

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

(Other instructions on reverse side)

5. Lease Designation and Serial No.  
U-23520

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

7. Unit Agreement Name (Approval)  
~~Caballo Unit~~ Pending

8. Farm or Lease Name  
Caballo ~~Unit~~ Federal

9. Well No.  
#1-9

10. Field and Pool, or Wildcat  
Wildcat WILDCAT

11. Sec., T., R., M., or Bk. and Survey or Area  
Sec. 9, T36S - R23E

12. County or Parrish 13. State  
San Juan Utah

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work  
DRILL  DEEPEN  PLUG BACK

b. Type of Well  
Oil Well  Gas Well  Other  Single Zone  Multiple Zone

2. Name of Operator 303/628-9211 1050-17th St., Suite 400  
Quintana Petroleum Corp. Denver, CO 80265

3. Address of Operator 303/322-7878 P.O. Box 44065  
Permitco Inc. - Agent Denver, CO 80201-4065

4. Location of Well (Report location clearly and in accordance with any State requirements.\*)  
At surface 820' FSL and 2340' FEL  
At proposed prod. zone SW SE)

14. Distance in miles and direction from nearest town or post office\*  
14 miles northeast of Blanding, Utah

15. Distance from proposed\* location to nearest property or lease line, ft. (Also to nearest drlg. line, if any)  
300'

16. No. of acres in lease 2387.42

17. No. of acres assigned to this well 40

18. Distance from proposed location\* to nearest well, drilling, completed, or applied for, on this lease, ft. none

19. Proposed depth 6754' *shul*

20. Rotary or cable tools Rotary

21. Elevations (Show whether DF, RT, GR, etc.) 6339' GR

22. Approx. date work will start\* October 31, 1987 or immediately upon approval of the unit and A.P.D.

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#	2200'	821 sx or suffic to circ to surf.
8-3/4"	5-1/2"	15.5 & 17#	6754'	Will be designed upon completion.

Quintana Petroleum Corp. proposes to drill a well to 6754' to test the Ismay and Desert Creek formations. If productive, casing will be run and the well completed. If dry, the well will be plugged and abandoned as per BLM and State of Utah requirements.

See Onshore Order No. 1 attached.

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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 *Lisa L. Green* Title Consultant for Quintana Petroleum Corp. Date 10/6/87

(This space for Federal or State office use)

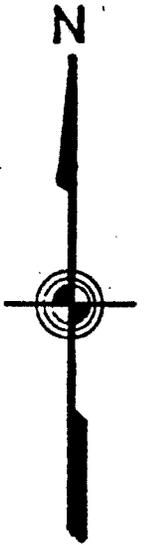
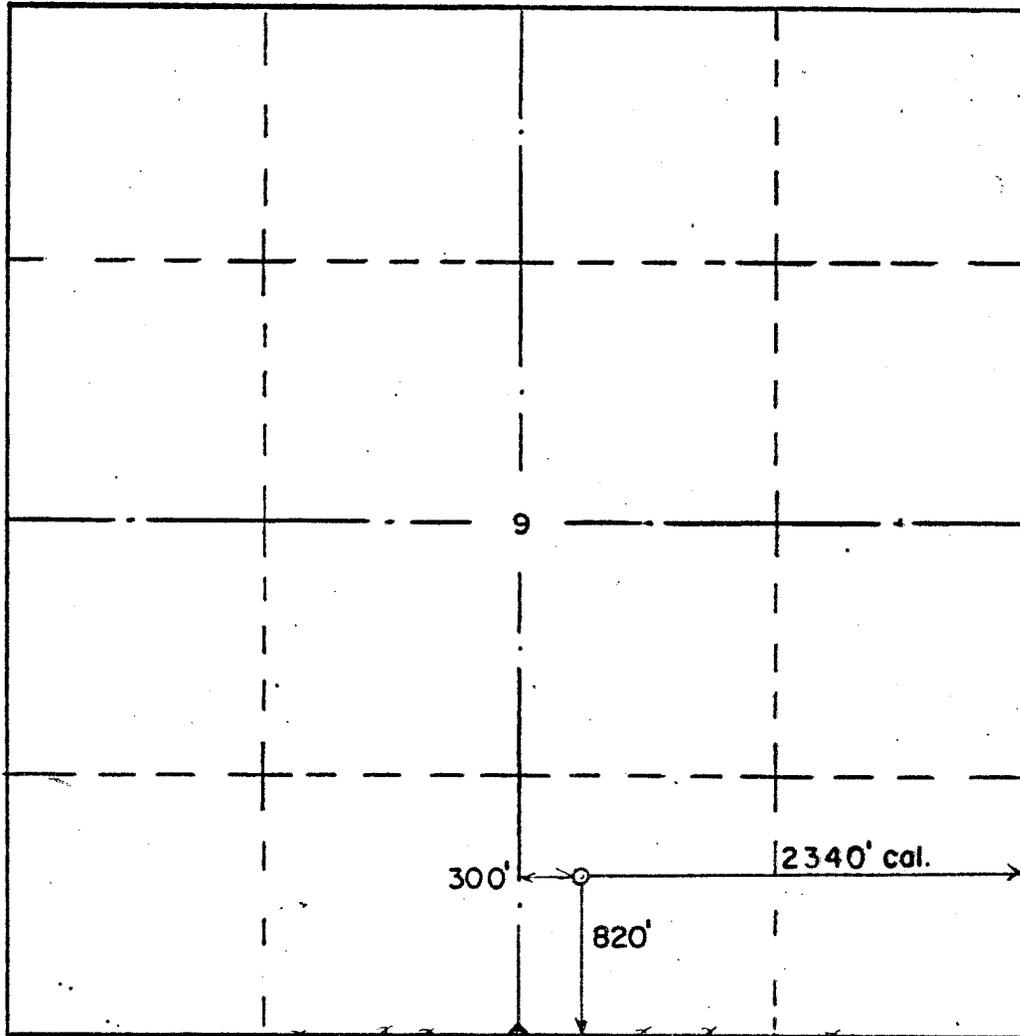
Permit No. 43-037-31365 Approval Date

Approved by \_\_\_\_\_ Title \_\_\_\_\_

Conditions of approval, if any: APPROVED BY THE STATE OF UTAH DIVISION OF OIL, GAS, AND MINING  
DATE 11-16-87 BY *John R. Bays*  
WELL SPACING: *R415-33*

\*See Instructions On Reverse Side

WELL LOCATION AND ACREAGE DEDICATION PLAT



1"=1000'  
 ◆Bross Cap

WELL LOCATION DESCRIPTION:  
 Quintana Petroleum  
 Caballo Unit Federal #1-9  
 820' FSL & 2340' FEL  
 Section 9, T.36 S., R.23 E., SLM  
 San Juan County, Utah  
 6339' ground elevation  
 Reference: S.85°W., 286', 6370' grd.

The above plat is true and correct to my knowledge and belief.

29 September 1987

REGISTERED LAND SURVEYOR  
 No. 5705  
 GERALD G. HUDDLESTON  
 Gerald G. Huddleston, LS  
 STATE OF UTAH

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ONSHORE OIL & GAS ORDER NO. 1

Approval of Operations on Onshore  
Federal and Indian Oil and Gas Leases

CABALLO UNIT FEDERAL #1-9  
820' FSL and 2340' FEL  
Section 9, T36S - R23E  
San Juan County, Utah

Prepared For:

QUINTANA PETROLEUM CORP.

By:

PERMITCO INC.  
P.O. Box 44065  
Denver, Colorado 80201-4065  
303/322-7878

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Copies Sent To:

- 4 - BLM - Moab, Utah
- 1 - BLM - Monticello, Utah
- 1 - Div. of Oil, Gas & Mining - SLC, Utah
- 3 - Quintana Petroleum Corp. - Denver, CO



Permitco Incorporated  
A Petroleum Permitting Company

ONSHORE ORDER NO.  
Quintana Petroleum Corp.  
Caballo Unit Federal 1-9  
820' FSL and 2340' FEL  
Section 9, T36S - R23E  
San Juan County, Utah

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DRILLING PROGRAM

ONSHORE OIL & GAS ORDER NO. 1  
Approval of Operations on Onshore  
Federal and Indian Oil and Gas Leases

All lease and/or unit operations will be conducted in such a manner that full compliance is made with applicable laws, regulations (43 CFR 3100), Onshore Oil and Gas Order No. 1, and the approved plan of operations. The operator is fully responsible for the actions of his subcontractors. A copy of these conditions will be furnished to the field representative to ensure compliance.

1. The surface formation and estimated formation tops to be encountered are as follows:

<u>Formation</u>	<u>Depth</u>	<u>Subsea</u>
Dakota	Surface	
Chinle	2123'	+4053'
Shinarump	2773'	+3633'
Hermosa	5111'	+1255'
Ismay	6414'	- 48'
Hovenweep Shale	6544'	- 178'
Lower Ismay	6569'	- 203'
Gothic Shale	6618'	- 252'
Desert Creek	6648'	- 282'
Akah	6744'	- 178'
T.D.	6754'	- 168'

2. The estimated depths at which oil, gas, water or other mineral bearing zones are expected to be encountered are as follows:

<u>Substance</u>	<u>Formation</u>	<u>Anticipated Depth</u>
Oil	Ismay	6414'
Oil/Gas	Desert Creek	6648'

All fresh water and prospectively valuable minerals encountered during drilling, will be recorded by depth cased and cemented. All oil and gas shows will be tested to determine commercial potential.

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DRILLING PROGRAM

3. Pressure control equipment will consist of a 10", 3000# BOP. (See BOP Diagram attached.)

BOP systems will be consistent with API RP 53. Pressure tests will be conducted before drilling out from under all casing strings which are set and cemented in place. Blowout preventer controls will be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned. Preventers will be inspected and operated at least daily to ensure good mechanical working order, and this inspection recorded on the daily drilling report. Preventers will be pressure tested before drilling casing cement plugs. The San Juan Resource Area will be notified 1 day before pressure testing.

4. a. Casing

The proposed casing program is as follows:

<u>Purpose</u>	<u>Depth</u>	<u>Hole Size</u>	<u>O.D.</u>	<u>Wt.</u>	<u>Grade</u>	<u>Type</u>	<u>New or Used</u>
Conductor	0-40'	17-1/2"	16#	--			
Surface	0-2200'	12-1/4"	9-5/8"	36#	K-55	ST&C	New
Produc.	0-6000'	8-3/4"	5-1/2"	15.5#	K-55	LT&C	New
Produc.	6000-TD	8-3/4"	5-1/2"	17.0#	K-55	LT&C	New

- b. Cement

The cementing program will be as follows:

Surface  
 0-2200' Type and Amount  
 621 sx Lite with 2% CaCl<sub>2</sub> and 1/4#/sk Flocele, followed by 200 sx Class B w/2% CaCl<sub>2</sub> or sufficient to circulate to surface.

Production Type and Amount

Will be designed upon completion - sufficient to cover zones of interest.

Anticipated cement tops will be reported as to depth, not the expected number of sacks.

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c. Auxiliary Equipment will be as follows:

1. Kelly cock.
2. Float above the bit.
3. A sub with a full opening valve will be on the floor when the kelly is not in use.
4. Monitoring of the system will be done visually.

5. Drilling fluid will be as follows:

<u>Interval</u>	<u>Mud Type</u>	<u>Mud Wt.</u>	<u>Visc.</u>	<u>F/L</u>	<u>PH</u>
0-2200'	Gel/Lime	8.3-8.6	27-35	N/C	8.5-9.0
2200-5100'	Water w/Gel/Lime				
	Sweeps	8.4-8.6	27-35	N/C	8.5-9.0
5100-T.D.	Dispersed	9.0-10.5	35-45	8-10cc	10+

6. Coring, logging and testing programs are as follows:

- a. No cores are anticipated.
- b. The logging program will consist of the following: A Dual Induction SFL/GR and BHC Sonic/GR will be run from T.D. to base of Surface casing. A CNL Lithodensity will be run over selected zones.
- c. Drill Stem Tests may be run in the Ismay and Desert Creek formations if shows warrant.

Whether the well is completed as a dry hole or as a producer, "Well Completion or Recompletion Report and Log" (Form 3160-4) will be submitted not later than 30 days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3164. Two copies of all logs, core descriptions, core analysis, well-test data, geologic summaries, sample descriptions, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. If requested, samples (cuttings, fluids, and/or gases) will be submitted when requested by the District Manager.

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DRILLING PROGRAM

7. Abnormal conditions, bottom hole pressures and potential hazards.
  - a. The maximum bottom hole pressure to be expected is 3800 psi.
  - b. Quintana Petroleum Corp. plans to spud the Caballo Unit Federal #1-9 immediately upon approval of this application and intends to complete the well within approximately one month after the well has reached T.D.
  - c. The operator will contact the San Juan Resource Area at 801/587-2141, 48 hours prior to beginning any dirt work on this location.
  - d. No location will be constructed or moved, no well will be plugged, and no drilling or workover equipment will be removed from a well to be placed in a suspended status without prior approval of the District Manager. If operations are to be suspended, prior approval of the District Manager will be obtained and notification given before resumption of operations.
  - e. The spud date will be reported orally to the San Juan Area Manager, a minimum of 24 hours before spudding. A Sundry Notice (Form 3160-5) will be sent within 24 hours of spudding, reporting the spud date and time. The Sundry will be sent to the District Manager. If spudding is on a weekend or holiday, the Sundry will be submitted on the following regular work day.
  - f. In accordance with Onshore Oil and Gas Order No. 1, this well will be reported on Form 9-329 "Monthly Report of Operations", starting with the month in which operations begin and continue each month until the well is physically plugged and abandoned. This report will be sent to the Moab BLM District Office, P. O. Box 970, Moab, Utah 84532.
  - g. Immediate Report: Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be promptly reported to the Resource Area in accordance with requirements of NTL-3A.

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- h. If a replacement rig is planned for completion operations, a "Sundry Notice" (Form 3160-5) to that effect will be filed, for prior approval of the District Manager. All conditions of this approved plan are applicable during all operations conducted with the replacement rig. In emergencies, verbal approval can be given by the District Petroleum Engineer.
- i. If the well is successfully completed for production, then the District Manager will be notified when the well is placed in a producing status. Such notification will be sent by telegram or other written communication, not later than five business days following the date on which the well is placed on production.
- j. No well abandonment operations will begin without the prior approval of the District Manager. In the case of newly drilled dry holes or failures, and in emergency situations, oral approval will be obtained from the District Petroleum Engineer. A "Subsequent Report of Abandonment" (Form 3160-5), will be filed with the District Manager, within 30 days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration.
- k. Final abandonment will not be approved until surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the San Juan Area Manager or his representative, or the appropriate surface Manager.
- l. Approval to vent/flare gas during initial well evaluation will be obtained from the District Office. This preliminary approval will not exceed 30 days or 50 MMCF gas. Approval to vent/flare beyond this initial test period will require District Office approval pursuant to guidelines in NTL-4A.
- m. Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR 3162.6. The following information will be permanently beaded-on with a welding torch: Fed, Well number, location by 1/4 1/4 section, township and range, lease number.

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- n. A first production conference will be scheduled within 15 days after receipt of the first production notice. The San Juan Area Manager will schedule the conference.
- o. Notify the San Juan Resource area (Mike Wade) one day or (on a dry hole) as soon as possible prior to the above at (801) 587-2141 (W) or (801) 587-2026 (H). If unable to reach Mike, call Moab District Office - Steve Jones at (801) 259-6111 (W).

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WELL NAME: \_\_\_\_\_

LOCATION : \_\_\_\_\_

9-5/8"  
Drilling Nipple / "

7 "Circulating Line

B.O.P. Bld Rams 10 "x 3000 W.P.

B.O.P. D.P. Rams 10 "x 3000 W.P.

Not Required

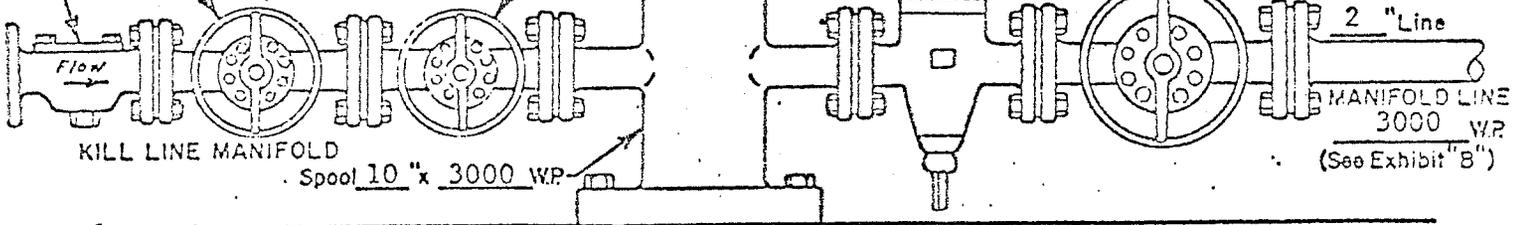
Hyd. Valve - - " - - W.P. (Omit)

Check Valve 2 "x 3000 W.P.

Valve 2 " 3000 W.P.

Valve 2 " 3000 W.P.

Valve 2 " 3000 W.P.



Ground Level

WELL HEAD B.O.P.

3000 # W.P.

Hydraulic

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CONFIDENTIAL-TIGHT HOLE

SURFACE USE PLAN

ONSHORE OIL & GAS ORDER NO. 1

Thirteen Point Surface Use Plan

1. Existing Roads

- a. The proposed well site is located 25 miles southeast of Monticello, Utah.
- b. Directions to the location from Blanding, Utah are as follows:  
  
Go north on Highway 191 for 8.9 miles. Turn east onto the Devils Canyon Road (Alkali #204) and proceed 3.0 miles in a southeasterly direction to a fork in the road. Turn right onto Mustang 207 and go south and west 1.1 miles. Turn left onto an existing two track and proceed southerly for 1.2 miles to the location. Re-routed portions of the access road have been flagged with yellow flagging.
- c. The roads in the area are primarily county roads. See Map #1.
- d. Improvement to the existing access will not be necessary.
- e. All existing roads will be maintained and kept in good repair during all drilling and completion operations associated with this well.
- f. An encroachment permit will be obtained from the San Juan County Road Department, 801/587-2231, ext. 43.

2. Planned Access Roads

- a. The last 200 feet will follow an existing seismic trail. Since the road crosses primarily private lands, the road will be built as per the surface owner's requirements. It is anticipated that the road will be flatbladed initially during drilling operations unless weather conditions prohibit.
- b. The maximum total disturbed width will be 30 feet.

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SURFACE USE PLAN

2. Planned Access Roads (cont.)
  - c. The grade will be 5%.
  - d. Turnouts will be installed as needed. No culverts will be needed at this time. Drainage will be installed as needed.
  - e. Surface disturbance and vehicular travel will be limited to the approved location and approved access route. Any additional area needed will be approved in advance by the San Juan Area Manager.
  - f. The access road will be water barred or brought to Class III Road Standards within 60 days of dismantling of the drilling rig. If this time frame cannot be met, the San Juan Area Manager will be notified so that temporary drainage control can be installed along the access road. (Roads will be maintained in the same condition as the roads crossing private surface.)
  - g. The Class III Road Standards which ensure drainage control over the entire road through the use of natural, rolling topography; ditch turnouts; drainage dips; outsloping; crowning; low water crossings; and culverts will be determined at the appropriate field inspection.
  
3. Location of Existing Wells Within a 1-Mile Radius of the Proposed Location. (See Map #2).
  - a. Water Wells - none
  - b. Injection or disposal wells - none
  - c. Producing Wells - none
  - d. Drilling Wells - none

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SURFACE USE PLAN

4. Location of Tank Batteries and Production Facilities.

- a. All permanent structures (onsite for six months or longer) constructed or installed (including oil well pump jacks) will be painted a flat, nonreflective, earthtone color to match the standard environmental colors, as determined by the Rocky Mountain Five-State Interagency Committee. All facilities will be painted within six months of installation. Facilities required to comply with the Occupational Safety and Health Act (OSHA) will be excluded. The color will be neutral to blend in with the terrain.
- b. If a tank battery is constructed on this lease, it will be surrounded by a dike of sufficient capacity to contain 1-1/2 times the storage capacity of the largest tank.
- c. Production facilities for this well will be located on this wellpad. See Diagram #1 for layout of facilities.
- d. All loading lines will be placed inside the berm surrounding the tank battery.
- e. Any necessary pits will be properly fenced to prevent any wildlife entry. The production pit will be flagged overhead.
- f. All site security guidelines identified in 43 CFR 3162.7 regulations will be adhered to. All product lines entering and leaving hydrocarbon storage tanks will be effectively sealed.
- g. All off-lease storage, off-lease measurement, or commingling on-lease or off-lease will have prior written approval from the District Manager.
- h. Gas meter runs for each well will be located within 500 feet of the wellhead. The gas flowline will be buried from the wellhead to the meter and 500 feet downstream of the meter run or any production facilities. Meter runs will be housed and/or fenced.

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SURFACE USE PLAN

4. Production Facilities (cont.)

- i. The oil and gas measurement facilities will be installed on the well location. The oil and gas meters will be calibrated in place prior to any deliveries. Tests for meter accuracy will be conducted monthly for the first three months on new meter installations and at least quarterly thereafter. The San Juan Area Manager will be provided with a date and time for the initial meter calibration and all future meter proving schedules. A copy of the meter calibration reports will be submitted to the Moab District Office. All meter measurement facilities will conform with the API standards for liquid hydrocarbons and the AGA standard for natural gas measurement.

5. Location and Type of Water Supply

- a. All water needed for drilling purposes will be obtained from a private source.
- b. Water will be trucked to location over the county roads in the area.
- c. No water well is to be drilled on this lease.
- d. Use of water for this operation will approved by obtaining a temporary use permit from the Utah State Engineer, 801/637-1303, and by receiving permission from the land owner or surface management agency to use the land containing the water source.

6. Source of Construction Material

- a. Road surfacing material will be obtained from a commercial source. Pad construction material will be native.
- b. The use of materials under BLM jurisdiction will conform to 43 CFR 3610.2-3.

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SURFACE USE PLAN

7. Methods for Handling Waste Disposal

- a. The reserve pit will not be lined unless pourous material is encountered. At least half the capacity will be in cut.
- b. Three sides of the reserve pit will be fenced with four strands of barbed wire before drilling starts. The fourth side will be fenced as soon as the drilling is completed. The fence will be kept in good repair while the pit is drying.
- c. A trash pit will be constructed near the mud tanks and dug at least six feet into solid, undisturbed material. It will be totally enclosed with a fine wire mesh before the rig moves in. The road and pad will be kept litter free. If a trash cage is used, its contents will be hauled to an approved landfill.
- d. A burning permit is required for burning trash between May 1 and October 31. This will be obtained from the San Juan County Sheriff at (801) 587-2237 if operations should extend past May 1st.
- e. Produced waste water will be confined to a lined pit for a period not to exceed 90 days after initial production. During the 90-day period, an application for approval of a permanent disposal method and location, along with the required water analysis, will be submitted for the District Manager's approval pursuant to Onshore Oil and Gas Order No. 3 (NTL-2B).

8. Ancillary Facilities

- a. There are no airstrips, camps, or other facilities planned during the drilling of the proposed well.

9. Well Site Layout

- a. See Diagram #2 for rig layout. See Diagram #3 for cross section of drill pad. See Diagram #4 for cuts and fills.

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SURFACE USE PLAN

9. Wellsite Layout (cont.)

- b. The location of mud tanks; reserve, burn and trash pits; pipe racks; living facilities and soil stockpiles will be shown on Diagram #2 and #4. The location will be laid out and constructed as discussed during the predrill conference.
- c. No topsoil material will be removed from the location due to the amount of rock in the wellpad. Topsoil along the access will be reserved in place.
- d. Access to the well pad will be from the northwest corner of the pad.

10. Reclamation

- a. Immediately upon completion of drilling, all trash and debris will be collected from the location and surrounding area. All trash and debris will be disposed of in the trash pit and will then be compacted and buried under a minimum of two feet of compacted soil.
- b. The operator or his contractor will contact the San Juan Resource Area office in Monticello, Utah (801/587-2141) 48 hours before starting reclamation work that involves earthmoving equipment and upon completion of restoration measures.
- c. Before any dirt work to restore the location takes place, the reserve pit must be completely dry.
- d. All disturbed areas will be recontoured to blend as nearly as possible with the natural topography. This includes removing all berms and refilling all cuts.
- e. The stockpiled topsoil will be spread evenly over the disturbed area. All disturbed areas will be ripped 12 inches deep with the contour.

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SURFACE USE PLAN

10. Reclamation of Surface (cont.)

f. Water bars will be built as follows to control erosion.

<u>Grade</u>	<u>Spacing</u>
2%	Every 200 Feet
2-4%	Every 100 Feet
4-5%	Every 75 Feet
5+%	Every 50 Feet

g. Seed will be broadcast between October 1 and February 28 with the following prescription. A harrow or similar implement will be dragged over the area to assure seed cover.

6 lbs/acre Crested wheatgrass (*Agropyron desertorum*)  
2 lbs/acre Fourwing saltbush (*Atriplex canescens*)  
2 lbs/acre Desert bitterbrush (*purshia glandulosa*)

Note: This seed mixture will be used on BLM surface only. All lands to be reseeded on private surface will be seeded as per the surface owner's requirements.

h. After seeding is complete, the stockpiled trees will be scattered evenly over the disturbed areas. The access will be blocked to prevent vehicular access.

i. The reserve pit and that portion of the location and access road not needed for production and production facilities will be reclaimed as described in the reclamation section. Enough topsoil will be kept to reclaim the remainder of the location at a future date. This remaining stockpile of topsoil will be seeded in place using the prescribed seed mixture.

11. a. Surface Ownership

Federal

b. Mineral Ownership

Federal

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DIVISION OF OIL  
GAS & MINING



Permitco Incorporated  
A Petroleum Permitting Company

ONSHORE ORDER NO.  
Quintana Petroleum Corp.  
Caballo Unit Federal 1-9  
820' FSL and 2340' FEL  
Sec. 9, T37S - R23E  
San Juan County, Utah

CONFIDENTIAL-TIGHT HOLE

SURFACE USE PLAN

12. Other Information

- a. There will be no change from the proposed drilling and/or workover program without prior approval from the District Manager. Safe drilling and operating practices must be used. All wells, whether drilling, producing, suspended, or abandoned will be identified in accordance with 43 CFR 3162.2.
- b. "Sundry Notice and Report on Wells" (Form 3160-5) will be filed for approval for all changes of plans and other operations in accordance with 43 CFR 3164.
- c. The dirt contractor will be provided with an approved copy of the surface use plan.
- d. If subsurface cultural materials are exposed during construction, work in that spot will stop immediately and the San Juan Resource Area Office will be contacted. All people who are in the area will be informed by the operator that they are subject to prosecution for disturbing archeological sites or picking up artifacts. Salvage or excavation of identified archeological sites will be done by a BLM approved archeologist only if damage occurs.
- e. This permit will be valid for a period of one year from the date of approval. After permit termination, a new application will be filed for approval for any future operations.
- f. An archeological study was conducted by LaPlata Archeological Consultants. No significant cultural resources were found and clearance is recommended. A copy of this report will be submitted directly by LaPlata Archeological Consultants.
- g. Your contact with the District Office is: Steve Jones, 801/259-6111, P.O. Box 970, Moab, Utah 84532.

The Resource Area Manager's address is P.O. Box 7, Monticello, Utah 84532. Your contact is Richard McClure, 801/587-2141.

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DIVISION OF OIL  
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Permitco Incorporated  
A Petroleum Permitting Company

ONSHORE ORDER NO.  
Quintana Petroleum Corp.  
Caballo Unit Federal 1-9  
820' FSL and 2340' FEL  
Sec. 9, T37S - R23E  
San Juan County, Utah

CONFIDENTIAL-TIGHT HOLE

SURFACE USE PLAN

13. Lessee's or Operator's Representative and Certification

Permit Matters

PERMITCO INC.  
Lisa L. Green  
P.O. Box 44065  
Denver, CO 80201-4065  
303/322-7878

Drilling & Completion Matters

QUINTANA PETROLEUM CORP.  
1050-17th St.  
Suite 400  
Denver, CO 80265  
303/628-9211 (W) -  
303/969-9468 (H) - Scott Kimbrough

Certification

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by Quintana Petroleum Corp. and its contractors and subcontractors in conformity with the plan and the terms and conditions under which it is approved.

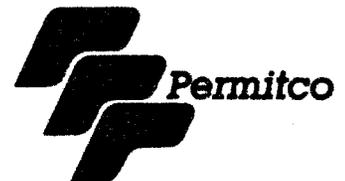
October 6, 1987  
Date:

  
\_\_\_\_\_  
Lisa L. Green - PERMITCO INC.  
Authorized Agent for:  
QUINTANA PETROLEUM CORP.

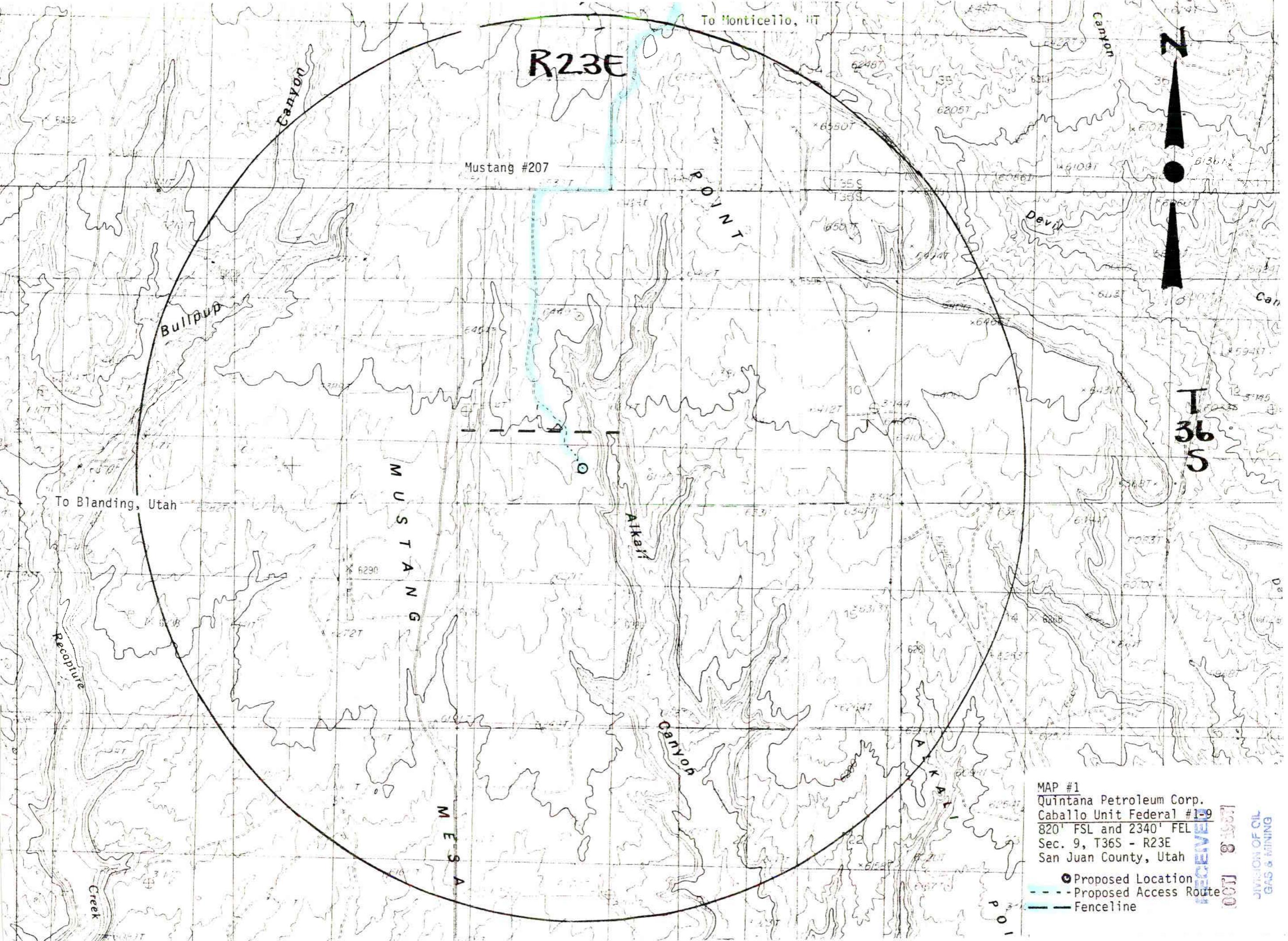
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DIVISION OF OIL  
GAS & MINING



Permitco Incorporated  
A Petroleum Permitting Company



To Monticello, UT

R23E

Mustang #207

P O I N T

Bullpup Canyon

M U S T A N G

Alkali Canyon

M E S A

T 36 S

To Blanding, Utah

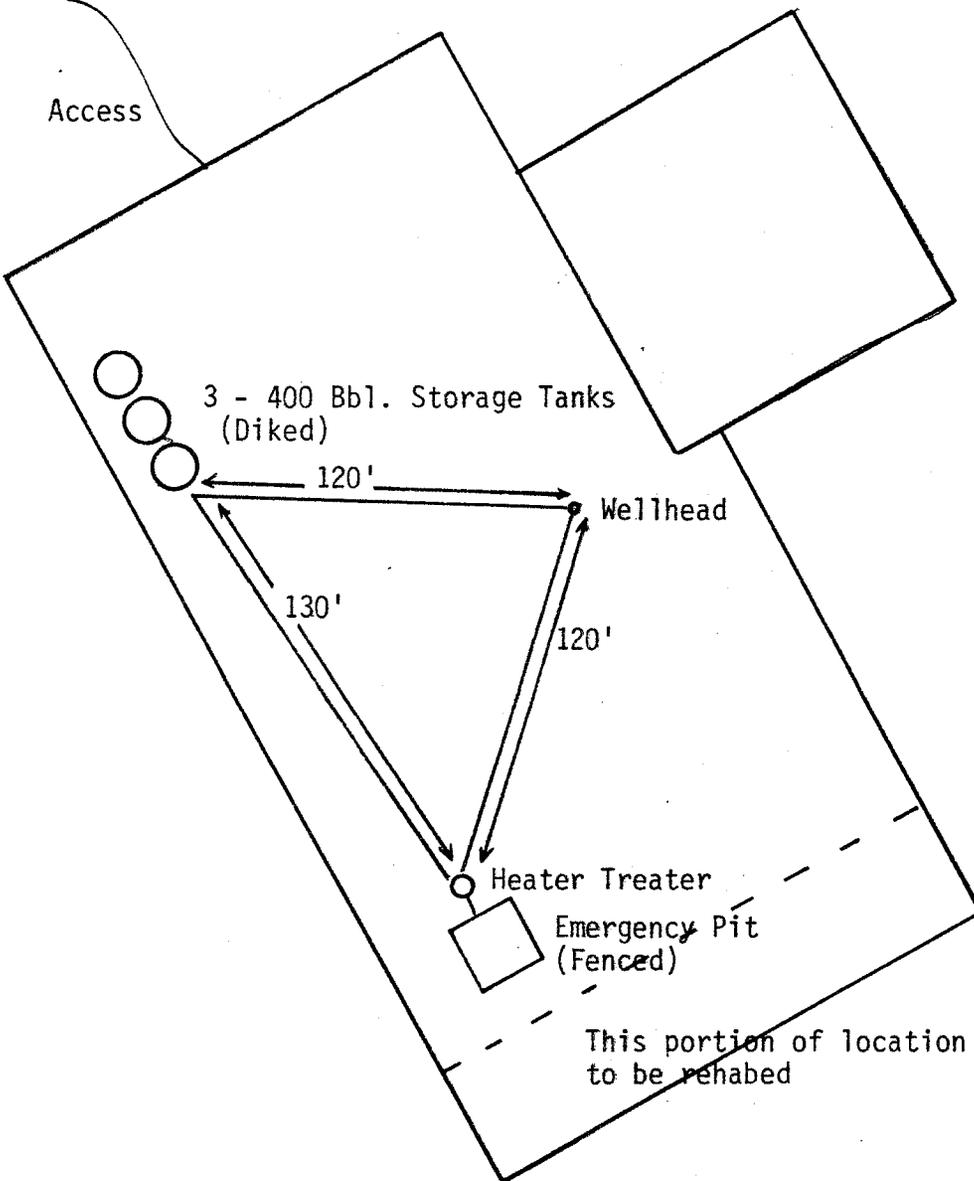
MAP #1  
Quintana Petroleum Corp.  
Caballo Unit Federal #1-9  
820' FSL and 2340' FEL  
Sec. 9, T36S - R23E  
San Juan County, Utah

- Proposed Location
- - - Proposed Access Route
- Fenceline

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JUL 8 1987  
DIVISION OF OIL  
GAS & MINING

Scale: 1" =

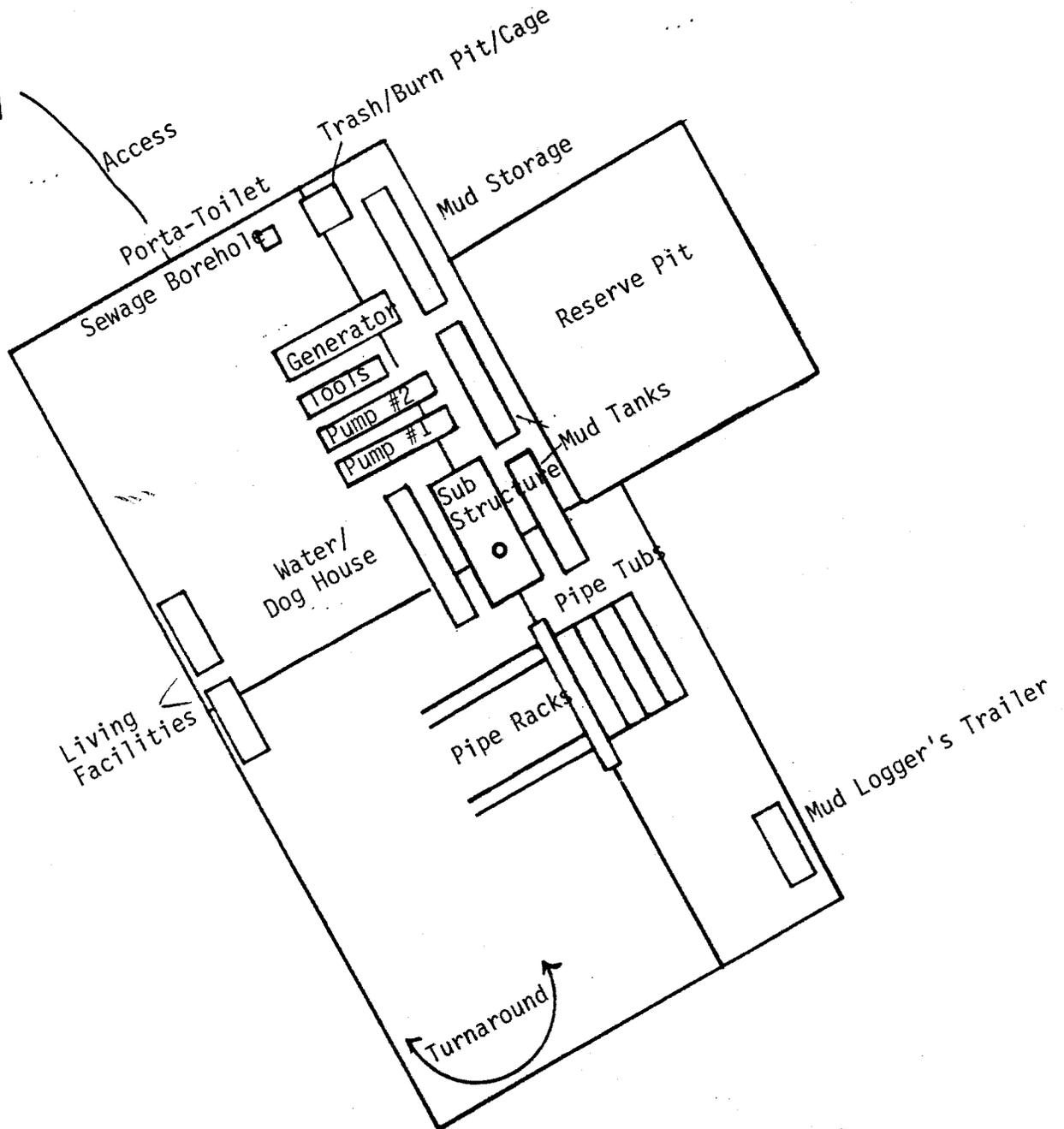
QUINTANA PETROLEUM CORP.  
Caballo Unit Federal #1-9  
820' FSL and 2340' FEL  
Sec. 9, T36S - R23E  
San Juan County, Utah



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AND GAS

Scale: 1" = 50'

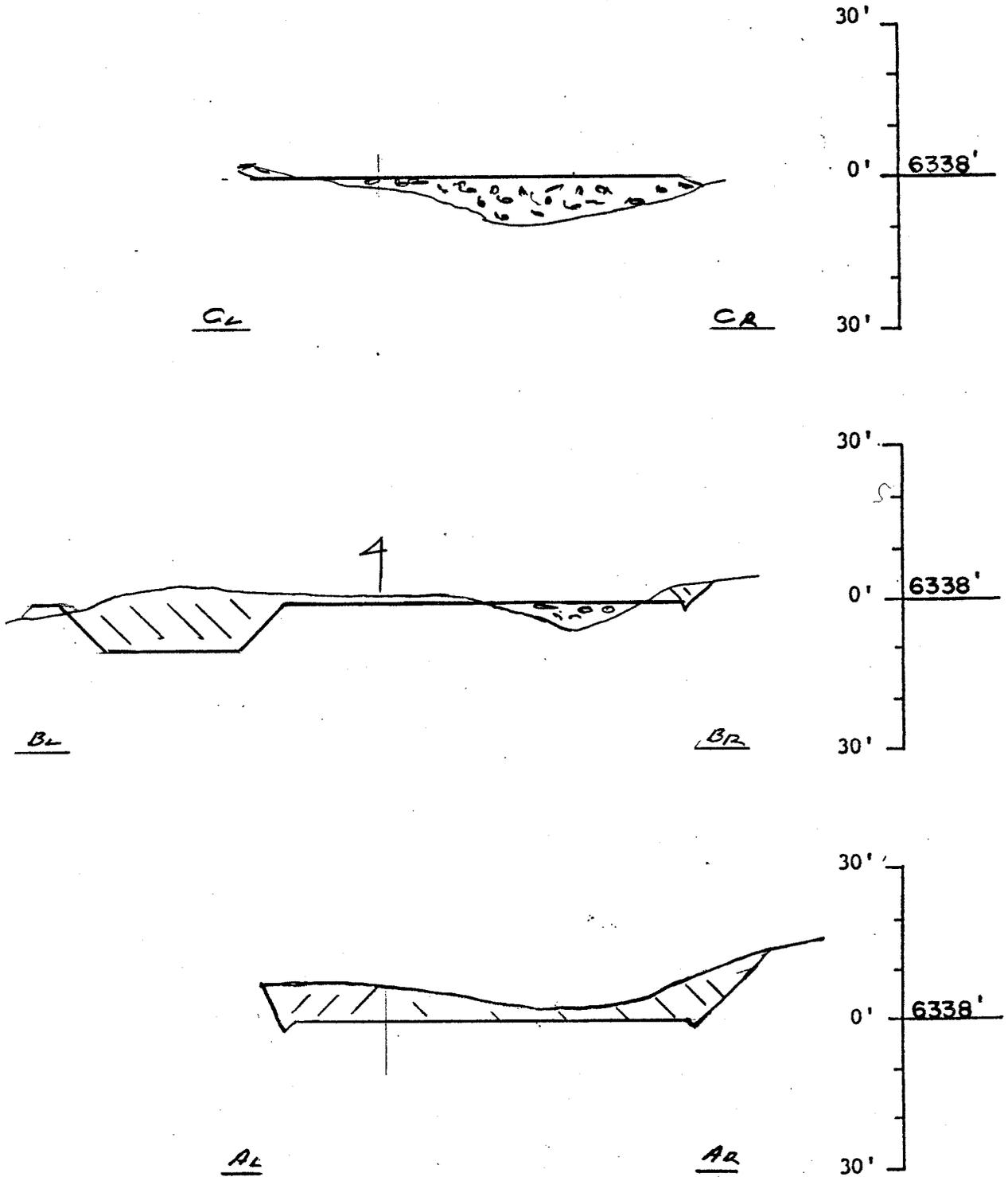
QUINTANA PETROLEUM CORP.  
Caballo Unit Federal #1-9  
820' FSL and 2340' FEL  
Sec. 9, T36S - R23E  
San Juan County, Utah



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& MINING

Cut //  
Fill

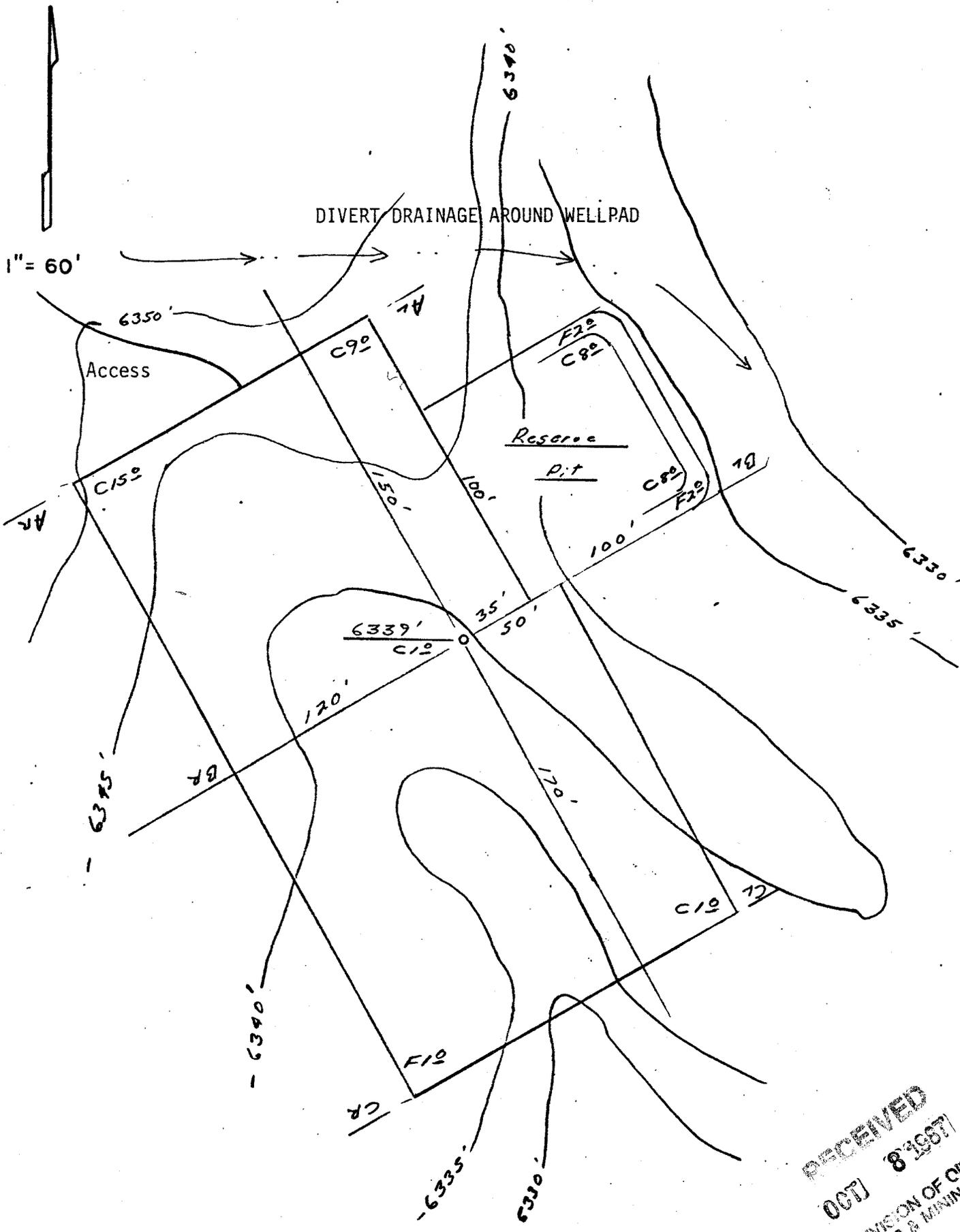
Scales: 1" = 60' H.  
1" = 30' V.



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 GAS & MINING

WELL PAD PLAN VIEW

Well Caballo Unit Federal 1-9



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OCT 8 1987  
DIVISION OF OIL  
GAS & MINING

STATE ACTIONS

Mail to:  
Grants Coordinator  
State Clearinghouse  
116 State Capitol, SLC, UT. 84114  
533-4971

1. ADMINISTERING STATE AGENCY  
OIL, GAS AND MINING  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, UT 84180-1203

2. STATE APPLICATION IDENTIFIER NUMBER:  
(assigned by State Clearinghouse)

3. APPROXIMATE DATE PROJECT WILL START:  
Upon approval

4. AREAWIDE CLEARING HOUSE(S) RECEIVING STATE ACTIONS:  
(to be sent out by agency in block 1)

Southeastern Utah Association of Local Governments

5. TYPE OF ACTION:  Lease  Permit  License  Land Aquisition  
 Land Sale  Land Exchange  Other \_\_\_\_\_

6. TITLE OF PROPOSED ACTION:  
Application for Permit to Drill

7. DESCRIPTION:  
Quintana Petroleum Corp. proposes to drill a wildcat well on federal lease number U-23520 in San Juan County, Utah. This action is being presented to RDCC for consideration of resource issues affecting state interests. The U.S. Bureau of Land Management is the primary administrative agency in this case and must issue approval to drill jointly with DOGM before operations can commence.

8. LAND AFFECTED (site location map required) (indicate county)  
SW/4, SE/4, Section 9, Township 36 South, Range 23 East, San Juan County, Utah

9. HAS THE LOCAL GOVERNMENT(S) BEEN CONTACTED?  
Unknown

10. POSSIBLE SIGNIFICANT IMPACTS LIKELY TO OCCUR:  
No significant impacts are likely to occur

11. NAME AND PHONE NUMBER OF DISTRICT REPRESENTATIVE FROM YOUR AGENCY NEAR PROJECT SITE, IF APPLICABLE:  
Chip Hutchinson, Moab, 259-8151

12. FOR FURTHER INFORMATION, CONTACT: 13. SIGNATURE AND TITLE OF AUTHORIZED OFFICIAL  
John Baza  
PHONE: 538-5340  
DATE: 10-14-87  
Petroleum Engineer

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

(Other instructions on reverse side)

5. Lease Designation and Serial No.

U-23520

6. If Indian, Allottee or Tribe Name

N/A

7. Unit Agreement Name (Approval

Caballo Unit Pending)

8. Farm or Lease Name

Caballo Unit Federal

9. Well No.

#1-9

10. Field and Pool, or Wildcat

Wildcat

11. Sec., T., R., M., or Blk. and Survey or Area

Sec. 9, T36S - R23E

12. County or Parrish

San Juan

13. State

Utah

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work

DRILL

DEEPEN

PLUG BACK

b. Type of Well

Oil Well

Gas Well

Other

Single Zone

Multiple Zone

2. Name of Operator

303/628-9211

1050-17th St., Suite 400

Quintana Petroleum Corp.

Denver, CO 80265

3. Address of Operator

303/322-7878

P.O. Box 44065

Permitco Inc. - Agent

Denver, CO 80201-4065

4. Location of Well (Report location clearly and in accordance with any State requirements.\*)

At surface

820' FSL and 2340' FEL

At proposed prod. zone

SW SE)

14. Distance in miles and direction from nearest town or post office\*

14 miles northeast of Blanding, Utah

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

300'

16. No. of acres in lease

2387.42

17. No. of acres assigned to this well

40

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

none

19. Proposed depth

6754'

20. Rotary or cable tools

Rotary

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

6339' GR

22. Approx. date work will start\*

October 31, 1987 or immediately upon

23. PROPOSED CASING AND CEMENTING PROGRAM approval of the unit and A.P.D.

Size of Hole	Size of Casing	Weight per Foot	Setting Depth	Quantity of Cement
12-1/4"	9-5/8"	36#	2200'	821 sx or suffic to circ to surf.
8-3/4"	5-1/2"	15.5 & 17#	6754'	Will be designed upon completion.

Quintana Petroleum Corp. proposes to drill a well to 6754' to test the Ismay and Desert Creek formations. If productive, casing will be run and the well completed. If dry, the well will be plugged and abandoned as per BLM and State of Utah requirements.

See Onshore Order No. 1 attached.

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DIVISION OF OIL  
GAS & MINING

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.

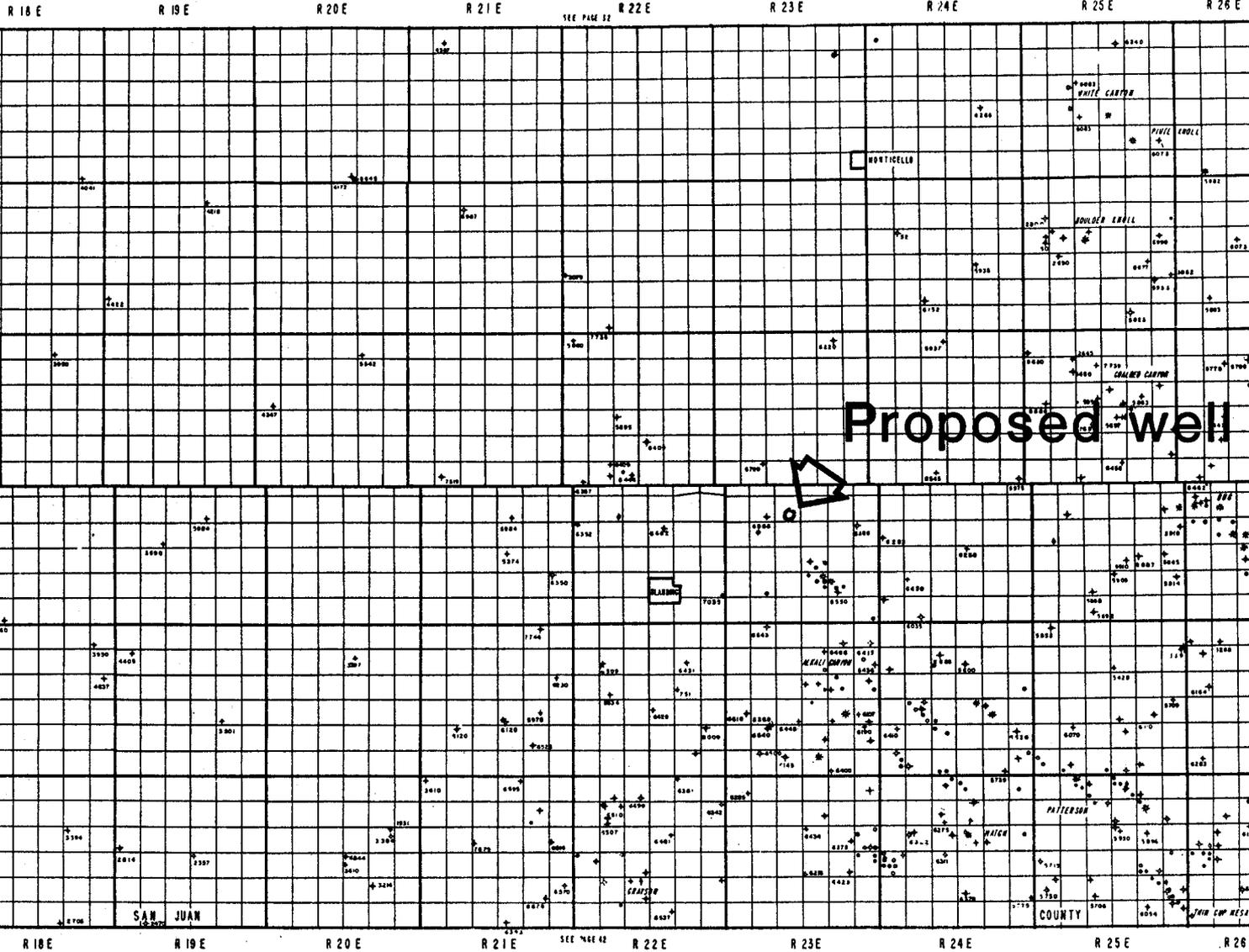
24. Signed Brian L. Green Title Consultant for Quintana Petroleum Corp. Date 10/6/87

(This space for Federal or State office use)

Permit No. \_\_\_\_\_ Approval Date \_\_\_\_\_

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Conditions of approval, if any:



111726

OPERATOR Quintana Petroleum Corp DATE 10-14-87

WELL NAME Caballo ~~1-9~~ Fed. 1-9

SEC SWSE 9 T 36S R 23E COUNTY San Juan

43-037-31365  
API NUMBER

Fed.  
TYPE OF LEASE

CHECK OFF:

PLAT

BOND

NEAREST WELL

LEASE

FIELD

POTASH OR OIL SHALE

PROCESSING COMMENTS:

No other well in Sec-9 (~~Unit well~~) (BLM approved on lease basis.)  
Need water permit - OK Rec. 10/26/87  
RDCC - OK

**CONFIDENTIAL  
PERIOD  
EXPIRED  
ON 4-17-84**

APPROVAL LETTER:

SPACING:  R615-2-3 Caballo UNIT

R615-3-2

CAUSE NO. & DATE

R615-3-3

STIPULATIONS:

~~Water~~



116 State Capitol Building  
Salt Lake City, UT 84114  
Telephone 801-533-5245

## office of planning and budget

Norman H. Bangerter, Governor Dale C. Hatch, C.P.A., J.D., Director Michael E. Christensen, Ph.D., Deputy Director

October 30, 1987

John Baza  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
355 West North Temple  
Salt Lake City, Utah 84180-1203

SUBJECT: Quintana Petroleum Corporation Application for Wildcat Well  
Permit on State Lease #U-23520, Juan County  
State Application Identifier #UT871013-020

*Caballo Unit #1-9*

Dear John:

The Resource Development Coordinating Committee of the State of Utah has reviewed this proposed action and no comments have been indicated.

The Committee appreciates the opportunity of reviewing this document. Please address any other questions regarding this correspondence to Carolyn Wright (801) 533-4971.

Sincerely,

Dale C. Hatch  
Director

DCH/jw

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NOV 02 1987

DIVISION OF  
OIL, GAS & MINING

QUINTANA PETROLEUM CORPORATION

1050 SEVENTEENTH STREET  
SUITE 400  
DENVER, COLORADO 80265  
(303) 628-9211

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DIVISION OF OIL  
GAS & MINING

October 23, 1987

Carol Fruedigger  
c/o Bureau of Land Management  
P.O. Box 970  
Moab, UT 84532-0970

Re: Caballo Unit #1-9 Well  
820' FSL & 2340' FEL  
T36S-R23E  
Section 9: SW/4SE/4  
San Juan County, Utah

Dear Ms. Fruedigger:

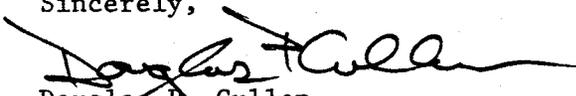
Enclosed for your use in processing Quintana Petroleum Corporation's Application for Permit to Drill the captioned well please find three copies each of a Designation of Operator form executed on behalf of Duncan Exploration Company and Tenneco Oil Company.

Regarding Quintana's bond coverage required under 43 CFR 3104, enclosed is a letter addressed to the California State Office of the Bureau of Land Management which encloses Quintana Petroleum Corporation's application for Nationwide Personal Oil & Gas Lease Bond in the amount of \$150,000 together with a Nationwide Personal Oil & Gas Lease Bond Rider. As the letter mentions, this bond is presented to assume any and all liabilities that may be outstanding under Bond No. 174F4924.

By copy of this letter to the Division of Oil, Gas, and Mining for the State of Utah, please accept these Designations of Operator as evidence that Quintana Petroleum Corporation has been designated as Agent for the lands within a 460' radius of the drillsite for the captioned well. We hope that this will serve to alleviate any problems associated with this Exception Location as captioned. Please advise at your earliest convenience if this is not the case.

Thank you for your attention to this matter.

Sincerely,

  
Douglas D. Cullen  
Landman

DPC/kmc  
Enclosures

cc: Arlene/w/Attachments  
c/o Division of Oil, Gas, & Mining  
Utah State Office  
Three Triad Center  
Suite 350  
Salt Lake City, UT 84180-1203

Permitco  
Brooks Tower  
1020 15 Street  
Suite 22-E  
Denver, CO 80202  
Attention: Lisa Green

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

DESIGNATION OF OPERATOR

The undersigned is, on the records of the Bureau of Land Management, holder of lease

STATE OFFICE: Moab, Utah  
SERIAL NO.: U-23520

and hereby designates

NAME: Quintana Petroleum Corporation  
ADDRESS: 1050 Seventeenth Street, Suite 400, Denver, CO 80265

as his operator and local agent, with full authority to act in his behalf in complying with the terms of the lease and regulations applicable thereto and on whom the authorized officer may serve written or oral instructions in securing compliance with the Operating Regulations (43 CFR 3160) with respect to (describe acreage to which this designation is applicable):

Township 36 South - Range 23 East, S.L.M.  
Section 9: W/2, W/2E/2, SE/4SE/4  
San Juan County, Utah

Bond coverage under 43 CFR 3104 for lease activities conducted by the above named designated operator is under Bond Number See attached.

It is understood that this designation of operator does not relieve the lessee of responsibility for compliance with the terms of the lease and the Operating Regulations. It is also understood that this designation of operator does not constitute an assignment of any interest in the lease.

In case of default on the part of the designated operator, the lessee will make full and prompt compliance with all regulations, lease terms, stipulations, or orders of the Secretary of the Interior or his representative.

The lessee agrees promptly to notify the authorized officer of any change in the designated operator.

TENNECO OIL COMPANY

By: P. W. Cayce

P. W. Cayce (Signature of lessee), Attorney-in-Fact

P.O. Box 3249  
Englewood, Colorado 80155

October 19, 1987

(Date)

(Address)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**DESIGNATION OF OPERATOR**

The undersigned is, on the records of the Bureau of Land Management, holder of lease

STATE OFFICE: Moab, Utah  
SERIAL NO.: U-23520

and hereby designates

NAME: Quintana Petroleum Corporation  
ADDRESS: 1050 Seventeenth Street, Suite 400, Denver, CO 80265

as his operator and local agent, with full authority to act in his behalf in complying with the terms of the lease and regulations applicable thereto and on whom the authorized officer may serve written or oral instructions in securing compliance with the Operating Regulations (43 CFR 3160) with respect to (describe acreage to which this designation is applicable):

Township 36 South, Range 23 East, S.L.M.  
Section 9: W/2, W/2E/2, SE/4SE/4

San Juan County, Utah

Bond coverage under 43 CFR 3104 for lease activities conducted by the above named designated operator is under Bond Number See attached.

It is understood that this designation of operator does not relieve the lessee of responsibility for compliance with the terms of the lease and the Operating Regulations. It is also understood that this designation of operator does not constitute an assignment of any interest in the lease.

In case of default on the part of the designated operator, the lessee will make full and prompt compliance with all regulations, lease terms, stipulations, or orders of the Secretary of the Interior or his representative.

The lessee agrees promptly to notify the authorized officer of any change in the designated operator.

DUNCAN EXPLORATION COMPANY

By:   
(Signature of lessee)

Raymond T. Duncan, Venture Manager  
1777 S. Harrison Street, Penthouse One  
Denver, Colorado 80210

October 22, 1987

(Date)

(Address)

This form does not constitute an information collection as defined by 44 U.S.C. 3502 and therefore does not require OMB approval.

# QUINTANA PETROLEUM CORPORATION

601 JEFFERSON STREET-CULLEN CENTER

HOUSTON, TEXAS

(713) 651-8600

PLEASE ADDRESS CORRESPONDENCE TO:

P. O. BOX 3331

HOUSTON, TEXAS 77253

June 18, 1987

Bureau of Land Management  
California State Office  
2800 Cottage Way  
Sacramento, California 95825

Attention: Kurt Mueller

Dear Mr. Mueller:

Attached is Quintana Petroleum Corporation's application for a Nationwide Personal Oil and Gas Lease Bond in the amount of \$150,000.00, together with a Nationwide Personal Oil and Gas Lease Bond Rider. This bond is presented to assume any and all liabilities that may be outstanding under Bond No. 174F4924. United States Treasury notes in the amount of \$150,000 have been purchased and placed on deposit (FEIN 74-0849601) for the Department of the Interior, Bureau of Land Management in Denver, Colorado.

Very truly yours,



L. R. Stablein  
Controller  
Oil & Gas Division

LRS:cal  
Attachments

cc w/atts: S. L. Baker  
J. D. McDougald  
J. Williams

cc w/o atts: V. Coleman  
Bayly, Martin & Fay

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

NATIONWIDE PERSONAL OIL AND GAS LEASE BOND RIDER

The undersigned obligor for the attached personal bond hereby assumes any and all liabilities that may be outstanding under Bond No. 174F4924 on which Quintana Petroleum Corporation is the Principal and The Travelers Indemnity Company, Hartford, Connecticut is the Surety including, but not limited to, the obligation to properly plug and abandon all existing wells on leases covered by said Bond No. 174F4924 and any unpaid royalties or rentals for those leases.

QUINTANA PETROLEUM CORPORATION

BY John D. McDonald, Treasurer  
(Obligor)

QUINTANA PETROLEUM CORPORATION

NATIONWIDE PERSONAL OIL AND GAS LEASE BOND

The following information is presented in connection with the United States Treasury notes book entry deposit of Quintana Petroleum Corporation (FEIN 74-0849601) for a nationwide personal oil and gas drilling bond with Department of the Interior, Bureau of Land Management.

Security - \$150,000 par value of United States Treasury Notes, 7 7/8%, due May 15, 1990, purchased on June 16, 1987 at a cost of \$150,937.50.

Interest - To be paid to Quintana Petroleum Corporation by wire transfer to their account number 01-2146-0 at Cullen Center Bank & Trust, Houston, Texas, ABA Routing 113002940.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

NATIONWIDE PERSONAL OIL AND GAS LEASE BOND

KNOW ALL MEN BY THESE PRESENTS, That **Quintana Petroleum Corporation**  
of **601 Jefferson, Houston, Texas 77002**, as obligor, is held and firmly bound unto  
the United States of America in the sum of **One hundred fifty thousand-----dollars**

**(\$150,000.00)**, lawful money of the United States which sum may be increased or decreased by a rider  
hereto executed in the same manner as this bond, for the use and benefit of

1. the United States;
2. any owner of a portion of the land subject to the coverage of this bond who has a statutory right to compensation in connection with a reservation of oil and gas deposits to the United States; and
3. any lessee or permittee under a lease or permit issued by the United States prior to the issuance of an oil and gas lease for the same land subject to this bond covering the use of the surface, or the prospecting for, or development of, other mineral deposits in any portion of such land, to be paid to the United States.

For such payment, well and truly to be made, he binds himself, his heirs, executors, administrators, and successors, jointly and severally, by these presents.

If the amount of this bond is \$150,000, or if it is raised by an attached rider to that amount, the coverage shall extend to all the obligor's holdings involving oil and gas deposits in the United States, including Alaska, under the Act or Acts cited in Schedule A.

If the amount of this bond is less than \$150,000, its coverage extends only to the obligor's holdings involving oil and gas deposits in the State or States named in Schedule A and to any other State or States that may be named in a rider attached hereto. Furthermore, such coverage is confined to the obligor's holdings under the Act or Acts cited at the head of the column under which the name(s) of the State or States are now placed, or may be hereafter placed by the aforementioned rider.

SCHEDULE A

Public Domain Leasing Act of February 25, 1920  
(41 Stat. 437) as amended (30 U.S.C. 181)

NAMES OF STATES

All States

Acquired Lands Leasing Act of August 7, 1947  
(61 Stat. 913; 30 U.S.C. 151)

NAMES OF STATES

All States

The conditions of the foregoing obligations are such that, whereas the said obligor, in one or more of the following ways, has an interest in oil and gas leases issued under the Act or Acts cited in Schedule A of this bond:

1. as the lessee of such leases;
2. as the approved holder of operating rights in all or part of the lands covered by such leases under operating agreements with the lessees; and
3. as designated operator or agent under such leases pending approval of an assignment or operating agreement; and

WHEREAS the obligor is authorized to drill for, mine, extract, remove, and dispose of oil and gas deposits in or under the lands covered by the leases, operating

agreements or designations, and is obligated to comply with certain covenants and agreements set forth in such instruments; and

WHEREAS the obligor agrees that the coverage of this bond, in addition to the present holdings of the obligor shall extend to and include:

1. Any oil and gas lease hereafter issued to, or acquired by, the obligor affecting oil and gas deposits in the State or States now named in Schedule A, or later named in a rider, the coverage to be confined in the obligor's holdings under the Act or Acts cited at the head of the column in which the name(s) of the State or States appears and to become effective immediately upon such issuance or upon departmental approval of a transfer in favor of the obligor.

2. Any operating agreement hereafter entered into or acquired by the obligor, affecting oil and gas deposits in the States now named in Schedule A, or later named in a rider, relating to oil and gas leases issued under the Act or Acts cited in Schedule A at the head of the column in which the name of the State is placed. The coverage shall become effective immediately upon departmental approval of the agreement or of a transfer of an operating agreement to the obligor.

3. Any designation subsequent hereto of the obligor as operator or agent of a lessee under a lease issued pursuant to an Act or Acts cited in Schedule A and covering lands in a State named in Schedule A, either presently or by rider. This coverage shall become effective *immediately* upon the filing of such a designation under a lease.

4. Any extension of a lease covered by this bond, such coverage to continue without any interruption due to the expiration of the term set forth in the lease.

WHEREAS the obligor hereby agrees that notwithstanding the termination of any lease or leases, operating agreements or designations as operator or agent, covered by this bond, whether the termination is by operation of law or otherwise, the bond shall remain in full force and effect as to any remaining leases, operating agreements, or designations covered by the bond; and

WHEREAS the obligor as to any lease or part of a lease for lands as to which he has been designated as operator or agent, or approved as operator, in consideration of being permitted to furnish this bond in lieu of the lessees, agrees and by these presents does hereby bind himself to fulfill, on behalf of each lessee, all the obligations of each such lease for the entire leasehold in the same manner and to the same extent as though he were the lessee; and

WHEREAS the obligor agrees that notwithstanding any use of the security pledged herewith for the purpose for which it is pledged, the bond shall remain in full force and effect in the sum above set forth and that he will, whenever so required by the lessor, deposit additional security to bring the security up to the full amount; and

WHEREAS the obligor agrees that the neglect or forbearance of said lessor in enforcing, as against the lessees of such lessor, the payment of rentals or royalties or the performance of any other covenant, condition, or agreement of the leases, shall not, in any way, release the obligor from any liability under this bond; and

WHEREAS the obligor agrees that in the event of any default under the leases, the lessor may commence and prosecute any claim, suit, action, or other proceeding against the obligor without the necessity of joining the lessees.

NOW, THEREFORE, If said obligor shall in all respects faithfully comply with all of the provisions of the leases referred to hereinbefore, then the above obligations are to be void; otherwise to remain in full force and effect.

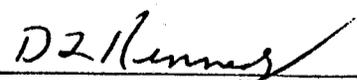
That said obligor, in order the more fully to secure the United States in the payment of the aforesaid sum, hereby pledges as security therefor negotiable bonds of the United States, of a <sup>market</sup> ~~per~~ value equal to the amount specified, which said bonds are numbered serially and are in the denominations and amounts and are otherwise more particularly described in the attached schedule, which is made a part hereof, and which said bonds have been deposited with the Secretary of the Interior.

That the said obligor does hereby constitute and appoint the Secretary of the Interior as his attorney, for him and in his name to collect or to sell, assign, and transfer the said United States bonds above described and deposited by the obligor, as aforesaid, pursuant to authority conferred by Section 1 of the Act of July 30, 1947 (61 Stat. 646; 6 U.S.C. 15) as security for the faithful performance of any and all of the conditions or stipulations as hereinbefore set out, and it is agreed that, in case of any default in the performance of the conditions and stipulations of such undertaking the said attorney shall have full power to collect said bonds or any part thereof, or to sell, assign, and transfer said bonds or any part thereof without notice, at public or private sale, free from any equity of redemption or without appraisalment or valuation, notice and right to redeem being waived, and to apply proceeds of such sale or collection to the full amount of the bond to the satisfaction of any damages, or deficiencies arising by reason of such default, as said attorney may deem best. The interest accruing upon said United States bonds deposited as above stated, in the absence of any default in the performance of any of the conditions or stipulations of the bond, shall be paid to said obligor. The said obligor hereby for himself, his heirs, executors, administrators, and successors, ratifies and confirms whatever his said attorney shall do by virtue of these presents.

Signed on this 16th day of JUNE , 1987 , in the presence of:

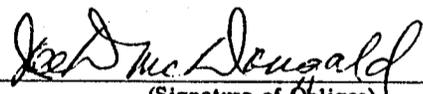
  
\_\_\_\_\_  
(Name of Witness)  
L. R. Stablein

601 Jefferson, Suite 3900  
Houston, Texas 77002  
\_\_\_\_\_  
(Address of Witness)

  
\_\_\_\_\_  
(Name of Witness)  
D. L. Kennedy

601 Jefferson, Suite 3900  
Houston, Texas 77002  
\_\_\_\_\_  
(Address of Witness)

QUINTANA PETROLEUM CORPORATION

By   
\_\_\_\_\_  
(Signature of Obligor)  
Joe D. McDougald, Treasurer

601 Jefferson, Suite 3900  
Houston, Texas 77002  
\_\_\_\_\_  
(Business Address of Obligor)

If this bond is executed by a corporation, it must bear the seal of such corporation

**RECEIVED**  
OCT 26 1987

# FILING FOR WATER IN THE STATE OF UTAH

Rec. by \_\_\_\_\_  
Fee Rec. \_\_\_\_\_  
Receipt # \_\_\_\_\_  
Microfilmed \_\_\_\_\_  
Roll # \_\_\_\_\_

## APPLICATION TO APPROPRIATE WATER

DIVISION OF  
~~OF~~ GAS & MINING

For the purpose of acquiring the right to use a portion of the unappropriated water of the State of Utah, application is hereby made to the State Engineer, based upon the following showing of facts, submitted in accordance with the requirements of the Laws of Utah.

**TEMPORARY**

WATER USER CLAIM NO. 09 - 1535

APPLICATION NO. T62902

1. PRIORITY OF RIGHT: October 13, 1987

FILING DATE: October 13, 1987

2. OWNER INFORMATION

Name: Quintana Petroleum Corporation Interest: 100 %  
Attn: Lisa Green, Agent for Quintana Petroleum phone (303) 628-9211  
Address: 1050-17th Street Suite 400, Denver, CO 80265

The land is not owned by the applicant(s), see explanatory.

3. QUANTITY OF WATER: 3.0 acre feet (Ac. Ft.)

4. SOURCE: Underground Water Well DRAINAGE: San Juan River

POINT(S) OF DIVERSION: COUNTY: San Juan

(1) S. 2722 feet, E. 10 feet, from the SW Corner of Section 01,  
Township 37 S, Range 22 E, SLB&M

COMMON DESCRIPTION: 1.5 miles SE of Blanding

5. NATURE AND PERIOD OF USE

Oil Exploration From October 20 to March 1.

6. PURPOSE AND EXTENT OF USE

Oil Exploratio: Oil and gas drilling

7. PLACE OF USE

The water is used in all or parts of each of the following legal subdivisions.

TOWN RANGE SEC	North East Quarter				North West Quarter				South West Quarter				South East Quarter				
	NE $\frac{1}{4}$	NW $\frac{1}{4}$	SW $\frac{1}{4}$	SE $\frac{1}{4}$	NE $\frac{1}{4}$	NW $\frac{1}{4}$	SW $\frac{1}{4}$	SE $\frac{1}{4}$	NE $\frac{1}{4}$	NW $\frac{1}{4}$	SW $\frac{1}{4}$	SE $\frac{1}{4}$	NE $\frac{1}{4}$	NW $\frac{1}{4}$	SW $\frac{1}{4}$	SE $\frac{1}{4}$	
36 S 23 E 09																	X

All locations in Salt Lake Base and Meridian

EXPLANATORY

Permission for the use of this water was obtained verbally from both Ivan and Clyde Watkins on 10-7-87.

The proposed drill site is located on surface owned by the BLM.

The minerals are owned by the Federal Government and the extraction rights to Federal Lease U-23520 are held by Quintana Petroleum Corporation.

The well to be drilled is the Caballo Unit Federal #1-9 located in the SW4SE4 Sec. 9, T36S, R23E, SLB&M.

\*\*\*\*\*

The applicant hereby acknowledges he/they are a citizen(s) of the United States or intends to become such a citizen.

\*\*\*\*\*

The quantity of water sought to be appropriated is limited to that which can be beneficially used for the purpose herein described.

\*\*\*\*\*

The undersigned hereby acknowledges that even though he/they may have been assisted in the preparation of the above-numbered application through the courtesy of the employees of the Division of Water Rights, all responsibility for the accuracy of the information contained therein, at the time of filing, rests with the applicant(s).

---

Signature of Applicant

STATE ENGINEER'S ENDORSEMENT

WATER RIGHT NUMBER: 09 - 1535

APPLICATION NO. T62902

1. October 13, 1987      Application received by MP.
  2. October 13, 1987      Application designated for APPROVAL by MP and KLJ.
  3. Comments:
- 
- 

Conditions:

This application is hereby APPROVED, dated October 23, 1987, subject to prior rights and this application will expire on October 23, 1988.

  
Robert L. Morgan, P.E.  
State Engineer



NORMAN H. BANGERTER  
GOVERNOR



STATE OF UTAH  
DEPARTMENT OF COMMUNITY AND  
ECONOMIC DEVELOPMENT

6 November 1987

Division of  
State History  
(UTAH STATE HISTORICAL SOCIETY)

MAX J. EVANS, DIRECTOR  
300 RIO GRANDE  
SALT LAKE CITY, UTAH 84101-1182  
TELEPHONE 801/533-5755

John Baza  
Division of Oil, Gas and Mining  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

RE: Quintana Petroleum Corp., Wildcat Well, Federal Lease, U-23520,  
(SAI UT871013-020)

In Reply Please Refer to Case No. K536

Dear Mr. Baza:

The staff of the Utah State Historic Preservation Office has reviewed the information provided for the above referenced action. Our records indicate that one survey has been performed in the general area of the proposed wildcat well, but we know of no individual sites listed on or potentially eligible for the National Register in the area of this project. However, there is a very high potential for archeological sites in this area, and their presence and potential National Register eligibility should be investigated prior to any land disturbing activities. The Bureau of Land Management may require such cultural resource surveys and mitigation of any potentially eligible sites prior to approving this action.

The above is provided on request as outlined by 36 CFR 800 or Utah Code, Title 63-18-37. If you have questions or need additional assistance, please contact Charles Shepherd at (801) 533-7039.

Sincerely,

A. Kent Powell  
Deputy State Historic  
Preservation Officer

CMS:jrc:K536/4818V OR

cc: Chairperson, Resource Development Coordinating Committee, State Planning  
Office, 118 State Capitol, Salt Lake City, Utah 84114

cc: Bruce Louthan, Moab District Office, Bureau of Land Management, 125 West  
Second South Main, P. O. Box 970, Moab, Utah 84532

**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT**

**APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK**

1a. TYPE OF WORK  
**DRILL**       **DEEPEN**       **PLUG BACK**

b. TYPE OF WELL  
 OIL WELL       GAS WELL       OTHER       SINGLE ZONE       MULTIPLE ZONE

2. NAME OF OPERATOR 303/628-9211      1050-17th St., Suite 400  
Quintana Petroleum Corp.      Denver, CO 80265

3. ADDRESS OF OPERATOR 303/322-7878      P.O. Box 44065  
Permitco Inc. - Agent      Denver, CO 80201-4065

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)  
 At surface 820' FSL and 2340' FEL  
 At proposed prod. zone (SW SE)

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*  
14 miles northeast of Blanding, Utah

15. DISTANCE FROM PROPOSED\* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drilg. unit line, if any)      300'

16. NO. OF ACRES IN LEASE      2387.42

17. NO. OF ACRES ASSIGNED TO THIS WELL      40

18. DISTANCE FROM PROPOSED LOCATION\* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.      none

19. PROPOSED DEPTH      6754'

20. ROTARY OR CABLE TOOLS      Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
6339' GR

22. APPROX. DATE WORK WILL START\*  
October 31, 1987

5. LEASE DESIGNATION AND SERIAL NO.  
U-23520

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

7. UNIT AGREEMENT NAME (Pending Caballo Unit Approval)

8. FARM OR LEASE NAME  
Caballo Unit Federal

9. WELL NO.  
#1-9

10. FIELD AND POOL, OR WILDCAT  
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
Sec. 9, T36S - R23E

12. COUNTY OR PARISH      13. STATE  
San Juan      Utah

23. PROPOSED CASING AND CEMENTING PROGRAM Immediately upon approval of the unit and A.P.D.

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
<u>12-1/4"</u>	<u>9-5/8"</u>	<u>36#</u>	<u>2200'</u>	<u>821 sx or suffic to circ to surf.</u>
<u>8-3/4"</u>	<u>5-1/2"</u>	<u>15.5 &amp; 17#</u>	<u>6754'</u>	<u>Will be designed upon completion.</u>

Quintana Petroleum Corp. proposes to drill a well to 6754' to test the Ismay and Desert Creek formations. If productive, casing will be run and the well completed. If dry, the well will be plugged and abandoned as per BLM and State of Utah requirements.

See Onshore Order No. 1.

**RECEIVED**  
NOV 06 1987

DIVISION OF  
OIL, GAS & MINING

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 [Signature] TITLE Consultant for Quintana Petroleum Corp. DATE 10/6/87

(This space for Federal or State office use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

APPROVED BY /S/ GENE NODINE TITLE DISTRICT MANAGER DATE NOV 03 1987

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

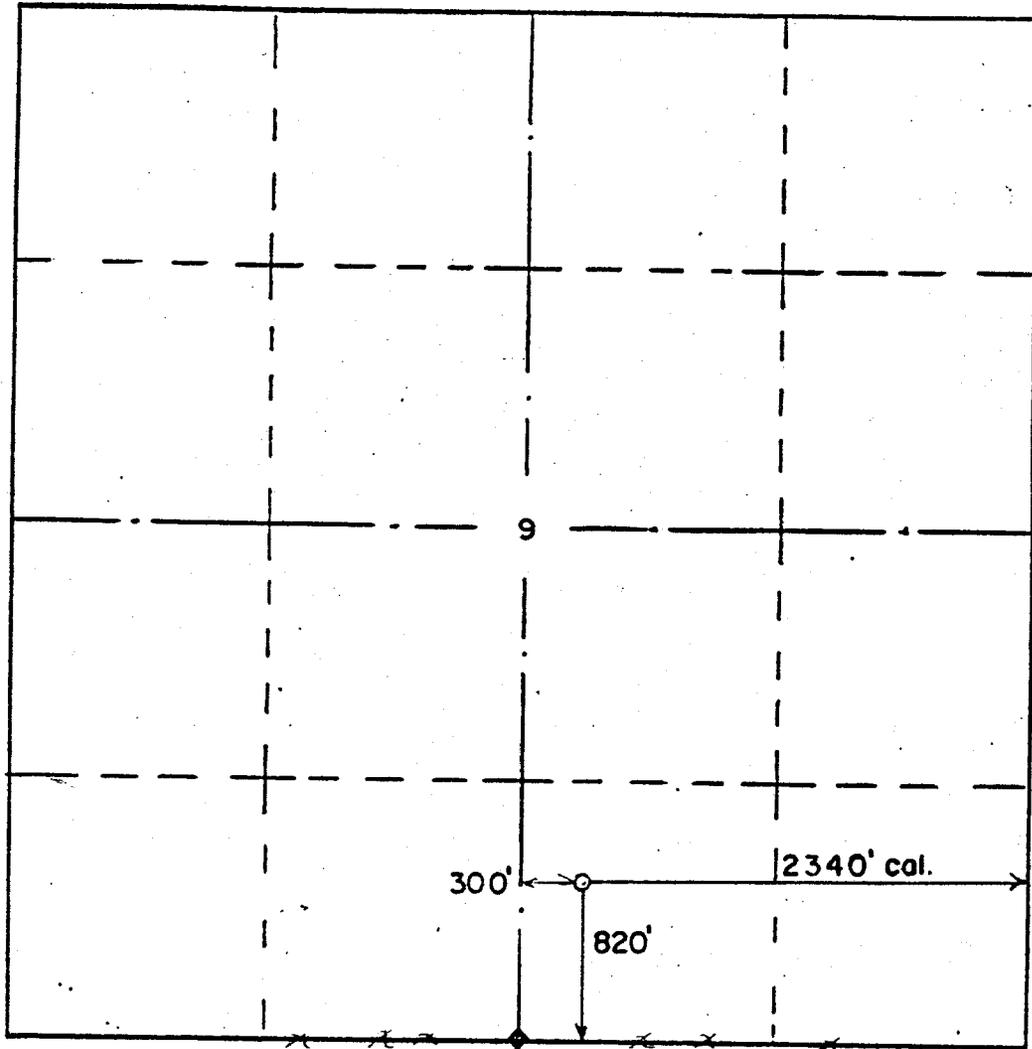
CONDITIONS OF APPROVAL ATTACHED

\*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.

STATE OF UTAH  
DOG/M

WELL LOCATION AND ACREAGE DEDICATION PLAT



1"=1000'  
 ◆ Bross Cap

WELL LOCATION DESCRIPTION:  
 Quintana Petroleum  
 Caballo Unit Federal #1-9  
 820' FSL & 2340' FEL  
 Section 9, T.36 S., R.23 E., SLM  
 San Juan County, Utah  
 6339' ground elevation  
 Reference: S.85°W., 286', 6370' grd.

The above plat is true and correct to my knowledge and belief.

29 September 1987

REGISTERED LAND SURVEYOR  
 No. 5705  
 GERALD G. HUDDLESTON  
 Gerald G. Huddleston, LS  
 STATE OF UTAH

Quintana Petroleum Corporation  
Well No. Caballo Unit Federal 1-9  
Sec. 9, T. 36 S., R. 23 E.  
San Juan County, Utah  
Lease U-23520

CONDITIONS OF APPROVAL

Approval of this application 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.

Quintana Petroleum Corporation is the bonded entity on this application. Liability will remain with the bonded party named above until we are formally notified by letter of the new bonded entity in reference to this Application for Permit to Drill.

NOTIFICATIONS

Notify the San Juan Resource Area, at (801) 587-2141 for the following:

2 days prior to commencement of dirt work, construction or reclamation;

1 day prior to spudding;

1 day prior to running and cementing surface casing;

1 day prior to pressure testing of BOPE and/or surface casing.

Notify the Moab District Office, Branch of Fluid Minerals at (801) 259-6111 for the following:

No well abandonment operations will be commenced without the prior approval of the District Manager. In the case of newly drilled dry holes, and in emergency situations, verbal approval can be obtained by calling the following individuals, in the order listed:

Steven Jones, Petroleum Engineer                      Office Phone: (801) 259-6111

Home Phone: (801) 259-7404

Lynn Jackson, Chief, Branch of Fluid Minerals

Office Phone: (801) 259-6111

Home Phone: (801) 259-7990

Paul Brown, I&E Coordinator

Office Phone: (801) 259-6111

Home Phone: (801) 259-7018

24 hours advance notice is required for all abandonments.



November 10, 1987

State of Utah  
Division of Oil, Gas & Mining  
3 Triad Center, Suite 350  
Salt Lake City, UT 84180-1203

Attn: Arlene

Re: Quintana Petroleum Corp.  
Caballo Unit Federal #1-9  
820' FSL and 2340' FEL  
Section 9, T36S - R23E  
San Juan County, Utah

Dear Arlene:

This letter is to serve as our request for an exception location on the above mentioned well. This well was staked and permitted at a non-standard location due to seismic considerations.

Quintana Petroleum Corp. is the lease holder, or has been designated as operator, for all of the acreage within a 460' radius of the wellsite.

If you should need additional information, please feel free to contact me.

Sincerely,

PERMITCO INC.

A handwritten signature in cursive script, appearing to read "Lisa L. Green".

Lisa L. Green  
Consultant for  
Quintana Petroleum Corp.

cc: Quintana Petroleum Corp.  
John Wessels

**Permitco Incorporated**  
A Petroleum Permitting Company

P.O. Box 44065  
Denver, Colorado 80201-4065  
(303) 322-7878



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 16, 1987

Quintana Petroleum Corporation  
1050 - 17th Street, Suite 400  
Denver, Colorado 80265

Gentlemen:

Re: Caballo Federal 1-9 - SW SE Sec. 9, T. 36S, R. 23E  
820' FSL, 2340' FEL - San Juan County, Utah

Approval to drill the referenced well is hereby granted in accordance with Rule R615-3-3, Oil and Gas Conservation General Rules.

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 of an Entity Action Form to the Division within five working days of the time that the well is spudded or a change in operations or interests necessitates a change in entity status.
3. Submittal to the Division of completed Form OGC-8-X, Report of Water Encountered During Drilling.
4. 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.
5. Compliance with the requirements of Rule R615-3-22, Gas Flaring or Venting, Oil and Gas Conservation General Rules.

Page 2  
Quintana Petroleum Corporation  
Caballo Federal 1-9  
November 16, 1987

6. Prior to commencement of the proposed drilling operations, plans for toilet facilities and the disposal of sanitary waste at the drill site shall be submitted to the local health department having jurisdiction. Any such drilling operations and any subsequent well operations must be conducted in accordance with applicable state and local health department regulations. A list of all local health departments and copies of applicable regulations are available from the Division of Environmental Health, Bureau of General Sanitation, telephone (801) 538-6121.
7. 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 43-037-31365.

Sincerely,



R. J. Firth  
Associate Director, Oil & Gas

as  
Enclosures  
cc: Branch of Fluid Minerals  
D. R. Nielson  
8159T

# SOUTHEASTERN UTAH ASSOCIATION OF LOCAL GOVERNMENTS

**RECEIVED**  
Chairman  
WILLIAM D. HOWELL  
Executive Director  
DEC 4 1987

P.O. Drawer A1 • Price, Utah 84501 • Telephone 637-5444

120805

DIVISION OF  
OIL, GAS & MINING

AREAWIDE CLEARINGHOUSE A-95 REVIEW

NOI \_\_\_ Preapp \_\_\_ App \_\_\_ State Plan \_\_\_ State Action <sup>X</sup> \_\_\_ Subdivision \_\_\_ (ASP # 11-1015-3)

Other (indicate) \_\_\_\_\_ SAI Number UT871013-020

Applicant (Address, Phone Number):

Federal Funds:  
Requested: \_\_\_\_\_

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

*Quintana  
Caballo Unit 1-9  
Orl.  
43-037-31365  
36 S 23 E. Sec. 9*

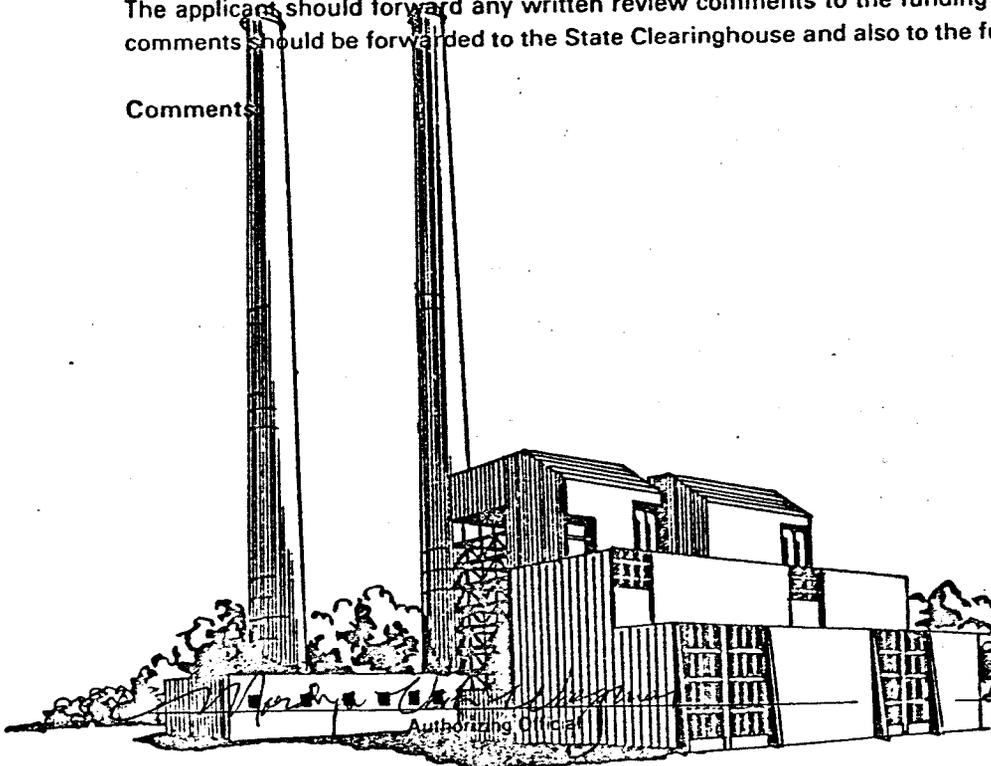
Title:

APPLICATION FOR PERMIT TO DRILL

- No comment
- See comments below
- No action taken because of insufficient information
- Please send your formal application to us for review. Your attendance is requested

The applicant should forward any written review comments to the funding agency. Any written response to those comments should be forwarded to the State Clearinghouse and also to the funding agency.

Comments



12-1-87

Date

Orl.

122820

DIVISION OF OIL, GAS AND MINING

SPODDING INFORMATION

API #43-037-31365

NAME OF COMPANY: QUINTANA PETROLEUM CORP

WELL NAME: CABALLO FED. 1-9

SECTION SW SE 9 TOWNSHIP 36S RANGE 23E COUNTY SAN JUAN

DRILLING CONTRACTOR EXETER

RIG # 68

SPODDED: DATE 12-20-87

TIME 8:00 PM

How Rotary

DRILLING WILL COMMENCE \_\_\_\_\_

REPORTED BY Ray Caen

TELEPHONE # (801) 587-2274

DATE 12-22-87 SIGNED JRB

# QUINTANA PETROLEUM CORPORATION

1050 SEVENTEENTH STREET  
SUITE 400  
DENVER COLORADO 80265  
(303) 628-9211

January 21, 1988

**RECEIVED**  
JAN 25 1988

Bureau of Land Management  
Moab District Office  
P. O. Box 970  
Moab, Utah 84532

**DIVISION OF  
OIL, GAS & MINING**

RE: CABALLO UNIT FEDERAL #1-9 - CONFIDENTIAL  
SW SE Section 9, T36S-R23E  
San Juan County, Utah

Gentlemen:

Enclosed please find the following information on the subject well:

1. Well Completion Report (Form 3160-4)
2. DST #1 & DST #2
3. Mud Log
4. Electric Logs

We request that this information be held confidential for the maximum amount of time allowed.

Very truly yours,

*J. Williams*

Jeannie Williams  
Production Technician

/jw  
enclosures

cc: State of Utah

QUINTANA PETROLEUM CORPORATION

020408

1050 SEVENTEENTH STREET  
SUITE 400  
DENVER, COLORADO 80265  
(303) 628-9211

January 25, 1988

**RECEIVED**  
JAN 27 1988

DIVISION OF  
OIL, GAS & MINING

Bureau of Land Management  
Moab District Office  
P. O. Box 970  
Moab, Utah 84532

*Dr.*  
43-037-31365

RE: CABALLO UNIT FEDERAL #1-9 - CONFIDENTIAL  
SW SE Section 9, T36S-R23E  
San Juan County, Utah

Gentlemen:

Enclosed for your files please find copies of the following information on the subject well:

Geologist's Report

Very truly yours,



Jeannie Williams  
Production Technician

/jw  
enclosures

cc: State of Utah w/enclosures

UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE\*

Form approved.  
Budget Bureau No. 1004-013  
Expires August 31, 1985

LEASE DESIGNATION AND SERIAL NO.

U-23520

IF INDIAN, ALLOTTEE OR TRIBE NAME

N/A

012705

7. UNIT AGREEMENT NAME

CABALLO UNIT

8. FARM OR LEASE NAME

CABALLO UNIT FEDERAL

9. WELL NO.

#1-9

10. FIELD AND POOL, OR WILDCAT

Wildcat

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA

Section 9, T36S-23E

12. COUNTY OR PARISH

San Juan

13. STATE

Utah

WELL COMPLETION OR RECOMPLETION REPORT AND LOGS

1a. TYPE OF WELL: OIL WELL  GAS WELL  DRY  Other   
 b. TYPE OF COMPLETION: NEW WELL  WORK OVER  DEEP-EN  PLUG BACK  DIFF. REVR.  Other   
 DIVISION OF OIL, GAS & MINING

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

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

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)\*  
 At surface 820' FSL & 2340' FEL (SW SE)  
 At top prod. interval reported below Same  
 At total depth Same

CONFIDENTIAL

14. PERMIT NO. 43-037-31365 DATE ISSUED 11/16/87

15. DATE SPUDDED 12/20/87 16. DATE T.D. REACHED 1/6/88 17. DATE COMPL. (Ready to prod.) 1/17/88\* 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)\* 6339' GR 19. ELEV. CASINGHEAD 6339'

20. TOTAL DEPTH, MD & TVD 6807' 21. PLUG, BACK T.D., MD & TVD 6612' 22. IF MULTIPLE COMPL., HOW MANY\* 23. INTERVALS DRILLED BY 0'-6807' 24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)\* - 6514'-6524' - Upper Ismay 25. WAS DIRECTIONAL SURVEY MADE No

26. TYPE ELECTRIC AND OTHER LOGS RUN  
 DIL; CNL/FDC; CBL/CCL/VDL/GR; CET  
 27. WAS WELL CORED No  
 28. CASING RECORD (Report all strings set in well)  
 29. LINER RECORD  
 30. TUBING RECORD

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
9 5/8"	36#	2272'	12 1/4"	640 sxs Lite, 200 sxs "B"	None
5 1/2"	15.5# & 17#	6807'	8 3/4"	220 sxs Thixotropic	None

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
N/A					2 7/8"	6428'	6410'

31. PERFORATION RECORD (Interval, size and number)  
6514'-6524', 4" gun, 4 jspf

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.  
 DEPTH INTERVAL (MD) 6514'-6524'  
 AMOUNT AND KIND OF MATERIAL USED 1000 gal 15% HCl

33.\* PRODUCTION  
 DATE FIRST PRODUCTION 1/12/88 - test oil  
 PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) \*SI - waiting on facilities  
 WELL STATUS (Producing or shut-in) S.I.  
 DATE OF TEST 1/15/87 HOURS TESTED 24 CHOKE SIZE 24/64" PROD'N. FOR TEST PERIOD 110.64 OIL—BBL. 124 GAS—MCF. 0.4 WATER—BBL. 1120:1 GAS-OIL RATIO  
 FLOW. TUBING PRESS. 60 psig CASING PRESSURE -- CALCULATED 24-HOUR RATE 110.64 OIL—BBL. 124 GAS—MCF. 0.4 WATER—BBL. 44° API OIL GRAVITY-API (CORR.)

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)  
Flared during test

35. LIST OF ATTACHMENTS

TEST WITNESSED BY R. C. Lynch

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

SIGNED J. Williams TITLE Production Technician DATE 1/21/88

\*(See Instructions and Spaces for Additional Data 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.

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.	NAME	MEAS. DEPTH	TOP	TRUE VERT. DEPTH
DST #1: 6482	-6500' (Upper Ismay)						
Times: 30/60/60/120							
Initial open: op w/2" blw.			At btm of bucket in 2 min.				
Steadily incr to 21 psi			at end of 30 min. Had GTS 10 min				
after ISI. Final Open: had 7 psi			in 5 min, incr to 25 psi				
at end of 60 min. 58.9 MCFD			final flow rate.				
IHP 3256				Ismay	6457'		
IFP 165-220				Hovenweep Sh	6566'		
ISIP 2590				Lower Ismay	6618'		
FHP 3228				Gothic Shale	6672'		
FFP 220-330				Desert Creek	6690'		
FSIP 2578							
DP recovery: 800' HCGO (6.68 bbls), 167' GCM and wtr (.82 bbls). Rw (DP) = .3 at 65°F (23,000 ppm chlorides).							
Chamber recovery: 1400 psig. 5.7 cu.ft. gas and 400 cc oil (44° API at 68°F) and 1000 cc wtr (Rw = .3 at 65°F; 25,000 ppm chlorides).							
BHT 138°F							
DST #2: failed attempt							

38. GEOLOGIC MARKERS

CABALLO UNIT FEDERAL #1-9

QUINTANA PETROLEUM CORPORATION

Sec 9, T36S, R23E

SAN JUAN COUNTY, UTAH

**CONFIDENTIAL**

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Sec 9, T36S, R23E  
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WELL DATA SUMMARY

WELL NAME: CABALLO UNIT FEDERAL #1-9

OPERATOR: QUINTANA PETROLEUM CORPORATION

LOCATION: 2340' FEL + 820' FSL SWSE Section 9 T36S, R23E

COUNTY: SAN JUAN

STATE: UTAH

AREA: WILDCAT

DRILLING CONTRACTOR: EXETER RIG #68

DRILLING ENGINEER: RAY KOEHN

WELL SITE GEOLOGY: DOUG REDMOND

ELEVATION: GL 6336'  
KB 6351'

DEPTH LOGGED: 5100' to 6797'

DATE LOGGED: December 28, 1987 to January 5, 1988

TOTAL DEPTH: 6796' loggers, 6797' drillers

HOLE SIZE: 12 1/4" to 2275', 8 3/4" to 6797'

CASING PROGRAM: 9 5/8" to 2272', 5 1/2" to TD

D.S.T.: BAKER LYNES

MUDLOGGING COMPANY: TOOKE ENGINEERING INC.

MECHANICAL LOGS: WELEX

WELL STATUS: AWAITING COMPLETION 1/07/88

DAILY DRILLING SUMMARY

<u>DATE</u>	<u>DEPTH</u>	<u>PROGRESS</u>	<u>HOURS DRILLING</u>	<u>MUD WEIGHT</u>	<u>VISC.</u>	<u>W.L.</u>	<u>PH</u>	<u>ACTIVITY</u>
12/28/87	5012'	626'	23 1/2	water				Drilling
12/29/87	5361'	349'	15 3/4	water				Drilling
12/30/87	5817'	456'	23 1/2	water				Drilling
12/31/87	6244'	427'	23 3/4	9.3	33			Drilling
1/01/88	6495'	251'	21	9.6	32	27	10.0	Circulate for Show #1
1/02/88	6500'	5'	1/4	9.5	36	10	10.5	D.S.T. #1
1/03/88	6535'	35'	2 1/2	9.5	39	10.4	10.5	TOH for D.S.T. #2
1/04/88	6645'	110'	8 1/4	9.5	36	9.8	10.0	Drilling
1/05/88	6797'	152'	12	9.8	41	10.2	10.0	E-logs
1/06/88	6807'	7'	1	9.7	41	10.5	10.0	Circulate to run casing

FORMATION TOPS

ELEVATION: GL 6336'  
KB 6351'

<u>FORMATION</u>	<u>PROGNOSIS</u>	<u>ESTIMATED TOP</u>	<u>E-LOG</u>	<u>SUBSEA</u>
CHINLE	2123'	2233'		
HERMOSA	5111'	5119'	5098'	+1253'
UPPER ISMAY	6414'	6461'	6461'	- 110'
HOVENWEEP	6544'	6580'	6564'	- 213'
LOWER ISMAY	6569'	6625'	6620'	- 269'
GOTHIC SHALE	6618'	6677'	6672'	- 321'
DESERT CREEK	6648'	6695'	6691'	- 340'
CHIMNEY ROCK SHALE		6804'		
AKAH	6744'			



DEVIATION SURVEY

<u>DEPTH</u>	<u>SURVEY</u>
6495'	2°
6796'	1 3/4°

SHOW REPORT

WELL NAME: CABALLO UNIT FEDERAL #1-9

AREA: WILDCAT COUNTY: SAN JUAN STATE: UTAH

SHOW No.: 1 FORMATION: UPPER ISMAY

FOOTAGE - from 6485' to 6495' Net ftg 10'

	DT	TOTAL GAS	CHROMATOGRAPH BREAKDOWN					other
			C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4I</sub>	C <sub>4N</sub>	
BEFORE	4.5-5	48	32	18	12	4		
DURING	1-1.5	740	9.85% 1024	1.17% 384	0.76% 224	0.11% 24	TR	
AFTER								

LITHOLOGY TYPE & DESCRIPTION: LS wh,crm,tan, crypt,vf-f micro,coarse micro,foss, sm v sl to mod dolo,sm tr anhy,sm chlky app,sm ool app(sndy),frm,mhd

POROSITY Est.: 6-8% pp vuggy, trace intercrystalline

STAIN DESCRIPTION: patchy to spotty dark brown to black staining

FLUORESCENCE and CUT DESCRIPTION: moderate bright light yellow blue to dull gold fluorescence, 70% in total sample, cut immediately brightens to yellow, fast yellow-blue diffuse cut, some very slow possibly indicating tight rock.

REMARKS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SHOW REPORT

WELL NAME: CABALLO UNIT FEDERAL #1-9

AREA: WILDCAT COUNTY: SAN JUAN STATE: UTAH

SHOW No.: 2 FORMATION: UPPER ISMAY

FOOTAGE - from 6495' to 6500' Net ftg 5'

	DT	TOTAL GAS	CHROMATOGRAPH BREAKDOWN					other
			C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4I</sub>	C <sub>4N</sub>	
BEFORE	1.5-2							
DURING	1.5-2	320	3.08	0.46	0.22	0.07	TR	
AFTER								

LITHOLOGY TYPE & DESCRIPTION: LS ltgy,wh,tan, crypt,vf micro,coarse micro,  
sl to v dolo,chlky app,frm,mhd

POROSITY Est.: 6% trace pin point vuggy  $\emptyset$ , trace intercrystalline

STAIN DESCRIPTION: occasional spotty dark brown to black staining

FLUORESCENCE and CUT DESCRIPTION: 50% of sample total with light blue to yellow  
fluorescence, some light yellow-blue diffuse ring cut

REMARKS: 5' more hole was opened up to facilitate D.S.T. #1

SHOW REPORT

WELL NAME: CABALLO UNIT FEDERAL #1-9

AREA: WILDCAT COUNTY: SAN JUAN STATE: UTAH

SHOW No.: 3 FORMATION: UPPER ISMAY

FOOTAGE - from 6513' to 6523' Net ftg 10' PRESENT TD: 6535'

	DT	TOTAL GAS	CHROMATOGRAPH BREAKDOWN					other
			C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4I</sub>	C <sub>4N</sub>	
BEFORE	5	60	44	56	40	12		
DURING	1/2-1	4000	off scale	4000	1760	440	160	
AFTER	5.5	140	12	16	12	2		

LITHOLOGY TYPE & DESCRIPTION: LS m brn,tan,ltgy,vf-f micro,sm crypt,sucr,  
mod dolo + occ rexlized, sm earthy text,sl anhy,v fri,frm

POROSITY Est.: 10-12% intercrystalline

STAIN DESCRIPTION: No black staining

FLUORESCENCE and CUT DESCRIPTION: 50% light yellow-blue fluorescence, sm very  
weak diffuse ring cut

REMARKS: pit was not bubbling, no flow when checked, strong gas odor when  
circulated up.

DRILL STEM TEST REPORT

WELL NAME: CABALLO FEDERAL #1-9 DATE: 1-02-88

AREA: WILDCAT COUNTY: SAN JUAN STATE: UTAH

WITNESS: REDMOND

TEST NUMBER: 1 INTERVAL TESTED: 6482' - 6500'

TEST COMPANY AND TYPE OF TEST: BAKER LYNES, CONVENTIONAL DOUBLE PACKER

INITIAL FLOW: Open with moderate surface blow, 2" in bucket, BOB in 2 min.,  
2# in 5 min., 4# in 10 min., 8 PSI in 15 min., shut in with 21#, GTS 10 min.  
into ISI

FINAL FLOW: Open with 1# blow, slowly increased to 20# in 30 min, shut in  
with 25#, with 1/4" choke 58.9 mcf

	TIME	TOP CHART	BOTTOM CHART	
IN:		<u>3208</u>		DHT: <u>138</u> °F
IF:	<u>30</u>	<u>123-184</u>		
ISI:	<u>60</u>	<u>2534</u>		
FF:	<u>60</u>	<u>184-307</u>		
FSI:	<u>120</u>	<u>2530</u>		
FH:		<u>3166</u>		

RECOVERY: 967 total fluid, 800' oil(gas cut), 167' gas cut mud and water

SAMPLE CHAMBER: 5.7 cfg and 400 cc oil and 1000 cc water at 1400 PSI

RESISTIVITIES: pit mud 2 at 65° , 1200CL, recovered water 0.3 at 60° , 23,000 CL-

REMARKS: Top sample Rw oil, middle sample Rw oil, bottom sample Rw 0.3 at  
60° 23,000 CL-, oil gravity 44.

## GEOLOGIC SUMMARY

The well spudded on December 20, 1987, and was drilled to 2275', where 9 5/8" surface was set in red and maroon shales of the Chinle Formation. This casing protected the massive Wingate, Navajo, and other sandstone aquifers from drilling fluid contamination. Fresh water was used to drill the 8 3/4" hole to 6200' near the Upper Ismay top. From 6200' to total depth at 6807', a light fresh water gel was added to ensure a good well bore.

A mud-logging unit was employed from 5100' to total depth. Mechanical logs included a dual induction log, a CNL-FDC porosity log, a BHC acoustical log, and a stratigraphic dipmeter.

The well went smoothly, with no major problems, and is at this time awaiting completion in two zones of the Upper Ismay.

Following is a description of the Pennsylvanian age formations in the well.

### HERMOSA: 5098' - 6461'

For simplicity, this section will include the Honaker Trail, the massive carbonates of the lower Paradox, and the Paradox Shale immediately overlying the Upper Ismay. The Upper section of the Hermosa represents the transition from primarily marine deposition below to continental above, a change clearly seen in the cuttings samples when the red clastics above give way to marine shale and limestone below. This interval, known as the Honaker Trail, has occasional channel sands significant because of their gas production. Two sands were present in this well. The first was from 5380' to 5388', and the second was from 5756' to 5776'. The two shows were 112 units and 110 units respectively, neither showing C<sub>4I</sub> or C<sub>4N</sub> on the gas chromatograph. The appearance was quite similar; both clear, light gray, very fine to fine grain, moderate to well sorted, siliceous, unconsolidated, with some pin point porosity, and no stain, fluorescence or cut. These sand shows were not considered strong enough to warrant testing. Other gas increases here came from thin coals and other thin sands that were silty and not of interest economically. The lower massive carbonates of the Paradox were generally gray, dense, and hard. They grade alternately from clean intervals that can be siliceous and cherty, to shaly zones of mudstone. Near the base the carbonates became increasingly marly towards the 10' thick black, fissile, and carbonaceous Paradox shale immediately above the Upper Ismay.

### UPPER ISMAY: 6461' - 6564'

The top of this interval was marked by a bed of anhydrite three feet thick, appearing in the sample white, amorphous, and soft. The remaining lithology was nearly 100' of limestone from 6466' to 6564'. Very little anhydrite was seen in the samples throughout this entire interval. From 6466' to 6485' the limestone was medium gray to tan, cryptocrystalline, very finely microcrystalline, recrystallized in part, occasionally displayed distinct bedding planes within the cuttings samples, has varying degrees of shale content, and was quite dense with no sign of hydrocarbon shows present.

At 6485', the limestone changed appearance quickly. This limestone was white, cream, tan, and predominantly cryptocrystalline to very finely microcrystalline. Occasional recrystallized, larger, and sparry crystals were present in a micritic limestone matrix. Also present were oolites and other sandy particles of detrital origin suggesting an environment of moderate energy and shallow water. Fossil debris were present, although indistinguishable in the cuttings. Traces of the carbonate were slightly dolomitic, especially the larger crystals of sparite in the carbonate mud.

The drilling rate increased from 4.5 minutes/foot to 1.5 minute/foot from 6485' to 6500', and a 700 unit mud gas increase was logged. The samples displayed pin point vuggy porosity, brown to yellow, and black staining. Under a black light, they exhibited moderately bright yellow blue to dull gold fluorescence with a yellow-blue diffuse ring cut. A drill stem test over this interval was completed with reasonably positive results. Eight hundred feet of oil and 167 feet of water were recovered from a zone of moderate permeability. The presence of water was not good, however there was good reason to doubt that the water recovered was from the formation. The chlorides were 23,000 ppm to 25,000 ppm, considerably lower than Ismay chlorides in the area. This means the recovered water may well be filtrate water. It is possible that the residual salt left in the pores of the reservoir rock after ground water leaching dissolved in the fresh filtrate water and was later recovered by D.S.T #1. The density curve on a limestone matrix was between 11% and 12% for the top 10' of the interval. The lower 8' of limestone became more dense, averaging 6% porosity. The entire interval of 18' displayed between 15 and 25 ohms of resistivity, within a productive range.

Eleven feet of dense, sometimes chalky limestone separated the upper and lower porosity intervals, effectively isolating the two from each other. From 6514' to 6524' it drilled very fast, at less than one minute/foot, indicating good porosity and giving up an excellent gas increase to 4000 units total. The odor of gas on location was strong, and the mud pumps were shut down as a precaution to check for flow in the annulus (none was noticed). Sample quality was poor through the zone of interest. However, it was an interval of clean limestone; light colored white to tan, some brown, very finely microcrystalline, sucrosic, and when wet, the samples were very friable. Signs of fragments being slightly dolomitized were observed also. The samples fluoresced very light blue with an occasional very light yellow-blue diffuse ring cut typical of a gas hydrocarbon show in this area. No visible porosity could be seen in the retrieved cuttings. The density curve on a limestone matrix averaged 14% in the 10' interval from 6514' to 6524' with a high reading of 17% and a low of 11%. The resistivity of this zone was actually higher than that of the interval above, averaging out between 21 and 29 ohms. Combining this with the higher average density porosity reading makes this zone more optimistic looking than the zone above. A decision to D.S.T. the zone was made, however, it became a misrun and drilling continued.

There was a lack of mud cake buildup of both intervals of interest forming a question of permeability, especially in the lower untested interval. If the recovered water from D.S.T. #1 was filtrate water and not formation water, both intervals should be economically productive.

HOVENWEEP SHALE: 6564' - 6620'

The top of this shale appeared gradational from the overlying

limestone. It became darker gray mudstone to 6580' where black, heavily organic shale was located. This must indicate slowly deepening waters at the Hovenweep top rather than the disconformity or sharp contact displayed elsewhere.

LOWER ISMAY: 6620' - 6672'

Two medium gray, dense, and marly limestones were separated by a massive anhydrite in the Lower Ismay. The anhydrite was amorphous and white in the sample, however, a large percentage was banded with carbonate/anhydrite solution. No hydrocarbon shows of economic importance were present.

GOTHIC SHALE: 6672' - 6691'

This shale was black, carbonaceous, calcareous, and gassy. It separated the overlying Lower Ismay and Desert Creek intervals.

DESERT CREEK: 6691' - 6804'

The top of this interval was a medium gray, shaly, and dense dolomite. This was followed by massive anhydrite, again banded by carbonates; a dark gray to black, dolomitic, mudstone. The second Desert Creek anhydrite appeared 6754'. Underlying the anhydrite, the Lower Desert Creek was expanded. From 6767' the penetration rate picked up from 5 min/foot to 3.5 to 4 min/foot. The sample from 6760' to 6775' was predominantly very anhydritic limestone, medium to light gray and dense. From 6775' to 6795' a brown dolomite displayed a very earthy texture, and was increasingly marly towards the bottom. The dolomite exhibited no porosity or sample show. The drilling mud chlorides jumped from 1200 to 1400 ppm to 2200 ppm at a check from a drilling break from 6792' to 6795', and mechanical logs were run. Following logging, an additional 10' was drilled to ensure that the bore hole was through the Lower Desert Creek, and production casing was run.

SAMPLE DESCRIPTIONS

5090-5120		Very Poor Sample; drilling with water, abundant red and orange shale and silt cavings.
	60%	<u>Limestone</u> - white, light to medium gray, tan to brown, translucent in part, cryptocrystalline, occasionally very finely microcrystalline to chalky appearance, dolomitic in part, micaceous, marly in part, dense, firm, medium hard
	40%	<u>Shale</u> - medium to dark gray, dark gray to brown, very calcareous and limy, graded to marlstone, micaceous, brittle, medium hard
5120-5150	60%	<u>Shale</u> - as above, red to brown, gray brown, micaceous, calcareous, firm, medium hard
	30%	<u>Limestone</u> - as above, becoming white, sandy
	10%	<u>Sandstone</u> - white, clear, very fine grain, calcareous to siliceous, angular, friable, medium hard, tight
5150-5180	60%	<u>Shale</u> - as above
	20%	<u>Sandstone</u> - white, clear, orange, very fine to fine grain, calcareous, micaceous, silty, poorly sorted, angular, friable, firm, medium hard
	20%	<u>Siltstone</u> - orange, red to brown, calcareous, micaceous, firm, medium hard
		Trace Limestone - 5%
5180-5210	80%	<u>Limestone</u> - white, light to medium gray, translucent in part, cryptocrystalline, chalky appearance in part, some fossiliferous, occasionally micaceous, thinly laminated with bedding planes, dense, medium hard, firm
	20%	<u>Siltstone</u> - as above
		Trace of loose Sandstone grains.
5210-5140	80%	<u>Limestone</u> - white, tan, brown, light to medium gray, cryptocrystalline, very finely microcrystalline, sandy in part, marly in part, micaceous in part, firm, medium hard, dense
	20%	<u>Shale</u> - dark gray to medium gray, marly, silty, micaceous, firm, medium hard, brittle
5240-5270		Very Poor Sample
	100%	<u>Shale</u> - cavings
5270-5300	90%	<u>Limestone</u> - tan, white, light to medium gray, cryptocrystalline, very finely microcrystalline, sandy, micaceous, occasionally siliceous, dolomitic in part, lithic, recrystallized, dense, medium hard
	10%	<u>Shale</u> - dark gray, marly to very limy, micaceous in part, silty, firm, medium hard
5300-5330	80%	<u>Limestone</u> - light to medium gray, white, tan, translucent, cryptocrystalline, very finely microcrystalline, siliceous in part, lithic, micaceous in part, dense, medium hard, hard
	20%	<u>Shale</u> - dark gray, black, medium gray, silty, firm, medium hard
		Trace Chert - dark gray to brown, calcareous in part
5330-5390	100%	<u>Limestone</u> - white, tan, brown, medium gray, cryptocrystalline, very finely microcrystalline, lithic, sandy, dolomitic in part, medium hard, hard
		Trace Shale, Sandstone

5390-5420	80%	<u>Limestone</u> - white, light to medium gray, cryptocrystalline, very finely microcrystalline, chalky in part, very finely sandy in part, dense, medium hard, firm
	10%	<u>Shale</u> - medium to dark gray, marly, firm, medium hard
	10%	<u>Sandstone</u> - clear, white, light gray, very fine to coarse grain quartzose, glauconitic, siliceous, slightly calcareous, subangular, well sorted, friable, NFSOC, no visible $\emptyset$
		Note: Samples are lagging behind gas.
5420-5450	70%	<u>Shale</u> - dark gray, dark brown, very calcareous, marly, silty, micaceous, firm, medium hard, brittle
	30%	<u>Limestone</u> - medium gray, marly, silty, medium hard, firm
5450-5480	90%	<u>Shale</u> - dark gray, black, calcareous, silty, micaceous, graded to soft mudstone, some carbonaceous, firm, medium hard
	10%	<u>Limestone</u> - as above, very marly
5480-5510	70%	<u>Limestone</u> - white, light gray, cryptocrystalline, very finely microcrystalline, chalky in part, sandy in part, dolomitic, dense, firm, medium hard
	20%	<u>Sandstone</u> - white, clear, very fine grain, calcareous, siliceous, angular to subangular, tight, slightly friable, firm, medium hard, NFSOC
	10%	<u>Shale</u> - as above, black, carbonaceous, firm
		Trace Coal
5510-5540	90%	<u>Limestone</u> - white, light gray, medium gray, cryptocrystalline, very finely microcrystalline, sandy in part, marly in part, chalky in part, micaceous, dense, firm, medium hard
	10%	<u>Shale</u> - medium to dark gray, marly, silty, firm
5540-5570	50%	<u>Limestone</u> - as above
	50%	<u>Shale</u> - medium to dark gray, dolomitic, calcareous, silty, micaceous, brittle, firm, medium hard
5570-5600	70%	<u>Limestone</u> - as above, very sandy and micaceous in part, tight, medium hard
	30%	<u>Shale</u> - as above
		Trace Chert - dark gray, brown
5600-5630	90%	<u>Limestone</u> - white, tan, light gray, cryptocrystalline, very finely microcrystalline, translucent, chalky to argillaceous, occasionally siliceous, some very finely sandy, dense, medium hard
	10%	<u>Shale</u> - medium gray to dark gray, silty, very calcareous to marly, some micaceous, brittle, firm, medium hard
5630-5660	70%	<u>Limestone</u> - as above
	20%	<u>Shale</u> - dark red to brown, silty, calcareous, micaceous, firm, medium hard
	10%	<u>Coal</u>
5660-5690	50%	<u>Shale</u> - dark to medium gray, dark brown to red, calcareous, silty, micaceous, firm
	40%	<u>Limestone</u> - as above, argillaceous, chalky, soft to firm
	10%	<u>Sandstone</u> - white, light gray, very fine grain, calcareous, graded to siltstone, micaceous, slightly friable, firm

5690-5750	50%	<u>Limestone</u> - as above
	50%	<u>Shale</u> - as above
		Trace Sandstone - loose grains
		Trace Coal
5750-5780	70%	<u>Sandstone</u> - clear, white, yellow, very fine to medium grain, siliceous, slightly calcareous, glauconitic, some smoky to rose quartz, angular to subangular, well sorted, friable to unconsolidated, predominately tight appearance, no visible $\phi$ , NFSOC
	20%	<u>Limestone</u> - as above
	10%	<u>Shale</u> - as above
5780-5810	50%	<u>Shale</u> - medium to dark gray, black, calcareous, silty, occasionally micaceous, some waxy appearance, firm, medium hard
	40%	<u>Limestone</u> - light to medium gray, white, cryptocrystalline to very finely microcrystalline, chalky in part, slightly dolomitic, dense, medium hard, firm
	10%	<u>Sandstone</u> - as above, predominately loose sandstone grains
5810-5870	70%	<u>Shale</u> - as above
	30%	<u>Limestone</u> - as above
5870-5900	80%	<u>Limestone</u> - white, light to medium gray, tan, cryptocrystalline, very finely microcrystalline, occasionally argillaceous, some siliceous and graded to chert, medium hard, hard
	20%	<u>Shale</u> - as above, graded to medium gray marlstone
		Trace Chert - tan, milky to clear, very hard
5900-5930	90%	<u>Shale</u> - black, dark gray, some medium gray, silty, calcareous, graded to marlstone in part, some slightly carbonaceous, brittle, blocky, firm, medium hard
	10%	<u>Limestone</u> - as above
		Trace Chert
5930-5960	70%	<u>Limestone</u> - light to medium gray, white, cream, cryptocrystalline, very fine to finely microcrystalline, sparry with dolomite crystals, some slightly argillaceous, dense, medium hard
	30%	<u>Shale</u> - medium to dark gray, some black, calcareous, silty, slightly micaceous, firm, medium hard
5960-5990	50%	<u>Shale</u> - as above
	50%	<u>Limestone</u> - as above
5990-6020	90%	<u>Limestone</u> - white, tan, light to medium gray, cryptocrystalline, very fine to finely microcrystalline, argillaceous and chalky in part, dolomitic, occasionally siliceous, slightly marly in part, dense, medium hard, firm
	10%	<u>Shale</u> - as above
6020-6080	90%	<u>Shale</u> - black, dark gray, medium gray, silty, slightly carbonaceous in part, calcareous, argillaceous in part, blocky, medium hard, firm
	10%	<u>Limestone</u> - as above, medium gray, argillaceous, marly

6080-6110	90%	<u>Limestone</u> - white, light to medium gray, tan, cryptocrystalline, very finely microcrystalline, dolomitic, argillaceous and chalky in part, dense, firm, medium hard, no visible $\phi$ , NFSOC
	10%	<u>Shale</u> - as above
6110-6170	90%	<u>Shale</u> - black, dark gray, medium gray, dark brown, silty, very calcareous, very marly, graded to carbonaceous mudstone, trace carbonaceous, slightly micaceous, fissile in part, brittle, medium hard
	10%	<u>Limestone</u> - as above Trace Coal - black shiny, conchoidal
6170-6220		Very Poor Sample - 100% cavings
6220-6230	100%	<u>Limestone</u> - light gray, white, medium gray, cryptocrystalline to very finely microcrystalline, chalky fossiliferous, slightly dolomitic, dense, medium hard, pyritic Trace Shale
6230-6240	100%	<u>Limestone</u> - medium gray, light gray, cryptocrystalline, argillaceous, chalky, sparry, slightly dolomitic in part, dense, firm, medium hard
6240-6250	100%	<u>Limestone</u> - as above, medium gray, increase of shale content, marly, siliceous in part, medium hard, hard Trace Chert - tan Trace Calcite crystals
6250-6260	70%	<u>Limestone</u> - medium gray, light gray, cryptocrystalline, very marly, argillaceous in part, graded to mudstone, dense, medium hard
	30%	<u>Shale</u> - medium to dark gray, very calcareous, marly, medium hard
6260-6270	80%	<u>Shale</u> - medium to dark gray, black, calcareous, very marly in part, argillaceous in part, silty, occasionally slightly carbonaceous, firm, medium hard
	20%	<u>Limestone</u> - as above
6270-6280	90%	<u>Shale</u> - as above, very marly and argillaceous
	10%	<u>Limestone</u> - as above Trace Chert - tan, clear
6280-6290	80%	<u>Shale</u> - as above
	20%	<u>Limestone</u> - light gray, white, some medium gray, cryptocrystalline, very finely microcrystalline, argillaceous and chalky in part, trace calcite crystals, medium hard, firm
6290-6310	70%	<u>Limestone</u> - tan, brown, white, light gray, cryptocrystalline, very finely microcrystalline, slightly dolomitic in part, occasionally chalky, firm, medium hard, dense
	30%	<u>Shale</u> - as above, very marly
6310-6330	100%	<u>Limestone</u> - light to medium gray, tan to brown, cryptocrystalline, occasionally very finely microcrystalline, slightly to moderately dolomitic, trace micaceous, dense, firm, medium hard Trace Shale

6330-6340	60%	<u>Shale</u> - dark gray, dark gray to brown, argillaceous and waxy, marly, calcareous in part, some silty, blocky, medium hard, firm
	40%	<u>Limestone</u> - as above, becoming medium gray, argillaceous, marly
6340-6350	90%	<u>Shale</u> - as above, trace black, very slightly carbonaceous
	10%	<u>Limestone</u> - as above
6350-6380	70%	<u>Limestone</u> - light gray, medium gray, tan, cryptocrystalline, very finely microcrystalline, argillaceous with disseminated pyrite crystals throughout, marly, fossiliferous, dense, firm, medium hard
	30%	<u>Shale</u> - as above Trace Chert - clear to tan
6380-6390	90%	<u>Limestone</u> - light to medium gray, tan, very finely microcrystalline, cryptocrystalline, slightly dolomitic, argillaceous, chalky, slightly marly in part, dense, firm, medium hard
	10%	<u>Shale</u> - as above
6390-6400	100%	<u>Limestone</u> - light to medium gray, tan, very finely microcrystalline, cryptocrystalline, siliceous, occasionally fossiliferous, chalky in part, dense, medium hard, hard Trace Chert - tan to clear
6400-6410	90%	<u>Limestone</u> - as above
	10%	<u>Shale</u> - dark gray, calcareous, blocky, medium hard
6410-6420	60%	<u>Shale</u> - dark gray, very calcareous, very slightly carbonaceous, blocky, brittle, medium hard
	40%	<u>Limestone</u> - as above
6420-6440	90%	<u>Shale</u> - as above
	10%	<u>Limestone</u> - as above
6440-6450	100%	<u>Shale</u> - black, dark gray, calcareous, carbonaceous, slightly fissile, predominately blocky, firm Trace Limestone
6450-6460	100%	<u>Shale</u> - as above
6460-6470	80%	<u>Limestone</u> - light to medium gray, tan, mottled in part, cryptocrystalline, very finely microcrystalline, marly, lithic, argillaceous in part, anhydritic, thinly interbedded, dense, medium hard
	10%	<u>Shale</u> - as above
	10%	<u>Anhydrite</u> - white, crystalline, slightly calcareous, soft
6470-6485	90%	<u>Limestone</u> - as above, some marly, argillaceous, slightly dolomitic, dense
	10%	<u>Shale</u> - as above Trace Anhydrite
6485-6500	100%	<u>Limestone</u> - white, cream, tan, cryptocrystalline, very fine to coarsely microcrystalline, sparry, some very slightly to occasionally moderately dolomitic, fossiliferous in part, occasional oolitic appearance, probably reworked and recrystallized, slight trace anhydrite, firm, medium hard, trace visible pin point vuggy $\emptyset$ , 70% of total sample with

6485-6500 (continued)		yellow blue moderately bright fluorescence, diffuse ring cut, spotty dark brown to black staining, occasional patchy yellow stain in chalky limestone
6500-6510	100%	<u>Limestone</u> - cream, white, some tan, cryptocrystalline, chalky, fossiliferous, occasionally sparry, dense, firm, medium hard
6510-6520	100%	Very Poor Sample <u>Limestone</u> - tan, brown, light gray, cryptocrystalline, very fine to finely microcrystalline, sucrosic, fossiliferous, chalky, argillaceous, slightly dolomitic, friable, firm, no visible $\emptyset$ , 50% of sample with light yellow blue fluorescence, no visible stain, some very light yellow blue diffuse cut
6520-6530	90%	<u>Limestone</u> - as above, some medium gray, tan, cryptocrystalline, dense
	10%	<u>Shale</u> - dark gray, marly, smooth, brittle, medium hard
6530-6540	80%	<u>Limestone</u> - white, tan, light to medium gray, cryptocrystalline, chalky, argillaceous in part, some slightly shaly, occasionally sparry with dolomite crystals, dense, firm, medium hard
	20%	<u>Shale</u> - as above
6540-6570	90%	<u>Limestone</u> - as above, occasionally siliceous, fossiliferous, chalky, argillaceous, thinly interbedded with shale
	10%	<u>Shale</u> - as above, occasionally black, siliceous Trace disseminated Pyrite
6570-6580	70%	<u>Shale</u> - black, dark gray, calcareous, silty, carbonaceous, firm, fissile
	30%	<u>Limestone</u> - medium gray, light gray, mottled, cryptocrystalline, very argillaceous, marly, dense, firm
6580-6620		Very Poor Sample
	90%	<u>Shale</u> - black, dark gray, carbonaceous, silty, slightly calcareous, firm
	10%	<u>Limestone</u> - as above
6620-6630	80%	<u>Shale</u> - as above
	20%	<u>Limestone</u> - medium gray, light gray, tan, cryptocrystalline, dense, firm
6630-6640	90%	<u>Limestone</u> - light to medium gray, cryptocrystalline, occasionally very finely microcrystalline, slightly dolomitic, occasionally micaceous, anhydritic, dense, firm, medium hard
	10%	<u>Shale</u> - as above
6640-6660	50%	<u>Limestone</u> - as above
	40%	<u>Shale</u> - as above
	10%	<u>Anhydrite</u> - white, amorphous, soft
6660-6670	80%	<u>Limestone</u> - medium gray, brown, cryptocrystalline, very fine to finely microcrystalline, slightly dolomitic, anhydritic, dense, firm, medium hard
	20%	<u>Shale</u> - as above Trace Anhydrite

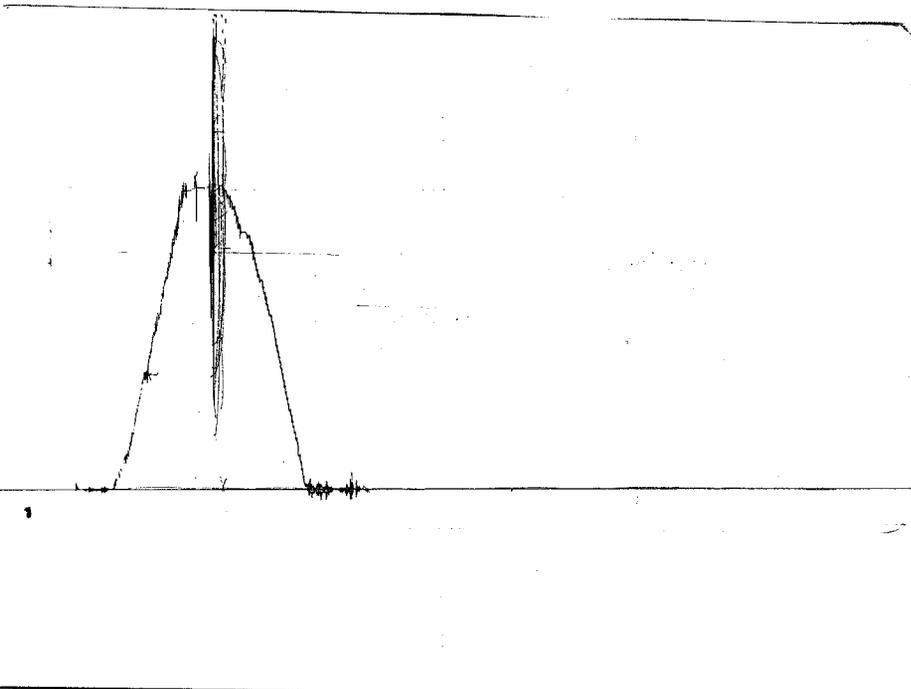
6670-6680	50%	<u>Limestone</u> - as above, some becoming argillaceous, marly
	50%	<u>Shale</u> - black, silty, calcareous, carbonaceous, firm
6680-6690	80%	<u>Shale</u> - as above
	20%	<u>Limestone</u> - as above
6690-6700	60%	<u>Shale</u> - as above
	40%	<u>Limestone</u> - as above
6700-6710	90%	<u>Dolomite</u> - medium gray, brown, very finely microcrystalline, cryptocrystalline, anhydritic, slightly sucrosic, silty and shaly, argillaceous in part, dense, firm, medium hard
	10%	<u>Shale</u> - as above
6710-6720	80%	<u>Dolomite</u> - as above
	10%	<u>Shale</u> - as above
	10%	<u>Anhydrite</u> - white, amorphous, soft
6720-6730	60%	<u>Dolomite</u> - medium gray, dark gray, cryptocrystalline, anhydritic dense, medium hard
	40%	<u>Shale</u> - dark gray, marly, mudstone appearance, dense, medium hard
		Trace Anhydrite
6730-6740	70%	<u>Dolomite</u> - tan, brown, cryptocrystalline, very anhydritic, dense, medium hard
	30%	<u>Shale</u> - as above, mudstone
		Trace Anhydrite
6740-6750		Very Poor Sample
	50%	<u>Shale</u> - black, calcareous, carbonaceous, firm
	50%	<u>Dolomite</u> - as above
		Trace Anhydrite
		Trace Chert - tan, clear
6750-6760	70%	<u>Dolomite</u> - medium brown, tan, cryptocrystalline, very finely microcrystalline, anhydritic, becoming very limy, medium hard, dense
	20%	<u>Shale</u> - black, calcareous, silty, carbonaceous, firm
	10%	<u>Anhydrite</u> - white, amorphous, soft
6760-6770		Very Poor Sample
	70%	<u>Limestone</u> - tan, brown, light gray, translucent in part, cryptocrystalline, very finely microcrystalline, dolomitic, occasionally fossiliferous, anhydritic in part, dense, firm
	20%	<u>Shale</u> - as above
	10%	<u>Anhydrite</u> - white, amorphous, soft
		Trace Chert
6770-6780	80%	<u>Limestone</u> - tan, light gray, light brown, cryptocrystalline, very finely microcrystalline, very anhydritic, slightly dolomitic
	10%	<u>Shale</u> - as above
	10%	<u>Anhydrite</u> - white, amorphous, soft
6780-6790	90%	<u>Dolomite</u> - brown, cryptocrystalline, very finely microcrystalline, very argillaceous, occasional anhydrite nodules, graded to dolomitic marlstone, dense, firm, medium hard
	10%	<u>Shale</u> - dark gray, black, calcareous, medium hard
		Trace Anhydrite

6790-6797

100%

Dolomite - brown, cryptocrystalline, very finely microcrystalline,  
argillaceous, anhydritic, marly, medium hard, firm, dense  
Trace Shale - 5%

Contractor <u>Exeter Drilling</u>	Surface Choke <u>1/4"</u>	Mud Type <u>--</u>
Rig No. <u>68</u>	Bottom Choke <u>3/4"</u>	Weight <u>9.5</u>
Spot <u>--</u>	Hole Size <u>8 3/4"</u>	Viscosity <u>39</u>
Sec. <u>9</u>	Core Hole Size <u>--</u>	Water Loss <u>--</u>
Twp. <u>38 S</u>	DP Size & Wt. <u>4 1/2" 16.60</u>	Filter Cake <u>--</u>
Rng. <u>23 E</u>	Wt. Pipe <u>None</u>	Resistivity <u>2.0 @ 65 °F</u>
Field <u>Wildcat</u>	I.D. of DC <u>2 1/4"</u>	<u>3,000</u> Ppm. NaCl
County <u>San Juan</u>	Length of DC <u>684'</u>	B.H.T. <u>-- °F</u>
State <u>Utah</u>	Total Depth <u>6535'</u>	Co. Rep. <u>Ray Koehn</u>
Elevation <u>6351' KB</u>	Type Test <u>Conventional</u>	Tester <u>David Dolyniuk</u>
Formation <u>Ismay</u>	Interval <u>6511' - 6535'</u>	Baker Dist. <u>Farmington, NM</u>



	REPORTED	CORRECTED
Opened Tool @	_____ hrs.	_____ hrs.
Flow No. 1	_____ min.	_____ min.
Shut-In No. 1	_____ min.	_____ min.
Flow No. 2	_____ min.	_____ min.
Shut-In No. 2	_____ min.	_____ min.
Flow No. 3	_____ min.	_____ min.
Shut-In No. 3	_____ min.	_____ min.

Recorder Type Kuster K-3  
 No. 7661 Cap. 4900 psi  
 Depth 6485 feet  
 Inside x Clock  
 Outside Range 24 hrs.

Initial Hydrostatic	A	_____
Final Hydrostatic	K	_____
Initial Flow	B	_____
Final Initial Flow	C	_____
Initial Shut-In	D	_____
Second Initial Flow	E	_____
Second Final Flow	F	_____
Second Shut-In	G	_____
Third Initial Flow	H	_____
Third Final Flow	I	_____
Third Shut-In	J	_____

Pipe Recovery:

Remarks: Due to hole conditions could not reach test interval; hit bridge at 6500 feet. No data was obtained.

**\*\* MISRUN \*\***

Operator QUINTANA PETROLEUM CORP.  
 Ticket No. 2766  
 Date 1/3/88  
 "TIGHT HOLE"  
 Well Name & No. CABALLO UNIT FEDERAL #1-9  
 Location S-9 T-38S R-23E  
 County, State SAN JUAN COUNTY, UT  
 DST No. 2  
 Interval 6511' - 6535'  
 Formation ISMAY

# BAKER SERVICE TOOLS

## DISTRIBUTION OF FINAL REPORTS

Quintana Petroleum Corp.  
Operator

Caballo Unit Federal #1-9  
Well Name and No.

QUINTANA PETROLEUM CORP. 2  
ATTN OPERATIONS MANAGER  
P.O. BOX 3331  
HOUSTON TX 77253

TENNECO OIL CO. 2  
P.O. BOX 3249  
ENGLEWOOD CO 80155

QUINTANA PETROLEUM CORP. 6  
1050-17TH ST. SUITE 400  
DENVER CO 80265

DUNCAN OIL CO. 1  
1777 S. HARRISON ST. PENTHOUSE 1  
DENVER CO 80210

STANDARD OIL PRODUCTION CO. 2  
JOINT EXPLORATIONS PROGRAMS  
P.O. BOX 4587  
HOUSTON TX 77210

UNION PACIFIC RESOURCES CO. 2  
P.O. BOX 1257  
ENGLEWOOD CO 80150

SANTA FE ENERGY CO. 2  
1616 GLENARM SUITE 2600  
DENVER CO 80202

MCO RESOURCES INC. 2  
5718 WESTHEIMER SUITE 1100  
HOUSTON TX 77057

YATES PETROLEUM CORP. 2  
105 SO. 4TH ST.  
ARTESIA NM 88210

YATES PETROLEUM CORP. 2  
105 SO. 4TH ST.  
ARTESIA NM 88210

SAMEDAN OIL CORP. 3  
1616 GLENARM SUITE 2550  
DENVER CO 80202

BHP PETROLEUM AMERICAS INC. 2  
5613 DTC PKWY. SUITE 600  
ENGLEWOOD CO 80111

GRYNBERG PETROLEUM 1  
5000 S. QUEBEC SUITE 500  
DENVER CO 80237

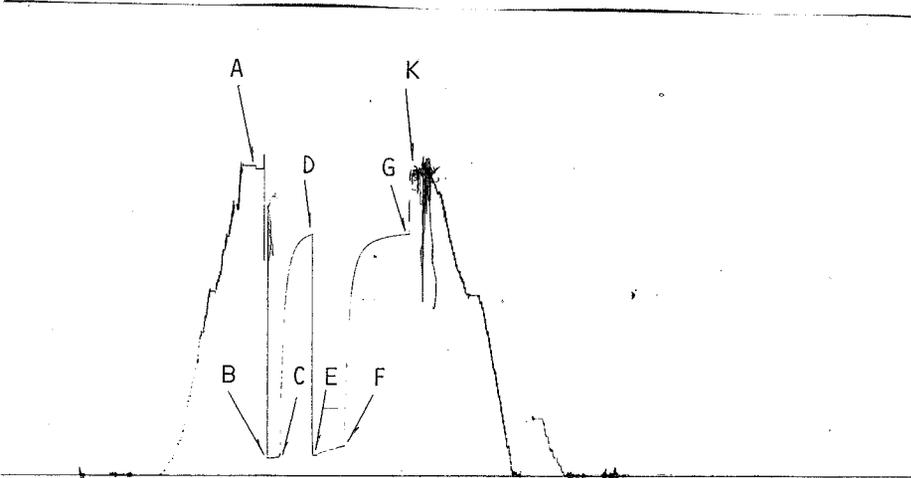
# BAKER SERVICE TOOLS

Phone (303) 573-8027

1616 Glenarm — Suite 1350  
Denver, CO 80202

Contractor <b>Exeter Drilling</b>	Surface Choke <b>1/4"</b>	Mud Type <b>--</b>
Rig No. <b>68</b>	Bottom Choke <b>3/4"</b>	Weight <b>9.5</b>
Spot <b>--</b>	Hole Size <b>8 3/4"</b>	Viscosity <b>36</b>
Sec. <b>9</b>	Core Hole Size <b>--</b>	Water Loss <b>--</b>
Twp. <b>38 S</b>	DP Size & Wt. <b>4 1/2" 16.60</b>	Filter Cake <b>--</b>
Rng. <b>23 E</b>	Wt. Pipe <b>None</b>	Resistivity <b>2.0 @ 65 °F</b>
Field <b>Wildcat</b>	I.D. of DC <b>2 1/4"</b>	<b>3,000 Ppm. NaCl</b>
County <b>San Juan</b>	Length of DC <b>683'</b>	B.H.T. <b>138 °F</b>
State <b>Utah</b>	Total Depth <b>6500'</b>	Co. Rep. <b>Ray Koehn</b>
Elevation <b>6351' KB</b>	Type Test <b>Conventional</b>	Tester <b>David Dolyniuk</b>
Formation <b>Ismay</b>	Interval <b>6482' - 6500'</b>	Baker Dist. <b>Farmington, NM</b>

	REPORTED	CORRECTED
Opened Tool @	<b>06:50</b>	hrs.
Flow No. 1	<b>30</b>	<b>24</b> min.
Shut-In No. 1	<b>60</b>	<b>60</b> min.
Flow No. 2	<b>60</b>	<b>58</b> min.
Shut-In No. 2	<b>120</b>	<b>122</b> min.
Flow No. 3	<b>None Taken</b>	min.
Shut-In No. 3	<b>"</b>	<b>"</b> min.



Recorder Type <b>Kuster K-3</b>
No. <b>7661</b> Cap. <b>4900</b> psi
Depth <b>6460</b> feet
Inside <b>x</b> Clock
Outside Range <b>24</b> hrs.

Initial Hydrostatic	A	<b>3254.9</b>
Final Hydrostatic	K	<b>3167.2</b>
Initial Flow	B	<b>181.8</b>
Final Initial Flow	C	<b>197.7</b>
Initial Shut-In	D	<b>2516.8</b>
Second Initial Flow	E	<b>208.7</b>
Second Final Flow	F	<b>305.5</b>
Second Shut-In	G	<b>2522.6</b>
Third Initial Flow	H	
Third Final Flow	I	
Third Shut-In	J	

Pipe Recovery: 967' Total fluid = 7.38 bbl., consisting of:  
 800' Highly gas cut oil = 6.56 bbl.  
 167' Gas cut mud & water = 0.82 bbl.

Resistivity:  
 Bottom: .3 @ 60°F - .14 @ Res Temp = 24,714 ppm NaCl., 15,024 ppm Cl.

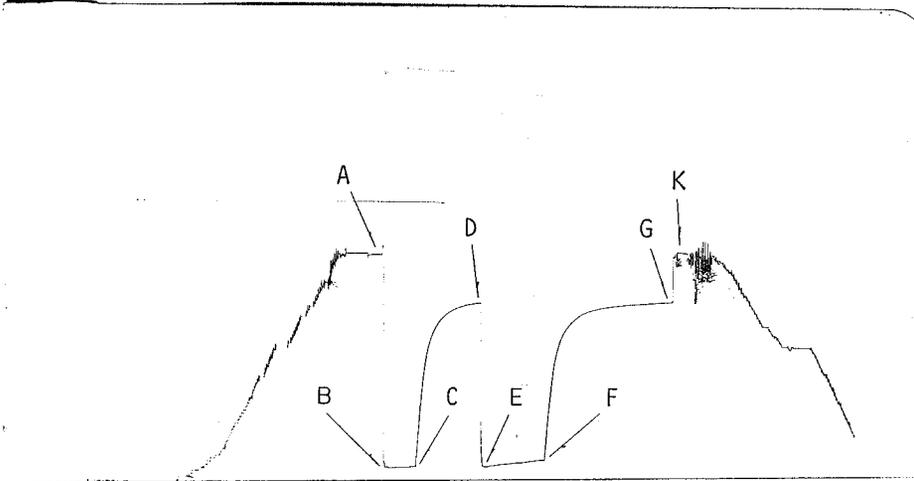
Operator: **QUINTANA PETROLEUM CORP.**  
 Ticket No. **257-80164**  
 Date **1/2/88**  
 "TIGHT HOLE"  
 Well Name & No. **CABALLO UNIT FEDERAL #1-9**  
 Location **S-9 T-38S R-23E**  
 County, State **SAN JUAN COUNTY, UT**  
 DST No. **1**  
 Interval **6482' - 6500'**  
 Formation **ISMAY**

# BAKER SERVICE TOOLS

Quintana Petroleum Corp.  
Operator

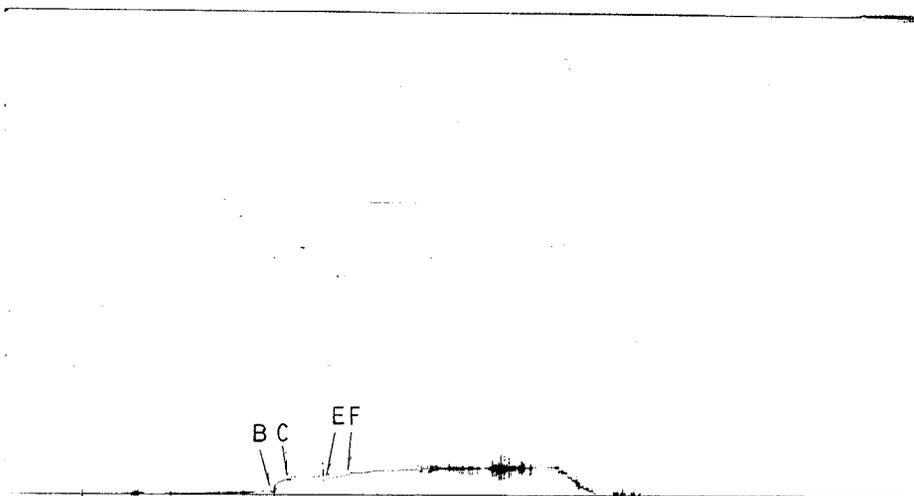
Caballo Unit Federal #1-9  
Well Name and No.

2  
DST No.



Recorder Type Kuster K-3  
No. 24519 Cap. 6650 psi  
Depth 6495 feet  
Inside \_\_\_\_\_ Clock \_\_\_\_\_  
Outside X Range 24 hrs.

Initial Hydrostatic A 3271.4  
Final Hydrostatic K 3187.3  
Initial Flow B 195.6  
Final Initial Flow C 204.9  
Initial Shut-In D 2546.3  
Second Initial Flow E 214.1  
Second Final Flow F 288.6  
Second Shut-In G 2548.1  
Third Initial Flow H \_\_\_\_\_  
Third Final Flow I \_\_\_\_\_  
Third Shut-In J \_\_\_\_\_



Recorder Type Kuster K-3  
No. 24523 Cap. 6650 psi  
Depth 6440 feet  
Inside X Clock \_\_\_\_\_  
Outside \_\_\_\_\_ Range 24 hrs.

Initial Hydrostatic A \_\_\_\_\_  
Final Hydrostatic K \_\_\_\_\_  
Initial Flow B 9.1  
Final Initial Flow C 195.3  
Initial Shut-In D 186.8  
Second Initial Flow E 267.3  
Second Final Flow F \_\_\_\_\_  
Second Shut-In G \_\_\_\_\_  
Third Initial Flow H \_\_\_\_\_  
Third Final Flow I \_\_\_\_\_  
Third Shut-In J \_\_\_\_\_

# BAKER SERVICE TOOLS

## SAMPLER REPORT

Company Quintana Petroleum Corp. Date 1/2/88  
Well Name & No. Caballo Unit Federal #1-9 Ticket No. 257-80164  
County San Juan State Utah  
Test Interval 6482' - 6500' DST No. 1

Pressure in Sampler: 1400 psig

Total Volume of Sampler: 2100 cc.

Total Volume of Sample: 1400 cc.

Oil: 400 cc.

Water: 1000 cc.

Mud: None cc.

Gas: 5.7 cu. ft.

Other: None

Sample R W: .3 @ 65°F - .15 @ Res Temp = 22,826 ppm NaCl., 13,876 ppm Cl.

### Resistivity

Make Up Water Fresh @ \_\_\_\_\_ °F of Chloride Content \_\_\_\_\_ ppm.

Mud Pit Sample 2.0 @ 65 °F of Chloride Content 3,000 ppm.

Gas/Oil Ratio 2280/1 cu.ft./bbl Gravity \_\_\_\_\_ °API @ \_\_\_\_\_ °F

Where was sample drained On Location

Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# BAKER SERVICE TOOLS

Quintana Petroleum Corp.  
Operator

Caballo Unit Federal #1-9  
Well Name and No.

2  
DST No.

TIME	CHOKE SIZE	SURFACE PRESSURE	FLOW RATE MCF/D	LIQUID	REMARKS
0	1/4"	2"			Opened tool for initial flow:
2		Bottom Of Bucket			
5		2.000#			
10		4.000#			
15		8.000#			
20		12.000#			
25		19.000#			
30		21.000#			Closed tool for initial shut-in:
10		15.000#			Gas to surface:
0					Opened tool for final flow:
5		7.000#	32.4		
10		12.000#	39.7		
15		14.000#	42.7		
20		16.000#	45.6		
25		18.000#	48.6		
30		20.000#	51.5		
35		21.000#	53.0		
40		22.000#	54.4		
45		23.000#	55.9		
50		24.000#	57.4		
55		24.000#	57.4		
60		25.000#	58.9		Closed tool for final shut-in:

# BAKER

## SERVICE TOOLS

Quintana Petroleum Corp.  
Operator

Caballo Unit Federal #1-9  
Well Name and No.

1  
DST No.

This analysis has been made on the basis of the liquid recovery and equations applicable to liquid recovery tests, the Horner extrapolation method and fluid properties from Vasquez & Beggs correlations.

1. The pressure extrapolation plot indicates a maximum initial reservoir pressure of 2675 psi and a maximum final reservoir pressure of 2610 psi which is equivalent to a subsurface pressure gradient of 0.40 psi/ft at the recorder depth of 6460 feet. The difference between the extrapolated initial and final shut-in pressures (65 psi) may be due to the use of insufficient time for the initial shut-in period.
2. The Average Production Rate which was used in this analysis, 99.2 barrels/day, has been calculated from analysis of the flow pressure curves using a liquid gradient for the recovered oil of 0.357 psi/ft.
3. The calculated Total Effective Transmissibility of 41.16 md.-ft./cp. indicates an Average Permeability to the produced oil of 1.64 md. for the reported 15 feet of effective porosity within the total 18 feet of tested interval.
4. The calculated Skin Factor of 2.5 indicates slight well-bore damage was present at the time of this formation test.
5. The evaluation criteria used in the drillstem test analysis system indicate this is a good mechanical test and the results obtained in this analysis should be reliable within reasonable limits relative to the assumptions which have been made.

# BAKER

## SERVICE TOOLS

Quintana Petroleum Corp.  
Operator

Caballo Unit Federal #1-9  
Well Name and No.

1  
DST No.

### T E S T   P A R A M E T E R S

DRILLPIPE CAPACITY	0.0142 BBL/FT	HOLE SIZE	8.750 IN
DRILLCOLLAR CAPACITY	0.0049 BBL/FT	PAY THICKNESS	15 FT
DRILLCOLLAR LENGTH	683 FT	VISCOSITY	.60 CP
BOTTOM HOLE TEMP	138 DEG F	COMPRESSIBILITY	.000102 1/PSI
POROSITY FRACTION	.12 (EST)	1ST FLOW TIME	24 MIN
RECORDER NUMBER	7661	1ST SHUT-IN TIME	60 MIN
RECORDER DEPTH	6460 FT	2ND FLOW TIME	58 MIN
ELEVATION	6351 FT (KB)	2ND SHUT-IN TIME	122 MIN
DATUM	-109 FT		

### C A L C U L A T I O N S

EXTRAPOLATED INITIAL SHUT-IN PRESSURE (PSI) .....	2674.5
NUMBER OF POINTS USED .....	4
SLOPE (PSI/LOG CYCLE) .....	1075.2
EXTRAPOLATED FINAL SHUT-IN PRESSURE (PSI) .....	2610.2
NUMBER OF POINTS USED .....	5
SLOPE (PSI/LOG CYCLE) .....	391.9
AVERAGE PRODUCTION RATE (BARRELS/DAY) .....	99.2
TRANSMISSIBILITY (MD.-FT./CP.) .....	41.16
FLOW CAPACITY (MD.-FT.) .....	24.63
PERMEABILITY (MD.) .....	1.64
PRODUCTIVITY INDEX (BARRELS/DAY/PSI) .....	.043
DAMAGE RATIO .....	1.1
SKIN FACTOR (S) .....	2.5
PRESSURE DROP DUE TO SKIN (PSI) .....	1135.5
APPROXIMATE RADIUS OF INVESTIGATION (FT.) .....	16.0
DRAWDOWN FACTOR (%) .....	2.4
POTENTIOMETRIC SURFACE (FT.) .....	5972.9

# BAKER

## SERVICE TOOLS

Quintana Petroleum Corp.  
Operator

Caballo Unit Federal #1-9  
Well Name and No.

1  
DST No.

RECORDER NO. 7661 DEPTH 6460 FT.

### INITIAL FLOW

<u>DT(MIN)</u>	<u>PRESSURE(P SIG)</u>
0	181.8
5	180.3
10	181.1
15	184.5
20	190.3
24	197.7

RECORDER NO. 7661 DEPTH 6460 FT.

### FINAL FLOW

<u>DT(MIN)</u>	<u>PRESSURE(P SIG)</u>
0	208.7
5	208.7
10	228.2
15	238.1
20	245.8
25	255.5
30	265.9
35	269.2
40	277.4
45	288.0
50	296.6
55	302.9
58	305.5

# BAKER

## SERVICE TOOLS

Quintana Petroleum Corp.  
Operator

Caballo Unit Federal #1-9  
Well Name and No.

1  
DST No.

RECORDER NO. 7661 DEPTH 6460 FT.

### INITIAL SHUT-IN

INITIAL FLOW TIME: T = 24 MIN.

DT(MIN)	LOG((T+DT)/DT)	PRESSURE(P SIG)	DP(P SIG)
0		197.7	0.0
1	1.398	575.2	377.5
2	1.114	805.3	607.5
3	.954	932.9	735.1
4	.845	1083.4	885.7
5	.763	1226.8	1029.1
6	.699	1336.9	1139.2
7	.646	1452.3	1254.6
8	.602	1555.2	1357.5
9	.564	1651.3	1453.6
10	.531	1739.5	1541.8
12	.477	1871.1	1673.4
14	.434	1982.6	1784.9
16	.398	2074.0	1876.3
18	.368	2133.8	1936.1
20	.342	2199.0	2001.3
22	.320	2236.5	2038.7
24	.301	2281.5	2083.8
26	.284	2313.1	2115.4
28	.269	2344.5	2146.8
30	.255	2370.0	2172.2
35	.227	2417.2	2219.5
40	.204	2449.5	2251.8
45	.186	2474.3	2276.5
50	.170	2492.2	2294.5
55	.157	2505.7	2308.0
60	.146	2516.8	2319.1

EXTRAPOLATED PRESSURE: 2674.5 PSI (QUESTIONABLE)  
SLOPE: 1075.2 PSI/LOG CYCLE  
POINTS USED: 4

# BAKER SERVICE TOOLS

Quintana Petroleum Corp.  
Operator

Caballo Unit Federal #1-9  
Well Name and No.

1  
DST No.

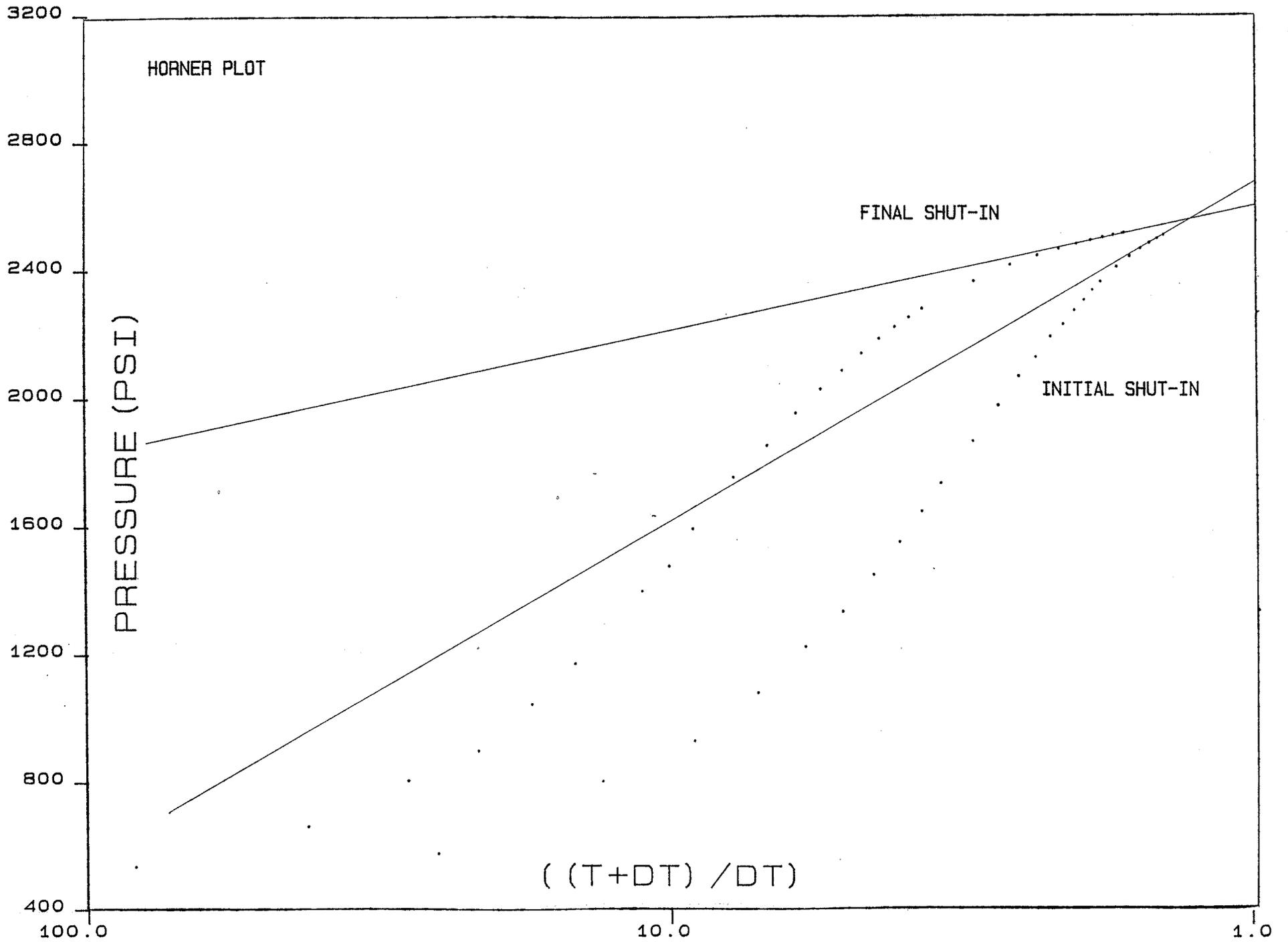
RECORDER NO. 7661 DEPTH 6460 FT.

## FINAL SHUT-IN

TOTAL FLOW TIME: T = 82 MIN.

<u>DT(MIN)</u>	<u>LOG((T+DT)/DT)</u>	<u>PRESSURE(P SIG)</u>	<u>DP(P SIG)</u>
0		305.5	0.0
1	1.919	536.4	231.0
2	1.623	664.8	359.3
3	1.452	807.4	502.0
4	1.332	902.4	596.9
5	1.241	1048.3	742.8
6	1.166	1175.1	869.6
8	1.051	1401.6	1096.2
9	1.005	1479.0	1173.5
10	.964	1596.7	1291.2
12	.894	1758.1	1452.6
14	.836	1856.7	1551.3
16	.787	1958.3	1652.8
18	.745	2032.1	1726.6
20	.708	2090.1	1784.6
22	.675	2143.4	1837.9
24	.645	2190.0	1884.6
26	.618	2226.7	1921.2
28	.594	2257.0	1951.5
30	.572	2284.3	1978.8
40	.484	2370.5	2065.0
50	.422	2422.2	2116.7
60	.374	2451.8	2146.3
70	.337	2473.0	2167.6
80	.306	2488.7	2183.3
90	.281	2499.7	2194.3
100	.260	2508.7	2203.2
110	.242	2515.8	2210.3
120	.226	2521.4	2216.0
122	.223	2522.6	2217.1

EXTRAPOLATED PRESSURE: 2610.2 PSI  
SLOPE: 391.9 PSI/LOG CYCLE  
POINTS USED: 5



1000.0

LOG/LOG PLOT

300.0

DELTA (T) (MIN)

10.0

1.0

DELTA (P) (PSI)

1.0

10.0

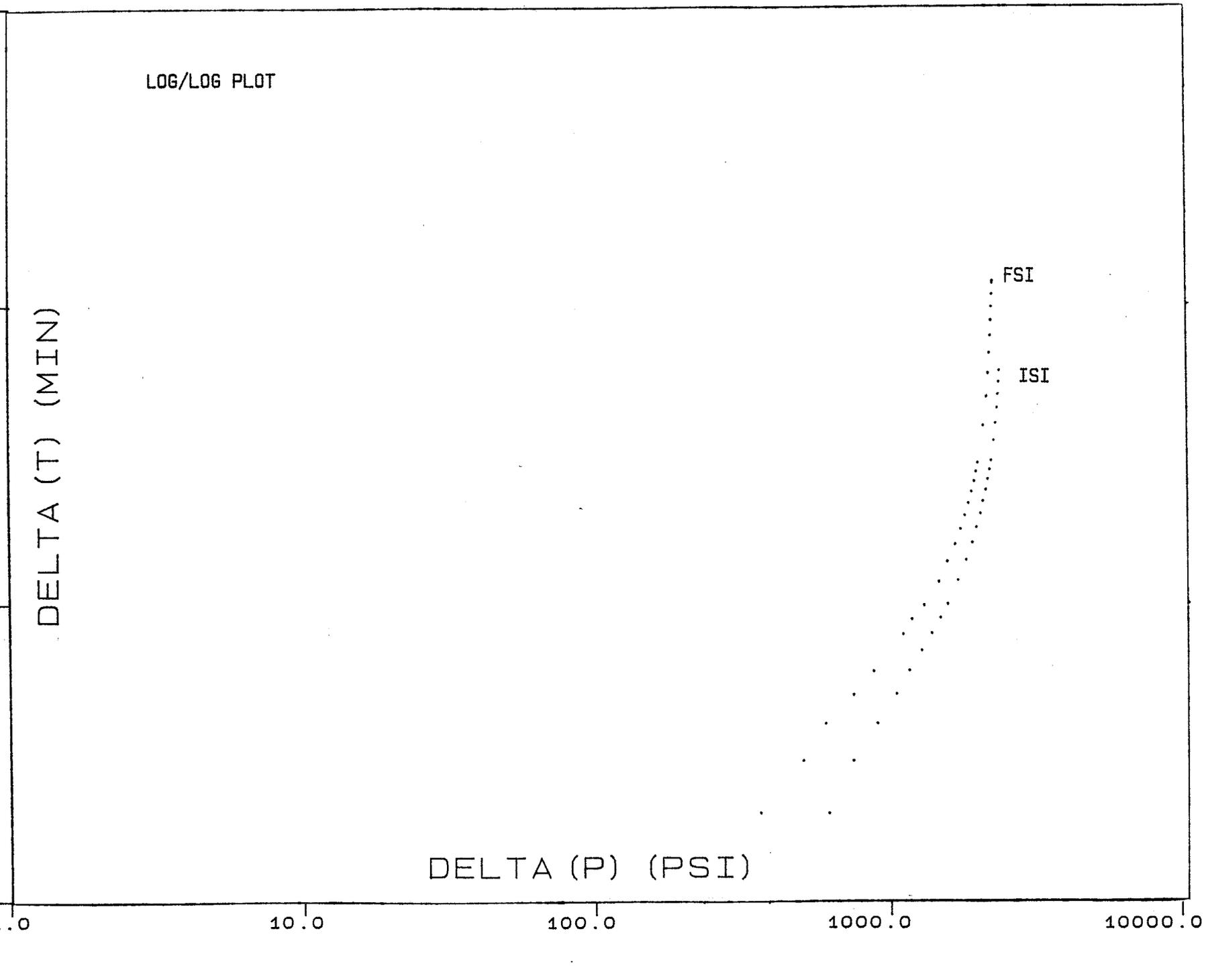
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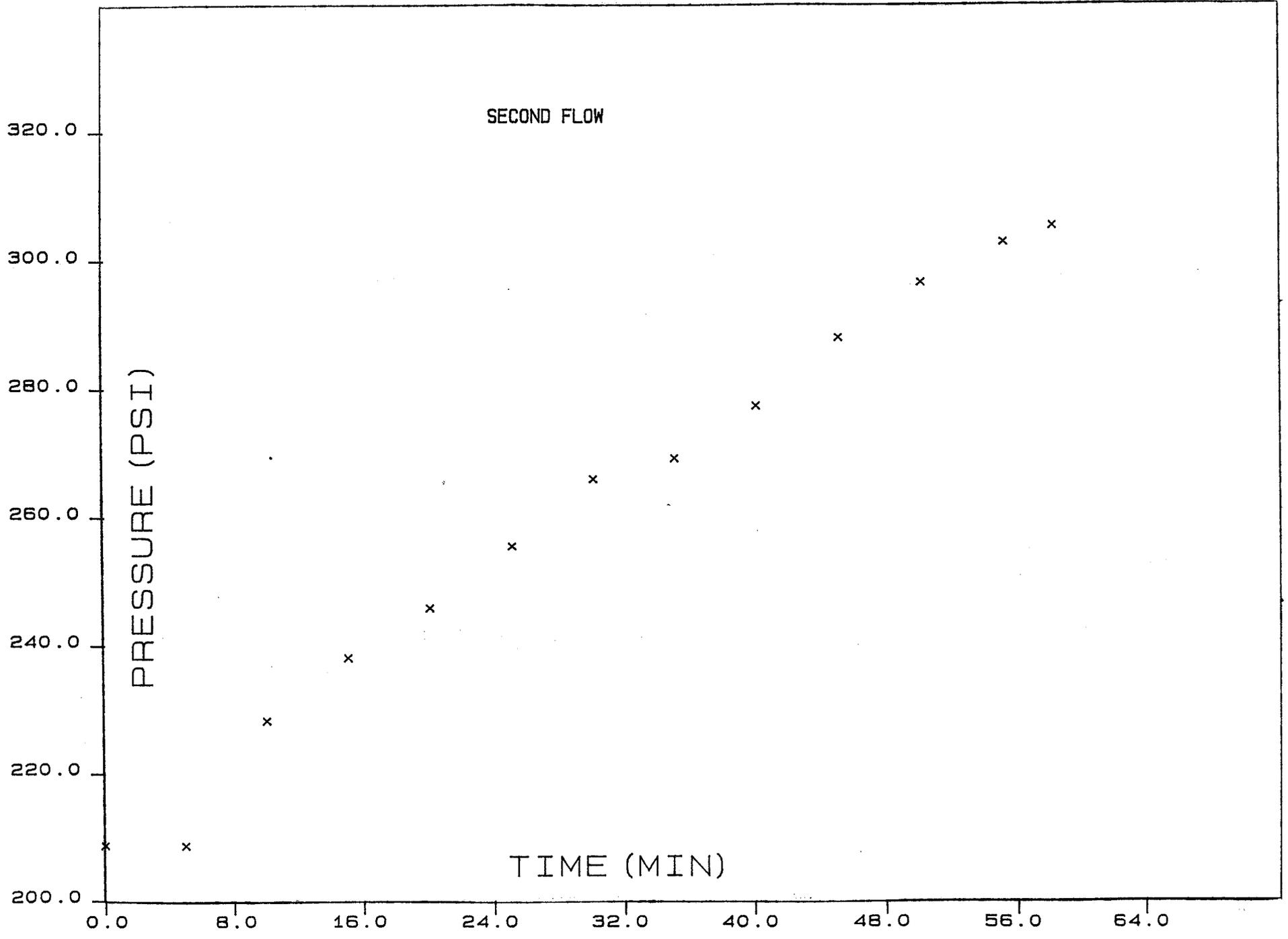
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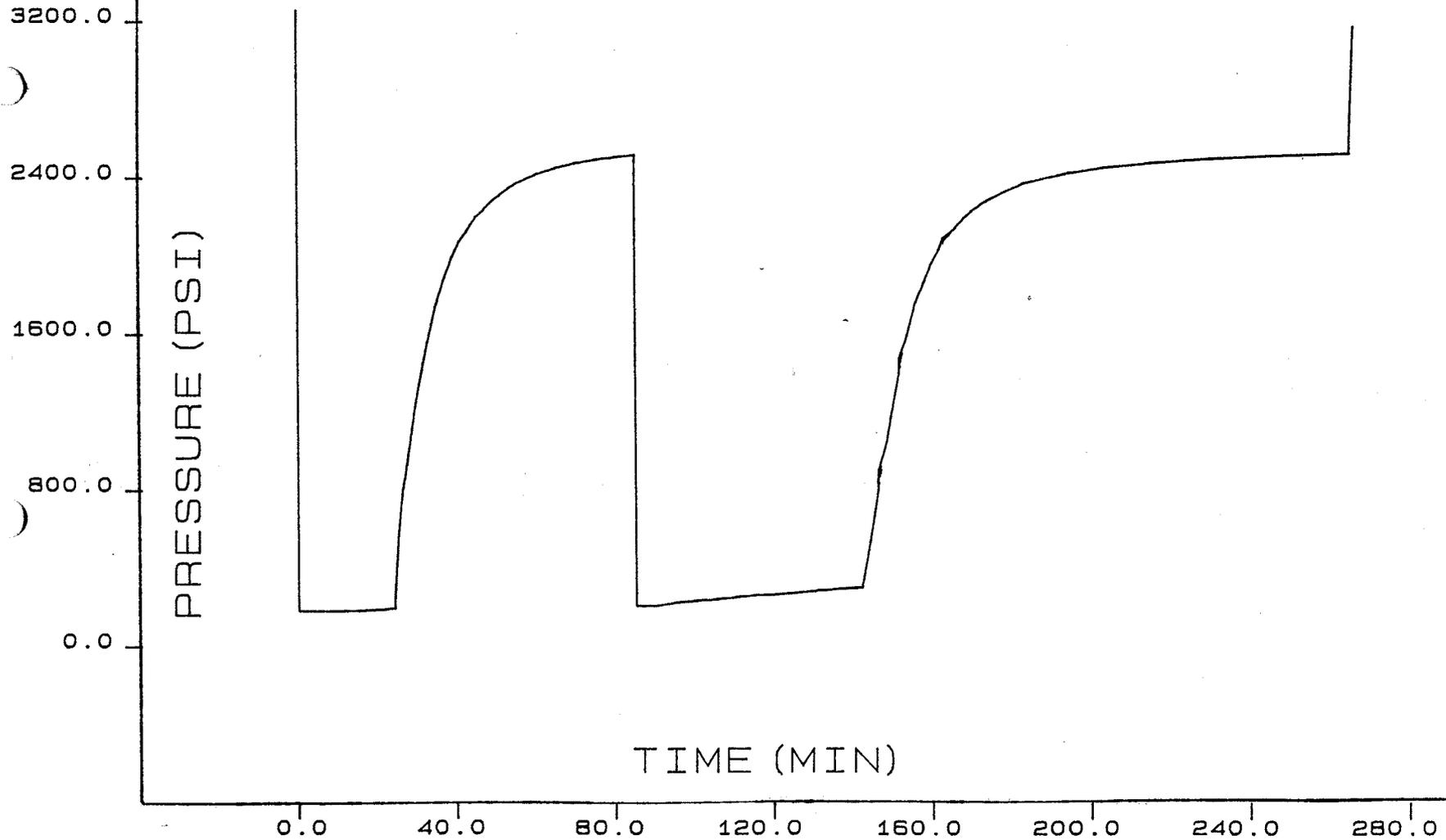
FSI

ISI





GAUGE NO. 7661 @ 6460 FT.



# BAKER SERVICE TOOLS

## DISTRIBUTION OF FINAL REPORTS

Quintana Petroleum Corp.

Operator

Caballo Unit Federal #1-9

Well Name and No.

QUINTANA PETROLEUM CORP. 2  
ATTN OPERATIONS MANAGER  
P.O. BOX 3331  
HOUSTON TX 77253

QUINTANA PETROLEUM CORP. 6  
1050-17TH ST. SUITE 400  
DENVER CO 80265

STANDARD OIL PRODUCTION CO. 2  
JOINT EXPLORATIONS PROGRAMS  
P.O. BOX 4587  
HOUSTON TX 77210

SANTA FE ENERGY CO. 2  
1616 GLENARM SUITE 2600  
DENVER CO 80202

YATES PETROLEUM CORP. 2  
105 SO. 4TH ST.  
ARTESIA NM 88210

SAMEDAN OIL CORP. 3  
1616 GLENARM SUITE 2550  
DENVER CO 80202

GRYNBERG PETROLEUM 1  
5000 S. QUEBEC SUITE 500  
DENVER CO 80237

TENNECO OIL CO. 2  
P.O. BOX 3249  
ENGLEWOOD CO 80155

DUNCAN OIL CO. 1  
1777 S. HARRISON ST. PENTHOUSE 1  
DENVER CO 80210

UNION PACIFIC RESOURCES CO. 2  
P.O. BOX 1257  
ENGLEWOOD CO 80150

MCO RESOURCES INC. 2  
5718 WESTHEIMER SUITE 1100  
HOUSTON TX 77057

YATES PETROLEUM CORP. 2  
105 SO. 4TH ST.  
ARTESIA NM 88210

BHP PETROLEUM AMERICAS INC. 2  
5613 DTC PKWY. SUITE 600  
ENGLEWOOD CO 80111

COMPANY: QUINTANA UT ACCOUNT # NA85 SUSPENSE DATE: \_\_\_\_\_

WELL NAME: CABALLO FED 1-9

TELEPHONE CONTACT DOCUMENTATION

API #: 43037 31365

CONTACT NAME: JEANIE SEC, TWP, RNG: 365 23E9

CONTACT TELEPHONE NO.: 1-303-628-9211

SUBJECT: Log record marked confidential. Called to verify since file is NOT marked conf. Jeanie said file shd be conf and she will send letter requesting this.

(Use attachments if necessary)

RESULTS: Hold file conf unofficially for a few days until letter rec'd.

(Use attachments if necessary)

CONTACTED BY: VC

DATE: 1-27-88

QUINTANA PETROLEUM CORPORATION

1050 SEVENTEENTH STREET  
SUITE 400  
DENVER, COLORADO 80265  
(303) 628-9211

020416

January 27, 1988

RECEIVED  
JAN 29 1988

DIVISION OF  
OIL, GAS & MINING

State of Utah  
Division of Oil, Gas & Mining  
3 Triad Center, Suite 350  
355 West North Temple  
Salt Lake City, Utah 84180-1204

Sow 1 Smy  
43-037-31365

RE: Caballo Unit Federal #1-9  
Section 9, T36S-R23E  
San Juan County, Utah

CONFIDENTIAL

Gentlemen:

Quintana Petroleum Corporation respectfully requests that all information received on the subject well be held confidential for the maximum amount of time allowable.

Please feel free to call if you have any questions.

Very truly yours,

*J Williams*

Jeannie Williams  
Production Technician

/jw

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE\*  
(Other instructions on reverse side)

Form approved  
Budget Bureau No. 1004-013  
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 another reservoir.  
Use "APPLICATION FOR PERMIT TO DRILL" form.)

5. LEASE DESIGNATION AND SERIAL NO.

U-23520

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

N/A

7. UNIT AGREEMENT NAME

CABALLO UNIT

8. FARM OR LEASE NAME

CABALLO UNIT FEDERAL

9. WELL NO.

#1-9

10. FIELD AND POOL, OR WILDCAT

Wildcat

11. SEC., T., E., M., OR BLK. AND SURVEY OR ARMA

Section 9, T36S-R23E

12. COUNTY OR PARISH

San Juan

13. STATE

Utah

1. OIL WELL  GAS WELL  OTHER

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

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

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)  
At surface  
820' FSL & 2340' FEL  
SW SE Section 9

14. PERMIT NO.  
43-037-31365

15. ELEVATIONS (Show whether DF, RT, GR, etc.)  
6339' GR

RECEIVED  
FEB 01 1989

RECEIVED JAN 20 1989

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

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

FILL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON\*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT\*

(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.)\*

Confirmation of verbal approval from Dale Manchester, BLM, Moab, Utah, to temporarily abandon well. Approval received 12/29/88.

Set CIBP at 6750'. Dump bail 10' cement on top and one sack cement at surface. NU tree, RD MO rig 12/30/88.

Quintana Petroleum wishes to retain wellbore for possible salt water disposal or injection well in the future.

CONFIDENTIAL

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

SIGNED

*M. Williams*

TITLE

Production Technician

DATE

1/3/89

(This space for Federal or State office use)

APPROVED BY

*D. J. ...*

TITLE

District Mgr.

DATE

1/13/89

CONDITIONS OF APPROVAL, IF ANY:

cc: Utah DOGM

CONDITIONS OF APPROVAL ATTACHED

\*See Instructions on Reverse Side

Quintana Petroleum Corporation  
Well No. Caballo Unit Federal 1-9  
Sec. 9, T. 36 S., R. 23 E.  
San Juan County, Utah  
Lease U-23520

CONDITIONS OF APPROVAL

1. Operator is approved to temporary abandon well for one year pending review.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLES  
(Other instructions on  
reverse side)

Form Approved  
GSA Gen. Reg. No. 27  
Expires August 31, 1985

UTU23520

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.)

JAN 04 1991

IF INDIA, ADDRESS OR TRIBE NAME  
N/A

1. OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER	7. UNIT AGREEMENT NAME Caballo Unit
2. NAME OF OPERATOR QUINTANA PETROLEUM CORPORATION (303)692-9559	8. FARM OR LEASE NAME CABALLO UNIT FEDERAL
3. ADDRESS OF OPERATOR 1325 So. Colorado Blvd., Suite 411, Denver, CO 80222	9. WELL NO. #1-9
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space (7) below.) At surface 820' FSL & 2340' FEL (SW SE)	10. FIELD AND POOL OR WILDCAT Wildcat
14. PERMIT NO. 43-037-31365 PA	11. SEC., T., R., S. OR BLK. AND SUBST. OR AREA Section 9, T36S-R23E
15. ELEVATIONS (Show whether of AT, GR, etc.) 6339' GR	12. COUNTY OR PARISH, STATE San Juan Utah

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

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETION <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input checked="" type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANT <input type="checkbox"/>	(Other) _____	

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

17. DESCRIBE PROMISED 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.)

Plugged well as follows. Plugging witnessed by Eric Jones, BLM.

Plug #1: 6750'-6372', 46 sxs Class "G"  
 Plug #2: 2347'-2147', 70 sxs Class "G"  
 Plug #3: 55'- 5', 14 sxs Class "G"  
 Plug #4: 55'- 5', 7 sxs "G" inside 5 1/2" casing through 2 7/8" tubing.

9.5 ppg mud was placed between all plugs.

Cut off casing 5' below ground level, welded on plates, installed dry hole marker.

Rig released 12/13/90. FINAL REPORT.

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

SIGNED *Jmsnyder* TITLE Production Technician DATE 1/2/90

(This space for Federal or State office use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL IF ANY:

cc: Utah DOGM

\*See instructions on Reverse Side

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**RECEIVED**

**INDIVIDUAL WELL RECORD**

Sec. 9

T. 36 S.

R. 23 E.

SLB& Mer.

IAN 26 1994

**DIVISION OF  
OIL, GAS & MINING**

Date January 21, 1988

Ref. No. \_\_\_\_\_

**FEDERAL**

State Utah

Lease No. 23520

County San Juan

Lessee Duncan Expl. Co. 40%, Tenneco Oil Co. 60%

Field Wildcat

Operator Quintana Petroleum Corporation

Unit/CA Caballo Unit

Well Name & No. Caballo Unit 1-9

District Moab

A.P.I. Well No. 43-037-31365

Subdivision SWSE

Location 820' FSL and 2340' FEL

Date Drilling Approved November 3, 1987

Well Elevation 6339 GR Feet

Date Drilling Commenced December 20, 1987

Total Depth 6807; PB 6612 Feet

Date Drilling Ceased January 6, 1988

Initial Production 110.64 BOPD; 124 MCFGPD; 0.4 BOWPD

Date Completed For Production January 17, 1988

Gravity A.P.I. 44°

Date Abandonment Approved (Final) March 20, 1991

Initial Reservoir Pressure FTP; 60 psig

FAN Approved 12/30/93

GEOLOGIC FORMATIONS

PRODUCTIVE HORIZONS

SURFACE Dakota  
LOWEST TESTED Desert Creek

NAME Upper Ismay DEPTHS 6514' - 6524' CONTENTS Oil and Gas

SURFACE MANAGEMENT AGENCY	<u>BLM</u>
MINERAL OWNERSHIP	<u>BLM</u>
LEASE EXPIRATION	<u>7/31/83</u>

(Selective)

**WELL STATUS**

YEAR	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1987												SPUD
1988	OSI		MPL-4A APPROVAL 3/17/88		SPUD 5/11/88							
1989	TA APPROVED 1/13/89											
1990	TA APPROVAL 2/15/90											N&I LO PFA
1991			SRA APPROVED 3/20/91									
1993												FAN

First Production Memorandum 1/27/88 Lease Extension Memorandum \*2/10/86 Confirmation \_\_\_\_\_  
2/01/88

\*Lease was extended thru 1/31/88 by termination of Crossbed Unit.

