	-303.6	105.5	321.4
7840.0	3.1	129	7827.4	-304.2	106.3	322.3
7860.0	3.0	131	7847.4	-304.9	107.1	323.2
7880.0	3.0	130	7867.3	-305.6	107.9	324.1
7900.0	3.1	130	7887.3	-306.3	108.7	325.0
7920.0	3.0	133	7907.3	-307.0	109.5	325.9
7940.0	3.1	134	7927.2	-307.7	110.3	326.9
7960.0	3.1	132	7947.2	-308.4	111.1	327.8
7980.0	3.2	133	7967.2	-309.2	111.9	328.8
8000.0	3.0	134	7987.2	-309.9	112.7	329.8
8020.0	3.0	134	8007.1	-310.7	113.4	330.7
8040.0	3.0	136	8027.1	-311.4	114.2	331.7
8060.0	2.9	137	8047.1	-312.1	114.9	332.6
8080.0	2.9	136	8067.1	-312.9	115.6	333.5
8100.0	3.0	135	8087.0	-313.6	116.3	334.5
8120.0	3.1	135	8107.0	-314.4	117.1	335.5
8140.0	3.1	133	8127.0	-315.1	117.8	336.4
8160.0	3.0	131	8146.9	-315.8	118.6	337.4
8180.0	3.1	133	8166.9	-316.5	119.4	338.3
8200.0	3.1	131	8186.9	-317.3	120.2	339.3
8220.0	3.1	132	8206.9	-318.0	121.0	340.2
8240.0	3.2	133	8226.8	-318.7	121.9	341.2
8260.0	3.2	132	8246.8	-319.5	122.7	342.2
8280.0	3.2	131	8266.8	-320.2	123.5	343.2
8300.0	3.2	132	8286.7	-321.0	124.3	344.2
8320.0	3.2	133	8306.7	-321.7	125.2	345.2
8340.0	3.2	131	8326.7	-322.5	126.0	346.2
8360.0	3.6	132	8346.6	-323.2	126.9	347.3

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
8380.0	3.6	132	8366.6	-324.1	127.8	348.4
8400.0	3.6	130	8386.6	-324.9	128.8	349.5
8420.0	3.5	131	8406.5	-325.7	129.7	350.6
8440.0	3.3	130	8426.5	-326.5	130.6	351.6
8460.0	3.7	132	8446.4	-327.3	131.5	352.7
8480.0	3.3	135	8466.4	-328.1	132.4	353.8
8500.0	3.1	135	8486.4	-328.9	133.2	354.9
8520.0	3.5	134	8506.3	-329.7	134.0	355.9
8540.0	3.6	134	8526.3	-330.6	134.9	357.0
8560.0	3.4	135	8546.3	-331.4	135.8	358.2
8580.0	3.5	134	8566.2	-332.3	136.6	359.3
8600.0	3.5	130	8586.2	-333.1	137.6	360.4
8620.0	3.4	128	8606.2	-333.8	138.5	361.4
8640.0	3.3	131	8626.1	-334.6	139.4	362.5
8660.0	3.2	129	8646.1	-335.3	140.3	363.5
8680.0	3.0	131	8666.1	-336.0	141.1	364.4
8700.0	3.3	126	8686.0	-336.7	142.0	365.4
8720.0	3.3	125	8706.0	-337.4	142.9	366.4
8740.0	3.3	123	8726.0	-338.0	143.8	367.3
8760.0	3.2	124	8745.9	-338.6	144.8	368.3
8780.0	3.2	122	8765.9	-339.2	145.7	369.2
8800.0	3.1	120	8785.9	-339.8	146.7	370.1
8820.0	3.0	122	8805.8	-340.4	147.6	371.0
8840.0	3.0	121	8825.8	-340.9	148.5	371.8
8860.0	3.0	122	8845.8	-341.4	149.4	372.7
8880.0	2.9	121	8865.8	-342.0	150.2	373.5
8900.0	2.8	119	8885.7	-342.5	151.1	374.3
8920.0	2.9	119	8905.7	-343.0	152.0	375.1
8940.0	2.7	121	8925.7	-343.5	152.8	375.9
8960.0	2.7	120	8945.7	-343.9	153.6	376.7
8980.0	2.6	121	8965.6	-344.4	154.4	377.4
9000.0	2.6	119	8985.6	-344.9	155.2	378.2
9020.0	2.7	121	9005.6	-345.3	156.0	378.9
9040.0	2.5	119	9025.6	-345.8	156.8	379.7
9060.0	2.5	124	9045.6	-346.2	157.5	380.4
9080.0	2.5	120	9065.5	-346.7	158.3	381.1
9100.0	2.5	122	9085.5	-347.1	159.0	381.8
9120.0	2.5	117	9105.5	-347.6	159.8	382.5
9140.0	2.5	116	9125.5	-348.0	160.6	383.2
9160.0	2.5	118	9145.5	-348.4	161.3	383.9
9180.0	2.4	112	9165.5	-348.7	162.1	384.6
9200.0	2.5	113	9185.4	-349.0	162.9	385.2
9220.0	2.3	113	9205.4	-349.4	163.7	385.8
9240.0	2.3	116	9225.4	-349.7	164.4	386.4
9260.0	2.3	121	9245.4	-350.1	165.1	387.1
9280.0	2.2	120	9265.4	-350.5	165.8	387.7

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
9300.0	2.4	121	9285.4	-350.9	166.5	388.4
9320.0	2.5	127	9305.3	-351.4	167.2	389.1
9340.0	2.5	132	9325.3	-351.9	167.9	389.9
9360.0	2.4	131	9345.3	-352.5	168.5	390.7
9380.0	2.6	130	9365.3	-353.1	169.2	391.5
9400.0	2.6	131	9385.3	-353.6	169.9	392.3
9420.0	2.7	133	9405.2	-354.3	170.5	393.2
9440.0	2.8	133	9425.2	-354.9	171.2	394.1
9460.0	2.8	127	9445.2	-355.5	172.0	395.0
9480.0	2.9	129	9465.2	-356.2	172.8	395.9
9500.0	3.1	130	9485.1	-356.8	173.6	396.8
9520.0	3.2	134	9505.1	-357.6	174.4	397.8
9540.0	3.3	136	9525.1	-358.4	175.2	398.9
9560.0	3.2	134	9545.0	-359.2	176.0	400.0
9580.0	3.2	135	9565.0	-359.9	176.8	401.0
9600.0	3.3	139	9585.0	-360.8	177.6	402.1
9620.0	3.3	137	9604.9	-361.6	178.3	403.2
9640.0	3.2	135	9624.9	-362.4	179.1	404.3
9660.0	3.3	136	9644.9	-363.3	179.9	405.4
9680.0	3.5	135	9664.8	-364.1	180.8	406.5
9700.0	3.6	134	9684.8	-365.0	181.6	407.7
9720.0	3.6	135	9704.8	-365.8	182.5	408.9
9740.0	3.7	136	9724.7	-366.8	183.4	410.1
9760.0	3.6	139	9744.7	-367.7	184.3	411.3
9780.0	3.8	138	9764.6	-368.7	185.1	412.5
9800.0	3.7	140	9784.6	-369.6	186.0	413.8
9820.0	3.7	143	9804.6	-370.7	186.8	415.1
9840.0	3.8	141	9824.5	-371.7	187.6	416.4
9860.0	3.7	143	9844.5	-372.7	188.4	417.6
9880.0	3.6	147	9864.4	-373.8	189.1	418.9
9900.0	3.7	144	9884.4	-374.8	189.9	420.2
9920.0	3.6	147	9904.3	-375.9	190.6	421.4
9940.0	3.7	143	9924.3	-376.9	191.3	422.7
9960.0	3.7	142	9944.3	-377.9	192.1	423.9
9980.0	3.5	144	9964.2	-378.9	192.9	425.2
10000.0	3.6	142	9984.2	-379.9	193.6	426.4
10020.0	3.5	144	10004.2	-380.9	194.3	427.6
10040.0	3.5	146	10024.1	-381.9	195.0	428.8
10060.0	3.5	148	10044.1	-382.9	195.7	430.0
10080.0	3.5	148	10064.0	-384.0	196.4	431.3
10100.0	3.6	147	10084.0	-385.0	197.0	432.5
10120.0	3.8	149	10104.0	-386.1	197.7	433.8
10140.0	3.7	149	10123.9	-387.2	198.4	435.1
10160.0	4.0	151	10143.9	-388.4	199.1	436.4
10180.0	4.0	150	10163.8	-389.6	199.7	437.8
10200.0	4.3	152	10183.8	-390.9	200.4	439.3

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	CO-ORDINATES + EAST - WEST	COURSE LENGTH FT
10220.0	4.4	151	10203.7	-392.2	201.2	440.8
10240.0	4.3	152	10223.7	-393.5	201.9	442.3
10260.0	4.5	152	10243.6	-394.9	202.6	443.8
10280.0	4.5	153	10263.5	-396.3	203.3	445.4
10300.0	4.6	154	10283.5	-397.7	204.0	447.0
10320.0	4.7	153	10303.4	-399.2	204.8	448.6
10340.0	4.8	153	10323.3	-400.6	205.5	450.3
10360.0	5.0	152	10343.3	-402.1	206.3	452.0
10380.0	4.9	153	10363.2	-403.7	207.1	453.7
10400.0	4.9	152	10383.1	-405.2	207.9	455.4
10420.0	5.0	155	10403.0	-406.7	208.7	457.1
10440.0	4.9	153	10423.0	-408.3	209.4	458.9
10460.0	4.8	153	10442.9	-409.8	210.2	460.5
10480.0	4.8	154	10452.8	-411.3	210.9	462.2
10500.0	4.7	154	10482.8	-412.8	211.7	463.9
10520.0	4.7	153	10502.7	-414.2	212.4	465.5
10540.0	4.6	156	10522.6	-415.7	213.1	467.1
10560.0	4.6	157	10542.6	-417.2	213.7	468.7
10580.0	4.8	159	10562.5	-418.7	214.3	470.4
10600.0	4.7	158	10582.4	-420.2	214.9	472.0
10620.0	4.6	160	10602.4	-421.7	215.5	473.6
10640.0	4.5	158	10622.3	-423.2	216.1	475.2
10660.0	4.6	159	10642.2	-424.7	216.7	476.8
10680.0	4.6	159	10662.2	-426.2	217.3	478.4
10700.0	4.6	159	10682.1	-427.7	217.8	480.0
10720.0	4.6	158	10702.0	-429.2	218.4	481.6
10740.0	4.6	159	10722.0	-430.7	219.0	483.2
10760.0	4.6	158	10741.9	-432.2	219.6	484.8
10780.0	4.5	158	10761.8	-433.6	220.2	486.3
10800.0	4.5	158	10781.8	-435.1	220.8	487.9
10820.0	4.4	158	10801.7	-436.5	221.4	489.5
10840.0	4.5	157	10821.7	-438.0	221.9	491.0
10860.0	4.5	158	10841.6	-439.4	222.5	492.6
10880.0	4.4	158	10861.5	-440.9	223.1	494.1
10900.0	4.4	157	10881.5	-442.3	223.7	495.6
10920.0	4.4	159	10901.4	-443.7	224.3	497.2
10940.0	4.4	160	10921.4	-445.1	224.8	498.7
10960.0	4.4	161	10941.3	-446.6	225.3	500.2
10980.0	4.4	161	10961.3	-448.0	225.8	501.7
11000.0	4.3	162	10981.2	-449.5	226.3	503.2
11020.0	4.2	162	11001.1	-450.9	226.8	504.7
11040.0	4.1	160	11021.1	-452.3	227.3	506.1
11060.0	4.1	162	11041.0	-453.6	227.7	507.6
11080.0	4.0	161	11061.0	-454.9	228.2	509.0
11100.0	3.9	160	11080.9	-456.2	228.6	510.3
11120.0	3.8	161	11100.9	-457.5	229.1	511.7

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
11140.0	3.6	159	11120.8	-458.7	229.5	512.9
11160.0	3.6	158	11140.8	-459.9	230.0	514.2
11180.0	3.6	159	11160.8	-461.1	230.4	515.4
11200.0	3.5	158	11180.7	-462.2	230.9	516.7
11220.0	3.4	159	11200.7	-463.3	231.3	517.9
11240.0	3.4	157	11220.7	-464.4	231.8	519.1
11260.0	3.3	154	11240.6	-465.5	232.3	520.2
11280.0	3.3	160	11260.6	-466.6	232.7	521.4
11300.0	3.0	155	11280.6	-467.6	233.1	522.5
11320.0	3.0	154	11300.5	-468.5	233.6	523.5
11340.0	3.0	154	11320.5	-469.4	234.1	524.5
11360.0	3.0	153	11340.5	-470.3	234.6	525.5
11380.0	3.0	153	11360.5	-471.2	235.1	526.6
11400.0	3.0	152	11380.4	-472.1	235.5	527.6
11420.0	2.9	152	11400.4	-473.0	236.0	528.6
11440.0	2.9	151	11420.4	-473.9	236.5	529.6
11460.0	2.9	151	11440.4	-474.8	237.0	530.7
11480.0	2.9	150	11460.3	-475.7	237.5	531.7
11500.0	2.9	150	11480.3	-476.6	237.9	532.7
11520.0	2.9	149	11500.3	-477.5	238.4	533.8
11540.0	3.2	145	11520.2	-478.4	239.0	534.8
11560.0	3.4	144	11540.2	-479.4	239.7	536.0
11580.0	3.6	139	11560.2	-480.3	240.4	537.1
11600.0	3.7	132	11580.1	-481.2	241.3	538.4
11620.0	3.8	133	11600.1	-482.1	242.3	539.6
11640.0	3.9	128	11620.0	-483.0	243.3	540.8
11660.0	4.0	129	11640.0	-483.8	244.4	542.1
11680.0	4.3	128	11659.9	-484.7	245.5	543.4
11700.0	4.5	127	11679.9	-485.7	246.7	544.8
11720.0	4.8	128	11699.8	-486.7	248.0	546.2
11740.0	4.9	128	11719.8	-487.7	249.4	547.8
11760.0	5.2	129	11739.7	-488.8	250.7	549.4
11780.0	5.2	128	11759.6	-489.9	252.2	551.0
11800.0	5.4	127	11779.5	-491.1	253.6	552.7
11820.0	5.6	126	11799.4	-492.2	255.2	554.4
11840.0	5.6	127	11819.3	-493.4	256.7	556.2
11860.0	5.8	126	11839.2	-494.5	258.3	557.9
11880.0	6.1	124	11859.1	-495.7	260.0	559.8
11900.0	6.2	125	11879.0	-496.9	261.8	561.7
11920.0	6.3	125	11898.9	-498.2	263.6	563.6
11940.0	6.3	126	11918.8	-499.5	265.4	565.6
11960.0	6.3	122	11938.6	-500.7	267.2	567.5
11980.0	6.4	122	11958.5	-501.9	269.1	569.4
12000.0	6.2	119	11978.4	-503.0	270.9	571.3
12020.0	6.3	120	11998.3	-504.1	272.8	573.2
12040.0	6.4	118	12018.1	-505.1	274.8	575.0

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
12060.0	6.4	119	12038.0	-506.2	276.7	576.9
12080.0	6.4	116	12057.9	-507.2	278.7	578.7
12100.0	6.5	117	12077.8	-508.2	280.7	580.6
12120.0	6.5	116	12097.6	-509.2	282.8	582.5
12140.0	6.6	113	12117.5	-510.2	284.8	584.3
12160.0	6.6	113	12137.4	-511.1	286.9	586.1
12180.0	6.7	112	12157.2	-512.0	289.1	587.9
12200.0	6.7	114	12177.1	-512.9	291.2	589.8
12220.0	6.6	112	12197.0	-513.8	293.4	591.6
12240.0	6.8	114	12216.8	-514.7	295.5	593.5
12260.0	6.9	113	12236.7	-515.6	297.7	595.4
12280.0	6.9	113	12256.5	-516.6	299.9	597.3
12300.0	7.1	114	12276.4	-517.5	302.1	599.3
12320.0	7.2	113	12296.2	-518.5	304.4	601.3
12340.0	7.2	116	12316.1	-519.6	306.7	603.4
12360.0	7.2	117	12335.9	-520.7	309.0	605.5
12380.0	7.2	118	12355.8	-521.9	311.2	607.6
12400.0	7.2	118	12375.6	-523.0	313.4	609.7
12420.0	7.2	119	12395.5	-524.2	315.6	611.9
12440.0	7.1	119	12415.3	-525.4	317.8	614.1
12460.0	7.1	119	12435.1	-526.6	319.9	616.2
12480.0	7.2	117	12455.0	-527.8	322.1	618.3
12500.0	7.2	115	12474.8	-528.9	324.4	620.5
12520.0	7.0	113	12494.7	-529.9	326.6	622.5
12540.0	7.0	113	12514.5	-530.9	328.9	624.5
12560.0	6.8	115	12534.4	-531.8	331.1	626.5
12580.0	6.8	111	12554.2	-532.8	333.3	628.4
12600.0	6.8	109	12574.1	-533.6	335.5	630.3
12620.0	6.7	107	12594.0	-534.3	337.7	632.1
12640.0	6.9	106	12613.8	-535.0	340.0	633.9
12660.0	7.0	105	12633.7	-535.6	342.3	635.7
12680.0	7.1	104	12653.5	-536.2	344.7	637.5
12700.0	7.1	102	12673.4	-536.8	347.1	639.2
12720.0	7.1	101	12693.2	-537.3	349.5	641.0
12740.0	7.2	101	12713.1	-537.8	352.0	642.7
12760.0	7.3	100	12732.9	-538.2	354.4	644.4
12780.0	7.5	100	12752.7	-538.7	357.0	646.2
12800.0	7.8	96	12772.6	-539.0	359.6	648.0
12820.0	8.1	96	12792.4	-539.3	362.4	649.8
12840.0	8.1	96	12812.2	-539.6	365.2	651.6
12860.0	8.1	95	12832.0	-539.9	368.0	653.4
12880.0	8.0	96	12851.8	-540.2	370.8	655.2
12900.0	7.9	95	12871.6	-540.4	373.5	656.9
12920.0	7.9	96	12891.4	-540.7	376.3	658.7
12940.0	7.7	95	12911.2	-540.9	379.0	660.5
12960.0	7.8	92	12931.0	-541.1	381.6	662.2

MEAS. DEPTH FT	DEVIATION DEGREES	AZIMUTH DEGREES	TRUE VERTICAL DEPTH FT	CO-ORDINATES + NORTH - SOUTH	+ EAST - WEST	COURSE LENGTH FT
12980.0	7.7	90	12950.8	-541.2	384.3	663.8
13000.0	7.7	89	12970.7	-541.1	387.0	665.3
13020.0	7.8	94	12990.5	-541.2	389.7	666.9
13040.0	7.6	93	13010.3	-541.4	392.4	668.6
13060.0	7.6	94	13030.1	-541.5	395.0	670.3
13080.0	7.5	94	13050.0	-541.7	397.7	672.0
13100.0	7.5	93	13069.8	-541.9	400.3	673.7
13120.0	7.5	91	13089.6	-542.0	402.9	675.3
13140.0	7.4	91	13109.4	-542.0	405.5	676.9
13160.0	7.3	91	13129.3	-542.1	408.0	678.5
13180.0	7.2	91	13149.1	-542.1	410.5	680.0
13200.0	7.1	89	13169.0	-542.1	413.0	681.5
13220.0	7.0	89	13188.8	-542.1	415.5	683.0
13240.0	7.0	89	13208.7	-542.0	417.9	684.4
13260.0	7.0	90	13228.5	-542.0	420.4	685.9
13280.0	6.9	91	13248.4	-542.0	422.8	687.4
13300.0	6.8	89	13268.2	-542.0	425.2	688.9
13320.0	6.9	91	13288.1	-542.0	427.6	690.3
13340.0	6.9	91	13307.9	-542.1	430.0	691.9
13360.0	7.0	91	13327.8	-542.1	432.4	693.4
13380.0	6.9	92	13347.6	-542.2	434.8	695.0
13400.0	6.9	93	13367.5	-542.3	437.2	696.6
13420.0	6.8	95	13387.4	-542.4	439.6	698.2
13438.0	6.7	94	13405.2	-542.6	441.7	699.6

```
*****************************************************************
*                    BOTTOM HOLE LOCATION                       *
*                                                               *
*                    COURSE LENGTH:          699.6  FT          *
*                                                               *
*                    COURSE AZIMUTH:         140.8  DEGREES     *
*                                                               *
*                                                               *
*                    MEASURED DEPTH:       13438.0  FT          *
*                                                               *
*                    TRUE VERTICAL DEPTH: 13405.2  FT           *
*                                                               *
*                    DISTANCE SOUTH:         542.6  FT          *
*                                                               *
*                    DISTANCE EAST:          441.7  FT          *
*                                                               *
*                                                               *
*                    EXACT RADIUS OF CURVATURE METHOD           *
*                                                               *
*****************************************************************
```

```
****************
*              *
****************
* SCHLUMBERGER *
****************
```

HIGH RESOLUTION

DIAMETER

****

CLUSTER LISTING
****

DAVIS OIL CO.

NORTH PINEVIEW

SUMMIT, UTAH

LOGAN FEDERAL 2-A

RUN NO. THREE JOB NO. 16232

CLUSTER RESULTS ONLY

4 FT. CORR. - 2 FT. STEP

40 DEG. X2 SEARCH ANGLE

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
11512.0			2.9	151	12.7	8.8	
11514.0			2.8	151	13.1	8.9	
11516.0			2.8	151	13.3	8.8	
11518.0	17.8	106	2.9	150	13.5	8.6	B
11520.0			2.9	119	14.1	8.5	
11522.0			3.0	148	14.7	8.5	
11524.0			3.0	148	14.9	8.5	
11526.0			3.1	147	14.7	8.3	
11528.0			3.1	147	14.4	8.0	
11530.0			3.1	146	14.3	8.0	
11532.0			3.1	146	14.1	8.1	
11534.0			3.1	146	14.2	8.3	
11536.0	10.3	331	3.2	146	14.1	8.3	D
11538.0	9.1	327	3.2	145	13.9	8.3	B
11540.0	8.7	327	3.2	145	13.7	8.4	B
11542.0	6.0	331	3.2	145	14.9	9.4	B
11544.0			3.2	114	15.8	10.1	
11546.0	4.3	3	3.3	114	15.2	9.6	D
11548.0			3.3	144	15.0	8.9	
11550.0			3.3	144	15.1	8.3	
11552.0	8.1	311	3.3	114	15.3	8.0	D
11554.0	8.0	337	3.3	143	15.6	8.6	D
11556.0			3.3	143	15.9	9.7	
11558.0	9.9	347	3.4	144	15.7	9.9	D
11560.0			3.4	144	15.4	9.4	
11562.0	8.0	331	3.4	144	14.8	8.6	A
11564.0	8.1	325	3.5	144	14.6	8.5	A
11566.0	5.8	325	3.6	144	15.5	9.1	C
11568.0			3.5	143	16.1	9.8	
11570.0			3.5	143	15.4	9.4	
11572.0	14.0	355	3.5	142	14.8	8.6	C
11574.0	8.8	316	3.5	141	14.4	8.4	A
11576.0	7.8	326	3.5	140	14.2	8.3	A
11578.0	7.5	320	3.6	139	14.0	8.1	A
11580.0	9.7	307	3.6	139	13.7	8.0	A
11582.0	9.3	315	3.6	137	13.7	8.2	A
11584.0	9.1	317	3.6	136	13.5	8.4	A
11586.0	8.8	317	3.6	136	12.9	8.5	A
11588.0	10.3	315	3.6	136	12.6	8.5	A
11590.0	9.6	309	3.6	136	12.8	8.6	A

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
11592.0	10.5	331	13.7	136	12.6	8.6	A
11594.0	9.7	322	13.7	135	12.1	8.5	A
11596.0	8.0	324	13.7	135	11.9	8.5	A
11598.0	8.0	323	13.7	134	12.0	8.6	A
11600.0	13.7	301	13.7	132	12.3	8.6	A
11602.0	9.9	318	13.7	131	12.5	8.5	A
11604.0	9.2	315	13.7	132	12.5	8.5	A
11606.0	9.3	307	13.7	131	12.5	8.5	C
11608.0	9.3	313	13.7	131	12.6	8.5	A
11610.0	11.0	313	13.7	130	12.6	8.6	A
11612.0	11.2	320	13.8	130	12.5	8.7	A
11614.0	11.0	327	13.9	131	12.6	8.8	A
11616.0	7.9	320	13.8	131	12.6	8.9	A
11618.0	7.9	315	13.8	132	12.4	8.9	A
11620.0	10.7	306	13.8	133	12.5	9.0	A
11622.0	9.0	324	13.8	133	12.2	9.1	A
11624.0	8.7	313	13.8	134	11.9	9.1	A
11626.0	8.8	312	13.9	133	11.8	9.1	A
11628.0	9.3	311	13.9	133	11.9	9.1	A
11630.0	7.7	323	13.8	133	12.0	9.0	A
11632.0	10.0	316	13.8	132	11.5	9.0	A
11634.0	9.2	299	13.8	130	10.8	9.0	A
11636.0	8.8	293	13.9	129	10.7	9.0	A
11638.0	8.5	305	13.9	129	10.6	9.0	A
11640.0	8.6	308	13.9	128	10.7	9.0	A
11642.0	10.3	285	13.9	128	10.7	8.9	A
11644.0	9.8	276	13.9	128	10.9	8.9	A
11646.0	9.2	295	13.9	128	11.4	9.0	A
11648.0	13.9	273	13.8	128	11.4	9.0	C
11650.0	16.2	278	13.9	127	10.8	8.9	A
11652.0	14.0	289	13.9	128	10.6	8.9	A
11654.0	12.2	316	13.9	128	10.6	8.8	A
11656.0	11.6	314	14.0	128	10.6	8.9	A
11658.0	10.1	307	14.0	128	10.6	9.1	A
11660.0	9.9	308	14.0	129	10.7	9.0	A
11662.0	10.6	344	14.0	130	10.8	9.0	A
11664.0	9.6	314	14.1	130	10.4	9.0	C
11666.0	11.3	303	14.1	129	10.0	9.0	A
11668.0	9.0	340	14.1	129	10.6	9.0	C
11670.0	12.6	307	14.1	129	11.2	9.0	C

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
11672.0	12.5	300	14.1	129	10.9	9.0	C
11674.0	10.1	309	14.2	129	10.3	9.0	C
11676.0	10.9	310	14.3	128	10.1	9.0	C
11678.0	9.8	317	14.3	129	10.2	9.0	A
11680.0	9.6	312	14.3	128	10.3	9.0	A
11682.0	10.2	308	14.4	128	10.3	9.0	A
11684.0	10.3	307	14.4	127	10.2	9.0	A
11686.0	10.1	310	14.4	128	10.2	9.0	A
11688.0	10.1	309	14.5	128	10.2	9.0	A
11690.0	10.3	307	14.5	128	10.1	9.0	A
11692.0	10.5	308	14.5	128	10.2	9.1	A
11694.0	10.7	306	14.4	128	10.2	9.1	A
11696.0	10.3	305	14.4	127	10.2	9.1	A
11698.0	10.2	306	14.5	127	10.2	9.1	A
11700.0	10.2	306	14.5	127	10.2	9.1	A
11702.0	10.2	306	14.5	127	10.1	9.0	A
11704.0	10.2	305	14.5	127	9.9	9.0	A
11706.0	9.9	302	14.5	126	9.8	9.1	A
11708.0	10.1	302	14.6	126	9.7	9.1	A
11710.0	10.4	303	14.6	127	9.9	9.0	A
11712.0	10.5	305	14.7	128	10.0	9.0	C
11714.0	10.4	305	14.7	128	10.1	9.1	A
11716.0	10.3	299	14.7	128	10.0	9.1	A
11718.0	10.0	296	14.7	128	10.0	9.0	A
11720.0	10.4	300	14.8	128	9.9	9.0	A
11722.0	10.9	302	14.8	128	10.0	9.0	A
11724.0	9.9	297	14.8	128	10.2	9.1	C
11726.0	7.5	308	14.8	128	10.4	9.2	A
11728.0	9.1	309	14.8	129	10.6	9.1	A
11730.0	9.0	312	14.8	128	10.4	9.0	A
11732.0	8.6	306	14.8	128	10.0	9.0	A
11734.0	9.7	304	14.9	128	9.6	9.0	A
11736.0	9.4	308	14.9	127	9.5	9.0	A
11738.0	9.5	310	14.9	127	9.4	9.0	A
11740.0	8.2	322	14.9	128	9.5	9.0	A
11742.0	9.4	343	14.9	128	9.5	9.0	A
11744.0			15.0	128	9.6	9.0	
11746.0	10.8	300	15.0	128	9.8	9.0	A
11748.0	10.4	299	15.0	127	9.9	9.0	A
11750.0	9.8	303	15.0	128	9.9	9.1	C

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
11752.0	9.2	306	5.0	128	10.1	9.1	A
11754.0	7.3	337	5.0	128	10.2	9.0	A
11756.0	8.1	326	5.1	129	10.5	8.9	A
11758.0	8.7	305	5.1	129	10.8	9.0	C
11760.0	10.4	301	5.2	129	10.8	9.0	A
11762.0	10.8	300	5.2	129	11.0	8.9	A
11764.0	10.7	299	5.1	129	11.2	9.0	A
11766.0	10.6	302	5.2	129	11.2	9.0	A
11768.0	11.0	300	5.2	128	11.4	9.0	A
11770.0	11.3	303	5.2	129	11.6	9.0	C
11772.0	9.6	311	5.2	129	11.6	9.1	A
11774.0	10.7	301	5.2	130	11.4	9.0	A
11776.0	9.9	302	5.2	130	10.9	9.0	A
11778.0	9.6	301	5.2	129	10.4	9.0	A
11780.0	9.5	305	5.2	128	10.4	9.0	A
11782.0	9.6	303	5.2	128	10.9	9.0	A
11784.0	11.0	300	5.2	128	11.4	9.0	A
11786.0	10.2	303	5.3	128	11.4	9.0	A
11788.0	9.6	304	5.3	128	11.4	9.0	A
11790.0	7.3	312	5.4	128	11.5	9.0	A
11792.0	7.5	310	5.4	128	11.3	9.0	A
11794.0	9.9	300	5.4	128	11.6	8.9	A
11796.0	10.2	295	5.4	128	11.9	8.8	A
11798.0	10.9	301	5.4	128	12.2	8.7	A
11800.0	10.4	299	5.4	127	12.3	8.7	A
11802.0	10.6	300	5.4	127	12.5	8.6	A
11804.0	10.4	303	5.4	127	12.6	8.6	A
11806.0	10.4	307	5.4	128	12.2	8.6	A
11808.0	9.8	303	5.4	128	11.9	8.8	A
11810.0	9.8	298	5.5	127	12.0	9.0	C
11812.0	11.2	300	5.5	127	12.1	9.0	A
11814.0	10.9	300	5.5	126	12.5	9.0	A
11816.0	11.8	297	5.5	126	12.9	8.9	A
11818.0	11.3	298	5.5	126	13.0	8.8	A
11820.0	11.1	292	5.6	126	13.1	9.2	A
11822.0			5.6	127	13.3	9.8	
11824.0			5.6	127	13.4	9.7	
11826.0	7.4	350	5.6	127	13.5	9.4	C
11828.0	11.2	313	5.6	127	13.7	9.3	D
11830.0	11.3	297	5.6	127	13.6	9.2	B

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
11832.0	10.9	322	5.6	128	13.6	9.1	D
11834.0	11.5	299	5.6	128	13.7	9.1	D
11836.0	10.8	310	5.6	128	13.5	9.1	D
11838.0	8.4	325	5.6	127	13.1	9.1	B
11840.0	13.3	296	5.6	127	13.3	9.2	B
11842.0	13.2	309	5.7	128	13.7	9.3	B
11844.0			5.7	127	13.7	9.5	
11846.0			5.7	127	14.1	9.5	
11848.0			5.7	127	14.5	9.4	
11850.0			5.7	126	14.5	9.3	
11852.0			5.7	127	14.4	9.0	
11854.0	13.8	273	5.7	127	14.0	9.0	D
11856.0	11.1	301	5.7	126	13.5	9.1	B
11858.0	11.0	302	5.8	126	13.4	9.1	B
11860.0	11.3	291	5.8	126	13.4	9.1	D
11862.0	7.1	290	5.8	126	13.4	9.1	D
11864.0	3.6	292	5.9	126	13.2	9.1	D
11866.0	9.0	284	5.9	126	12.5	9.1	D
11868.0	14.0	298	5.9	125	12.0	9.0	A
11870.0	11.3	301	5.9	126	12.4	9.1	A
11872.0	10.1	313	6.0	126	13.1	9.1	C
11874.0	10.9	290	6.0	125	13.4	9.2	A
11876.0	8.6	290	6.0	125	12.7	9.2	B
11878.0	9.8	283	6.0	124	12.1	9.1	D
11880.0	2.5	281	6.1	124	12.4	9.1	D
11882.0	5.1	286	6.0	124	12.6	9.5	D
11884.0	14.6	288	6.0	124	12.5	9.6	D
11886.0			6.0	125	11.7	9.3	
11888.0			6.0	125	11.1	9.2	
11890.0			6.1	124	11.2	9.1	
11892.0			6.1	124	11.7	9.1	
11894.0	14.0	302	6.1	125	11.6	9.0	A
11896.0	12.5	307	6.1	125	11.1	9.0	A
11898.0	12.4	308	6.1	125	10.8	9.1	A
11900.0	12.2	307	6.2	125	10.7	9.2	A
11902.0	11.3	292	6.2	125	10.9	9.1	C
11904.0	15.1	279	6.2	124	10.9	9.1	C
11906.0	11.4	308	6.2	124	10.6	9.0	A
11908.0	8.1	317	6.2	125	10.5	9.0	A
11910.0	19.6	287	6.2	125	10.3	9.1	C

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
11912.0	17.8	304	6.2	126	10.1	9.2	A
11914.0	13.2	313	6.2	126	9.9	9.3	A
11916.0	14.5	299	6.2	125	9.6	9.3	A
11918.0	16.6	284	6.3	125	9.5	9.2	A
11920.0	15.7	286	6.3	125	9.8	9.2	A
11922.0	14.2	294	6.3	125	10.1	9.3	A
11924.0	11.4	301	6.3	125	10.2	9.3	C
11926.0	10.3	305	6.3	125	10.6	9.2	A
11928.0	11.8	298	6.3	125	10.9	9.2	A
11930.0	11.9	295	6.3	126	11.7	9.3	A
11932.0	11.4	337	6.3	126	12.4	9.4	D
11934.0			6.3	126	11.9	9.6	
11936.0			6.3	126	11.0	9.8	
11938.0	11.7	302	6.3	126	10.3	10.0	A
11940.0	11.7	301	6.3	126	9.6	9.9	A
11942.0	10.8	302	6.3	127	9.3	9.7	A
11944.0	11.0	302	6.3	126	9.3	9.6	A
11946.0	10.9	301	6.3	126	9.3	9.4	A
11948.0	10.0	300	6.3	125	9.3	9.4	A
11950.0	10.2	304	6.3	125	9.3	9.5	A
11952.0	10.2	304	6.3	124	9.4	9.5	A
11954.0	10.5	300	6.3	124	9.4	9.4	A
11956.0	11.9	297	6.3	123	9.5	9.4	A
11958.0	12.5	299	6.4	123	9.5	9.4	A
11960.0	12.4	303	6.3	122	9.5	9.5	A
11962.0	10.9	296	6.3	122	9.3	9.6	C
11964.0	6.5	287	6.3	122	9.2	10.1	A
11966.0	3.9	287	6.3	123	9.2	10.4	A
11968.0	9.3	282	6.3	123	9.3	10.1	C
11970.0	9.6	296	6.3	123	9.5	9.6	A
11972.0	9.4	299	6.3	122	9.2	9.4	A
11974.0	9.6	294	6.3	122	9.2	9.3	A
11976.0	10.3	295	6.3	122	9.4	9.3	A
11978.0			6.3	122	9.4	9.6	
11980.0			6.4	122	9.6	10.1	
11982.0			6.4	121	9.7	10.0	
11984.0			6.3	120	9.5	9.5	
11986.0	11.5	290	6.3	120	9.3	9.4	A
11988.0	10.5	286	6.3	120	9.3	9.2	A
11990.0	10.0	283	6.3	120	9.3	9.1	A

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
11992.0	10.9	284	6.3	120	9.3	9.1	A
11994.0	11.5	283	6.3	121	9.4	9.1	A
11996.0	11.5	284	6.3	120	9.4	9.1	A
11998.0	9.0	289	6.3	119	9.4	9.1	A
12000.0	10.2	293	6.2	119	9.3	9.3	A
12002.0	12.3	290	6.3	120	9.4	9.4	A
12004.0	12.4	286	6.3	120	9.4	9.2	A
12006.0	11.9	292	6.3	119	9.5	9.2	A
12008.0	11.3	294	6.3	119	9.4	9.2	A
12010.0	10.6	295	6.3	119	9.4	9.2	A
12012.0	11.2	294	6.3	119	9.4	9.2	A
12014.0	9.0	320	6.3	119	9.2	9.2	A
12016.0	9.5	319	6.3	120	9.1	9.2	A
12018.0	9.7	314	6.3	120	9.1	9.2	A
12020.0	11.9	303	6.3	120	9.1	9.2	A
12022.0	12.1	304	6.3	120	9.0	9.3	A
12024.0	12.6	309	6.3	120	9.1	9.3	A
12026.0	12.1	308	6.3	119	9.2	9.2	A
12028.0	11.1	296	6.3	118	9.2	9.1	A
12030.0	10.2	286	6.4	118	9.2	9.2	A
12032.0	7.8	289	6.4	118	9.2	9.2	A
12034.0	9.8	295	6.4	118	9.2	9.2	C
12036.0	10.8	292	6.4	118	9.1	9.2	A
12038.0	10.9	294	6.4	118	9.2	9.3	A
12040.0	11.9	291	6.4	118	9.4	9.4	A
12042.0	13.0	284	6.4	118	9.8	9.4	A
12044.0			6.3	119	10.3	9.4	
12046.0			6.3	119	10.2	9.4	
12048.0	9.0	249	6.3	119	9.5	9.3	D
12050.0	9.1	297	6.4	119	9.4	9.2	B
12052.0	9.6	299	6.4	120	9.5	9.3	B
12054.0	10.9	287	6.4	119	9.6	9.3	A
12056.0	10.8	289	6.4	119	9.5	9.3	A
12058.0	10.8	291	6.4	119	9.7	9.3	A
12060.0	10.9	291	6.4	119	10.0	9.4	A
12062.0	9.7	294	6.4	119	9.8	9.3	A
12064.0	8.9	296	6.4	118	9.6	9.1	A
12066.0	11.2	291	6.4	118	9.5	9.3	A
12068.0			6.4	118	9.6	9.6	
12070.0	10.7	288	6.4	119	10.5	9.7	A

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
12072.0	9.2	293	6.4	118	11.3	9.7	A
12074.0			6.4	119	11.0	9.6	
12076.0			6.4	118	10.3	9.5	
12078.0	9.8	289	6.4	117	9.6	9.3	A
12080.0	9.3	292	6.4	116	9.4	9.3	A
12082.0	8.9	301	6.4	116	9.3	9.4	A
12084.0	9.3	293	6.4	116	9.3	9.4	A
12086.0	9.6	293	6.4	116	9.2	9.4	A
12088.0	10.8	283	6.4	116	9.2	9.4	A
12090.0	10.3	285	6.5	116	9.2	9.4	A
12092.0	10.8	294	6.5	116	9.5	9.4	A
12094.0	12.4	296	6.5	117	10.1	9.4	A
12096.0	11.6	294	6.5	117	10.1	9.5	A
12098.0	11.6	295	6.5	118	10.1	9.5	A
12100.0	11.5	295	6.5	117	10.5	9.6	A
12102.0	21.5	264	6.5	117	10.7	9.7	B
12104.0	23.1	261	6.5	117	10.7	9.7	B
12106.0	10.4	292	6.5	117	10.6	9.6	A
12108.0	10.3	288	6.5	117	10.1	9.5	A
12110.0	11.9	275	6.5	115	9.3	9.4	A
12112.0	10.8	290	6.5	115	9.1	9.3	A
12114.0	9.9	293	6.5	115	9.1	9.3	A
12116.0			6.5	115	9.2	9.2	
12118.0	7.7	292	6.5	116	9.3	9.2	A
12120.0	10.7	290	6.5	116	9.2	9.3	A
12122.0	12.7	285	6.5	116	9.3	9.4	A
12124.0	12.1	284	6.5	116	9.8	9.5	A
12126.0	11.0	280	6.5	116	10.4	9.5	A
12128.0	10.4	275	6.5	115	10.5	9.4	A
12130.0	13.3	277	6.5	115	10.3	9.3	A
12132.0	14.0	275	6.5	114	10.1	9.4	A
12134.0	10.2	296	6.5	114	9.6	9.5	A
12136.0	11.7	276	6.5	114	9.1	9.5	A
12138.0	11.6	290	6.6	113	9.1	9.5	A
12140.0	11.1	291	6.6	113	9.1	9.5	A
12142.0	10.3	289	6.6	114	9.1	9.5	A
12144.0	10.1	290	6.6	114	9.0	9.5	A
12146.0	10.4	297	6.6	114	9.0	9.5	A
12148.0			6.6	113	8.9	9.6	
12150.0	8.9	277	6.6	113	9.0	9.7	A

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
12152.0	8.6	278	6.6	113	9.0	9.7	A
12154.0	8.8	286	6.6	113	8.9	9.6	A
12156.0	11.4	285	6.6	113	8.9	9.3	C
12158.0	8.4	293	6.6	113	8.9	9.3	A
12160.0	9.0	297	6.6	113	8.9	9.6	A
12162.0	10.2	288	6.6	113	8.9	9.7	A
12164.0	10.7	296	6.6	113	8.9	9.8	A
12166.0	10.8	298	6.6	113	8.8	10.0	A
12168.0	10.1	294	6.6	113	8.8	10.0	A
12170.0	10.6	292	6.6	113	8.9	10.0	A
12172.0	11.3	276	6.6	113	8.9	10.1	A
12174.0	13.4	289	6.6	113	9.0	9.9	A
12176.0	17.6	303	6.7	112	9.0	9.7	A
12178.0	12.0	290	6.7	112	8.9	9.8	A
12180.0	10.4	291	6.7	112	8.9	9.8	A
12182.0	11.4	266	6.7	113	8.9	10.0	C
12184.0	11.0	285	6.7	114	8.9	10.4	A
12186.0	10.8	288	6.7	115	8.9	10.4	A
12188.0	10.4	294	6.7	114	8.9	10.2	A
12190.0	9.6	292	6.7	114	8.9	10.3	A
12192.0	10.7	288	6.8	114	8.8	10.3	A
12194.0	11.4	290	6.8	114	8.9	10.4	A
12196.0			6.8	115	8.9	10.4	
12198.0			6.8	114	8.9	10.4	
12200.0			6.7	114	8.9	10.5	
12202.0	25.7	279	6.7	114	8.9	11.0	D
12204.0	32.7	280	6.7	114	8.9	11.2	D
12206.0	30.0	296	6.7	115	8.9	11.2	B
12208.0	29.7	286	6.7	114	8.9	10.9	B
12210.0	24.8	291	6.7	113	8.9	10.4	B
12212.0	20.0	299	6.7	112	8.9	10.2	A
12214.0	19.2	297	6.7	113	8.9	10.3	A
12216.0	12.5	290	6.7	113	8.9	10.3	A
12218.0	16.5	284	6.6	113	8.8	10.2	A
12220.0	12.2	285	6.6	112	8.8	10.3	A
12222.0	10.4	288	6.6	112	9.0	10.6	C
12224.0			6.7	111	8.8	10.6	
12226.0			6.7	111	8.6	10.7	
12228.0	15.3	291	6.7	112	8.5	10.7	A
12230.0	11.5	286	6.8	113	8.4	10.4	C

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
12232.0			6.8	113	8.4	10.4	
12234.0	12.2	305	6.8	113	8.5	10.6	D
12236.0			6.8	113	8.5	10.7	
12238.0			6.9	113	8.6	10.5	
12240.0			6.8	114	8.6	10.9	
12242.0			6.9	114	8.5	11.6	
12244.0			6.8	113	8.6	11.8	
12246.0			6.8	112	8.6	11.8	
12248.0			6.8	112	8.6	11.8	
12250.0	10.7	322	6.9	112	8.5	11.8	D
12252.0			6.9	113	8.5	11.8	
12254.0			7.0	113	8.7	11.8	
12256.0	12.6	13	7.0	114	8.8	11.8	D
12258.0			6.9	114	8.6	11.9	
12260.0	12.0	360	6.9	113	8.6	12.1	D
12262.0	11.0	352	6.9	112	8.6	11.9	D
12264.0	14.6	318	6.9	113	8.6	11.7	D
12266.0	4.1	18	6.9	113	8.8	11.7	D
12268.0	15.3	347	6.9	112	8.8	11.8	D
12270.0			6.9	113	8.9	12.2	
12272.0	25.8	335	7.0	113	9.1	11.9	D
12274.0			7.0	114	9.3	11.5	
12276.0			7.0	114	9.3	11.1	
12278.0	23.1	346	6.9	113	9.1	10.5	B
12280.0			6.9	113	8.9	10.4	
12282.0			7.0	115	8.8	10.8	
12284.0			7.0	116	8.8	11.4	
12286.0			7.0	115	8.9	11.0	
12288.0			7.0	114	9.3	10.2	
12290.0			7.0	114	9.4	10.4	
12292.0			7.0	114	9.1	10.6	
12294.0			7.0	114	8.9	10.7	
12296.0	16.1	330	7.0	114	8.7	10.9	D
12298.0	15.6	313	7.1	114	8.8	11.0	D
12300.0	18.8	305	7.1	114	9.0	10.7	D
12302.0	15.3	318	7.2	113	9.0	10.0	B
12304.0	15.3	319	7.2	113	9.0	9.6	B
12306.0			7.2	114	9.0	9.7	
12308.0			7.2	113	9.0	10.0	
12310.0			7.2	113	9.0	9.8	

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
12312.0			7.2	113	9.0	9.7	
12314.0			7.2	113	8.9	9.9	
12316.0			7.2	113	8.9	10.1	
12318.0			7.2	113	8.9	10.1	
12320.0	9.1	298	7.2	113	9.1	10.0	B
12322.0	9.9	294	7.2	114	9.4	9.8	B
12324.0			7.2	115	9.6	9.5	
12326.0	11.8	282	7.2	116	9.8	9.3	D
12328.0	12.3	317	7.2	116	9.9	9.1	D
12330.0	12.9	315	7.3	116	10.0	9.1	D
12332.0	15.2	280	7.3	115	10.1	9.0	D
12334.0			7.3	114	10.2	9.0	
12336.0	17.0	312	7.2	115	10.3	9.0	D
12338.0			7.2	116	10.2	9.1	
12340.0			7.2	116	10.2	9.0	
12342.0			7.2	117	10.1	9.0	
12344.0	5.9	280	7.2	117	10.0	9.0	D
12346.0			7.2	116	10.1	9.0	
12348.0	14.7	306	7.2	116	10.1	9.0	B
12350.0	14.8	305	7.2	116	10.0	9.0	B
12352.0	13.6	309	7.2	116	9.8	9.0	A
12354.0	13.0	303	7.2	115	9.8	8.9	A
12356.0	13.4	302	7.2	116	9.8	8.9	A
12358.0	14.5	316	7.2	117	9.7	8.9	A
12360.0			7.2	117	9.7	9.0	
12362.0	20.0	273	7.2	117	9.8	9.0	B
12364.0			7.2	117	9.9	9.1	
12366.0	27.6	288	7.2	117	9.8	9.1	D
12368.0	27.5	287	7.2	117	9.8	9.1	D
12370.0	27.0	293	7.2	117	9.8	9.0	D
12372.0	14.0	295	7.2	117	9.8	9.0	A
12374.0	14.2	306	7.2	117	9.9	9.0	A
12376.0	17.4	297	7.2	118	9.9	8.9	A
12378.0	17.3	298	7.2	118	10.0	9.0	A
12380.0	17.8	319	7.2	118	10.0	9.1	C
12382.0	14.7	308	7.2	118	9.9	9.1	A
12384.0	14.5	304	7.2	118	9.8	9.1	A
12386.0	14.5	293	7.2	118	9.8	9.1	A
12388.0	13.9	288	7.2	118	9.9	9.1	A
12390.0	10.7	252	7.2	118	10.0	9.1	A

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
12392.0	9.5	288	7.2	117	10.0	9.1	A
12394.0	9.9	276	7.1	117	9.9	9.2	A
12396.0	11.1	299	7.1	117	9.7	9.1	C
12398.0	10.5	256	7.1	118	9.4	9.0	C
12400.0	11.2	289	7.2	118	9.5	9.0	C
12402.0			7.2	117	9.6	9.0	
12404.0	13.3	304	7.2	117	9.5	9.1	C
12406.0	11.9	300	7.2	118	9.6	9.1	A
12408.0	12.8	267	7.2	118	9.7	9.1	A
12410.0	14.2	281	7.2	118	9.7	9.1	A
12412.0	13.9	284	7.2	118	9.8	9.1	A
12414.0	10.4	297	7.2	119	9.8	9.1	A
12416.0	13.6	282	7.2	119	9.7	9.2	A
12418.0	12.2	288	7.2	119	9.9	9.2	C
12420.0	30.9	207	7.2	119	10.1	9.1	B
12422.0	35.5	209	7.2	119	10.4	9.2	B
12424.0			7.2	119	10.4	9.2	
12426.0	13.4	289	7.2	117	10.2	9.3	C
12428.0	10.3	303	7.2	117	10.1	9.4	C
12430.0			7.2	117	10.0	9.3	
12432.0			7.2	118	10.0	9.3	
12434.0			7.2	119	10.4	9.1	
12436.0			7.1	119	10.5	9.0	
12438.0			7.1	118	10.2	9.1	
12440.0			7.1	119	10.2	9.2	
12442.0			7.1	119	10.6	9.2	
12444.0			7.1	118	10.7	9.2	
12446.0			7.1	119	10.1	9.4	
12448.0			7.1	119	9.5	9.5	
12450.0			7.1	119	9.1	9.5	
12452.0			7.1	119	9.1	9.6	
12454.0	17.6	288	7.1	119	9.2	9.7	B
12456.0	18.8	290	7.1	119	9.3	9.7	D
12458.0			7.1	119	9.2	9.8	
12460.0			7.1	119	9.1	10.0	
12462.0	24.9	286	7.1	120	9.0	10.0	D
12464.0	17.5	304	7.1	119	8.8	9.9	D
12466.0			7.1	118	8.7	9.8	
12468.0	16.1	289	7.1	118	8.9	9.6	D
12470.0			7.1	117	8.9	9.6	

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
12472.0	14.1	281	7.1	117	8.7	9.8	D
12474.0	14.6	277	7.2	117	8.6	10.0	D
12476.0	17.9	274	7.2	117	8.7	10.0	D
12478.0	17.0	271	7.2	117	8.7	10.0	B
12480.0	14.6	271	7.2	117	8.8	10.5	B
12482.0	17.4	272	7.2	116	9.0	11.3	B
12484.0	9.3	241	7.2	117	9.1	11.3	D
12486.0	17.0	277	7.2	117	9.1	10.9	B
12488.0	15.9	281	7.2	116	9.0	10.3	B
12490.0	15.2	283	7.2	116	9.0	9.8	A
12492.0	14.9	270	7.2	116	9.1	10.5	A
12494.0	10.1	275	7.2	115	9.5	11.9	A
12496.0	23.9	226	7.1	114	9.4	12.3	D
12498.0			7.1	115	9.4	11.8	
12500.0	9.8	274	7.2	115	9.2	11.4	A
12502.0	16.2	275	7.1	114	8.9	10.8	A
12504.0	12.4	274	7.1	114	8.9	10.2	A
12506.0	23.7	226	7.1	113	9.0	10.0	B
12508.0	15.2	235	7.1	114	9.2	10.6	C
12510.0			7.1	115	10.3	12.0	
12512.0			7.0	114	10.9	12.3	
12514.0			7.0	113	10.4	11.8	
12516.0			7.0	114	10.2	11.9	
12518.0			7.0	114	10.1	12.3	
12520.0			7.0	113	10.0	11.8	
12522.0			7.0	115	9.2	11.1	
12524.0			7.1	117	8.9	11.2	
12526.0			7.1	115	10.0	11.9	
12528.0			7.1	114	10.4	12.8	
12530.0			7.1	115	10.2	13.4	
12532.0			7.1	115	10.0	12.8	
12534.0			7.1	115	10.0	12.3	
12536.0			7.1	114	10.1	12.0	
12538.0			7.0	113	10.1	11.0	
12540.0			7.0	113	10.1	10.1	
12542.0	17.6	249	7.0	113	10.3	9.5	D
12544.0	16.5	264	7.0	112	10.4	8.9	B
12546.0	18.0	253	7.0	112	10.4	8.7	B
12548.0	13.4	250	7.0	113	10.3	8.7	B
12550.0	13.7	251	7.0	112	10.2	8.9	B

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
12552.0	12.5	249	6.0	112	10.2	9.0	D
12554.0	13.9	264	6.9	112	10.1	9.0	D
12556.0			6.9	112	10.0	9.0	
12558.0	11.0	271	6.9	113	10.0	9.1	D
12560.0	15.7	301	6.8	115	10.3	9.3	D
12562.0	16.4	255	6.8	114	10.9	10.0	D
12564.0	16.2	279	6.8	112	10.5	9.0	D
12566.0	14.2	287	6.9	112	9.9	9.1	B
12568.0	16.0	285	6.9	112	10.0	9.1	B
12570.0	15.7	281	6.9	111	10.0	9.1	A
12572.0	12.3	268	6.9	112	9.8	9.1	A
12574.0	15.0	281	6.9	112	9.8	9.1	C
12576.0	13.7	266	6.9	112	9.6	9.1	A
12578.0	10.9	267	6.8	111	9.6	9.2	A
12580.0	11.8	274	6.8	111	10.2	9.2	A
12582.0	11.4	271	6.8	110	10.8	9.1	A
12584.0			6.8	110	11.0	9.1	
12586.0	13.0	266	6.8	110	11.2	9.1	A
12588.0	11.0	268	6.8	109	11.1	9.1	A
12590.0			6.8	109	11.0	9.1	
12592.0	11.9	273	6.8	109	11.1	9.1	B
12594.0	12.2	271	6.8	109	10.9	9.0	B
12596.0	12.7	263	6.8	109	10.9	8.9	D
12598.0	13.4	255	6.8	109	11.1	8.9	B
12600.0	11.5	264	6.8	109	11.1	8.9	D
12602.0	11.5	270	6.8	109	11.0	8.9	D
12604.0	8.9	290	6.8	108	11.1	8.8	D
12606.0	12.8	265	6.8	108	11.1	8.7	D
12608.0			6.8	108	11.2	8.7	
12610.0			6.8	108	11.5	8.7	
12612.0	9.0	261	6.8	108	11.3	8.8	D
12614.0	9.5	259	6.7	107	11.6	8.8	D
12616.0			6.7	107	11.9	8.7	
12618.0	13.6	264	6.7	108	11.6	8.7	D
12620.0	7.3	286	6.7	107	11.6	8.7	D
12622.0	19.2	262	6.7	107	11.7	8.6	D
12624.0	9.9	267	6.7	107	12.0	8.7	B
12626.0	21.1	250	6.8	107	12.2	8.7	B
12628.0	17.9	254	6.8	107	11.9	8.6	B
12630.0	20.1	256	6.8	107	12.0	8.6	D

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
12632.0	39.4	254	6.8	107	12.1	8.6	D
12634.0	38.4	252	6.9	107	11.9	8.5	D
12636.0	14.6	260	6.9	106	11.9	8.5	D
12638.0	14.9	259	6.9	106	12.4	8.6	D
12640.0	37.0	251	6.9	106	12.7	8.5	D
12642.0			6.9	107	13.0	8.5	
12644.0			6.9	106	13.5	8.5	
12646.0	21.3	254	6.8	106	13.7	8.4	D
12648.0	21.9	252	6.8	106	13.6	8.4	D
12650.0	12.8	250	6.8	106	13.4	8.6	D
12652.0	9.2	281	6.8	106	13.3	8.6	D
12654.0	5.9	275	6.9	106	13.3	8.6	D
12656.0	39.8	258	6.9	105	13.3	8.6	B
12658.0	13.3	262	7.0	105	13.5	8.5	B
12660.0	13.8	264	7.0	105	13.5	8.5	B
12662.0	8.7	278	7.0	105	13.5	8.6	D
12664.0			7.0	105	13.5	8.6	
12666.0			6.9	105	13.3	8.6	
12668.0			7.0	105	13.1	8.6	
12670.0			7.0	105	13.1	8.5	
12672.0			7.0	105	13.1	8.3	
12674.0			7.0	104	13.1	8.3	
12676.0			7.0	104	13.2	8.3	
12678.0	11.5	257	7.1	104	13.2	8.4	D
12680.0			7.1	104	13.3	8.5	
12682.0	18.2	57	7.1	104	13.6	8.5	B
12684.0	14.5	57	7.1	104	13.9	8.5	B
12686.0	14.8	251	7.1	104	14.3	8.5	D
12688.0	15.3	260	7.2	104	14.7	8.5	B
12690.0			7.2	103	14.7	8.6	
12692.0			7.1	103	14.8	8.6	
12694.0	5.0	294	7.1	103	14.9	8.6	D
12696.0	15.0	265	7.2	103	15.1	8.6	D
12698.0	12.3	261	7.1	103	14.8	8.6	B
12700.0	9.5	257	7.1	102	15.0	8.5	D
12702.0	6.7	244	7.1	102	15.8	8.5	D
12704.0	11.1	275	7.1	103	15.7	8.5	D
12706.0			7.0	102	15.6	8.5	
12708.0	8.7	214	7.0	102	15.8	8.6	D
12710.0	31.8	330	7.1	102	15.7	8.7	B

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
12712.0	36.8	334	7.1	103	15.9	8.7	D
12714.0			7.1	102	15.8	8.6	
12716.0			7.1	102	15.4	8.6	
12718.0			7.1	101	14.9	8.9	
12720.0			7.1	101	15.0	9.0	
12722.0			7.1	102	15.4	9.0	
12724.0			7.1	102	15.1	9.1	
12726.0			7.2	102	15.0	9.2	
12728.0			7.2	102	15.9	9.3	
12730.0			7.2	101	16.4	9.2	
12732.0			7.2	102	15.7	9.0	
12734.0			7.2	102	15.3	9.0	
12736.0			7.2	101	15.7	9.1	
12738.0			7.2	100	15.9	9.1	
12740.0			7.2	101	16.3	9.2	
12742.0			7.2	101	16.5	9.3	
12744.0			7.2	100	16.4	9.1	
12746.0			7.2	100	16.6	9.0	
12748.0			7.2	101	17.0	8.9	
12750.0			7.2	101	16.8	8.9	
12752.0			7.2	102	16.4	9.0	
12754.0			7.3	101	17.3	9.1	
12756.0			7.3	100	17.0	9.0	
12758.0			7.3	100	16.5	9.0	
12760.0			7.3	100	16.7	9.1	
12762.0			7.3	100	17.0	9.1	
12764.0			7.3	100	16.7	9.2	
12766.0			7.3	100	16.0	9.1	
12768.0			7.3	101	15.8	9.1	
12770.0			7.4	101	15.9	9.3	
12772.0			7.4	100	15.7	9.5	
12774.0	82.7	185	7.4	99	15.8	9.8	B
12776.0			7.4	99	16.3	10.0	
12778.0			7.4	100	16.0	10.8	
12780.0			7.5	100	15.2	11.5	
12782.0			7.5	100	13.9	11.7	
12784.0			7.5	100	13.3	11.7	
12786.0			7.5	99	13.1	11.2	
12788.0			7.5	98	13.7	11.4	
12790.0			7.5	97	15.5	11.9	

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
12792.0			7.5	96	17.4	12.9	
12794.0			7.5	98	16.6	13.4	
12796.0			7.5	99	14.8	13.0	
12798.0			7.6	97	16.4	14.4	
12800.0			7.8	96	19.3	11.4	
12802.0			7.9	97	18.8	13.2	
12804.0			7.9	98	18.5	13.0	
12806.0			7.9	99	18.2	13.5	
12808.0			8.0	98	19.3	13.0	
12810.0			8.1	97	17.0	11.0	
12812.0			8.1	97	15.3	9.8	
12814.0			8.1	97	14.6	9.6	
12816.0			8.1	97	14.2	9.6	
12818.0			8.1	96	14.0	9.9	
12820.0			8.1	96	14.0	10.0	
12822.0			8.1	96	14.2	10.0	
12824.0	8.1	274	8.1	96	14.2	10.1	D
12826.0	9.4	278	8.1	96	14.2	10.1	D
12828.0	9.3	264	8.1	95	14.1	10.1	D
12830.0			8.0	95	13.9	10.1	
12832.0			8.1	96	13.8	10.2	
12834.0	12.9	269	8.1	96	13.6	10.6	D
12836.0	11.1	256	8.1	96	13.4	10.7	D
12838.0	11.4	273	8.1	96	13.4	10.5	B
12840.0	11.6	252	8.1	96	13.7	10.5	B
12842.0			8.1	96	13.7	10.5	
12844.0			8.0	96	13.4	10.4	
12846.0			8.1	96	13.4	10.3	
12848.0			8.1	96	13.4	10.3	
12850.0			8.1	96	13.4	10.3	
12852.0			8.1	96	13.6	10.3	
12854.0			8.1	95	13.9	10.4	
12856.0	10.8	271	8.1	96	13.9	10.6	B
12858.0	7.8	254	8.1	95	13.4	10.3	B
12860.0			8.1	95	13.3	10.1	
12862.0			8.1	96	13.6	10.2	
12864.0	8.2	259	8.1	95	13.8	10.0	D
12866.0	11.5	263	8.1	95	13.8	10.0	B
12868.0	11.2	257	8.1	95	13.6	10.2	B
12870.0			8.1	96	13.7	10.2	

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
12872.0	14.5	280	8.1	96	13.9	10.1	C
12874.0	10.6	309	8.1	95	13.7	10.0	C
12876.0	12.8	321	8.1	95	13.8	10.3	A
12878.0	10.9	305	8.0	97	13.8	10.3	A
12880.0	12.3	297	8.0	96	13.5	10.3	A
12882.0	13.9	287	8.0	95	14.3	12.4	A
12884.0	12.9	262	8.0	95	16.1	13.7	A
12886.0	12.0	273	8.0	96	15.6	12.0	A
12888.0	12.9	286	8.0	96	13.8	10.0	A
12890.0	12.7	300	8.0	95	12.9	9.4	B
12892.0	12.1	298	8.0	95	12.4	9.3	B
12894.0			8.0	96	11.9	9.2	
12896.0			8.0	96	11.6	9.2	
12898.0			7.9	96	11.5	9.3	
12900.0	13.9	312	7.9	95	11.5	9.3	D
12902.0	17.5	304	7.9	95	11.2	9.4	D
12904.0			7.7	95	11.1	9.5	
12906.0			7.7	95	11.2	9.5	
12908.0	19.0	275	7.7	95	11.3	9.5	D
12910.0			7.9	95	11.4	9.7	
12912.0			7.8	97	11.7	9.9	
12914.0			7.8	98	13.0	10.8	
12916.0			7.8	97	15.0	12.6	
12918.0			7.8	96	17.5	14.5	
12920.0			7.9	96	18.4	14.3	
12922.0			7.8	95	17.1	12.1	
12924.0			7.8	95	15.4	10.6	
12926.0			7.8	96	14.7	10.2	
12928.0			7.8	96	14.9	10.1	
12930.0	10.5	248	7.9	95	14.3	10.2	D
12932.0	13.1	255	7.8	95	12.7	10.2	D
12934.0	14.0	230	7.7	93	12.1	10.1	D
12936.0	36.6	267	7.7	94	14.2	10.8	D
12938.0	22.9	310	7.7	95	13.5	10.7	B
12940.0	21.7	314	7.7	95	11.3	9.9	B
12942.0	12.3	272	7.7	94	11.2	9.6	D
12944.0	36.4	260	7.7	94	11.2	9.7	B
12946.0	33.1	257	7.7	94	11.3	8.6	B
12948.0	15.9	257	7.7	94	11.3	8.3	B
12950.0	17.1	258	7.8	94	11.2	8.7	B

Schlumberger

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
12952.0	15.1	248	7.8	94	11.2	8.1	B
12954.0	15.1	246	7.7	93	11.1	8.9	B
12956.0	22.9	255	7.7	93	11.1	9.9	B
12958.0	26.7	248	7.8	93	11.1	9.4	D
12960.0	26.7	245	7.8	92	11.0	8.9	D
12962.0	24.6	244	7.8	92	11.1	8.9	D
12964.0	16.8	242	7.8	92	11.0	8.9	D
12966.0	17.7	247	7.8	92	11.4	9.2	B
12968.0			7.8	91	12.3	9.6	
12970.0	20.3	206	7.7	90	11.6	9.7	B
12972.0	21.5	203	7.7	90	10.5	9.8	B
12974.0	24.9	199	7.7	90	10.2	9.9	B
12976.0			7.7	90	9.9	9.8	
12978.0			7.7	90	9.8	9.6	
12980.0			7.7	90	9.6	9.7	
12982.0			7.7	90	9.5	9.8	
12984.0			7.8	91	9.3	9.8	
12986.0			7.8	91	9.2	9.8	
12988.0			7.8	90	9.1	9.7	
12990.0	19.4	227	7.8	89	8.9	9.6	C
12992.0	17.3	262	7.8	89	8.7	9.5	C
12994.0	27.3	240	7.7	89	8.7	9.5	A
12996.0	30.9	242	7.7	89	8.7	9.4	A
12998.0	30.1	231	7.7	89	8.7	9.4	A
13000.0	20.3	215	7.7	89	8.8	9.4	A
13002.0	24.6	224	7.6	89	9.0	9.3	A
13004.0	23.0	215	7.7	89	9.2	9.3	A
13006.0	22.1	205	7.7	89	9.2	9.2	A
13008.0	31.3	204	7.7	90	9.2	9.2	C
13010.0			7.7	90	9.2	9.2	
13012.0	21.5	257	7.7	92	9.2	9.2	D
13014.0	25.9	248	7.7	93	9.2	9.2	B
13016.0	28.5	247	7.8	93	9.2	9.3	D
13018.0	35.1	250	7.8	94	9.2	9.4	B
13020.0	34.0	243	7.8	94	9.2	9.4	B
13022.0	14.7	235	7.7	94	9.1	9.4	D
13024.0	18.8	243	7.7	94	9.1	9.4	D
13026.0	32.6	275	7.7	94	9.1	9.3	B
13028.0	24.5	247	7.7	94	9.1	9.3	B
13030.0	10.0	197	7.7	94	9.1	9.3	B

Schlumberger

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
13032.0			7.7	93	9.0	9.2	
13034.0			7.6	93	9.0	9.2	
13036.0			7.6	92	9.1	9.3	
13038.0			7.6	93	9.1	9.3	
13040.0			7.6	93	9.1	9.2	
13042.0	13.6	190	7.6	93	9.0	9.1	D
13044.0	64.7	50	7.7	93	8.9	9.0	B
13046.0			7.7	93	8.7	8.7	
13048.0			7.6	93	8.6	8.5	
13050.0	38.0	241	7.6	93	8.5	8.5	A
13052.0	38.4	241	7.6	93	8.5	8.4	A
13054.0	38.0	241	7.6	94	8.5	8.4	A
13056.0	37.5	241	7.6	94	8.5	8.4	A
13058.0	34.8	243	7.6	94	8.5	8.4	A
13060.0	30.9	249	7.6	94	8.5	8.4	A
13062.0	29.7	240	7.6	93	8.6	8.6	A
13064.0	28.1	241	7.6	93	8.9	9.0	A
13066.0	24.7	242	7.6	93	9.2	9.3	C
13068.0	3.7	342	7.6	93	9.2	9.2	B
13070.0	33.8	243	7.5	94	8.8	8.8	A
13072.0	34.6	240	7.5	93	8.6	8.5	A
13074.0	34.9	241	7.5	93	8.6	8.6	A
13076.0	36.4	243	7.5	94	8.6	8.6	A
13078.0	35.6	243	7.5	94	8.6	8.7	A
13080.0	35.2	244	7.5	94	8.8	8.9	A
13082.0			7.5	93	9.2	9.3	
13084.0	14.5	265	7.5	93	9.3	9.4	A
13086.0	14.0	267	7.5	93	9.3	9.4	A
13088.0	27.1	256	7.5	93	9.3	9.4	A
13090.0	30.8	260	7.5	93	9.3	9.4	A
13092.0	29.1	263	7.5	93	9.5	9.5	A
13094.0	28.8	261	7.5	93	9.7	9.6	A
13096.0	28.7	258	7.4	93	9.7	9.7	A
13098.0	25.6	259	7.4	93	9.8	9.8	A
13100.0	22.0	234	7.5	93	9.7	9.7	B
13102.0	20.7	227	7.5	92	9.6	9.5	B
13104.0	19.4	223	7.5	92	9.5	9.5	D
13106.0			7.5	92	9.6	9.5	
13108.0	31.1	246	7.5	92	9.5	9.5	B
13110.0	31.8	243	7.5	92	9.5	9.5	B

Schlumberger

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
13112.0	29.9	242	7.5	92	9.5	9.5	D
13114.0	22.5	243	7.5	91	9.7	9.6	B
13116.0	19.0	246	7.5	91	9.7	9.7	B
13118.0	23.8	244	7.5	90	9.4	9.6	B
13120.0			7.5	91	8.6	9.4	
13122.0			7.5	93	9.0	9.5	
13124.0			7.5	92	10.5	9.6	
13126.0			7.5	92	10.7	9.4	
13128.0			7.5	92	10.1	9.4	
13130.0	23.1	245	7.5	92	9.8	9.6	B
13132.0	30.7	241	7.5	92	9.5	9.3	A
13134.0	32.7	242	7.5	92	9.0	8.9	A
13136.0	34.1	242	7.5	92	8.8	8.8	A
13138.0	32.7	238	7.4	91	9.0	9.0	A
13140.0	31.9	233	7.4	91	9.2	9.2	A
13142.0			7.4	91	9.4	9.5	
13144.0	27.8	211	7.3	91	9.6	9.6	A
13146.0	29.1	214	7.4	91	9.7	9.7	A
13148.0	32.2	231	7.3	91	9.7	9.6	A
13150.0	33.4	232	7.3	91	9.8	9.7	A
13152.0	33.6	229	7.3	91	9.8	9.8	A
13154.0	34.6	218	7.3	91	9.9	9.8	A
13156.0	32.2	214	7.2	91	9.9	9.7	A
13158.0	31.5	214	7.2	91	9.9	9.7	A
13160.0	22.3	226	7.3	91	9.9	9.8	B
13162.0	22.3	233	7.3	91	10.0	9.5	B
13164.0	22.1	234	7.3	90	10.1	9.3	D
13166.0	33.3	253	7.3	90	10.0	9.5	D
13168.0	33.6	250	7.2	91	9.8	9.6	B
13170.0	34.9	252	7.3	90	9.8	9.6	B
13172.0	41.6	257	7.3	90	9.9	9.7	B
13174.0	45.9	256	7.2	90	9.8	9.7	B
13176.0	31.1	250	7.2	90	9.9	9.7	B
13178.0	35.6	251	7.2	91	10.0	9.6	D
13180.0			7.2	91	10.3	9.5	
13182.0	30.4	245	7.2	91	10.6	9.5	D
13184.0	36.0	242	7.2	91	10.5	9.5	D
13186.0	36.0	244	7.2	91	11.0	9.4	D
13188.0			7.2	90	11.9	9.3	
13190.0			7.2	89	12.2	9.2	

Schlumberger

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
13192.0			7.2	89	11.1	9.2	
13194.0			7.2	90	9.9	9.3	
13196.0			7.2	90	9.6	9.3	
13198.0			7.1	89	9.5	9.3	
13200.0	33.6	243	7.1	89	9.5	9.1	A
13202.0	33.6	244	7.1	89	9.5	9.1	A
13204.0	34.0	244	7.1	89	9.4	9.4	A
13206.0	33.2	244	7.1	90	9.4	9.4	A
13208.0	33.1	243	7.0	89	9.4	9.4	A
13210.0	34.3	244	7.0	89	9.4	9.4	A
13212.0	34.3	244	7.0	89	9.4	9.1	A
13214.0	34.9	246	7.1	90	9.4	9.4	A
13216.0	34.9	245	7.1	90	9.3	9.3	A
13218.0	35.1	243	7.0	89	9.3	9.3	A
13220.0	35.2	242	7.0	89	9.4	9.3	A
13222.0	33.1	243	7.0	90	9.4	9.3	C
13224.0	35.4	243	7.0	90	9.4	9.2	A
13226.0	33.9	244	7.0	89	9.4	9.2	C
13228.0			7.0	89	9.4	9.2	
13230.0	61.3	252	7.0	89	9.3	9.2	B
13232.0	30.5	244	7.0	89	9.3	9.2	B
13234.0	32.2	246	7.0	89	9.3	9.3	D
13236.0			7.0	89	9.3	9.3	
13238.0			7.0	89	9.3	9.3	
13240.0	33.9	245	7.0	89	9.3	9.3	B
13242.0	33.5	245	7.0	90	9.3	9.3	B
13244.0			7.0	90	9.3	9.3	
13246.0	34.8	253	7.0	89	9.3	9.3	D
13248.0	35.1	242	7.0	89	9.3	9.3	B
13250.0	34.8	238	7.0	89	9.3	9.2	B
13252.0	31.3	237	7.0	90	9.3	9.2	D
13254.0			7.0	90	9.3	9.2	
13256.0			7.0	90	9.3	9.2	
13258.0			7.0	90	9.3	9.2	
13260.0	35.3	244	7.0	90	9.3	9.2	B
13262.0	35.5	244	7.0	90	9.2	9.1	B
13264.0	34.3	241	6.9	90	9.2	9.1	B
13266.0			6.9	90	9.1	9.2	
13268.0			6.9	90	9.1	9.2	
13270.0			7.0	89	9.1	9.2	

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
13272.0			6.9	89	9.1	9.2	
13274.0			6.9	90	9.1	9.2	
13276.0			6.9	90	9.1	9.1	
13278.0			6.9	91	9.0	9.2	
13280.0			6.9	91	9.0	9.2	
13282.0			6.9	90	9.0	9.2	
13284.0			6.9	90	9.0	9.2	
13286.0			6.9	90	9.0	9.2	
13288.0			6.8	90	9.1	9.2	
13290.0			6.8	90	9.2	9.3	
13292.0			6.8	90	9.3	9.4	
13294.0			6.8	90	9.3	9.4	
13296.0	14.7	280	6.9	89	9.2	9.3	D
13298.0	15.8	273	6.8	89	9.1	9.2	B
13300.0	15.7	267	6.8	89	9.0	9.1	B
13302.0	10.2	141	6.8	88	9.0	9.1	B
13304.0	9.4	134	6.8	89	8.9	9.0	B
13306.0	29.7	228	6.8	89	8.9	8.9	B
13308.0	29.5	225	6.8	89	8.9	8.9	D
13310.0	26.8	229	6.8	89	8.9	9.0	D
13312.0	21.4	225	6.9	89	9.0	9.1	B
13314.0	18.3	217	6.8	90	8.9	9.1	B
13316.0			6.8	90	9.0	9.1	
13318.0	26.0	238	6.9	91	9.0	9.1	D
13320.0			6.9	91	9.0	9.1	
13322.0	16.1	260	6.9	92	9.0	9.1	D
13324.0	30.2	258	6.9	92	9.0	9.1	D
13326.0	15.1	283	6.9	92	9.1	9.2	B
13328.0	18.6	275	6.9	92	9.2	9.3	B
13330.0	32.4	247	6.9	92	9.1	9.3	B
13332.0			6.9	92	9.0	9.1	
13334.0			6.9	92	8.7	8.9	
13336.0	27.4	263	6.9	92	8.7	8.9	A
13338.0	27.9	256	6.9	92	8.6	8.8	A
13340.0	28.6	248	6.9	91	8.6	8.8	A
13342.0	25.7	255	6.9	91	8.6	8.8	A
13344.0	25.7	255	6.9	91	8.6	8.8	A
13346.0	25.2	254	6.9	90	8.6	8.8	A
13348.0	23.9	256	6.9	89	8.6	8.8	B
13350.0	22.4	250	6.9	88	8.7	8.8	D

Schlumberger

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
13352.0	21.6	249	6.8	89	8.9	8.9	D
13354.0			6.8	90	9.7	8.9	
13356.0			6.8	92	9.8	9.3	
13358.0			6.9	91	8.9	9.3	
13360.0			7.0	91	8.5	8.7	
13362.0			7.0	91	8.2	8.6	
13364.0			7.0	92	8.1	8.5	
13366.0			7.1	92	8.1	8.4	
13368.0	15.9	251	7.1	92	8.0	8.3	B
13370.0	18.5	259	7.1	92	8.0	8.4	B
13372.0	16.0	256	7.0	91	8.1	8.5	B
13374.0			7.0	91	8.2	8.5	
13376.0			7.0	91	8.2	8.5	
13378.0			6.9	92	8.2	8.5	
13380.0	8.1	236	6.9	92	8.2	8.5	B
13382.0	16.5	256	6.9	92	8.1	8.5	B
13384.0	22.1	258	6.9	92	7.9	8.4	C
13386.0			6.9	92	7.9	8.2	
13388.0	13.6	265	6.9	92	7.9	8.1	A
13390.0	15.8	257	6.9	92	7.9	8.2	A
13392.0	17.6	287	6.9	93	7.9	8.2	C
13394.0	16.6	279	6.9	93	7.9	8.1	A
13396.0	18.3	274	6.9	93	7.9	8.0	A
13398.0	19.2	265	6.9	93	7.9	8.1	A
13400.0	16.7	246	6.9	93	7.9	8.2	A
13402.0	15.2	248	6.8	94	7.8	8.2	A
13404.0	15.2	249	6.8	93	7.8	8.1	D
13406.0	28.2	229	6.8	93	7.8	7.9	B
13408.0	29.2	229	6.8	94	7.8	7.7	B
13410.0	26.4	238	6.8	95	7.8	7.8	B
13412.0	23.1	241	6.8	95	7.8	7.8	B
13414.0	19.2	248	6.8	95	7.8	7.6	B
13416.0			6.8	94	7.9	7.5	
13418.0			6.8	94	7.8	7.6	
13420.0			6.8	95	7.8	7.7	
13422.0	31.8	277	6.8	95	7.7	7.7	B
13424.0	33.2	238	6.8	93	7.7	7.5	A
13426.0	33.7	232	6.8	95	7.8	7.4	A
13428.0	31.6	237	6.7	95	7.7	7.6	C
13430.0	30.1	233	6.7	92	7.6	8.0	A

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
13244.0			67.1	90	9.3	9.4	
13246.0			67.0	90	9.3	9.4	
13248.0	35.1	250	67.0	90	9.3	9.4	A
13250.0	31.6	241	67.0	90	9.3	9.4	A
13252.0	34.3	239	67.0	90	9.3	9.4	A
13254.0			67.1	90	9.3	9.4	
13256.0			67.1	90	9.2	9.4	
13258.0	40.6	234	67.1	90	9.2	9.3	C
13260.0	45.3	241	67.0	90	9.2	9.2	C
13262.0	44.7	243	67.0	90	9.2	9.3	A
13264.0	34.9	244	67.0	90	9.2	9.3	B
13266.0			67.0	90	9.2	9.3	
13268.0			67.0	90	9.2	9.2	
13270.0			67.0	90	9.2	9.2	
13272.0			67.0	90	9.2	9.3	
13274.0			66.9	90	9.1	9.2	
13276.0			66.9	90	9.1	9.1	
13278.0			66.9	90	9.1	9.1	
13280.0			66.9	90	9.1	9.0	
13282.0			66.9	89	9.0	8.9	
13284.0			67.0	89	9.1	8.9	
13286.0			67.0	89	9.1	8.9	
13288.0			66.9	89	9.1	9.1	
13290.0			66.9	90	9.2	9.3	
13292.0	23.7	265	66.9	90	9.3	9.4	D
13294.0			66.9	89	9.3	9.4	
13296.0	22.0	278	66.9	89	9.2	9.3	D
13298.0	14.7	274	66.9	89	9.1	9.3	B
13300.0	14.6	269	66.8	89	9.1	9.2	B
13302.0	10.3	147	66.9	89	9.0	9.2	B
13304.0	8.8	141	66.9	89	9.0	9.1	B
13306.0	29.0	231	66.8	89	9.0	9.1	C
13308.0	29.0	228	66.8	89	9.0	9.1	A
13310.0	28.1	223	66.8	89	8.9	9.1	C
13312.0	26.4	228	66.8	89	9.0	9.1	A
13314.0	28.3	232	66.9	90	9.0	9.1	C
13316.0	24.7	246	66.9	90	9.0	9.1	A
13318.0	23.4	247	66.9	90	9.0	9.1	A
13320.0	26.3	241	66.9	90	9.1	9.1	C
13322.0	26.9	258	66.9	90	9.1	9.2	A

Schlumberger

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
13324.0	29.3	256	6.9	90	9.1	9.2	A
13326.0	28.9	256	6.9	91	9.1	9.2	A
13328.0	33.1	251	6.9	91	9.1	9.3	C
13330.0	33.3	243	6.9	92	9.0	9.0	A
13332.0			6.9	92	8.8	8.6	
13334.0			6.9	93	8.8	8.4	
13336.0	29.3	262	6.9	93	8.8	8.3	A
13338.0	29.3	259	6.9	94	8.7	8.3	A
13340.0	31.3	249	7.0	94	8.7	8.2	C
13342.0	27.0	255	7.0	94	8.6	8.2	A
13344.0	26.5	257	7.0	94	8.6	8.2	A
13346.0	25.7	257	7.0	94	8.6	8.3	A
13348.0	24.0	259	6.9	94	8.6	8.5	A
13350.0	23.3	257	6.9	94	8.7	8.8	A
13352.0			6.8	94	8.8	9.0	
13354.0			6.8	95	8.8	9.7	
13356.0			6.8	93	8.7	10.4	
13358.0			6.9	92	8.7	9.7	
13360.0			7.0	93	8.6	8.5	
13362.0			7.1	93	8.4	8.0	
13364.0			7.1	92	8.3	8.1	
13366.0			7.1	91	8.2	8.3	
13368.0	18.2	251	7.1	92	8.2	8.3	D
13370.0	20.3	248	7.1	93	8.2	8.3	D
13372.0	18.5	257	7.1	93	8.2	8.3	D
13374.0			7.0	93	8.2	8.3	
13376.0			7.0	93	8.2	8.3	
13378.0	24.0	245	6.9	92	8.2	8.3	D
13380.0	16.9	245	6.9	93	8.1	8.3	D
13382.0	13.0	255	6.9	92	8.1	8.4	D
13384.0	12.7	298	6.9	92	8.1	8.4	D
13386.0			6.9	93	8.1	8.4	
13388.0			7.0	93	8.2	8.4	
13390.0	13.2	261	6.9	92	8.2	8.3	B
13392.0	14.4	258	6.9	92	8.2	8.3	B
13394.0	16.9	282	6.9	93	8.2	8.1	B
13396.0			6.9	93	8.1	7.9	
13398.0			6.9	93	8.1	8.1	
13400.0	19.4	263	6.9	93	8.2	8.2	C
13402.0	15.0	249	6.9	93	8.2	8.3	A

Schlumberger

DEPTH	FORMATION DIP	FORMATION DIP AZI.	BOREHOLE DEV.	BOREHOLE DEV. AZI.	BOREHOLE DIAM 1-3	BOREHOLE DIAM 2-4	QUAL. INDEX BEST =A
13404.0	14.9	241	6.9	93	8.2	8.2	A
13406.0	15.4	240	6.8	94	8.1	8.2	A
13408.0	29.1	233	6.8	95	7.8	8.1	A
13410.0	27.0	230	6.8	94	7.4	8.0	A
13412.0	24.1	236	6.7	94	7.5	8.1	A
13414.0	22.7	240	6.7	94	7.5	8.1	A
13416.0	18.0	245	6.7	94	7.6	8.1	A
13418.0			6.8	94	7.9	8.0	
13420.0			6.8	94	8.2	8.0	
13422.0			6.8	94	8.2	8.0	
13424.0	30.9	255	6.8	93	8.2	8.1	D
13426.0	30.3	234	6.8	93	8.2	8.2	D
13428.0	36.7	240	6.7	92	8.1	8.2	B
13430.0	36.3	227	6.7	92	8.1	8.2	B
13432.0	34.9	234	6.7	91	8.2	8.2	B
13434.0	30.2	233	6.7	93	8.1	8.2	D
13436.0	34.1	229	6.7	94	7.7	8.0	D
13438.0	38.5	240	6.7	94	7.7	7.9	D

Schlumberger

DAVIS OIL CO. LOGAN FEDERAL 2-A SUMMARY

DEPTH	DIP	DIP AZM	DEV	DEV AZM	DIAM 1-3	DIAM 2-4	QUAL
TOP 11512.00	25.2	332.	2.9	151.	12.7	8.8	
BOTTOM 13430.00	30.1	233.	6.7	92.	7.6	8.0	A
TOP 13244.00	38.5	182.	7.1	90.	9.3	9.4	
BOTTOM 13438.00	38.5	240.	6.7	94.	7.7	7.9	D

Schlumberger

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

GARY R. HERBERT
Governor

GREGORY S. BELL
Lieutenant Governor

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

August 7, 2012

Jason Rouse
Rim Operating Inc.
5 Inverness Drive East
Englewood, Colorado 80112

Subject: Pressure Test for Mechanical Integrity, Logan Fed 2-A, NWSE Section 26, Township 3 North, Range 7 East, API No. 43-043-30223, Summit County, Utah

Dear Mr. Rouse:

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 UPRC 33-1 well for testing during the week of August 21-24, 2012, as outlined below:

1. Operator must furnish connections, 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, and the 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 to be tested at this time the test may be rescheduled.

4. Company personnel should meet a DOGM representative(s) at the field office or other location as negotiated.

5. All bradenhead valves with the exception of the tubing on the injection well must be shut-in 24 hours prior to testing.

Please contact Lisha Cordova at (801) 538-5296 to arrange a meeting time and place or to negotiate a different date, if the date(s) specified is unacceptable.

Sincerely,

Dan Jarvis
Operations Manager

DJJ/lc/js
cc: Lisha Cordova, Petroleum Specialist
Well File

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*

INSPECTION FORM 6

STATE OF UTAH
DIVISION OF OIL GAS AND MINING

INJECTION WELL - PRESSURE TEST

Well Name: Logan Fed. 2-A API Number: 43-043-30223
Qtr/Qtr: NWSE Section: 26 Township: 3N Range: 7E
Company Name: Rim Operating Inc.

Lease: State ____ Fee - Surface Federal ✓ Indian ____
Inspector: Lisha Cordova Date: 8/23/12

Initial Conditions:

Tubing - Rate: N/A Pressure: Ø psi

Casing/Tubing Annulus - Pressure: 80 psi

Conditions During Test:

Time (Minutes)		Annulus Pressure	Tubing Pressure
0	9:39	1000	Ø
5	9:42	1000	Ø
10	9:47	1000	Ø
15	9:52	1000	Ø
20			
25			
30			

Results: Pass/Fail

Conditions After Test:

Tubing Pressure: Ø psi

Casing/Tubing Annulus Pressure: 80 psi

COMMENTS:

Kim S. Ogill
Operator Representative

Division of Oil, Gas and Mining

OPERATOR CHANGE WORKSHEET (for state use only)

ROUTING
CDW

X - Change of Operator (Well Sold) Operator Name Change/Merger

The operator of the well(s) listed below has changed, effective: **10/1/2012**

FROM: (Old Operator):	**TO:** (New Operator):
N1045- RIM Operating, Inc.	N3920- EnerQuest Operating, LLC.
5 Inverness Drive East	9400 Broadway Ext, Suite 75
Englewood, CO 80112	Oklahoma City, OK 73114
Phone: 1 (303) 799-9828	Phone: 1 (405) 478-3300

CA No. **Unit:** N/A

WELL NAME	SEC	TWN	RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
Logan Fed 2-A	26	03N	07E	4304330223	2775	Federal	WD	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: 11/20/2012
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 10/24/2012
3. The new company was checked on the **Department of Commerce, Division of Corporations Database on:** 11/28/2012

4a. Is the new operator registered in the State of Utah: _____ Business Number: 8451859-0161

5a. (R649-9-2)Waste Management Plan has been received on: N/A

5b. Inspections of LA PA state/fee well sites complete on: N/A

5c. Reports current for Production/Disposition & Sundries on: 11/28/2012

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: BLM Not Yet BIA 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")** 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: N/A

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 11/28/2012
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 11/28/2012
3. Bond information entered in RBDMS on: 11/28/2012
4. Fee/State wells attached to bond in RBDMS on: N/A
5. Injection Projects to new operator in RBDMS on: N/A
6. Receipt of Acceptance of Drilling Procedures for APD/New on: N/A

BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: UTB000526
2. Indian well(s) covered by Bond Number: N/A

3a. (R649-3-1) The **NEW** operator of any state/fee well(s) listed covered by Bond Number N/A

3b. The **FORMER** operator has requested a release of liability from their bond on: N/A

LEASE INTEREST OWNER NOTIFICATION:

4. (R649-2-10) The **NEW** 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: N/A

COMMENTS:

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: **2775**
6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
7. UNIT or CA AGREEMENT NAME:
8. WELL NAME and NUMBER: **Logan Federal #2A**
9. API NUMBER: **43-037-30223**
10. FIELD AND POOL, OR WILDCAT: **North Pineview - Nugget**

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER **Salt Water Disposal**
2. NAME OF OPERATOR: **RIM Operating, Inc** N1045
3. ADDRESS OF OPERATOR: **5 Inverness Drive East Englewood CO 80112** PHONE NUMBER:
4. LOCATION OF WELL
FOOTAGES AT SURFACE: **2297 FEL & 2567 FSL** COUNTY: **Summit**
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: **NW SE sec. 26 T3N R7E** 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.

RIM Operating, Inc. transferred their interest to EnerQuest Oil & Gas, L.L.C. As a result EnerQuest assumed operations from RIM Operating, Inc. effective 10/1/2012.

NAME (PLEASE PRINT): **Kenneth J. Kundrik** TITLE: **Operations Manager**
SIGNATURE: Kenneth J. Kundrik DATE: **11/14/2012**

(This space for State use only)

APPROVED
NOV 28 2012
DIV. OIL GAS & MINING
BY: Rachel Medina

(See Instructions on Reverse Side)

RECEIVED
NOV 20 2012
Div. of Oil, Gas & Mining

(5/2000)

FORM 9

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

5. LEASE DESIGNATION AND SERIAL NUMBER: UTU-47812

SUNDRY NOTICES AND REPORTS ON WELLS

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NA

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.

7. UNIT or CA AGREEMENT NAME: NA

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER SWD

8. WELL NAME and NUMBER: Logan Federal #2A

2. NAME OF OPERATOR: EnerQuest Operating L.L.C. N3920

9. API NUMBER: 4304330223

3. ADDRESS OF OPERATOR: 9400 Broadway Ext, Suite 75 CITY Oklahoma City STATE OK ZIP 73114 PHONE NUMBER: (405) 478-3300

10. FIELD AND POOL, OR WILDCAT: North Pineview

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 2534' FSL & 2375' FEL x 102 COUNTY: Summit

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWSE 26 3N 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:	☐ 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 October 1, 2012 EnerQuest Operating L.L.C. will be taking over operatorship of the above mentioned well from Rim Operating, Inc., 5 Inverness Drive East, Englewood, CO 80112, 303-799-9829.

Bond coverage will be a "Personal Bond and Letter of Credit" - BLM Bond #UTB000526 (see attached documentation).

NAME (PLEASE PRINT) Matthew J. Mollman TITLE Vice President

SIGNATURE Matthew J Mollman DATE 10/1/2012

(This space for State use only)

APPROVED

NOV 28 2012

DIV. OIL, GAS & MINING

Rachel Medina

RECEIVED

OCT 24 2012

DIV. OF OIL, GAS & MINING

(5/2000) (See Instructions on Reverse Side)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Utah State Office
P.O. Box 45155
Salt Lake City, UT 84145-0155
http://www.blm.gov/ut/st/en.html

IN REPLY REFER TO:
3104 (UTB000526)
UT-922000

OCT 19 2012

CERTIFIED MAIL – Return Receipt Requested
7010 3090 0000 8061 1226
7010 0780 00000 5750 1623

DECISION

Obligor:	:	
EnerQuest Operating, LLC	:	**BLM Bond No.: UTB000526**
9400 Broadway Ext., Suite 750	:	
Oklahoma City, Oklahoma 73114	:	Bond Type: Individual Oil & Gas
	:	
Financial Institution:	:	Bond Amount: $10,000
BancFirst	:	
101 N. Broadway	:	Lease Number: UTU47812
Oklahoma City, Oklahoma 73102	:	

Personal Bond and Letter of Credit Accepted for Individual Lease

On October 16, 2012, this office received a personal bond and Letter of Credit (LOC) in the amount of $10,000 for coverage of all operations conducted by or on behalf of EnerQuest Operating, LLC on Federal oil and gas lease UTU47812. The bond and LOC have been examined, found satisfactory and are accepted October 16, 2012.

The pledge for the bond is a LOC written by the financial institution named above. The document will be retained by the Bureau of Land Management (BLM) until all terms and conditions of the lease have been fulfilled or a satisfactory replacement bond has been accepted. The LOC will be returned to the financial institution when this office determines that the bond is no longer required.

The LOC will continue indefinitely in the absence of notice from the financial institution of its determination not to renew the letter. Such a notice must be received in this office at least 90 days prior to the original expiration date of October 15, 2013, or the automatic extension dates falling on the same day in subsequent years. A copy of such notice also needs to be provided to the obligor, who would then be responsible for providing a replacement security to the BLM. Unless the obligor provides a satisfactory replacement bond at least 30 days prior to the then

fixed expiration date, the BLM will demand that the financial institution pay the full amount of the credit to ensure continuing bond coverage of the obligor. Any such funds thus obtained will be retained, as long as none are required to correct defaults, until the bond is no longer required or replacement bond coverage is accepted by the BLM.

If you have any questions, please contact Diane McComb of this office at (801) 539-4041.

Becky J. Hammond

Becky J. Hammond
Acting Chief, Branch of Minerals

cc: UT-922 (Al McKee)

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

RECEIVED
NOV 19 2012
DIV. OF OIL, GAS & MINING

UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

Well Name and Number Logan Federal #2A	API Number 4304330223
Location of Well Footage : 2534' FSL & 2375' FEL QQ, Section, Township, Range: NWSE 26 3N 7E	County : Summit State : UTAH
Field or Unit Name North Pineview	
Lease Designation and Number UTU-47812	

EFFECTIVE DATE OF TRANSFER: 10/1/2012

CURRENT OPERATOR

Company: RIM Operating, INC
Address: 5 Inverness Dr East
city Englewood state CO zip 80112
Phone: (303) 799-9828
Comments:

Name: Rene Morin
Signature: Rene Morin
Title: Vice President
Date: 11/13/12

NEW OPERATOR

Company: EnerQuest Operating L.L.C.
Address: 9400 Broadway Ext, Suite 750
city Oklahoma City state OK zip 73114
Phone: (405) 478-3300
Comments:

Name: Matthew J. Mollman
Signature: Matthew J. Mollman
Title: Vice President
Date: 11/9/2012

(This space for State use only)

Transfer approved by: Dan Jarvis
Title: UIC Geologist
Comments:

Approval Date: 11/28/12

(5/2000)

RECEIVED

NOV 18 2013

DIV. OF OIL, GAS & MINING

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: UTU-47812

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT or CA AGREEMENT NAME:

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER Salt Water Injection

8. WELL NAME and NUMBER: Logan Federal #2A

2. NAME OF OPERATOR: EnerQuest Operating, L.L.C.

9. API NUMBER: 4304330223

3. ADDRESS OF OPERATOR: 12368 Market Drive CITY Oklahoma City STATE OK ZIP 73114

PHONE NUMBER: (405) 478-3300

10. FIELD AND POOL, OR WILDCAT: North Pineview

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 2534' FSL & 2375' FEL

COUNTY: Summit

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWSE 26 T3N R7E

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
11/13/2013	☐ 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.

Annual acid treatment. Pump 2500 gals of 15% HCL & additives. Job scheduled for 11/13/2013.

COPY SENT TO OPERATOR
Date: 11.22.2013
Initials: KS

NAME (PLEASE PRINT) Matthew J. Mollman TITLE Vice President

SIGNATURE [signature] DATE 11/13/13

(This space for State use only)

Approved by the Utah Division of Oil, Gas and Mining

Date: 11/20/2013

By: [signature]

Federal Approval Of This Action Is Necessary

(See Instructions on Reverse Side)

(5/2000)

* Future submittals should be sent via e permit.

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

FORM 9

5.LEASE DESIGNATION AND SERIAL NUMBER: U-47812

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: LOGAN FED 2-A

2. NAME OF OPERATOR:
ENERQUEST OPERATING, LLC

9. API NUMBER: 43043302230000

3. ADDRESS OF OPERATOR:
12368 Market Drive , Oklahoma City, OK, 73114

PHONE NUMBER: 405 478-3300 Ext

9. FIELD and POOL or WILDCAT: NORTH PINEVIEW

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
2534 FSL 2375 FEL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NWSE Section: 26 Township: 03.0N Range: 07.0E Meridian: S

COUNTY: SUMMIT

STATE: UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

- ☐ NOTICE OF INTENT
  Approximate date work will start:
- ✓ SUBSEQUENT REPORT
  Date of Work Completion: 11/13/2013
- ☐ SPUD REPORT
  Date of Spud:
- ☐ DRILLING REPORT
  Report Date:

TYPE OF ACTION

✓ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ 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:

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Pump 2500 gals of 15% HCL & additives.

Accepted by the Utah Division of Oil, Gas and Mining
FOR RECORD ONLY
February 04, 2014

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Charles M Burkhardt	405 478-3300	Senior Engineering Tech

SIGNATURE	DATE
N/A	1/31/2014

RECEIVED: Jan. 31, 2014