noted that if an [redacted] operator in the adjacent drilling units requires an exception for well siting that such operator will be allowed equivalent consideration in obtaining approval of the exception.

QUINTANA PETROLEUM CORPORATION

818 17TH STREET
SUITE 610
DENVER, COLORADO 80202
(303) 628-9211

November 1, 1985

State of Utah
Department of Natural Resources
Division of Oil, Gas, and Mining
355 West North Temple
3 Triad Center
Suite 350
Salt Lake City, Utah 84180-1203

RECEIVED
NOV 06 1985
DIVISION OF OIL
GAS & MINING

RE: Freitag-Woods #1-22
NW SE Section 22, T36S-R26E
San Juan County, Utah

Gentlemen:

This letter is to notify you that water for the drilling of the Freitag-Woods #1-22, will be obtained from the landowner's private reservoir which is located in Section 15, T39N-R20W, Dolores County, Colorado. Since this water source is located in Colorado, no temporary permit to appropriate water from the State of Utah Division of Water Rights will accompany this application.

Very truly yours,

John W. Wessels

John W. Wessels
District Operations Manager

JWW/jw

QUINTANA PETROLEUM CORPORATION

818 17TH STREET
SUITE 610
DENVER, COLORADO 80202
(303) 628-9211

November 1, 1985

State of Utah
Department of Natural Resources
Division of Oil, Gas, and Mining
355 West North Temple
3 Triad Center
Suite 350
Salt Lake City, Utah 84180-1203

RE: Exception Location
Freitag-Woods #1-22
Bug Field
San Juan County Utah

Gentlemen:

Please find enclosed Quintana Petroleum Corporation's Application for Permit to Drill the Freitag-Woods #1-22. Please note that this is an exception well location and Quintana respectfully requests that the Director, Division of Oil, Gas, and Mining, grant administrative approval of this exception in accordance with Spacing Order No. 186-3 concerning Bug Field, San Juan County, Utah. The reason for the exception is geological, as our exploration department feels drilling the well in the northeast quarter of the 160 acre spaced unit will increase the risk of encountering salt water in the prospective zones. Should you have any questions please give me a call.

Very truly yours,

John W. Wessels

John W. Wessels
District Operations Manager

JWW/jw
enclosure

Form OGC-1a

SUBMIT IN [redacted]PLICATE*
(Other instructions on reverse side)

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

5. Lease Designation and Serial No.
N/A

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

RECEIVED
NOV 06 1985
DIVISION OF OIL
GAS & MINING

6. If Indian, Allottee or Tribe Name
N/A

1a. Type of Work
DRILL [X] DEEPEN [ ] PLUG BACK [ ]

7. Unit Agreement Name
N/A

b. Type of Well
Oil Well [X] Gas Well [ ] Other Single Zone [XX] Multiple Zone [ ]

8. Farm or Lease Name
FREITAG-WOODS

2. Name of Operator
QUINTANA PETROLEUM CORPORATION (303)628-9211

9. Well No.
#1-22

3. Address of Operator
818 - 17th Street, Suite 610, Denver, Colorado 80202

10. Field and Pool, or Wildcat
✓Wildcat

4. Location of Well (Report location clearly and in accordance with any State requirements.*)
At surface 1660' FSL & 1550' FEL
NW SE Section 22
At proposed prod. zone
Same

11. Sec., T., R., M., or Blk. and Survey or Area
Section 22, T36S-R26E

14. Distance in miles and direction from nearest town or post office*
15 miles southwest of Dove Creek, Colorado

12. County or Parrish 13. State
San Juan Utah

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drlg. line, if any) 1000'

16. No. of acres in lease
353.62

17. No. of acres assigned to this well
141.45

18. Distance from proposed location* to nearest well, drilling, completed, or applied for, on this lease, ft. 3350'

19. Proposed depth
6326'

20. Rotary or cable tools
Rotary

21. Elevations (Show whether DF, RT, GR, etc.)
6580' GR

22. Approx. date work will start*
12/1/85

23. PROPOSED CASING AND CEMENTING PROGRAM

Size of Hole	Size of Casing	Weight per Foot	Setting Depth	Quantity of Cement
12 1/4"	9 5/8"	36#	1900'	735 sacks
8 3/4"	5 1/2"	15.50#	6326'	400 sacks

1. Drill 12¼" hole to 1900'. Run 9 5/8" casing and cement to surface.
2. Drill 8 3/4" hole. Drill stem test any significant oil or gas shows.
3. Log well at 6326' T.D. and evaluate. P & A in accordance with State of Utah Rules and Regulations if non-productive. Set and cement 5½" casing if productive.
4. Move out drilling rig and move in completion workover rig to complete well.

Please see attached letter concerning water permit.

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 John W. Wessels Title District Operations Manager Date 11/1/85

(This space for Federal or State office use)

Permit No. 43-037-31224 Approval Date

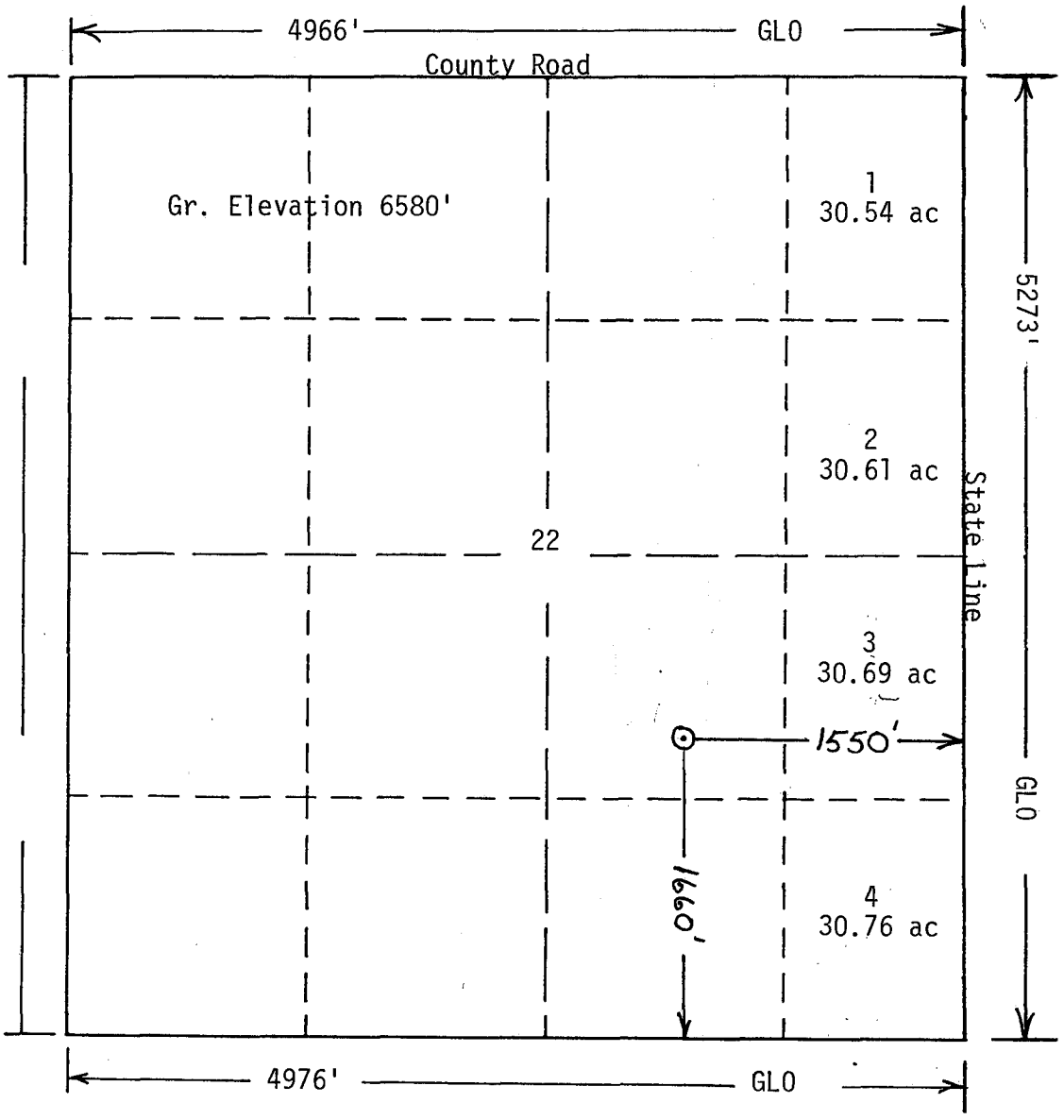
APPROVED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING
DATE: 11/20/85
BY: John R. Baza
WELL SPACING: Cause No. 186-3 10/23/80

Approved by Title Date
Conditions of approval, if any:

*See Instructions On Reverse Side

Form PS-102

R. 26 E



N

T. 36 S

Scale: 1"=1000'

Powers Elevation of Denver, Colorado has in accordance with a request from John Wessels for Quintana Petroleum Corp. determined the location of 1-22 Freitag-Woods to be 1660fsl, 1550fel Section 22, Township 36 S Range 26 E of the Salt Lake Meridian, San Juan County, Utah

I hereby certify that this plat is an accurate representation of a correct survey showing the location of 1-22 Freitag-Woods

Date: 10-28-85

T Thelen

Licensed Land Surveyor No. 2711
State of Utah

RECEIVED OCT 28 1985

ONSITE PREDRILL INSPECTION FORM

COMPANY Quintana Petroleum Corporation WELL NO. Freitag-Woods 1-22

LOCATION: SECTION NWSE22 TOWNSHIP 36S RANGE 26E COUNTY San Juan

LEASE NO. FEE ONSITE INSPECTION DATE 14 November 1985

(A) PERSONS IN ATTENDANCE Jim Turner/Quintana Petroleum Corporation, Pat deGruyter/DOGM, Gary Crowley/Crowley Construction, Lowell Howard/dirt contractor

(B) SURFACE FORMATION AND CHARACTERISTICS Quaternary glacial deposit/reddish colored very fine to fine grain sand and silt

(C) BRIEF DESCRIPTION OF VEGETATION plowed field - no vegetation

(D) ARCHAEOLOGICAL CLEARANCE: YES OR NO NA

(E) DESCRIPTION OF TOPOGRAPHY (drainages, slope, roads, etc.) gently rolling hills dissected by a S to SW flowing drainage - location will be on hillside adjacent to drainage

(F) CONDITIONS FOR APPROVAL:

PIT LINING (YES OR NO) see below

TYPE OF LINING IF NEEDED

ADDITIONAL REQUIREMENTS pit lining contingent on mud program to be submitted & completion fluids used - no pit liner necessary if mud program is environmentally acceptable (ie non-toxic, non-corrosive) - if completion fluids are toxic or corrosive (ie acid) they will be contained in appropriate tanks or vessels and not allowed to flow into an unlined reserve pit

SIGNATURE: [signature] TITLE Oil & Gas Field Spec

Quintana Petroleum Corporation
Freitag Woods 1-22
NWSE 22 T36S R26E

STIPULATIONS FOR APD APPROVAL

- LINING OF RESERVE PIT

- pit lining contingent on mud program to be submitted

- No pit liner necessary if mud program is environmentally acceptable (ie non-toxic/ non corrosive)

- if completion fluids are toxic or corrosive (ie acid) - they will be contained in appropriate tanks or vessels & not allowed to flow into an unlined reserve pit

8-POINT DRILLING PLAN

FREITAG-WOODS #1-22
NW SE Section 22, T36S-R26E
San Juan County, Utah

1. Estimated tops of important geologic markers:

Formation	Depth	Subsea
Dakota	Surface	---
Navajo	1285	+5327
Chinle	1897	+4685
Shinarump	2656	+3926
Hermosa	4659	+1923
Ismay	5941	+ 641
Desert Creek	6193	+ 389
Akah	6289	+ 293
Salt	6321	+ 261
Total Depth	6326	+ 256

2. Estimated depths at which the top and the bottom of anticipated water, oil, gas, or other mineral-bearing formations are expected to be encountered, and the owner's or operator's plans for protecting such resources:

a)

Substance	Formation	Depth
Base of Fresh Water	Navajo	1285
Gas and Oil	Hermosa	4659-4700
Gas and Oil	Desert Creek	6200-6275

b. Quintana Petroleum Corporation plans to protect all surface fresh water zones by running a sufficient amount of surface casing and cementing to surface. All hydrocarbon bearing zones will be cemented and isolated behind the production casing.

3. The owner's or operator's minimum specifications for pressure control equipment to be used and a schematic diagram thereof showing sizes, pressure ratings (or API series), proposed testing procedures and testing frequency:

Equipment will be tested prior to drilling out from under surface and operational checks will be made daily thereafter. Rams will be tested to rated working pressure or 70% of the minimum internal yield of the casing. BOP's will be tested prior to drilling out each casing shoe and at least every 30 days. The BOP will have hydraulic controls. See Diagram #1.

4. Any supplementary information more completely describing the drilling equipment and casing program as required by form DOGM-1:

a. The proposed casing program will be as follows:

Purpose	Depth	Hole Size	OD	Weight	Grade	Type	New/Used
Surface	0-1900	12 1/4"	9 5/8	36#	K-55	ST&C	New
Production	0-5800	8 3/4"	5 1/2	15.5#	K-55	ST&C	New
Production	5800-TD	8 3/4"	5 1/2	17#	K-55	ST&C	New

All casing strings will be tested to 0.2 psi/ft. or 1000 psi, whichever is greater.

b. The cement program will be as follows:

	Type and Amount
Surface 0-1900'	540 sxs Lite with 6% gel, ¼#/sack celloseal and 2% $CaCl_2$ followed by 160 sxs Class "B" with ¼#/sack celloseal and 2% $CaCl_2$.
Production T.D.-4000'	525 sxs 50/50 Pozmix with 2% gel, 5% salt and 2#/sack Hi-Seal.

All zones found to contain commercial hydrocarbons will be cemented behind 5½" casing.

c. Auxiliary equipment to be used is as follows:

1. Kelly cock
2. A sub with a full opening valve will be on the floor when the kelly is not in use.

5. The type and characteristics of the proposed circulating medium or mediums to be employed in drilling, the quantities and types of mud and weighting material to be maintained, and the monitoring equipment to be used on the mud system:

a. The proposed circulating mediums to be employed in drilling are as follows:

Interval	Mud Type	Mud Wt.	Visc.	F/L	pH
0-1900'	Gel-Lime	8.6-8.8	35-40	N/C	---
1900-4500'	Gel-Lime	8.6-8.8	30-35	N/C	9.0-9.5
4500-T.D.	Lt Dispersed	8.8-12.0	35-40	10-15	10.0-10.5

There will be sufficient mud on location to control any abnormal pressure which may be encountered.

b. Mud monitoring equipment to be used is as follows:

1. Flow sensor and pit volume totalizer.

6. Anticipated type and amount of testing, logging, and coring:

   a. Drill stem tests may be run in the Hermosa and Desert Creek, but will be dependent on shows encountered.

   b. The logging program consists of:

DIL-SFL-SP-GR	TD to surface casing
BHC-Sonic-GR	TD to surface casing
FDC-CNL-GR-Caliper	TD to 4600'

   c. No cores will be run.

7. The expected bottomhole pressure and any anticipated abnormal pressures or temperatures or potential hazards, such as hydrogen sulfide, expected to be encountered, along with contingency plans for mitigating such identified hazards:

   a. Bottom hole pressure in the Desert Creek is anticipated to be 3900 psi.

   b. No abnormal pressures, temperatures or potential hazards are anticipated.

8. Any other facets of the proposed operation which the lessee or Operator wishes to point out for the Division's consideration of the application.

   a. Quintana Petroleum proposes to spud the Freitag-Woods #1-22 upon approval of this application and intends to complete the well within approximately one month after the well has reached T.D.

   b. It is anticipated the duration of drilling will be 15 days.

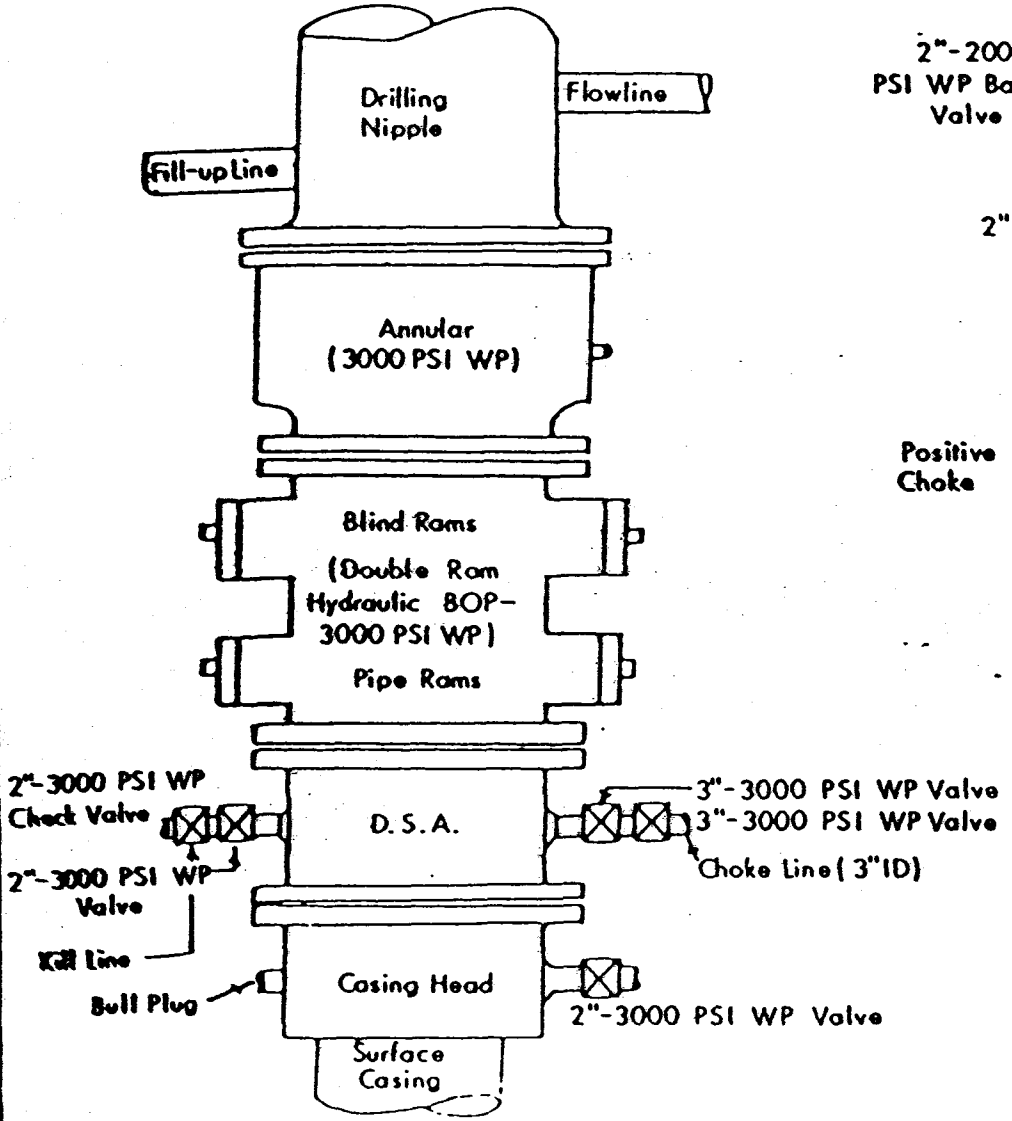
   c. The anticipated completion program is as follows:

      If productive, 5½" casing will be run to T.D. A completion rig will be moved in. Assuming good cement bonding, the Desert Creek will be perforated and swab tested.

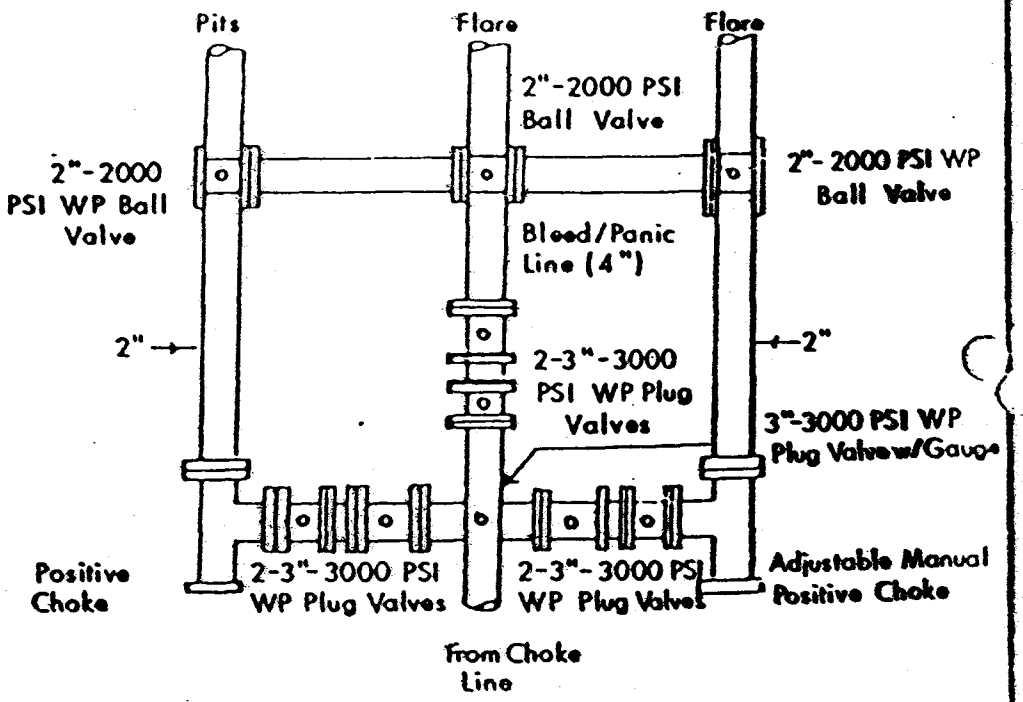
      If non-productive, the Hermosa will be perforated and swab tested.

      The zones of interest will be stimulated if necessary.

BOP SCHEMATIC
3000 PSI WORKING PRESSURE



PLAN VIEW CHOKE MANIFOLD



The hydraulic closing unit will be located more than 30' from the wellhead. Choke & bleed/panic lines will go to the pit and flare. All connections in choke line and manifold will be flanged or welded. All flanges should be ring joint gasket type. All turns in lines shall be constructed using targeted 90° tees or block ells. All lines shall be anchored.

Quintana *Denver, Colorado*

DIAGRAM #1

QUINTANA PETROLEUM CORPORATION

818 17TH STREET
SUITE 610
DENVER, COLORADO 80202
(303) 628-9211

November 18, 1985

State of Utah
Board of Oil, Gas and Mining
355 West North Temple
#3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Attention: Mr. John Baza

RE: Freitag-Woods #1-22
NW SE Section 22, T36S-R26E
San Juan County, Utah

Dear Mr. Baza:

Pursuant to your request, please find enclosed our 8-point drilling program for the captioned Application to Drill.

Should you require any additional information to expediently process our Application, please do not hesitate to contact us.

Very truly yours,

John W. Wessels

John W. Wessels
District Operations Manager

DW/jw
enclosure

OPERATOR Quintana Petroleum Corp. DATE 11-19-85

WELL NAME Freitag - Woods #1-22

SEC NW SE 22 T 36S R 26E COUNTY San Juan

43-037-31224
API NUMBER

Fee
TYPE OF LEASE

CHECK OFF:

✓ PLAT	✓ BOND	✓ NEAREST WELL
✓ LEASE	✓ FIELD	✓ POTASH OR OIL SHALE

PROCESSING COMMENTS:

Ok Cause 186-3

Water ok - (Using water from Colo.)

Exception location

APPROVAL LETTER:

SPACING: ☐ A-3 _____ UNIT ✓ c-3-a 186-3 10/23/80 CAUSE NO. & DATE

☐ c-3-b ☐ c-3-c

STIPULATIONS:

1. Any requirement to line the reserve pit shall be contingent upon the drilling fluid used. As long as no corrosive or hazardous materials are used, no pit lining shall be required.

2. Any corrosive or hazardous fluids used for completing the well shall not be stored in unlined pits.

3. An exception to the wellsiting requirements of the order in Cause No. 186-3 is granted. It should be

11/2/84
25020

STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

November 20, 1985

Quintana Petroleum Corporation
818 - 17th Street, Suite 610
Denver, Colorado 80202

Gentlemen:

Re: Well No. Freitag-Woods 1-22 - NW SE Sec. 22, T. 36S, R. 26E
1660' FSL, 1550' FEL - San Juan County, Utah

Approval to drill the above-referenced oil well is hereby granted in accordance with the Order of Cause No. 186-3 dated October 23, 1980 subject to the following stipulations:

1. Any requirement to line the reserve pit shall be contingent upon the drilling fluid used. As long as no corrosive or hazardous materials are used, no pit lining shall be required.

2. Any corrosive or hazardous fluids used for completing the well shall not be stored in unlined pits.

3. An exception to the well siting requirements of the order in Cause No. 186-3 is granted. It should be noted that if an operator in the adjacent drilling units requires an exception for well siting that such operator will be allowed equivalent consideration in obtaining approval of the exception.

In addition, the following actions are necessary to fully comply with this approval:

1. Spudding notification to the Division within 24 hours after drilling operations commence.

2. Submittal to the Division of completed Form OGC-8-X, Report of Water Encountered During Drilling.

3. Prompt notification to the Division should you determine that it is necessary to plug and abandon this well. Notify John R. Baza, Petroleum Engineer, (Office) (801) 538-5340, (Home) 298-7695, or R. J. Firth, Associate Director, (Home) 571-6068.

4. Compliance with the requirements and regulations of Rule C-27, Associated Gas Flaring, General Rules and Regulations, Oil and Gas Conservation.

5. This approval shall expire one (1) year after date of issuance unless substantial and continuous operation is underway or an application for an extension is made prior to the approval expiration date.

The API number assigned to this well is 43-037-31224.

Sincerely,

R. J. Firth
Associate Director, Oil & Gas

as
Enclosures

w/ok

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

API #43-037-31224

NAME OF COMPANY: QUINTANA PETROLEUM COMPANY

WELL NAME: FREITAG-Woods #1-22

SECTION NW SE 22 TOWNSHIP 36S RANGE 26E COUNTY San Juan

DRILLING CONTRACTOR Brinkerhoff

RIG # 85

SPUDDED: DATE 12-1-85

TIME 4:00 PM

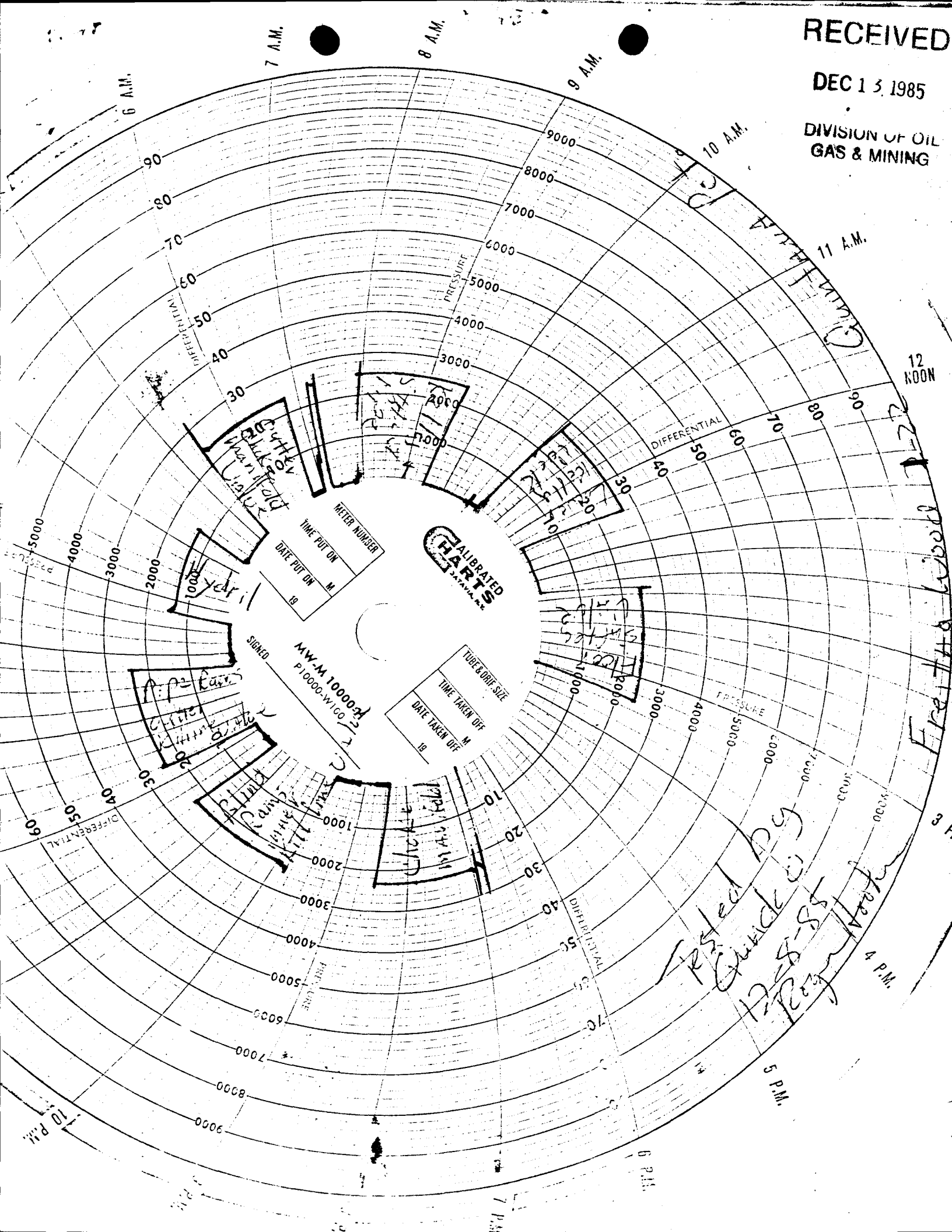
HOW Rotary

DRILLING WILL COMMENCE _____

REPORTED BY Ray Koehn

TELEPHONE # _____

DATE 12-2-85 SIGNED JRB



12/16/85
1540 hrs.
JRB

Verbal P x A approval
Quintana Petroleum - Ray Kane
Freitag - Woods 1-22 - Fee well

Sec. 22, T36S, R25E
San Juan Co.

TD = 6374'

9 5/8" @ 1978'

Hermosa @ 4680.
Ismay @ 5978
DC @ 6232
Pay zone @ 6294

① ~~[illegible]~~ Plugs @ top of DC pay

② Plug @ top of Hermosa

③ Plug @ ~~top~~ casing shoe

④ 10-15 sx at surface

IGT

QUINTANA PETROLEUM CORPORATION
FREITAG-WOODS #1-22
SEC. 22, T36S-R26E
SAN JUAN COUNTY, UTAH

INTERMOUNTAIN GEO-TECH, INC.
P. O. BOX 158
DELTA, CO 81416
303-7874-7762

QUINTANA PETROLEUM CORPORATION
FREITAG-WOODS #1-22
SEC. 22, T36S-R26E
SAN JUAN COUNTY, UTAH

TABLE OF CONTENTS

(1) COPY, FINAL MUDLOG (5"=100')
(1) COPY, FINAL MUDLOG (2.5"-100')

DRILLING CONTRACTOR: BRINKERHOFF SIGNAL #85
CASPER, WYOMING

DRILLING FOREMAN: MR. RAY KOEHN

PUSHER: MR. JERRY JOHNSON

GEO TECHNOLOGISTS: MR. JUSTIN ARO-MR. TERRY DAOUST
INTERMOUNTAIN GEO-TECH, INC.
P. O. BOX 158
DELTA, CO 81416

DRILLING FLUID: MR. LEON DIXON
MAGOBAR
FARMINGTON, NEW MEXICO

DRILL STEM TESTS: MR. BRIAN SCOTT
LYNES/BAKER
CORTEZ, CO

WIRE LINE LOGS: MR. PAT BAKER
GEARHART
FARMINGTON, NEW MEXICO

QUINTANA PETROLEUM CORPORATION
FREITAG-WOODS #1-22
SEC. 22, T36S-R26E
SAN JUAN COUNTY, UTAH

SUMMARY OF DAILY ACTIVITY

DATE	ACTIVITY	MIDNITE DEPTH	24 HOUR FOOTAGE
12/07/85	IGT UNIT #4 RIGGED UP, LOGGING, MUD UP	--	--
12/08/85	DRLG, TRIP BIT #3, TEST BOP	4638'	292'
12/09/85	REPAIR DRAWWORKS, DRLG	4930'	204'
12/10/85	DRLG	5131'	347'
12/11/85	DRLG , SURV	5478'	322'
12/12/85	DRLG	5800'	289'
12/13/85	DRLG, CIRC TO MUD UP	6089'	141'
12/14/85	MUD UP, TRIP FOR PLUGGED JET, DRLG, CIRC SPL	6230'	72'
12/15/85	CIRC SPL, TRIP FOR DST #1, DST #1	6302'	2'
12/16/85	DST #1, DRLG, T.D.(CIRC SPL) "E" LOGS UNIT #4 RELEASED	6304'	70'

QUINTANA PETROLEUM CORPORATION
FREITAG-WOODS #1-22
SEC. 22, T36S-R26E
SAN JUAN COUNTY, UTAH

BIT RECORD

BIT	MAKE	SIZE	TYPE	DEPTH OUT	FOOTAGE USED	HOURS
1	SEC	12¼"	S-82-F	1980'	1941'	48¾
2	STC	8¾"	F-27	4930'	2950'	95
3	HTC	8¾"	J-33-H	6374'	1444'	110½

QUINTANA PETROLEUM CORPORATION
FREITAG-WOODS #1-22
SEC. 22, T36S-R26E
SAN JUAN COUNTY, UTAH

DEVIATION SHEET FOR WELL. . . .

DEPTH	DEVIATION (DEV)
121'	¾°
425'	¾°
768'	½°
2502'	1°
3979'	¾°
5928'	¾°

(IGT)
DST & SHOW SHEET

SHOW # 1 FROM 5717 ' TO 5735 ' DATE 12/11/85

COMPANY QUINTANA PETROLEUM CORPORATION
WELL FREITAG-WOODS #1-22
FIELD WILDCAT

	BEFORE SHOW	DURING SHOW	AFTER SHOW
DRILLING RATE	5-8 min/ft	1.5-3 min/ft	4-5 min/ft
TOTAL GAS UNITS	4 Units	210 Units	10 Units
METHANE %	.08%	4.1%	.17%
ETHANE %	.02%	.55%	.05%
PROPANE %	--	.25%	.04%
BUTANE (ISO) %	--	tr	tr
BUTANE (NOR) %	--	tr	tr
PENTANE %			

SAMPLE LITHOLOGY LS-CRM-TAN MIC-MFXL SL SUC IP CLN TR ANHY FL VUG SL DOL IP TR PYR DNS TR INTXL & VUG Ø

SAMPLE FLOR AND CUT BRI YEL FLOR W/WK MKY V SLOW STMG CUT

DST # _____ FROM _____ ' TO _____ ' DATE _____

	MINUTES	TOP CHART	BOTTOM CHART
INITIAL HYDROSTATIC			
INITIAL OPEN			
INITIAL SHUT-IN			
SECOND OPEN			
SECOND SHUT-IN			
FINAL HYDROSTATIC			
1ST FLOW			
2ND FLOW			

REMARKS BHT °

DRILL PIPE RECOVERY

SAMPLE CHAMBER RECOVERY

DRILL PIPE- TOP- R/W= at °F, MIDDLE-R/W= at °F,

DRILL PIPE- BOTTOM-R/W= at °F, SAMPLE CHMBR- R/W= at °F,

PIT MUD-R/W= at °F

GEO-TECH Justin Aro

(IGT)
DST & SHOW SHEET

SHOW # 2 FROM 6000 ' TO 6004 ' DATE 12/12/85

COMPANY QUINTANA PETROLEUM CORPORATION
WELL FREITAG-WOODS #1-22
FIELD WILDCAT

	BEFORE SHOW	DURING SHOW	AFTER SHOW
DRILLING RATE	3.5-4 min/ft	1.5-2 min/ft	3-3.5 min/ft
TOTAL GAS UNITS	20 Units	320 Units	20 Units
METHANE %	.2%	7.08%	.3%
ETHANE %	.05%	.8%	.05%
PROPANE %	tr	2	tr
BUTANE (ISO) %	tr	07%	tr
BUTANE (NOR) %	tr	07%	tr
PENTANE %			

SAMPLE LITHOLOGY LS-GYBRN, BRN, WH MIC-CRPXL, OCC GRAN, FOS IP, SL ARG, SL DOL CLN, TT, FRM-HD, NFSOC

SAMPLE FLOR AND CUT NO CUT OR STN

DST # _____ FROM _____ ' TO _____ ' DATE _____

	MINUTES	TOP CHART	BOTTOM CHART
INITIAL HYDROSTATIC			
INITIAL OPEN			
INITIAL SHUT-IN			
SECOND OPEN			
SECOND SHUT-IN			
FINAL HYDROSTATIC			
1ST FLOW			
2ND FLOW			

REMARKS BHT °

DRILL PIPE RECOVERY

SAMPLE CHAMBER RECOVERY

DRILL PIPE- TOP- R/W= at °F, MIDDLE-R/W= at °F,

DRILL PIPE- BOTTOM-R/W= at °F, SAMPLE CHMBR.- R/W= at °F,

PIT MUD-R/W= at °F

GEO-TECH Terry Daoust

(IGT)
DST & SHOW SHEET

SHOW # 3 FROM 6168 ' TO 6176 ' DATE 12/13/85

COMPANY QUINTANA PETROLEUM CORPORATION
WELL FREITAG-WOODS #1-22
FIELD WILDCAT

	BEFORE SHOW	DURING SHOW	AFTER SHOW
DRILLING RATE	4-5 min/ft	2 5/1 5 min/ft	5-6 min/ft
TOTAL GAS UNITS	30 Units	225 Units	40 Units
METHANE %	.5%	4.6%	.65%
ETHANE %	.09%	.55%	.05%
PROPANE %	.05%	.01%	.05%
BUTANE (ISO) %	tr	.01%	tr
BUTANE (NOR) %	tr	.01%	tr
PENTANE %			

SAMPLE LITHOLOGY LS-WH TAN LTGY CRP-MICXL SL SUC IP ANHY FIL IP OCC FOS DNS M-DK BRN STN IP

SAMPLE FLOR AND CUT NONE

DST # _____ FROM _____ ' TO _____ ' DATE _____

	MINUTES	TOP CHART	BOTTOM CHART
INITIAL HYDROSTATIC			
INITIAL OPEN			
INITIAL SHUT-IN			
SECOND OPEN			
SECOND SHUT-IN			
FINAL HYDROSTATIC			
1ST FLOW			
2ND FLOW			

REMARKS BHT °

DRILL PIPE RECOVERY

SAMPLE CHAMBER RECOVERY

DRILL PIPE- TOP- R/W= at °F, MIDDLE-R/W= at °F,

DRILL PIPE- BOTTOM-R/W= at °F, SAMPLE CHMBR- R/W= at °F,

PIT MUD-R/W= at °F

GEO-TECH Justin Aro

(IGT)
DST & SHOW SHEET

SHOW # 4 FROM 6294 ' TO 6302 ' DATE 12/14/85

COMPANY QUINTANA PETROLEUM CORPORATION
WELL FREITAG-WOODS #1-22
FIELD WILDCAT

	BEFORE SHOW	DURING SHOW	AFTER SHOW
DRILLING RATE	4-5 min/ft	1-1.5 min/ft	1.5 min/ft
TOTAL GAS UNITS	14 Units	26 Units	7 Units
METHANE %	.15%	.3%	.11%
ETHANE %	.04%	.06%	.025%
PROPANE %	tr	.01%	tr
BUTANE (ISO) %	--	tr	--
BUTANE (NOR) %	--	--	--
PENTANE %			

SAMPLE LITHOLOGY DOL-BRN TAN MGY CRPXL-VFXL RTHY ANHY SUC IP SL FOS SL FRI IP FRM-MHD 8-10% PORO

SAMPLE FLOR AND CUT DULL GOLD FLOR W FAST BRI YEL STMG CUT TR DULL YEL STN ON XLS

DST # 1 FROM 6288 ' TO 6304 ' DATE 12/15/85

	MINUTES	TOP CHART	BOTTOM CHART
INITIAL HYDROSTATIC		3665	3624
INITIAL OPEN	30 Min	113-376	143-389
INITIAL SHUT-IN	60 Min	3454	3479
SECOND OPEN	60 Min	526-674	533-776
SECOND SHUT-IN	120 Min	3454	3479
FINAL HYDROSTATIC		3665	3624

1ST FLOW Open w/surface blow, incr to 6" in 2 min, 18" in 3 min, 1# @ 5 min 1.5# @ 10 min, 3# @ 20 min 4.5# @ 25 min, 6# @ 30 min, shut tool in NGTS
2ND FLOW Open w/2# GTS immediately, 3'-5' flare, incr to 3# @ 10 min, 4# @ 30 min 5½# @ 40 min, 7# @ 50 min, 9# @ 60 min

REMARKS BHT° 146 F

DRILL PIPE RECOVERY 880' ((8 bbls) sl GC salt water, 120' (1.7 bbls) GC oil emul

SAMPLE CHAMBER RECOVERY 8.7 cfg, 400 cc oil, 1100 water @ 2000 psi

DRILL PIPE- TOP- R/W= at °F, MIDDLE-R/W= at °F,

DRILL PIPE- BOTTOM-R/W= at °F, SAMPLE CHMBR- R/W=0.4 at 68 °F,

PIT MUD-R/W= at °F

GEO-TECH Terry Daoust

BAKER PRODUCTION TECHNOLOGY
A Baker Oil Tools Company

TECHNICAL SERVICES, Security Life Bldg. • Suite 1350 • 1616 Glenarm • Denver, Colorado 80202 • Phone: (303) 573-8027

Operator Quintana Petroleum Corp.
Address 818 17th St., Suite 610 Denver, CO 80202

Well Name and No. Freitag-Woods #1-22
Ticket No. 00778
Date 12-15-85
DST No. 1
No. Final Copies 10

Contractor	BS	Top Choke	¼"
Rig No.	85	Bottom Choke	3/4"
Spot	--	Size Hole	8 3/4"
Sec.	22	Size Rat Hole	--
Twp.	36S	Size & Wt. D. P.	4½" XH 15.60#
Rng.	26E	Size Wt. Pipe	--
Field	Wildcat	I. D. of D. C.	2 3/8"
County	San Juan	Length of D. C.	582 ft
State	Utah	Total Depth	6305 ft.
Elevation	6595 ft.	Interval Tested	6289-6305 ft.
Formation	Desert Creek	Type of Test	Bottom Hole Conventional

Flow No. 1	30 Min.
Shut-in No. 1	60 Min.
Flow No. 2	60 Min.
Shut-in No. 2	120 Min.
Flow No. 3	-- Min.
Shut-in No. 3	-- Min.
Bottom Hole Temp.	146°F
Mud Weight	11.0#
Gravity	--
Viscosity	42

Tool opened @ 11:14 a.m.

Inside Recorder

PRD Make Kuster K-3
No. 7661 Cap. 4900 @6270'

Press		Corrected
Initial Hydrostatic	A	3609
Final Hydrostatic	K	3611
Initial Flow	B	170
Final Initial Flow	C	465
Initial Shut-in	D	3475
Second Initial Flow	E	553
Second Final Flow	F	759
Second Shut-in	G	3481
Third Initial Flow	H	--
Third Final Flow	I	--
Third Shut-in	J	--

Lynes Dist.: Cortez, CO
Our Tester: Bryan Scott
Witnessed By: Ray Kochn

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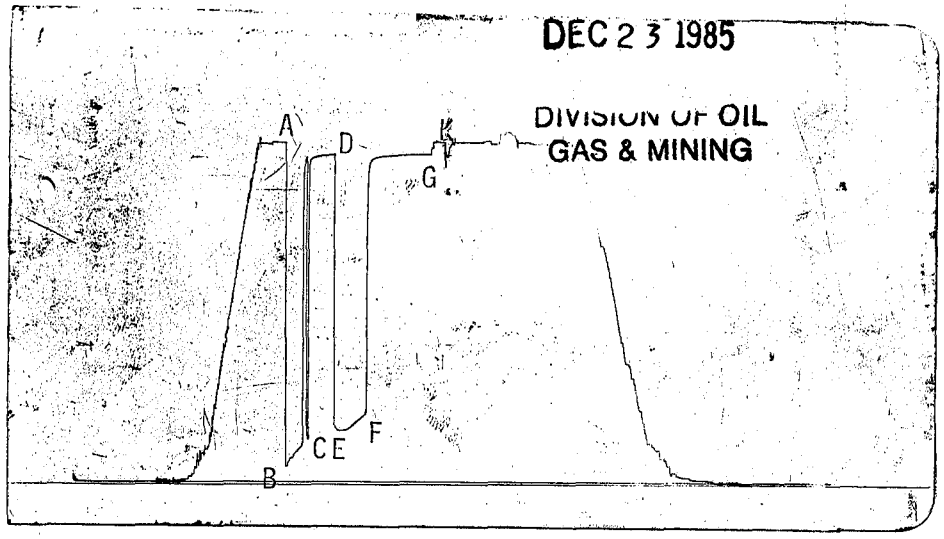
DEC 23 1985
DIVISION OF OIL GAS & MINING



Did Well Flow – Gas Yes Oil No Water No

Test was reverse-circulated.

RECOVERY IN PIPE:

1100 ft. Total Recovery	= 9.13 Bbls
880 ft. Salt water	= 8.47 Bbls
120 ft. Gas-cut oil emulsion	= .66 Bbls

Blow Description:

1st Flow: Tool opened with a weak blow, increasing to 6 psi at the end of the flow.

2nd Flow: Tool opened with a 2 psi blow with gas to surface (see gas report).

Comments: The test results indicate a mechanically successful test. The flow and shut-in curves suggest average permeability within the zone tested. The tool was opened and closed 5 minutes into the first shut-in.

MONTANA PETROLEUM CORP.
DST#: 1
FREITAG-WOODS #1-22
6289 - 6305ft.

Location: SEC. 22 T36S R26E
Test Type: BOTTOM HOLE CONVENTIONAL
Formation: DESERT CREEK

Recorder Number: 7661
Recorder Depth: 6270 ft.

TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P psi	PRESSURE psi	(T+dt)/dt ABSCISSA	PRESSURE SQUARED psi^2/10^6
A	INITIAL HYDROSTATIC	0.00		3609.0		
B	START OF 1st FLOW	0.00		170.0		
C	END OF 1st FLOW	30.00		465.0		
	1st SHUTIN PERIOD	0.00	0.0	465.0	0.0000	
		1.00	1436.0	1901.0	31.0000	
		2.00	2920.0	3385.0	16.0000	
		3.00	2935.0	3400.0	11.0000	
		4.00	2943.0	3408.0	8.5000	
		5.00	2952.0	3417.0	7.0000	
		6.00	2956.0	3421.0	6.0000	
		7.00	2960.0	3425.0	5.2857	
		8.00	2964.0	3429.0	4.7500	
		9.00	2968.0	3433.0	4.3333	
		10.00	2970.0	3435.0	4.0000	
		15.00	2981.0	3446.0	3.0000	
		20.00	2987.0	3452.0	2.5000	
		25.00	2993.0	3458.0	2.2000	
		30.00	2997.0	3462.0	2.0000	
		35.00	3000.0	3465.0	1.8571	
		40.00	3002.0	3467.0	1.7500	
		45.00	3004.0	3469.0	1.6667	
		50.00	3008.0	3473.0	1.6000*	
		55.00	3010.0	3475.0	1.5455*	
D	END OF 1st SHUTIN	60.00	3010.0	3475.0	1.5000*	
E	START OF 2nd FLOW	0.00		553.0		
F	END OF 2nd FLOW	60.00		759.0		
	2nd SHUTIN PERIOD	0.00	0.0	759.0	0.0000	
		1.00	1962.0	2721.0	91.0000	
		2.00	2414.0	3173.0	46.0000	
		3.00	2556.0	3315.0	31.0000	
		4.00	2606.0	3365.0	23.5000	
		5.00	2624.0	3383.0	19.0000	
		6.00	2635.0	3394.0	16.0000	
		7.00	2647.0	3406.0	13.8571	
		8.00	2653.0	3412.0	12.2500	
		9.00	2658.0	3417.0	11.0000	
		10.00	2662.0	3421.0	10.0000	

Location: SEC. 22 T36S R26E
Test Type: BOTTOM HOLE CONVENTIONAL
Formation: DESERT CREEK

Recorder Number: 7661
Recorder Depth: 6270 ft.

TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P psi	PRESSURE psi	(T+dt)/dt ABSCISSA	PRESSURE SQUARED psi^2/10^6
		15.00	2676.0	3435.0	7.0000	
		20.00	2687.0	3446.0	5.5000	
		25.00	2693.0	3452.0	4.6000	
		30.00	2697.0	3456.0	4.0000	
		35.00	2701.0	3460.0	3.5714*	
		40.00	2703.0	3462.0	3.2500*	
		45.00	2706.0	3465.0	3.0000*	
		50.00	2708.0	3467.0	2.8000*	
		55.00	2710.0	3469.0	2.6364*	
		60.00	2712.0	3471.0	2.5000*	
		65.00	2712.0	3471.0	2.3846*	
		70.00	2712.0	3471.0	2.2857*	
		75.00	2714.0	3473.0	2.2000*	
		80.00	2716.0	3475.0	2.1250*	
		85.00	2718.0	3477.0	2.0588*	
		90.00	2718.0	3477.0	2.0000*	
		95.00	2718.0	3477.0	1.9474*	
		100.00	2720.0	3479.0	1.9000*	
		105.00	2722.0	3481.0	1.8571*	
		110.00	2722.0	3481.0	1.8182*	
		115.00	2722.0	3481.0	1.7826*	
G	END OF 2nd SHUTIN	120.00	2722.0	3481.0	1.7500*	
Q	FINAL HYDROSTATIC	0.00		3611.0		

* VALUES USED FOR EXTRAPOLATIONS

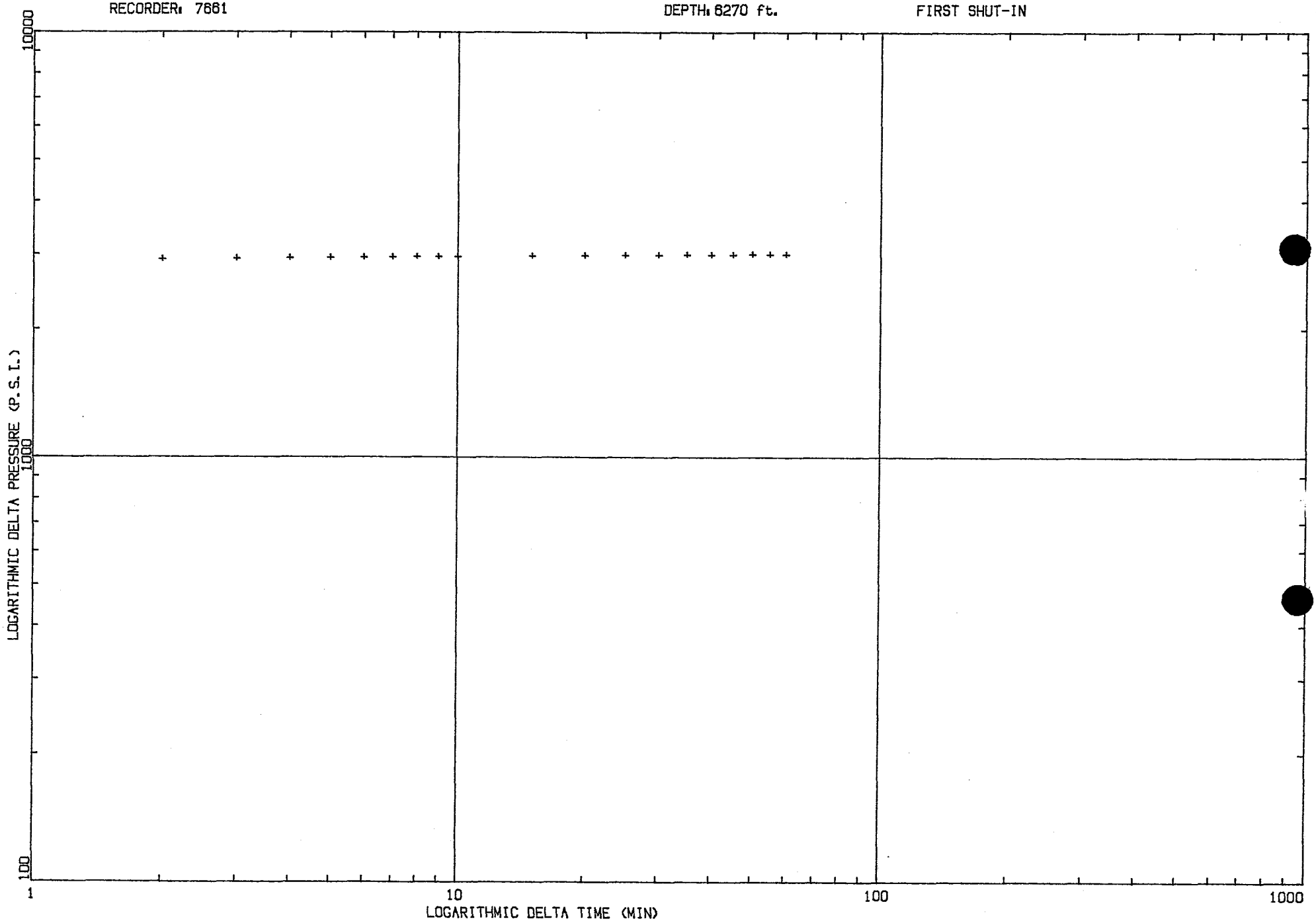
1st SHUT-IN:
HORNER EXTRAPOLATION 3491.63 PSI
HORNER SLOPE 91.07 psi/cycle

2nd SHUT-IN
HORNER EXTRAPOLATION 3498.91 PSI
HORNER SLOPE 72.02 psi/cycle

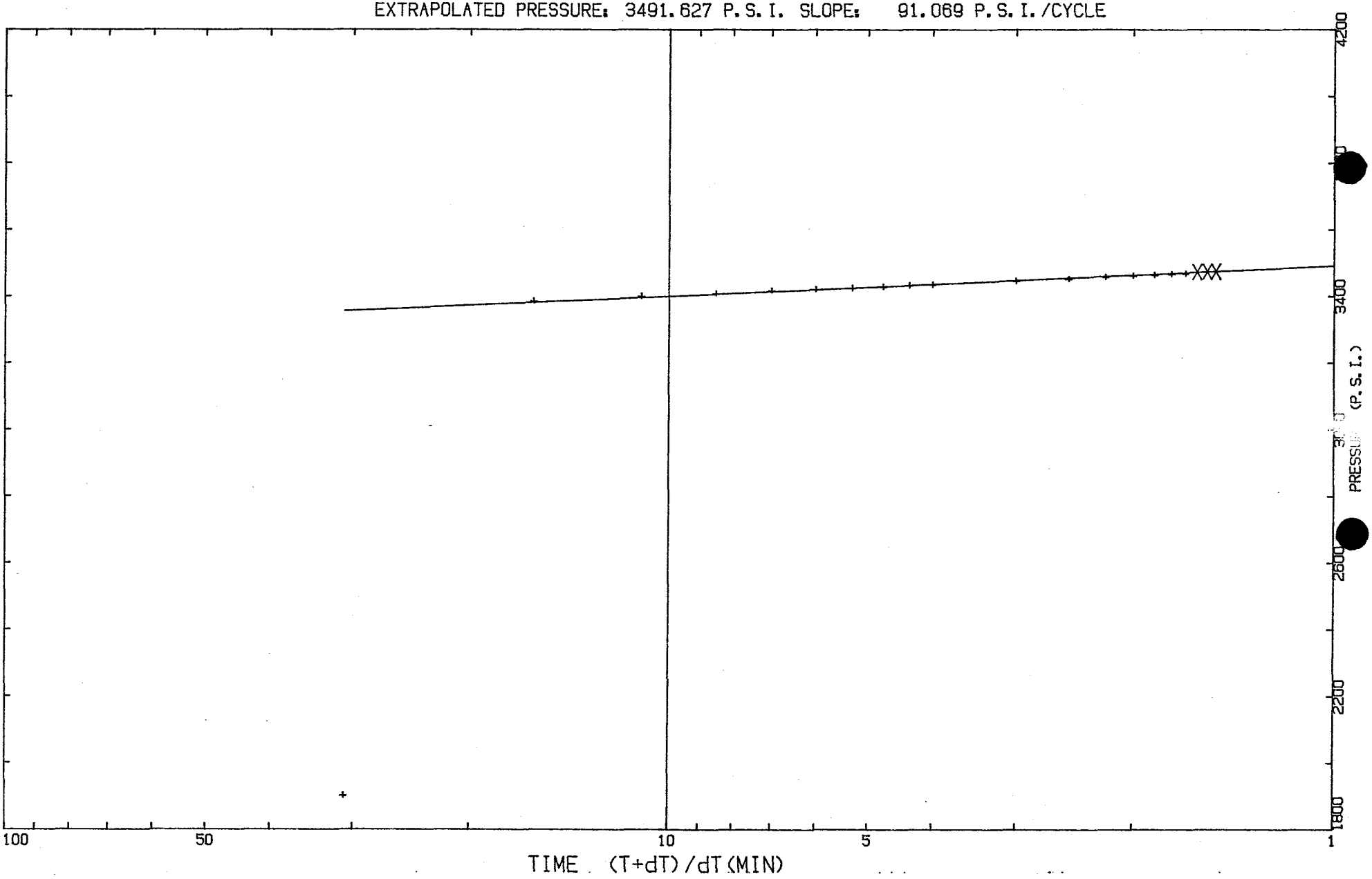
OPERATOR: QUINTANA PETROLEUM CORP.
LOCATION: SEC. 22 T36S R26E
RECORDER: 7661

WELL NAME: FREITAG-WOODS #1-22
DST #: 1
DEPTH: 6270 ft.

FIRST SHUT-IN



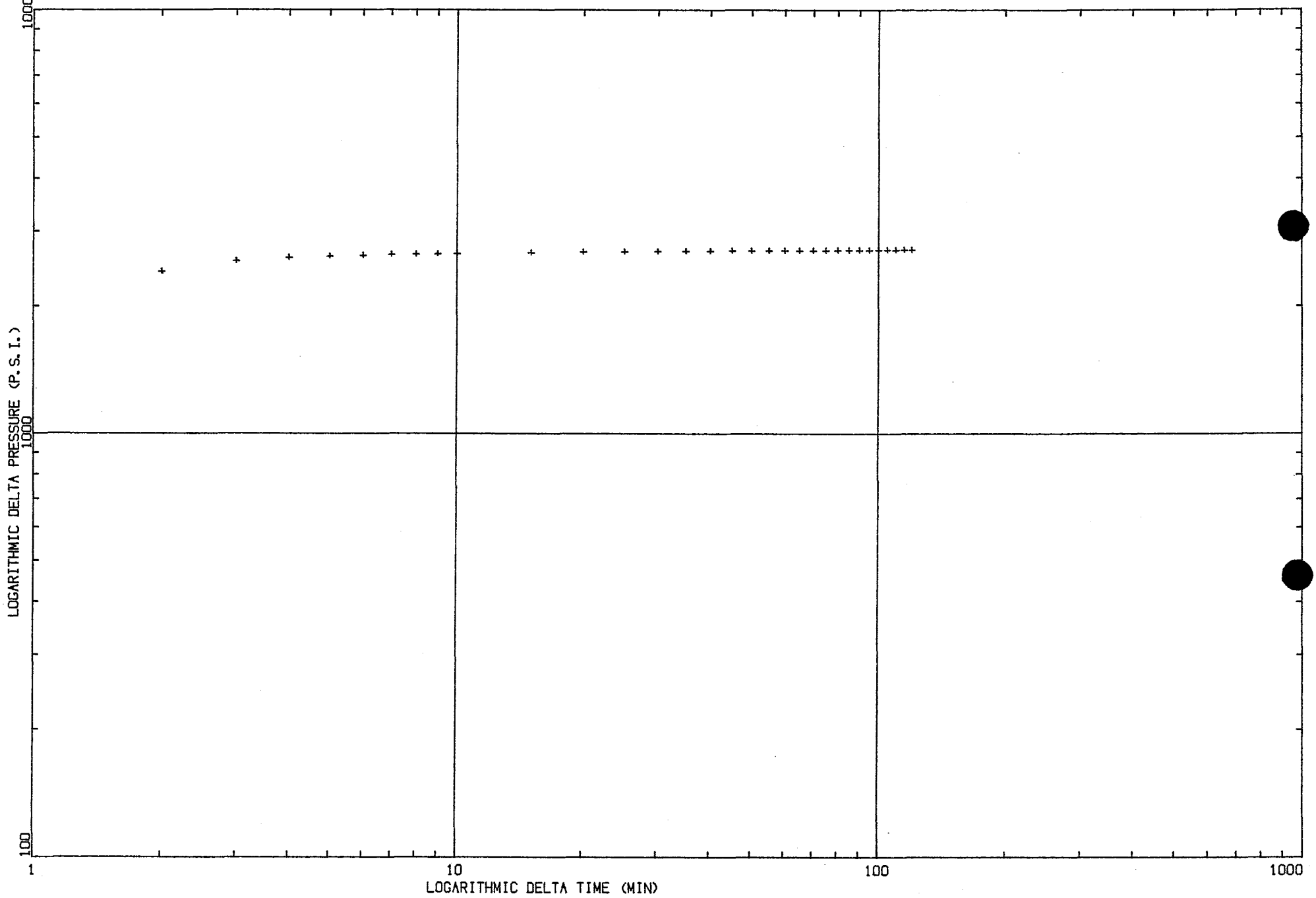
OPERATOR: QUINTANA PETROLEUM CORP.
WELL NAME: FREITAG-WOODS #1-22
LOCATION: SEC. 22 T36S R26E DST #: 1
FIRST SHUT-IN
RECORDER: 7661 DEPTH: 6270 ft.
EXTRAPOLATED PRESSURE: 3491.627 P.S.I. SLOPE: 91.069 P.S.I./CYCLE



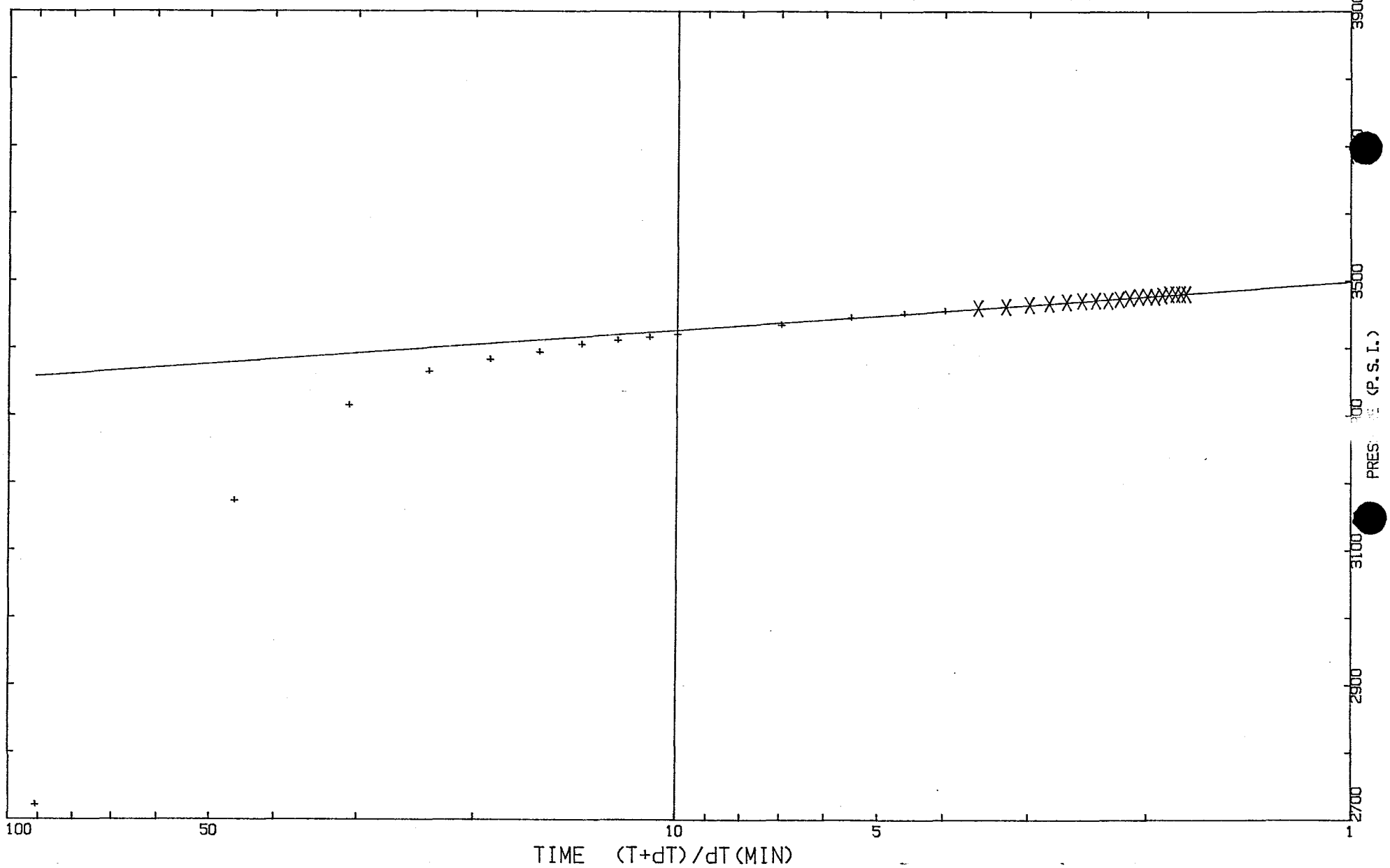
OPERATOR: QUINTANA PETROLEUM CORP.
LOCATION: SEC. 22 T36S R26E
RECORDER: 7661

WELL NAME: FREITAG-WOODS #1-22
DST #: 1
DEPTH: 6270 ft.

SECOND SHUT-IN



OPERATOR: QUINTANA PETROLEUM CORP.
WELL NAME: FREITAG-WOODS #1-22
LOCATION: SEC. 22 T36S R26E DST #: 1
SECOND SHUT-IN
RECORDER: 7661 DEPTH: 6270 ft.
EXTRAPOLATED PRESSURE: 3498.908 P.S.I. SLOPE: 72.024 P.S.I./CYCLE



Location: SEC. 22 T36S R26E
Test Type: BOTTOM HOLE CONVENTIONAL
Formation: DESERT CREEK

Recorder Number: 7661
Recorder Depth: 6270

SAMPLE DATA

SAMPLE CHAMBER:

Capacity of sample chamber	2150	cc
Volume of sample.....	1500	cc
Pressure in sampler.....	2000	psig
Where sampler was drained...	on location	

Sampler contained:

Oil	400	cc	36 @	Degrees F
Water	1100	cc		
Gas	8.7	cu-ft		

RESISTIVITY DATA:

Top.....:	
Middle.....:	
Bottom.....:	200 000+ PPM NACL
Sampler.....:	200 000+ PPM NACL
Mud pit.....:	1400 PPM NACL
Make-up Water..:	

QUINTANA PETROLEUM CORP.
DST#: 1
FREITAG-WOODS #1-22
6289 - 6305ft.

GAS MEASUREMENTS
****

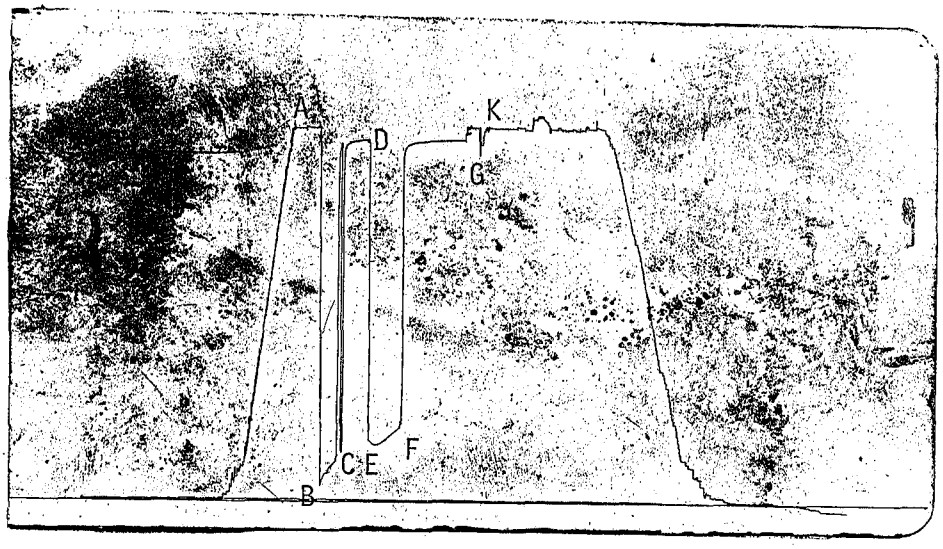
Device: FLOOR MANIFOLD Riser: 0 in. Bomb #:
Sent to:

FLOW #	TIME (min)	READING(psi)	CHOKE (in)	Mcf/d
2	0	2.0	.250	25.0
2	10	3.0	.250	27.0
2	30	4.0	.250	28.0
2	40	5.5	.250	30.0
2	50	7.0	.250	32.0
2	60	9.0	.250	35.0

UINTANA PETROLEUM CORP.
ST#: 1
FREITAG-WOODS #1-22
6289 - 6305ft.

PRESSURE RECORDER NUMBER : 24645

DEPTH : 6265.00ft. LOCATION : INSIDE
TYPE : K-3 CAPACITY : 4450.00psi



	PRESSURE psi
A)Initial Hydro :	3593.0
B)1st Flow Start:	162.0
C)1st Flow End :	492.0
D)END 1st Shutin:	3476.0
E)2nd Flow Start:	561.0
F)2nd Flow End :	793.0
G)END 2nd Shutin:	3481.0
Q)Final Hydro. :	3600.0

TEST TIMES(MIN)	
1st FLOW :	30
SHUTIN:	60
2nd FLOW :	60
SHUTIN:	120

Form OGC-1b

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

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 [X] GAS WELL [ ] OTHER	5. LEASE DESIGNATION AND SERIAL NO.: N/A
	6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A
	7. UNIT AGREEMENT NAME: N/A
2. NAME OF OPERATOR: QUINTANA PETROLEUM CORPORATION (303)628-9211	8. FARM OR LEASE NAME: FREITAG-WOODS
3. ADDRESS OF OPERATOR: 1050 -17th Street, Suite 400, Denver, Colorado 80265	9. WELL NO.: #1-22
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 1660' FSL & 1550' FEL NW SE Section 22	10. FIELD AND POOL, OR WILDCAT: Wildcat
	11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Section 22, T36S-R26E
14. PERMIT NO.: 43-037-31224	15. ELEVATIONS (Show whether DF, RT, GR, etc.): 6580' GR
	12. COUNTY OR PARISH: San Juan
	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*	[X]	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.) *

1. Spud well 12/1/85. Drilled to1980'. Set and cemented 9 5/8" casing at 1977.92'.
2. Drilled to 6312'. Ran DST #1: 6288'-6304' (Desert Ck. fm.).
3. Drilled to 6374' (T.D.). Logged.
4. Received permission to P&A well to set plugs as follows:
   Plug #1: 6307'-6207', 47 sxs Class "B" neat cement.
   Plug #2: 4663'-4563', 76 sxs Class "B" cem w/2% $CaCl_2$.
   Plug #3: 2038'-1938', 36 sxs Class "B" cem w/2% $CaCl_2$.
   Plug #4: Surface, 10 sxs cement.

   Verbal permission to P&A received from John Baza at 3:30 p.m. 12/16/85.
   P&A operations began 12/17/85.

Formation tops encountered while drilling:

Chinle	1953'	Desert Creek	6232'
Honaker Trail	4700'	Anhydrite	6244'
"A" Shale	6030'		
Anhydrite	6120'		
Ismay	5978'		
Lower Ismay	6158'		

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

SIGNED J.M. Williams TITLE Production Technician DATE 12/26/85

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING
DATE: 12/31/85
BY: John R. Baza

*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. N/A
Federal Lease No. N/A
Indian Lease No. N/A
Fee & Pat.

RECEIVED
DEC 30 1985
DIVISION OF OIL
GAS & MINING

REPORT OF OPERATIONS AND WELL STATUS REPORT

STATE Utah COUNTY San Juan FIELD/LEASE Wildcat

The following is a correct report of operations and production (including drilling and producing wells) for the month of: December, 19 85.

Agent's Address 1050 - 17th Street, Suite 400
Denver, Colorado 80265

Phone No. (303)628-9211

Company QUINTANA PETROLEUM CORPORATION
Signed
Title Production Technician

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)
NW SE Section 22	36S	26E	#1-22	N/A						API 43-037-31224

SPUDDED well 0400 hrs. 12/1/85. Drilled to 1980'. Set and cemented 9 5/8" casing at 1977.92'. Drilled to 6312'. Ran DST #1: 6288'-6304' (Desert Creek fm.). Drilled to 6374'. Logged. Received verbal permission to P&A well from John Baza 12/16/85. Well plugged and abandoned - rig released 12/18/85.

GAS: (MCF)
Sold
Flared/Vented
Used On/Off Lease

OIL or CONDENSATE: (To be reported in Barrels)
On hand at beginning of month
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.

12/31/85
JRB

Quintana Petroleum Co. - Ray Kane
Freitag - Woods 1-22
Sec. 22, T36S, R26E

- Requested approval to waive P x A marker at landowner's request. Permission granted.

EXPRESS MAIL ROUTING SLIP

PAM	
TAMI	1-13 9:50 AA
VICKY	
CLAUDIA	G 10:44
STEPHANE	1-13 10:51
CHARLES	cp 1-13 11:05
RULA	Rm 1/13 11:48
MARY ALICE	MAP 1/13 12:05
CONNIE	CD 1-13 2:59
MILLIE	MS -
PAM	CD 1-14 229

Form OGCC-3

10

STATE OF UTAH

OIL & GAS CONSERVATION COMMISSION

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

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

b. TYPE OF COMPLETION: NEW WELL X WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

2. NAME OF OPERATOR: QUINTANA PETROLEUM CORPORATION (303)628-9211

3. ADDRESS OF OPERATOR: 1050 - 17th Street, Suite 400, Denver, Colorado 80265

RECEIVED
JAN 03 1986
DIVISION OF O

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface: 1660' FSL & 1550' FEL
At top prod. interval reported below: N/A
At total depth: Same

5. LEASE DESIGNATION AND SERIAL NO.: N/A
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A
7. UNIT AGREEMENT NAME: N/A
8. FARM OR LEASE NAME: FREITAG-WOODS
9. WELL NO.: #1-22
10. FIELD AND POOL, OR WILDCAT: Wildcat
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Section 22, T36S-R26E

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
43-037-31224	GAS 11/20/85	San Juan	Utah

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
12/1/85	12/15/85	P&A 12/18/85	6580' GR	6594.5'

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
6374'	N/A		→	0'-6374'	N/A

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: DRY

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN: DIL/SFL/GR, BHC-Sonic/GR/Caliper, ~~FDC/CNL/GR/Caliper~~ Sample

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
9 5/8"	36#	1977.92'	12¼"	500 sxs Liteweight III +25 sxs "B" in annulus	None

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
N/A				

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
N/A		

31. PERFORATION RECORD (*Interval, size and number*): N/A

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
N/A	

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)
DRY		P&A

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*)

TEST WITNESSED BY

35. LIST OF ATTACHMENTS

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

SIGNED J.M. Williams TITLE Production Technician DATE 12/31/85

8/6/123

*(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.
DST #1: 6288'-6304' (Desert Creek fm.)			
Times:	30/60/60/120		
IHP 3665			
FHP 3665			
IFP 113-376			
FFP 526-674			
ISIP 3454			
FSIP 3454			
DP Recovery:	880' SGCSW,	120' HGCO	il emulsion, 200' SGCM.
Sampler: 8.7	cu.ft. gas,	400 cc oil,	1100 cc wtr, pressure 2000 psi.

38. GEOLOGIC MARKERS

NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
Akah	6332'	
Desert Creek	6226'	
Gothic Shale	6175'	
Hovenweep Sh.	6030'	
Ismay	5973'	
Paradox	5484'	
Hermosa	4708'	

RECEIVED

JAN 21 1986

DIVISION OF OIL
GAS & MINING

FREITAG WOODS 1-22

QUINTANA PETROLEUM CORPORATION
NW/SE, SECTION 22, T36S, R26E
SAN JUAN, UTAH

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FREITAG WOODS 1-22
NW/SE, SECTION 22, t36S, R26E
SAN JUAN, UTAH

WELL DATA SUMMARY

WELL NAME: FREITAG-WOODS 1-22

OPERATOR: QUINTANA PETROLEUM CORPORATION

LOCATION: NW/SE, SECTION 22, T36S, R26E

COUNTY: SAN JUAN

STATE: UTAH

AREA: PINTO BEAN PROSPECT

DRILLING CONTRACTOR: BRINKERHOFF SIGNAL RIG #85

DRILLING ENGINEER: RAY KOEHN

WELL SITE GEOLOGY: DOUGLAS REDMOND

ELEVATION: GL 6580'
KB 6595'

DEPTH LOGGED: 4600' to 6374'(TD)

DATE LOGGED: 12-07-85 to 12-17-85

TOTAL DEPTH: DRILLERS - 6374', LOGGERS - 6373'

HOLE SIZE: 12 1/4" to 1980'
8 3/4" to 6374'

CASING: 9 5/8" to 1978'

D.S.T.: LYNES

MUDLOGGING COMPANY: INTERMOUNTAIN GEO-TECH

MECHANICAL LOGS: GEARHART

WELL STATUS: PLUGGED AND ABANDONED

DAILY DRILLING SUMMARY

1985 DATE	DEPTH	PROGRESS	HOURS DRILLING	MUD WEIGHT	VISC.	W.L.	PH	ACTIVITY
12-07	Begin logging							
12-08	4758'	593'	23 1/2	8.5	33	14.1	10.7	Drilling
12-09	4930'	172'	11	9.1	37	10.4	11.0	Drilling
12-10	5224'	294'	22 1/2	9.3	34	10.8	11.5	Drilling
12-11	5572'	348'	23 1/2	9.5	34	10.8	11.5	Drilling
12-12	5888'	316'	22 1/4	9.3	33	13.6	10.25	Drilling
12-13	6180'	292'	22 1/2	9.5	35	14.4	9.6	Drilling
12-14	6262'	98'	9	11.0	44	15.6	10.6	TOH
12-15	6304'	42'	5	11.0	43	10.2	10.5	D.S.T #1
12-16	6312'	8'	1	11.0	55	18.8	8.0	Drilling
12-17	6374'	62'	6	11.0	50	12	8.5	Logging

FORMATION TOPS

ELEVATION: GL 6580'
KB 6595'

FORMATION	PROGNOSIS	TOP	E-LOG	SUBSEA
CHINLE	1897'	1953'	1966'	+4629'
SHINARUMP	2656'		2705'	+3890'
CUTLER			2787'	+3808'
HONAKER TRAIL	4659'	4788'	4652'	+1943'
PARADOX		5353'	5336'	+1259
UPPER ISMAY	5941'	5978'	5972'	+ 623'
HOVENWEEP SHALE		6029'	6028'	+ 567'
LOWER ISMAY ANHYDRITE		6125'	6119'	+ 482'
GOTHIC SHALE		6176'	6174'	+ 421'
DESERT CREEK	6193'	6232'	6226'	+ 369'
DESERT CREEK Ø	6249'	6294'	6290'	+ 305'
CHIMNEY ROCK SHALE		6318'	6317'	+ 278'
AKAH	6289'	6335'	6333'	+ 262'
SALT	6321'	6371'	6370'	+ 225'
TD	6324'	6374'	6373'	+ 222'

BIT RECORD

OIL CO.: QUINTANA PETROLEUM CORPORATION WELL NAME: FREITAG WOODS 1-22 LOCATION NO.: WILDCAT

CONTRACTOR: BRINKERHAFF SIGNAL RIG #: 85 AREA: Pinto Bean COUNTY: SAN JUAN

RIG MAKE & MODEL: _____ SURF CSG: _____ INT. CSG: _____ PROD CSG: _____

NO. 1 PUMP, MAKE & MODEL: _____ SPUD DATE: _____

NO. 2 PUMP, MAKE & MODEL: _____ T.D. DATE: _____

BIT NO.	SIZE	TYPE MAKE	JETS	BIT SER.N.	DEPTH OUT	FEET	HOURS	ACCUM HOURS	WOB	RPM	VERT DEV.	PUMP PRESS	MUD		BIT. COND			REMARKS
													WT	VIS	T	B	G	
1	12 3/4	S82F SEC	3-16	RR	1980	1941	48 3/4	48 3/4	40	80-120	1	1300	H_2O		6	5	1/4	
2	8 3/4	STC F-27	3-10		4930	2950	95		50	70	1	1500	H_2O		5	4	1/8	
3	8 3/4	HTC J-33	10-10 -11		6374	1444	110 1/4		48	80	1	1200	11.0	43	5	6	1/8	

SHOW REPORT

WELL NAME: FREITAG WOODS 1-22

AREA: WILDCAT COUNTY: SAN JUAN STATE: UTAH

SHOW No.: 1

FOOTAGE - from 5212' to 5225' Net ftg 13'

	DT	TOTAL GAS	CHROMATOGRAPH BREAKDOWN C_1	C_2	C_3	C_{4I}	C_{4N}	other
BEFORE	4	1	TR					
DURING	1	40	.65	TR				
AFTER	4.5	2	.03					

LITHOLOGY TYPE & DESCRIPTION: Sandstone - clr,lt gy,vf-f grn,sl-n calc,glauc, sbrdd-ang,mod-w srtd,unconsol

POROSITY Est.: 15%

STAIN DESCRIPTION: TR dk dd asphaltic stn

FLUORESCENCE and CUT DESCRIPTION: None

REMARKS: agitator was frozen and partially plugged during show

SHOW REPORT

WELL NAME: FREITAG WOODS 1-22

AREA: WILDCAT COUNTY: SAN JUAN STATE: UTAH

SHOW No.: 2 DATE: 12-11-85

FOOTAGE - from 5716' to 5740' Net ftg 24' Present TD: 5756'

	DT	TOTAL GAS	CHROMATOGRAPH BREAKDOWN C_1	C_2	C_3	C_{4I}	C_{4N}	other
BEFORE	5.5-8	8-13	.13	.02				
DURING	1.5-3.5	210	4.1	.55	.25	TR		
AFTER	4	10	.17	.05	.04	TR		

LITHOLOGY TYPE & DESCRIPTION: Limestone - tan,wh,ltgy,cryp-vf mic,foss,lithic, dolo,pyritic,sm anhy fill,tr micfrac,pred tt,dns app,Ø is low(about 5%),tr m-dk brn stn,tr dk dd stn,10% bri yel fluo in sample,when hit w/ chloroth 90% brightens to yel-blu,slow strmg yel cut

POROSITY Est.: 5%

STAIN DESCRIPTION: tr m-dk brn stn,tr dk dd stn

FLUORESCENCE and CUT DESCRIPTION: 10% bri yel fluo in sample, when hit with chlorothene 90% brightens to yel-blu, slow strmg yel cut

REMARKS:

SHOW REPORT

WELL NAME: FREITAG WOODS

AREA: WILDCAT COUNTY: SAN JUAN STATE: UTAH

SHOW No.: 3 DATE: 12-12-85

FOOTAGE - from 6000' to 6004' Net ftg 4' Present TD: 6025'

			CHROMATOGRAPH BREAKDOWN					
	DT	TOTAL GAS	C_1	C_2	C_3	C_{4I}	C_{4N}	other
BEFORE	3	20	.31	.05	TR	TR	TR	
DURING	1.5	320	7.08	.79	.2	.07	.07	
AFTER	4	18	.27	.05	TR	TR	TR	

LITHOLOGY TYPE & DESCRIPTION: Limestone - wh,tan,ltgy,vf mic,sm crypt,sm suc, foss,plant debris,occ anhy fill,sili ip, tt app,mhd,sl fri,No vis Ø,Tr dk brn stn, NFOC

POROSITY Est.: None

STAIN DESCRIPTION: TR dk brn stn

FLUORESCENCE and CUT DESCRIPTION: None

REMARKS: Strong gas incr, No heavies, no Ø reservoir

100 U incr at 6016'

146 U at 6018'

SHOW REPORT

WELL NAME: FREITAG WOODS

AREA: WILDCAT COUNTY: SAN JUAN STATE: UTAH

SHOW No.: 4 DATE: 12-13-85

FOOTAGE - from 6168' to 6174' Net ftg 6' Present TD: 6180'

			CHROMATOGRAPH BREAKDOWN					
	DT	TOTAL GAS	C_1	C_2	C_3	C_{4I}	C_{4N}	other
BEFORE	4.5	30	.5	.1	.05	TR	TR	
DURING	1.5-2.5	225	4.6	.55	.25	.02	.01	
AFTER	6	40	.65	.1	.05	TR	TR	

LITHOLOGY TYPE & DESCRIPTION: Limestone - tan,ltgy,wh,crypt,vf micxln,suc app ip, anhy fill,occ foss frag,tt app,frm-mhd,sl fri,tr pp vis vuggy Ø,m-dk brn stng around xls,No fluo,NO cut

POROSITY Est.: 8-10%

STAIN DESCRIPTION: None

FLUORESCENCE and CUT DESCRIPTION: None

REMARKS: Good gas show

SHOW REPORT

WELL NAME: FREITAG WOODS

AREA: WILDCAT COUNTY: SAN JUAN STATE: UTAH

SHOW No.: 5 DATE: 12-14-85

FOOTAGE - from 6294' to 6304' Net ftg 10' Present TD: 6304'

	DT	TOTAL GAS	CHROMATOGRAPH BREAKDOWN C_1	C_2	C_3	C_{4I}	C_{4N}	other
BEFORE	4-5	14	.15	.04	TR			
DURING	1-3	26	.3	.06	.01	TR		
AFTER	1.5	7	.11	.025	TR			

LITHOLOGY TYPE & DESCRIPTION: VPS! Dolomite - mbrn,tan,mgy,v f mic-crypt,sm earthy app,anhy,sm suc,tr foss,sl fri ip,frm-mhd,pred tt app

POROSITY Est.: 8-10%

STAIN DESCRIPTION: tr dull yel-brn on xls, sm m-dk brn

FLUORESCENCE and CUT DESCRIPTION: tr very dull gold fluo, fast bri yel streaming cut

REMARKS: Mud viscosity very high,sample quality is poor, 340 U at 6270'-6271'

DRILL STEM TEST REPORT

WELL NAME: FREITAG WOODS 1-22 DATE: 12-15-85

AREA: WILDCAT COUNTY: SAN JUAN STATE: UTAH

WITNESS: DOUG REDMOND

TEST NUMBER: 1 INTERVAL TESTED: 6288'-6304' TD - 6304'

TEST COMPANY AND TYPE OF TEST: CONVENTIONAL DOUBLE PACKER

LYNES

INITIAL FLOW: Open with surface blow, increased to 6" in 2 minutes, 18" or BOB in 3 minutes, 1# at 5 minutes, 1.5# at 10 minutes, 3# at 20 minutes, 4.5# at 25 minutes, 6# at 30 minutes, shut tool in, NGTS

FINAL FLOW: Open with 2#, GTS immed, 3-5' flare, increased to 3# at 10 minutes, 4# at 30 minutes, 5 1/2 # at 40 minutes, 7# at 50 minutes, 9# at 60 minutes

	TIME	TOP CHART	BOTTOM CHART
IH:		3665	3624
IF:	30	113-376	143-389
ISI:	60	3454	3479
FF:	60	526-674	533-776
FSI:	120	3454	3479
FH:		3665	3624

BHT: 146 °

RECOVERY: 880' salt water, slight gas cut(8 bbls), 120' gas cut(1.7 bbls) oil emulsions

SAMPLE CHAMBER: 8.7 cfg and 400 cc oil, 1100 cc water at 2000 PSI

RESISTIVITIES: .04 at 68°, 200,000 ppm, mud pit 4 at 68° 800 ppm

REMARKS: Gravity of recovered oil 36, gas/oil ratio 3480

GEOLOGIC SUMMARY

This well was drilled with the Pennsylvanian Desert Creek algal mound as a primary objective, with the Ismay and Honaker Trail zones secondary. The objectives were well evaluted with a 2 man mudlogging unit, a well site geologist, two types of porosity logs, and an electrical resistivity log.

The sample top of the Chinle was picked at 1953', and surface casing was set at 1976' to protect the Navajo and Entrada sandstone aquifers. Drilling continued with water to 4600' where a fresh water gel mud was used the rest of the way.

Several hydrocarbon shows were recorded in the Honaker Trail channel sands and lower in the carbonates of the Paradox, Ismay, and Desert Creek zones. Only the Desert Creek algal mound porosity was drill stem tested.

HONAKER TRAIL FORMATION: 4652' - 5336'

This is the uppermost section of the Pennsylvanian Hermosa Group. It represents the gradual depositional environmental change from marine carbonates and shales below to continental deposits above known as the Cutler red-beds of Permian age. The Honaker Trail top varies in the stratigraphic section. By most consensus, it generally is chosen at the first massive marine limestone found in samples from the bore hole and later verified with E-logs.

This interval contains sands deposited in channel beds which can produce economic hydrocarbon gas. Typical of this type of reservoir the sands exhibit high porosity, and usually fair permiability. However they tend not to extend laterally and are difficult to predict and map. This well contained only one sand interval from which a 39 unit mud gas increase was logged. The sand was clear to light gray, clean, and unconsolidated. Very little sample show was noticed, and clearly the show was too weak to be considered significant.

PARADOX: 5972' - 6028'

This marker is used for mainly correlation convenience. The zone is comprised of massive limestone beds containing at intervals; fossils, clastic rock fragments, dolomite, and some silica materials. Occasionally they are interbedded with mudstones grading to shale.

One zone from 5716' to 5740' contained gas and oil shows. The limestone source was tan, white, very finely microcrystalline, fossiliferous. lithic, and dolomitic. Traces of pin point vuggy porosity were observed, associated with some yellow fluorescence and a very weak yellow cut. It is an interval that has been drill stem tested repeatedly in the nearby Bug field with no results and nothing here could be seen to suggest differently. A good show with very little reservoir rock.

UPPER ISMAY: 5972' - 6028'

This zone is picked by a four foot thick bed of anhydrite at its top. It is made up of a very light colored, clean limestone below the evaporite. A hydrocarbon show was recorded from 6000' to 6004', in the Upper Ismay carbonate. The limestone was very finely microcrystalline, sucrosic, fossiliferous and recrystallized, with anhydrite fill and silica appearing from its prescence in solution. Again, because of a thin interval and no reservoir, no economic significance could be attached to the show.

In the interval from 6028' to 6119' lies the Hovenweep shale. It was black, calcareous, and organic in nature. Although they have not been

produced, these shales are deemed the source beds for hydrocarbons in the Paradox Basin.

LOWER ISMAY: 6119' - 6174'

This top plainly contrasts to the shale above and is an easy pick. Its anhydrite was about 30' thick. Underlying is a carbonate very similar to the Upper Ismay. A gas show was logged here with a trace of vuggy porosity in some crystalline limestone. The interval appeared tight and would not be economic to produce it.

The Gothic shale from 6174' to 6226' looked like the Hovenweep above. It was black, organic, and gaseous. This is one of the most laterally consistant interval in the basin.

DESERT CREEK AND DESERT CREEK POROSITY: 6226' - 6317'

This zone is made up of interbedded dolomite, anhydrite, and dolomitic mudstone. Its top is a silty brown domite directly underlying the Gothic shale.

The bore hole was cut through the Upper Desert Creek and 5' into the Lower Bench algal mound porosity. The show samples circulated out were composed of dolomite, medium brown, predominantly cryptocrystalline, translucent, and tight. Another 5' of porosity was cut, circulated out, and evaluated. Again the dolomite was tight, occasionally exhibiting bright fluorescence and streaming cut. The interval was drill stem tested, and both water and oil were recovered (See report for results).

Total depth was reached 3' into the Paradox salt and the well was logged.

Evaluation with sample descriptions, drill stem test results, and electric logs all point to a tight and wet reservoir. The induction log may be showing an oil-water contact 4' into the Ø, however, it may be that it is only oil-wet. To complete this zone for production it would have to be stimulated in one way or another and an increase in water production is an unwanted side effect surely to occur.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Douglas J. Redmond

Douglas J. Redmond

(303) 638-4610
P.O. Box 238
Yampa, CO 80483

SAMPLE DESCRIPTIONS

4600-4630	80%	Shale - dark red, orange, pink, purple, light gray to white, smooth, slightly to non-calcareous, argillaceous in part, silty in part, various colors to light green, fissile, brittle, firm
	20%	Siltstone - red, calcareous, very finely micaceous, brittle, firm
		Trace Sandstone, Limestone
4630-4690	50%	Shale - red to orange, pink, slightly calcareous, silty and argillaceous in part, mottled, fissile to blocky, firm
	50%	Siltstone - dark red to orange, graded to shale, calcareous, micaceous, blocky, firm
		Trace Lacustrine Limestone - tan, cryptocrystalline
		Trace Sandstone
4690-4720	70%	Shale - purple, white, red, brown, smooth, predominately non-calcareous, argillaceous and siliceous, waxy, firm
	20%	Siltstone - dark red to orange, calcareous, micaceous in part, slightly argillaceous, blocky, firm
	10%	Sandstone - orange, pink, clear, very fine to fine grain, slightly calcareous, arkosic, poorly sorted, angular, medium hard, very tight
4720-4750	60%	Shale - purple, white, red, smooth to slightly silty, slightly to non-calcareous, fissile, firm
	30%	Siltstone - dark red, orange, sandy, calcareous, sandy, micaceous, firm
	10%	Limestone - tan, brown, light gray, cryptocrystalline, slightly translucent, slightly dolomitic, medium hard, dense
		Trace Sandstone - orange, clear, fine grain, unconsolidated
4750-4780	80%	Shale - purple, white, light green, mottled, non-calcareous, waxy appearance, fissile to blocky, soft to firm
	20%	Siltstone - red, red to brown, orange, calcareous, very finely micaceous, firm
		Trace Limestone - 5%, as above
4780-4810	90%	Shale - purple, light gray to green, red, non-calcareous, occasionally very slightly calcareous, waxy, firm
	10%	Siltstone - dark red, orange, calcareous, firm
4810-4840	80%	Limestone - light gray to white, tan, medium gray, cryptocrystalline, chalky, translucent in part, clean appearance, tight, medium hard, dense
	20%	Shale - purple to white, mottled, non-calcareous, waxy, firm
4840-4870	60%	Limestone - light to medium gray, white, tan, cryptocrystalline, occasionally very finely microcrystalline, siliceous in part, occasional micaceous and marly appearance, slightly chalky and argillaceous in part, tight, dense, medium hard to firm
	40%	Shale - as above, some dark to medium gray, very marly, finely microcrystalline, blocky, medium hard mudstone

4870-4900		Very Poor Sample
	70%	Limestone - white, tan, light gray, cryptocrystalline to very finely microcrystalline, silty, marly, argillaceous, micaceous, tight, dense, firm, medium hard
	30%	Shale - dark brown, brown to red, calcareous, micaceous, very silty, firm, blocky, brittle
4900-4930		Depth correction of 30' to 4930'
4930-4940		Very Poor Sample
	90%	Limestone - white, light to medium gray, tan, cryptocrystalline, some very finely microcrystalline, lithic in part, micaceous, siliceous, tight, medium hard
	10%	Shale - dark brown to brown red, calcareous, marly, micaceous, silty, medium hard
		Trace Chert - tan to dark brown
4940-4960		Samples Improved
	100%	Limestone - white, tan, light to medium gray, cryptocrystalline, siliceous in part, chalky appearance in part, tight, hard, medium hard, dense
		Trace Shale
		Trace Chert - milky white
4960-4980	60%	Limestone - white, tan, light to medium gray, cryptocrystalline, siliceous in part, marly in part, lithic, tight, dense, medium hard
	40%	Shale - medium to dark gray, smooth, graded to marlstone, silty, micaceous, medium hard
4980-5000	60%	Shale - as above, medium brown, micaceous, silty, very marly
	40%	Limestone - as above
5000-5020	60%	Shale - medium to dark gray, medium brown to red, calcareous, silty, marly in part, micaceous, brittle, firm, medium hard
	30%	Limestone - white, light to medium gray, cryptocrystalline, very finely microcrystalline, chalky, marly, micaceous, lithic, some sandy, firm, medium hard, tight, dense
	10%	Sandstone - clear, orange, very fine grain, fine grain, siliceous, subangular, unconsolidated, loose
5020-5040	50%	Limestone - white, light to medium gray, cryptocrystalline, chalky and argillaceous in part, occasionally siliceous, occasionally fossiliferous, tight, dense
	50%	Shale - medium gray, medium brown to red, calcareous, silty, marly in part, some micaceous, firm, blocky, brittle
5040-5060	60%	Shale - medium brown to red, medium gray, light gray, calcareous to marly, graded to siltstone in part, micaceous, brittle, medium hard, firm
	40%	Limestone - as above, very marly, argillaceous, micaceous
5060-5080	60%	Limestone - light gray, white, tan, cryptocrystalline, translucent in part, slightly fossiliferous, occasionally marly and argillaceous, some siliceous, medium hard, hard, dense
	40%	Shale - as above
		Trace Chert, Sandstone grains

5080-5100	70%	Shale - light to medium gray, medium brown to red, calcareous, marly in part, micaceous, silty, blocky, brittle, firm
	30%	Limestone - as above, becoming chalky, argillaceous, marly
		Abundant cavings throughout
		Trace Sandstone
5100-5120	50%	Shale - as above
	50%	Limestone - as above
5120-5130	80%	Sandstone - clear, orange, light gray, very fine to fine grain, slightly arkosic, glauconitic, slightly calcareous, light green clay cement, siliceous, subrounded to angular, unconsolidated, poorly cemented, some visible intergranular Ø, NFSOC
	20%	Limestone - white, light gray, cryptocrystalline, chalky in part, tight, dense
5130-5140	50%	Limestone - as above, medium gray, some marly and argillaceous, tight, dense
	30%	Shale - medium gray, dark brown to red, calcareous, marly, silty, micaceous, brittle, firm
	20%	Sandstone - as above
5140-5160	70%	Shale - dark gray, medium gray, medium brown to red, calcareous, some graded to marlstone, micaceous, very silty, brittle, medium hard
	30%	Limestone - light to medium gray, white, cryptocrystalline to very finely microcrystalline, lithic, micaceous, sandy in part occasionally marly, tight, dense, firm to medium hard
5160-5180	50%	Limestone - white, light to medium gray, cryptocrystalline, occasionally very finely to finely microcrystalline, marly and argillaceous, tight, dense
	50%	Shale - medium gray, dark gray, silty, lithic, very marly, blocky, medium hard
		Trace Chert - medium brown
5180-5200	100%	Limestone - light to medium gray, white, tan, translucent, cryptocrystalline, very finely microcrystalline, lithic in part, siliceous, argillaceous in part, sandy in part, tight, dense, medium hard, firm
		Trace Sandstone, Shale, Chert
5200-5210	70%	Limestone - as above
	30%	Shale - medium brown to red, medium to dark gray, marly, calcareous, very silty, micaceous, graded to mudstone in part, brittle, blocky, firm to medium hard
5210-5230	40%	Shale - as above
	30%	Limestone - as above
	30%	Sandstone - clear, light gray, very fine to fine grain, slightly to non-calcareous, siliceous, glauconitic, subrounded to angular, moderately to well sorted, unconsolidated, some visible Ø, 15%, trace dark dead asphaltic stain, only specks, NFOC
5230-5240	50%	Limestone - as above
	30%	Shale - as above

5230-5240 (continued)	20%	Sandstone - clear, light gray to green, orange, very fine to fine grain, slightly arkosic, light blue siliceous clay cement, glauconitic, dirty, angular, poorly sorted, tight, firm to medium hard, slightly friable
		Trace Sandstone - loose unconsolidated grains
5240-5260	60%	Shale - dark red to brown, medium gray to brown, calcareous to very marly, graded to siltstone, very micaceous, slightly fissile, firm to medium hard
	40%	Limestone - white, light to medium gray, cryptocrystalline, slightly argillaceous, chalky, occasionally fossiliferous, firm to medium hard
5260-5300	80%	Shale - as above Very Poor Sample
	20%	Limestone - as above
		Trace Chert
5300-5340		Very Poor Sample
	50%	Limestone - white, light to medium gray, cryptocrystalline to very finely microcrystalline, siliceous, sandy, chalky, tight, medium hard, firm, dense
	50%	Shale - medium to dark gray, occasionally brown to red, marly, silty, blocky, firm
5340-5360		Sample Quality Improved
	90%	Shale - dark gray to medium gray, marly to very calcareous, silty, graded to mudstone, medium hard, blocky, massive, very brittle
	10%	Limestone - as above
5360-5380	90%	Limestone - white, tan, light to medium gray, cryptocrystalline, occasionally very finely microcrystalline, fossiliferous, chalky in part, occasionally slightly siliceous, trace pyrite, trace recrystalized appearance, tight, dense, firm to medium hard
	10%	Shale - as above
5380-5400	90%	Shale - dark to medium gray, marly, blocky, medium hard, firm
	10%	Limestone - as above
5400-5420	80%	Shale - dark gray, medium gray, calcareous, silty, brittle, blocky, medium hard, firm
	20%	Limestone - white, light to medium gray, cryptocrystalline, pyritic, fossiliferous, slightly marly, tight, dense, medium hard
5420-5440	80%	Shale - as above, becoming medium gray, micaceous, marly, silty, firm
	20%	Limestone - as above, becoming very argillaceous, marly
		Trace Sandstone
5440-5460	70%	Shale - as above
	20%	Sandstone - white, clear, light gray to green, very fine to fine grain, light blue-green siliceous clay cement, slightly calcareous, micaceous, some very calcareous, graded to sandy limestone, poorly sorted, angular, firm, tight, NFSOC
	10%	Limestone - as above

5460-5480	70%	Shale - medium gray, dark gray, marly, silty, pyritic, some micaceous, firm, medium hard, brittle
	30%	Limestone - white, tan, light gray, cryptocrystalline, chalky, slightly dolomitic in part, tight, dense, firm to medium hard
		Trace Sandstone - 5%
5480-5500	100%	Limestone - tan, white, light gray, cryptocrystalline, siliceous, slightly argillaceous, slightly fossiliferous, tight, dense, medium hard to hard
		Trace Chert - tan
		Trace Shale
5500-5520	100%	Limestone - as above, siliceous, hard, dense
		Trace Chert - orange, tan
5520-5540	100%	Limestone - tan, brown, white, light gray, cryptocrystalline, siliceous, slight increased shale content, tight, hard, medium hard
		Trace Chert
5540-5560	90%	Limestone - as above, becoming medium gray, more argillaceous and marly
	10%	Shale - medium to dark gray, marly, silty, medium hard
5560-5580	60%	Limestone - as above, some sandy, glauconitic
	40%	Shale - medium gray, dark gray, silty, very marly, very finely micaceous, firm to medium hard, brittle
5580-5600	100%	Limestone - white, tan, light gray, cryptocrystalline, siliceous, chalky, fossiliferous, tight, dense, firm to hard
		Trace Chert - tan
5600-5620	90%	Limestone - as above
	10%	Shale - medium gray, dark gray, marly, medium hard
		Trace Chert - tan, brown
5620-6540	50%	Limestone - as above, some marly, dirty, medium hard
	50%	Shale - medium to dark gray, silty, very marly, brittle, blocky, medium hard
5640-5660	60%	Shale - as above
	40%	Limestone - as above, medium gray, marly, medium hard
5660-5700	60%	Limestone - as above, fossiliferous, marly
	40%	Shale - as above
		Trace Chert
5700-5720	70%	Limestone - light to medium gray, medium gray to brown, crypto-crystalline, occasionally very finely microcrystalline, siliceous in part, chalky in part, firm, medium hard, dense
	30%	Shale - medium to dark gray, very marly, slightly silty, very finely micaceous in part, firm, medium hard
5720-5740	90%	Limestone - off white, light to medium gray, cryptocrystalline to very finely microcrystalline, trace anhdrite fill, very slightly sucrosic, slightly dolomitic, firm, medium hard, trace pin point Ø, trace yellow fluorescence, very slow weak yellow cut
	10%	Shale - as above

5740-5760	70%	Limestone - medium to dark gray, cryptocrystalline, very finely microcrystalline, fossiliferous, dolomitic, argillaceous, firm, medium hard, dense
	30%	Shale - medium to dark gray, silty, marly, fossiliferous, firm, blocky
		Trace Chert
5760-5780	80%	Limestone - as above, becoming medium gray, argillaceous, occasionally siliceous, translucent
	20%	Shale - as above
5780-5800	100%	Limestone - tan, light to medium gray, white, cryptocrystalline, some argillaceous, medium hard, dense
5800-5840	80%	Limestone - light to medium gray, white, cryptocrystalline, siliceous in part, predominately argillaceous and marly, tight, dense, medium hard, firm
	20%	Shale - medium gray, dark gray, silty, very marly, blocky, Medium hard
5840-5860	100%	Limestone - light to medium gray, tan, brown, white, cryptocrystalline, occasionally siliceous, chalky, some argillaceous and marly, slightly dolomitic in part, dense, medium hard
		Trace Shale
5860-5880	90%	Limestone - tan, brown, light gray, medium gray, cryptocrystalline, very finely microcrystalline, siliceous, argillaceous and marly in part, pyritic, slightly dolomitic, dense, medium hard, hard
	10%	Shale - dark gray, medium gray, marly, silty, blocky, medium hard
		Trace Chert - tan
5880-5900	100%	Limestone - tan, light to medium gray, white, cryptocrystalline, very finely microcrystalline, chalky, argillaceous. siliceous slightly fossiliferous, medium hard, hard, dense
		Trace Chert - tan
		Trace Shale
5900-5910	60%	Limestone - tan, brown, light to medium gray, cryptocrystalline, very finely microcrystalline, silty and argillaceous in part, siliceous, dense, firm, medium hard, hard
	30%	Chert - brown, tan, hard
	10%	Shale - dark gray, silty, marly, medium hard
5910-5920	50%	Limestone - as above, becoming medium gray, marly, argillaceous
	40%	Shale - medium to dark gray, silty in part, very marly in part, some calcareous, medium hard, brittle
	10%	Chert - tan, brown, slightly calcareous in part, hard
5920-5930	90%	Limestone - tan, light to medium gray, off white, cryptocrystalline, very finely microcrystalline, siliceous in part, slightly argillaceous in part, some recrystallized appearance, predominately tight, medium hard, occasional fragment with pin point Ø
	10%	Shale - dark gray, medium gray, silty, calcareous, firm
5930-5940	80%	Limestone - as above, becoming brown, medium gray, argillaceous and marly
	20%	Shale - as above

5940-5950	50%	Limestone - as above, very marly and argillaceous
	50%	Shale - dark gray, black, slightly silty in part, calcareous, slightly carbonaceous, blocky, brittle, medium hard
5950-5960	70%	Shale - as above, becoming black, carbonaceous, firm, blocky
	30%	Limestone - as above
5960-5970	60%	Shale - as above
	40%	Limestone - as above
5970-5980	50%	Shale - as above
	40%	Limestone - tan, brown, light gray, medium gray, cryptocrystalline, siliceous in part, slightly anhydritic in part, dense, medium hard
		Trace Chert - tan
5980-5990	100%	Limestone - light to medium gray brown, tan, cryptocrystalline, argillaceous and marly, slightly dolomitic, lithic in part, trace fossiliferous, dense, medium hard
		Trace Shale - as above
5990-6000	100%	Limestone - white, light gray, off white, cryptocrystalline, very finely microcrystalline, chalky, fossiliferous, recrystallized, slightly dolomitic in part, slightly siliceous in part, dense, firm, medium hard
6000-6010	100%	Limestone - white, tan, light gray, very finely microcrystalline, some cryptocrystalline, some sucrosic, fossiliferous, trace plant debris, occasional anhydrite fill, siliceous in part, tight appearance, medium hard, slightly friable, no visible Ø, trace dark brown stain, NFOC
		Trace Shale
6010-6020	100%	Limestone - white, tan, light gray, cryptocrystalline to very finely microcrystalline, slightly sucrosic, slightly siliceous, tight, medium hard, dense
6020-6030	80%	Limestone - as above, becoming medium brown, medium gray, marly, dense, firm
	20%	Shale - dark gray, black, calcareous, slightly carbonaceous, firm
6030-6050	90%	Shale - dark gray to black, silty, calcareous, slightly marly in part, carbonaceous, firm
	10%	Limestone - as above
6050-6070	100%	Shale - black, silty, calcareous, carbonaceous, fissile, firm
		Trace Limestone
6070-6080	90%	Shale - as above, dark gray, slightly marly
	10%	Limestone - as above
6080-6090	100%	Shale - as above
6090-6110	90%	Shale - as above
	10%	Limestone - as above
6110-6120	70%	Shale - as above
	30%	Limestone - light gray, medium gray, tan, cryptocrystalline,

6110-6120 (continued)		translucent, pyritic, slightly anhydritic, argillaceous in part, medium hard, dense
6120-6150	60%	Limestone - as above
	30%	Shale - as above
	10%	Anhydrite - white
6150-6160	100%	Limestone - medium gray, light gray, cryptocrystalline, argillaceous and marly, siliceous, dense, firm, medium hard Trace Shale, Anhydrite
6160-6170	100%	Limestone - tan, light gray, white, cryptocrystalline, very finely microcrystalline, sucrosic appearance in part, anhydritic, firm to medium hard, slightly friable, trace pin point visible vuggy Ø, trace medium to dark brown brown staining around crystals, no fluorescence, no cut
6170-6180	50%	Limestone - as above
	50%	Shale - black, silty, calcareous, carbonaceous, firm, fissile Trace Pyrite
6180-6200	80%	Shale - as above, medium gray, dark gray, pyritic
	20%	Limestone - as above
6200-6230	70%	Shale - dark gray, black, calcareous, pyritic, carbonaceous, silty, fissile, firm
	30%	Limestone - as above
6230-6240	80%	Dolomite - medium gray to brown, light gray, cryptocrystalline to very finely microcrystalline, marly, very argillaceous, some medium gray, cryptocrystalline, very marly, predominately dense, firm to medium hard
	20%	Shale - as above
6240-6250	90%	Dolomite - as above, very argillaceous and marly, graded to mudstone
	10%	Anhydrite - white
6250-6260		No Sample
6260-6270		Very Poor Sample
	70%	Dolomite - medium gray to brown, light gray, cryptocrystalline, anhydritic, marly, firm, medium hard, dense
	30%	Shale - dark gray, black, dolomitic, marly, dense, hard
6270-6280	80%	Dolomite - as above, medium gray, mudstone, medium hard, dense
	20%	Shale - as above
6280-6290	70%	Dolomite - as above
	20%	Shale - as above
	10%	Anhydrite - white
6290-6304	90%	Dolomite - medium brown, tan, medium gray, very fine to finely microcrystalline, cryptocrystalline, some earthy appearance, anhydritic, slightly sucrosic in part, trace fossiliferous, slightly friable in part, firm to medium hard, predominately tight appearance
	10%	Shale - as above

6304-6310		Very Poor Sample
	80%	Shale - cavings
	20%	Dolomite - medium gray, cryptocrystalline, marly, mudstone, anhydritic, medium hard, dense
6310-6320	60%	Shale - as above
	30%	Dolomite - as above
	10%	Limestone - light gray, cryptocrystalline, dense
6320-6330	50%	Shale - black, silty, calcareous, carbonaceous, firm, fissile
	40%	Limestone - as above
	10%	Dolomite - as above
6330-6340		Very Poor Sample
	50%	Shale - as above
	50%	Limestone - light to medium gray, cryptocrystalline, marly, dolomitic, dense, medium hard
6340-6350	80%	Limestone - light to medium gray, tan, cryptocrystalline, dolomitic, marly, slightly siliceous, medium hard, dense
	20%	Shale - as above
6350-6360	90%	Limestone - as above
	10%	Shale - as above
		Trace Pyrite
6360-6374	80%	Shale - dark gray to black, calcareous, silty, carbonaceous, firm
	20%	Limestone - as above, very dolomitic, anhydritic, medium hard
		Trace Anhydrite