

FILE NOTATIONS

Entered in NID File ✓
Location Map Pinned ✓
Card Indexed ✓

Checked by Chief ✓
Approval Letter
Disapproval Letter

COMPLETION DATA:

Well Completed 10-8-78

Location Inspected

Bond released

State or Fee Land

LOGS FILED

Driller's Log ✓
Electric Logs (No.) ✓
E..... I..... Dual I Lat..... GR-N..... Micro.....
BHC Sonic GR..... Lat..... MI-L..... Sonic.....
CBLog..... CCLog..... Others.....

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL & GAS

THIS IS A FEDERAL LEASE

5. Lease Designation and Serial No.

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

The Anschutz Corporation

3. Address of Operator

1110 Denver Club Building, Denver, Colorado 80202

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

At surface 660' FNL, 1980' FWL NE NW Sec. 30

At proposed prod. zone same

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

39 miles from Thompson, Utah (Exhibit "E")

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

660 FSL

16. No. of acres in lease 640

17. No. of acres assigned to this well 160A

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

3000'

19. Proposed depth

2420

20. Rotary or cable tools

Rotary

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

5061' GR 5070' KB

30-T. 17S- R. 26E
12. County or Parrish 13. State

Grand Utah

28. PROPOSED CASING AND CEMENTING PROGRAM

Size of Hole	Size of Casing	Weight per Foot	Setting Depth	Quantity of Cement
12 1/4	8-5/8"	24#	200'	180 sx (to surface)
6-3/4	4 1/2	9.5#	2420'	200 sx

- BOP tests recorded daily
- Logs at total depth

Test the Dakota Morrison and Salt Wash, Summerville formations. A blowout preventer will be installed on the casing head, and a rotating head will be installed on top of the blowout preventer for air drilling. Any gas zones encountered will be flared at the end of the blooie line and checked for volume thru 2" lines off the casing head after the pipe rams have been closed. The blooie line 100' in length will be attached to the rotating head and extended into the reserve pit. A flare will be maintained at the end of the blooie line at all times while drilling below 1000'. In the event of commercial production, 4 1/2" casing will be set with sufficient cement to cover 250' above the top of the Dakota formation.

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 W. Lee Kuhre Title Operations Coordinator Date 2-6-78
W. Lee Kuhre

(This space for Federal or State office use)

Permit No. 13-019-30424 Approval Date APPROVED BY THE DIVISION OF OIL, GAS, AND MINING

Conditions of approval, if any: Clause #65-1 Title DATE: 2-28-78

BY: C.B. Smith

Need operator name change letter

SUBMIT IN TRIPlicate
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
 DRILL DEEPEN PLUG BACK

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

2. NAME OF OPERATOR
Willard Pease Oil & Gas Company
~~The Anschutz Corporation~~

3. ADDRESS OF OPERATOR
570 Kennecott Bldg, Salt Lake City, Utah 84133
~~1110 Denver Club Building, Denver, Colorado 80202~~

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)*
 At surface
 660' FNL, 1980' FWL, NE NW Sec. 30
 At proposed prod. zone

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
 Same

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

16. NO. OF ACRES IN LEASE
 640

17. NO. OF ACRES ASSIGNED TO THIS WELL
 160A

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. 3,000'

19. PROPOSED DEPTH
 2420

20. ROTARY OR CABLE TOOLS
 Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
 5061' ungraded ground elevation, 5070' KB

22. APPROX. DATE WORK WILL START*

5. LEASE DESIGNATION AND SERIAL NO.
 U-16925

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
 Bar Creek Unit

8. FARM OR LEASE NAME
 Bar Creek Unit

9. WELL NO.
 4

10. FIELD AND POOL, OR WILDCAT
 Bar Creek (area)

11. SEC., T., R., M., OR BLE. AND SURVEY OR AREA
 30-T.17S-R.26E

12. COUNTY OR PARISH
 Grand

13. STATE
 Utah

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12 1/2	8-5/8	24#	200'	180 sx (to surface)
6-3/4	4-1/2	9.5#	2420'	200 sx

Exhibits Attached

- "A" Location and Elevation Plat
- "B" The Ten-Point Compliance Program
- "C" The Blow-out Preventer Diagram
- "D" The Multi-Point Requirement for A.P.D.
- "E" Access Road Map into Location
- "F" Radius Map of Wells in Area
- "G" Drill Pad Layout, Contours, and Cut-Fill Section.
- "H" Drill Rig Layout
- "I" Production Facility Layout"

It is planned to test the sands in the Dakota, Morrison and Salt Wash formations. These wells will be air drilled, mudding up if necessary. Gas zones encountered will be checked for volume through 2" lines off the casing head after the pipe rams have been closed. The blooie line of at least 100' in length will extend from the rotating head into the reserve pit. A flare will be maintained at the end of the blooie line at all times while drilling below 1000'. In the event of commercial production, 4-1/2" casing cemented to 250' above the top of the Dakota formation.

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.

SIGNED W. Lee Kuhre TITLE Operations Coordinator DATE 2-20-78

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____
 APPROVED BY Daniel J. Newquist TITLE ACTING DISTRICT ENGINEER DATE SEP 25 1978

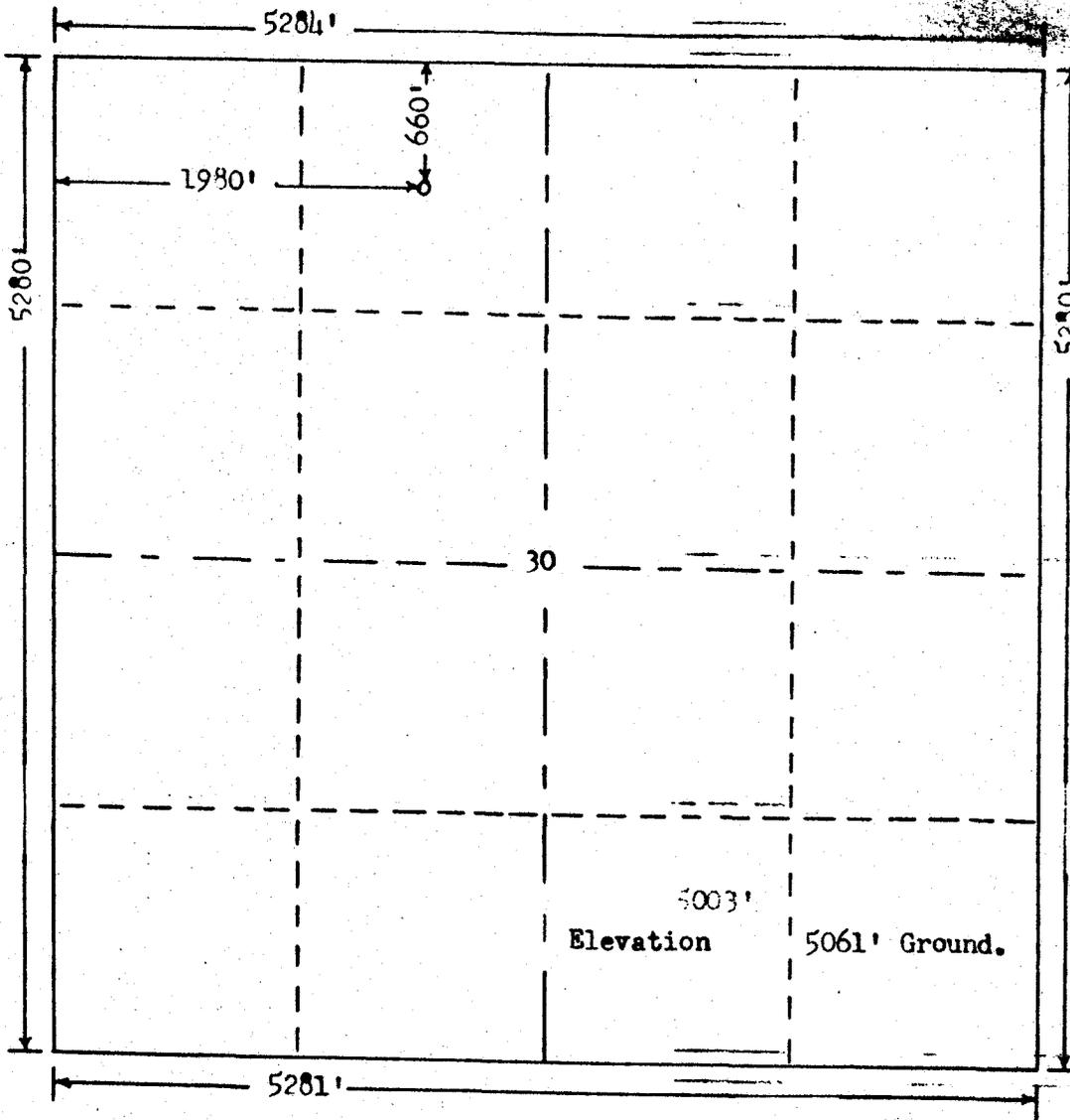
CONDITIONS OF APPROVAL, IF ANY: State O & G.
 CONDITIONS OF APPROVAL ATTACHED TO OPERATOR'S COPY

*See Instructions On Reverse Side NECESSARY FLARING OF GAS DURING DRILLING AND COMPLETION APPROVED SUBJECT TO ROYALTY (NFL-4)

NOTICE OF APPROVAL



R. 26 E.



T. 17 S.

Scale... 1" = 1000'

Powers Elevation Company, Inc. of Denver, Colorado
 has in accordance with a request from Lee Kuhre
 for Anschutz Corporation
 determined the location of #4 Bar Creek Unit
 to be 660' FN & 1980' FW Section 30 Township 17 S.
 Range 26 E. of the Salt Lake Principal Meridian
 Grand County, Utah

I hereby certify that this plat is an
 accurate representation of a correct
 survey showing the location of
 #4 Bar Creek Unit

Date: 1-17-78

T. Powers
 Licensed Land Surveyor No. 2711
 State of Utah



DESIGNATION OF AGENT

SEP 26 1978

Supervisor, Oil and Gas Operations:

CASPER, WYOMING

The undersigned is, on the records of the Geological Survey, Unit Operator under the Bar Creek #4 unit agreement, Grand County, Utah (state), No. 14-08-001-16018 approved December 21, 1977 and hereby designated:

NAME: Willard Pease Oil & Gas Company

ADDRESS: 570 Kennecott Building
Salt Lake City, Utah 84133

as its agent, with full authority to act in its behalf in complying with the terms of the Unit Agreement and regulations applicable thereto and on whom the supervisor or his representative may serve written or oral instructions in securing compliance with the Oil and Gas Operating Regulations with respect to drilling, testing, and completing unit well No. 4, in the NE 1/4 NW 1/4 Sec. 30, T. 17S, R. 26E, SLM, Grand County, Utah.

It is understood that this designation of agent does not relieve the Unit Operator of responsibility for compliance with the terms of the unit agreement and the Oil and Gas Operating Regulations. It is also understood that this designation of agent does not constitute an assignment of any interest under the unit agreement or any lease committed thereto.

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

The Unit Operator agrees promptly to notify the oil and gas supervisor of any change in the designated agent.

This designation of agent is deemed to be temporary and in no manner a permanent arrangement.

This designation is given only to enable the agent herein designated to drill the above-specified unit well. Unless sooner terminated, this designation shall terminate when there is filed in the appropriate district office of the U.S. Geological Survey a completed file of all required Federal reports pertaining to subject well. It is also understood that this designation of agent is limited to field operations and does not cover administrative actions requiring specific authorization of the Unit Operator.

ACCEPTED SEP 29 1978

G. F. Kuntz
Acting Area Oil & Gas Supervisor
Geological Survey
Casper, Wyoming

8-18-78

THE ANSCHUTZ CORPORATION
Unit Operator

By: Miles A. Williams
Miles A. Williams Vice President

United States Department of the Interior
Geological Survey
8440 Federal Building
Salt Lake City, Utah 84138

Usual Environmental Analysis

Lease No. U-16925
Operator Willard Pease Oil & Gas Company
Anschutz Corporation Well No. 4
Location 660' FNL & 1980' FWL Sec. 30 T. 17S R. 26E
County Grand State Utah Field Bar Creek
Status: Surface Ownership Public Minerals Federal
Joint Field Inspection Date March 20, 1978

Participants and Organizations:

<u>Lee Kuhre</u>	<u>Anschutz Corp.</u>
<u>Richard Roth</u>	<u>Mike's Water & Dozer Service</u>
<u>Neal Swisher</u>	<u>C & W Contracting Co.</u>
<u>Rocky Curvutt</u>	<u>BLM</u>
<u>John Evans</u>	<u>U.S.G.S.</u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>

Related Environmental Analyses and References:

- (1)
- (2)

Analysis Prepared by:

John T. Evans
Environmental Scientist
Salt Lake City, Utah

Date

May 19, 1978

NOTED JOHN T. EVANS, JR.
5/17/78

Proposed Action:

On February 24, 1978, Anschutz Corporation filed an Application for Permit to Drill the No. 4 exploratory well, a 2,420' gas test of the Dakota, Morrison, and Saltwash formations; located at an elevation of 5,061' in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ section 30, T. 17S, R. 26E on Federal mineral lands and public surface; lease No. U-16925. There was no objection raised to the wellsite nor to the access road.

A rotary rig would be used for the drilling. An adequate casing and cementing program is proposed. Fresh water sands and other mineral-bearing formations would be protected. A Blowout Preventer would be used during the drilling of the well. The proposed pressure rating should be adequate. Details of the operator's NTL-6 10-Point Subsurface and 13-Point Surface Protection Plans are on file in the U.S.G.S. District Office in Salt Lake City, Utah and the U.S.G.S. Northern Rocky Mountain Area Office in Casper, Wyoming. The drilling operation would begin within 30 days upon approval of the A.P.D. and would be expected to last 20 days to reach total depth and complete the well for production if hydrocarbons are discovered.

A working agreement has been reached with the Bureau of Land Management the controlling surface agency. Rehabilitation plans would be decided upon as the well neared completion; the Surface Management Agency would be consulted for technical expertise on those arrangements. Written concurrence of the surface managing agency is attached.

Location and Natural Setting:

The proposed drillsite is approximately 15 miles North of Harley, Dome, Utah. A good road runs to within 500' of the location. This well is near Bar Creek field.

The overall topography consists of gently sloping topograph cut by various small non-perennial drainages. The location is gently sloping to SE.

The surface geology is Mancos. The soil is sandy-clay. No geologic hazards are known near the drillsite. Seismic risk for the area is minor. Anticipated geologic tops are filed with the 10-Point Subsurface Protection Plan. No mining of any sort is anticipated in the area. The land is used primarily for grazing. The climate is semi-arid with abundant sunshine, hot summers and cold winters with temperature variations on a daily and seasonal basis. Annual precipitation is 6 - 10 inches. Winds are medium and gusty, occurring predominately from West to East. Air mass inversions are rare.

The area eventually drains into the Bitter Creek drainage system (subsystem of the Colorado River). The depths of fresh-water formations are listed in the 10-Point Subsurface Protection Plan.

Vegetation consists of sagebrush and native grass. Mammalian wildlife in the area include deer, coyote, skunk, rabbit, prairie dog, small gophers, and mice. There are numerous prairie and mountain birds in the general area, including aquatic birds and birds of prey. Snakes and small lizards are also present on a seasonal basis. The Bureau of Land Management has made a plant and animal inventory. There are no known endangered or threatened plant or animal species in the area.

There are no known historical, cultural or archaeological sites in the area. A cultural clearance would be obtained prior to construction. There are no national, state, or local parks, forests, wildlife refuges or ranges, grasslands, monuments, trails or other formally designated recreational facilities near the proposed location.

The proposed location is within the Book Mountain Planning Unit. This Environmental Assessment Record was compiled by the Bureau of Land Management, the surface managing agency of the Federal surface in the area. The study includes additional information on the environmental impact of oil and gas operations in this area and gives land use recommendations. The E.A.R. is on file in the agency's State offices and is incorporated herein by reference.

Effects on the Environment by the Proposed Action:

The wellpad would disturb approximately 2 acres. The access road would disturb approximately .1 acre. An estimated 2' cut and 2' fill would be necessary to level the pad area. The vegetation would be removed and minor relocation of wildlife in the immediate area, particularly small rodents, would be anticipated. Production facilities would be placed on disturbed area of drillpad. Construction of flowlines would disturb long, narrow strips of the surface for a short period of time.

The mud and reserve pits would contain all fluids used during the drilling operations. The potential for fluid spills, gas leaks, and related accidents would be present. If the well should be productive, precautions would be taken against such accidents. Toxic or noxious gases would not be anticipated.

Some additional erosion would be expected in the area since surface vegetation would be removed. If erosion became serious, drainage systems such as water bars and dikes would be installed to minimize the problem. There would be no tangible effect on water migration in fresh water aquifers. The pits would be unlined. If fresh water should be available from the well, the owner or surface agency may request completion as a water well if given approval, ~~under NTE 2B.~~

Waterways would not be affected directly due to their distance from the site.

Noise levels would be moderately high during drilling and completion operations. Upon completion, noise levels would be infrequent and significantly less. If the area is abandoned, noise levels should return to pre-drilling levels.

Relatively heavy traffic would be anticipated during the drilling operations phase, increasing dust levels and exhaust pollutants in the area. If the well was to be completed for production, traffic would be reduced substantially to a maintenance schedule with a corresponding decrease of dust levels and exhaust pollutants to minor levels. If

the project results in a dry hole, all operations and impact from vehicular traffic would cease after abandonment. Due to the limited number of service vehicles and limited time span of their operation, the air quality would not be substantially reduced.

A trash pit would be utilized for any solid wastes generated at the site and would be buried at the completion of the operations. Sewage would be handled according to State sanitary codes. For further information, see the 13-Point Surface Plan.

The animals and vegetation of the area would be disturbed for the life of the project. If the project was to produce hydrocarbons, adjustments in habitat occupancy would be expected. At abandonment, normal rehabilitation of the area such as contouring, reseeding, etc., would be undertaken with an eventual return to the present status as outlined in the 13-Point Surface Plan.

The site is not visible from any major roads. After drilling operations, completion equipment would be visible to passersby of the area, but would not present a major intrusion.

Should the well'site be abandoned, surface rehabilitation would be done according to the surface agency's requirements and to U.S.G.S.'s satisfaction. This would involve leveling, contouring, reseeding, etc., of the location and possibly the access road. If the well should produce hydrocarbons, measures would be undertaken to protect wildlife and domestic stock from the production equipment. The anticipated traffic would have a minimal impact on ranch traffic and vehicular safety problems. Normal precautions would be employed to prevent damage or injury to ranch property and personnel. Aside from recreational activities such as hunting, the only other human conflicts that would arise in normal useage of the area would be the oil and gas operations. These would be minor, with planned precautions to limit such conflict.

The economic and environmental impact of a single well is normally somewhat negligible. But should this well discover a significant new hydrocarbon source, local, state, and possibly national economics

might be improved. In this instance, other development wells would be anticipated, with substantially greater environmental and economic impacts.

Alternatives to the Proposed Action:

1. Under leasing provisions, the Geological Survey has an obligation to allow mineral development if the environmental consequences are not too severe or irreversible. Upon rehabilitation of the site, the environmental effects of this action would be substantially mitigated, if not totally annulled. Permanent damage to the surface and subsurface would be prevented as much as possible under U.S.G.S. and Bureau of Land Management supervision with rehabilitation planning reversing almost all effects. Additionally, the growing scarcity of oil and gas should be taken into consideration. Therefore, the alternative of not proceeding with the proposed action at this time is rejected.

2. Minor relocation of the wellsite and access road or any special, restrictive stipulations or modifications to the proposed program would not significantly reduce the environmental impact. There are no severe vegetative, animal or archaeological-historical-cultural conflicts at the site. Since only a minor impact on the environment would be expected, the alternative of moving the location is rejected. The access road was moved to cross wash at a point requiring less cuts and fills.

Adverse Environmental Effects which cannot be Avoided:

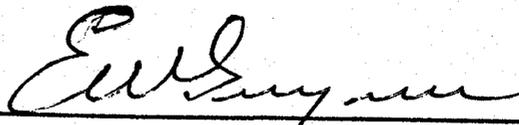
Surface scars resulting from construction work, wellpad and the access road would be visible for the life of the project and for a period of time after abandonment while rehabilitation is completed. The disturbed areas would not be available for grazing purposed during the project's life time. Minor relocation of wildlife, notably small rodents, in the immediate area would be anticipated. Some erosion would be anticipated with the removal of vegetative cover. Dust levels and exhaust pollutants would increase somewhat during the construction and drilling phases of the operation. Traffic hazards though few, would be present. Noise levels would increase during construction and drilling and would remain somewhat increased if the well was completed and a pumping unit installed.

The potential for fluid spills, gas leaks, and related accidents would be present. If hydrocarbons are discovered and produced, further oil and gas development of the area would be expected to occur which would result in the extraction of an irreplaceable resource, and further negative environmental impacts.

Determination:

This requested action does not constitute a major Federal Action significantly affecting the environment in the sense of NEPA, Section 102 (2)(c).

District Engineer: _____
Salt Lake City, Utah


E. W. Guyan

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

** FILE NOTATIONS **

Date: Feb. 24, 1978

Operator: Anschutz Corp

Well No: Bar Creek #4

Location: Sec. 30 T. 17S R. 26E County: Grand

File Prepared:
Card Indexed:

Entered on N.I.D.:
Completion Sheet:

API NUMBER: 43-019-30424

CHECKED BY:

Administrative Assistant [Signature]

Remarks:

Petroleum Engineer [Signature]

Remarks:

Director [Signature]

Remarks:

INCLUDE WITHIN APPROVAL LETTER:

Bond Required:

Survey Plat Required:

Order No. 165-1

Surface Casing Change
to _____

Rule C-3(c), Topographic exception/company owns or controls acreage within a 660' radius of proposed site

O.K. Rule C-3

O.K. In Bar Creek Unit

Other:

Letter Written/Approved



1110 DENVER CLUB BUILDING
518 SEVENTEENTH STREET
DENVER, COLORADO 80202
TELEPHONE 303-573-5885
TWX 910 831 2620

July 18, 1978

State of Utah
Dept. of Natural Resources
Division of Oil, Gas, and Mining
1588 West North Temple
Salt Lake City, Utah 84116

Attention: Kathy Ostler, Records Clerk

Dear Ms. Ostler:

As requested in your letter of June 8, 1978 the following is submitted.

To update your records the following wells have not yet been drilled and our plans have not changed.

Well No. Federal 258-#4, Sec. 5, T. 18S, R. 24E,
Grand County, Utah

Well No. Federal 335-#2, Sec. 20, T. 19S, R. 23E,
Grand County, Utah

Well No. Federal 335-#4, Sec. 19, T. 19S, R. 23E,
Grand County, Utah

Well No. Federal 350-#1, Sec. 4, T. 18S, R. 24E,
Grand County, Utah

Well No. State 400-#1, Sec. 17, T. 16S, R. 23E,
Grand County, Utah

Well No. State 402-#1, Sec. 36, T. 17S, R. 20E,
Grand County, Utah

Well No. State 404-#1, Sec. 23, T. 17S, R. 21E,
Grand County, Utah

Well No. State 411-#2, Sec. 23, T. 18S, R. 20E,
Grand County, Utah

Well No. State 414-#1, Sec. 32, T. 18S, R. 21E,
Grand County, Utah



- OVER -

State of Utah
Dept. of Natural Resources
Kathy Ostler, Records Clerk
July 18, 1978
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Well No. State 915-#1, Sec. 17, T. 16S, R. 22E,
Grand County, Utah

Well No. State 920-#1, Sec. 28, T. 16S, R. 21E,
Grand County, Utah

Well No. Ten Mile State 921-#1, Sec. 34, T. 16S, R. 21E,
Grand County, Utah

Well No. Bar Creek Unit #4, Sec. 30, T. 17S, R. 26E,
Grand County, Utah

Well No. Bar Creek Unit #5, Sec. 30, T. 17S, R. 26E,
Grand County, Utah

We do not presently plan to drill the Well No. State 492-#1, Sec. 2, T. 19S,
R. 21E, Grand County, Utah.

We have recently drilled and either completed or abandoned the following
wells. Reports are forthcoming under a separate cover.

Well No. Federal 258-#2, Sec. 5, T. 18S, R. 24E,
Grand County, Utah

Well No. Federal 258-#3, Sec. 5, T. 18S, R. 24E,
Grand County, Utah

Well No. Anschutz State Line 28-1, Sec. 28, T. 4N, R. 8E,
Summit County, Utah

Well No. Federal 258-#5, Sec. 8, T. 18S, R. 24E,
Grand County, Utah

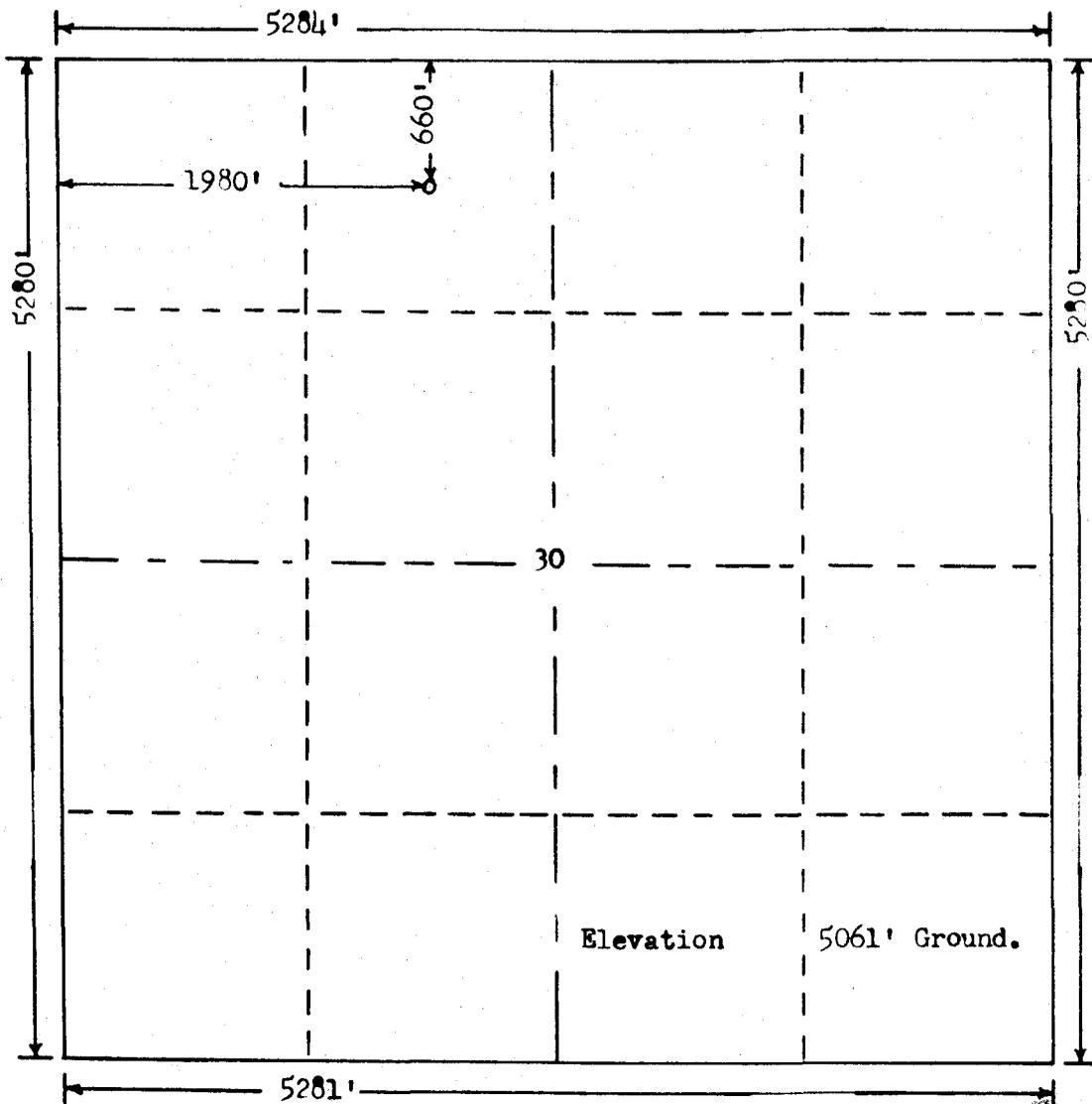
Well No. 769-#1, Sec. 19, T. 19S, R. 21E,
Grand County, Utah

Well No. Federal 104-#1, Sec. 4, T. 20S, R. 21E,
Grand County, Utah

Well No. Federal 675-#2, Sec. 9, T. 20S, R. 21E,
Grand County, Utah



R. 26 E.



T.
17
S.

Scale... 1" = 1000'

Powers Elevation Company, Inc. of Denver, Colorado
 has in accordance with a request from **Lee Kuhre**
 for **Anschutz Corporation**
 determined the location of **#1 Bar Creek Unit**
 to be **660'FN & 1980'FW** **Section 30 Township 17 S.**
Range 26 E. of the Salt Lake Principal Meridian
Grand County, Utah

I hereby certify that this plat is an
 accurate representation of a correct
 survey showing the location of
 #1 Bar Creek Unit

Date: 1-17-78

T. J. [Signature]
 Licensed Land Surveyor No. 2711
 State of Utah

October 12, 1978

Willard Pease Oil & Gas Company
570 Kennecott Bldg.
Salt Lake City, Utah 84113

Re: Well No. Bar Creek Unit #4
Sec. 30, T. 17S, R. 26E,
Grand County, Utah

Gentlemen:

This letter is in receipt of a letter stating official change of operator (from Anschutz Corporation to Willard Pease) in reference to above mentioned well.

In order to keep our records accurate and complete, please include effective date of this change, and also any other wells included in operator change.

Your prompt attention to the above will be greatly appreciated.

Very truly yours,

DIVISION OF OIL, GAS, AND MINING

Kathy Avila

KATHY AVILA
RECORDS CLERK

DRILLING HISTORY
AND
GEOLOGIC REPORT
ON
WILLARD PEASE OIL & GAS CO.
BAR CREEK UNIT #4 WELL
GRAND COUNTY, UTAH

By

W. Don Quigley
Consulting Geologist
Salt Lake City, Utah

November 8, 1978

WELL DATA
ON
BAR CK UNIT #4 WELL
GRAND COUNTY, UTAH

Operator: Willard Pease Oil & Gas Co.
570 Kennecott Bldg., Salt Lake City, Utah 84133

Contractor: Willard Pease Drilling Co.
P.O. Box 548, Grand Junction, Colorado 81501

Location: NE. NW. Sec. 30, T 17S, R 26E, S.L.M., Grand County,
Utah (1980' from W-line and 660' from N-line)

Elevations: 5060' grd; 5070' K.B.

Spudded-in: October 6, 1978

Surface Casing: 8 5/8", 24.00#, K-55, R-3 casing set at 213'
K.B. and cemented w/110 sks. reg. cement w/3% CaCl.
Returns to surface.

Total Depth: 2548'

Finished Drilling: October 8, 1978

Producing Formation and Zone: None

Lowest Formation Penetrated: Entrada

Plugged and Abandoned: October 8, 1978

Drilling History

Oct. 5: Moving in Willard Pease Drlg. Co. Rig #1, and rigging-up. Replaced rotary clutch.

Oct. 6: Finished clutch repair. Drilled rat hole. Drilled mouse hole. Drilled 12½" surface hole from 0' to 213'.

Ran 6 jts. of 8 5/8", 24.00#, K-55, R-3 casing and landed at 213' K.B. Cemented with 110 sks reg. cement w/3% CaCl. Had returns to the surface. Plug down at 11:00 A.M. Waiting on cement. Nippled-up to drill ahead with air. Tested B.O.P. with 1000#. No leaks. Drilled out cement plug and tested casing and cement w/1000 p.s.i. No leaks. Began drilling ahead with 7 7/8" bit and using air for circulation at 8 P.M. Drilled 213' to 577' (364'). Drilling at rate of 100 ft/hr.

Oct. 7: Drilled 577' to 2358' (1781'). Drilling at rate of 150 ft/hr. thru Mancos. Took no surveys for hole deviation. Began 30-ft. samples at 1200 ft. Estimate top of Dakota at about 1890' at base of black carbonaceous shale and coal zone. No good sands above 1920'. Had one good sand at 1920' to 1950' with fair porosity, no fluorescence, but had slight cut. Had small flare, about 5 ft. long for 5 seconds, on connections at 1921', 1952', and 1984'. Est. top of Cedar Mt. formation at 1950'. Had a good porous, medium-grained to coarse-grained to conglomeratic sand at 1950' to 2010'. Had spotted fluorescence, but no additional gas. Encountered water at 1960' and had to convert to mist drilling with air-soap-water. Made rd-trip at 1493' for new bit. Bit #2 (Smith F-3 RR) made 1280' (213' to 1493') in 10 hrs. Drilled at avg. rate of approx. 130' per hr. in Mancos shale. Estimate top of Morrison at 2010'. No sands in the upper Morrison section. Est. top of Salt Wash section at about 2240' due to first brown limestone bed. Had no sands of any consequence and no hydrocarbon shows in the Salt Wash section.

Oct. 8: Drilled 2358' to 2548' (190'). Estimate top of Curtis at about 2450' due to red shale and siltstone. No shows in Curtis, but a sand at 2470' to 2490' had fair porosity - looked wet. The top of the Entrada was at 2510' and was a medium-grained rounded, light tan sandstone with lots more water. Air pressure increased about 75# in a very few minutes. Drilled to 2548', which was about 40 feet below the top of

the Entrada; and mudded-up and conditioned hole for logging. Came out of hole with drill string and began logging well at 7 A.M. Ran Dual-Induction-Laterolog and Gamma-Density-CNL logs. Finished logging well at 12:00 noon. Decided to plug and abandon hole since logs did not show any favorable zones and no appreciable amount of gas was obtained during the drilling operations. Obtained permission to abandon well and placed cement plugs as follows:

Plug #1: 2548' to 2400' (148') 50 sks cement -
Placed across Entrada, Curtis, and lower
Morrison sands

Plug #2: 2020' to 1800' (220') 80 sks cement -
Placed across Cedar Mt. and Dakota sands

Plug #3: 250' to 175' (75') 30 sks cement -
Placed across bottom of surface casing

Plug #4: Top of surface casing (10 sks cement)
with well marker

Clean all trash and remove all material from location. Fill rat and mouse holes and fill-in cellar. Fold-in reserve pit and cover burn pit. Recontour location and reseed. Erase access road.

GEOLOGIC REPORT
ON
BAR CREEK UNIT #4 WELL

Introduction

Like the Bar Ck Unit #5 well, the Bar Ck Unit #4 well was located on the east flank or near the axis of the Stateline Anticline; and like the #5 well, all sands encountered in the well had very little gas and were flooded with water. Thus the unfavorable nature of this flank of the anticline is definitely established.

The Bar Ck Unit #4 well was drilled within a three-day period and actual drilling time below the surface casing to total

depth, 213' to 2548' was 23 hrs. This is an average of about 100 ft/hr. This rapid drilling does not allow much time for proper evaluation, and the samples are very poor.

A very small amount of gas was obtained in the Bar Ck #4 well. A 5-ft long flare on about three connections for 5 seconds each was obtained near the top of the Dakota formation, but the sand was only 5 ft. thick, had about 13% porosity according to the E-log data, had 3 ft. of cross-over, and calculated to have about 35% water saturation. It was decided that this was too small and weak to justify running casing and trying to complete. The well was, therefore, plugged and abandoned.

General Geology

The Bar Ck Unit #4 well is located about $\frac{1}{2}$ mile west of the Bar Ck #5 well and on strike with the axis of the Stateline Anticline. Both wells are probably slightly on the east flank of the structure which is a symmetrical anticline trending nearly east-west. The structure is transversed by several faults trending northeastward and downthrown on the west side. Such a fault passes between the two wells and the Bar Ck #4 well is on the downthrown side of the fault and is about 115 ft. lower structurally than the Bar Ck #5 well.

The sequence of sediments in the Bar Ck #4 well was quite normal and the sediments were fairly normal in thickness. The development of lenticular sands in the potentially productive formations (Dakota, Cedar Mt., and Morrison) was really abnormal. The sands in the Dakota were poor; the Cedar Mountain had good sands but they were wet; and the Morrison had no sands at all. Thus, it is quite clearly demonstrated by these three wells (the Bar Ck #1, the Bar Ck #5, and the Bar Ck #4) how rapidly the stratigraphy changes within relatively short distances in the area.

As noted above, the Dakota formation which was topped at 1882' in the subject well, had very poor sand development. A very thin sand lens at 1902' to 1907' had about 13% porosity and had some gas (about a 5-ft. flare on connections for about 5 seconds) and had about 3-ft. of cross-over on the E-logs; but

was really too small to justify casing and completion. A lower sand in the Dakota at 1930' to 1940' had about 14% porosity but calculated to have about 85% water saturation. The Dakota was about 68 ft. thick in this well.

The top of the Cedar Mountain formation was at 1950' (E-log top and sample top). The Cedar Mt. was mostly all sand with good porosity, 14% to 18%, but contained water instead of gas. There was some spotted fluorescence in the samples, but no increase in gas was noted on connections when this sand was drilled. The Cedar Mt. was about 70 ft. thick in this well.

The Morrison formation was topped at 2020'. There were no sand lenses in the Brushy Basin section of the Morrison and none in the Salt Wash section. The top of the Salt Wash was at 2250'. The overall thickness of the Morrison in this well was 420 ft.

The Curtis-Summerville section was encountered at 2440' and contained two sands. The upper one at 2440' to 2450' was very fine-grained and tight with no shows. The lower sand at 2470' to 2485' had about 11% porosity; had no shows; and calculated to have 100% water saturation. The Curtis-Summerville section was 70 ft. thick in this well.

The Entrada formation was topped at 2510'. The samples indicated that the sand was medium-grained, rounded, and contained no shows. They also looked wet. There was a marked increase in the amount of water during the drilling of this portion of the hole. About 40 ft. of the Entrada was penetrated before drilling was discontinued.

The formations with their tops, thicknesses, and datum points which were encountered in the subject well, as determined from the electric logs, are as follows:

<u>Formation</u>	<u>Depth to Top</u>	<u>Thickness</u>	<u>Datum</u>
Mancos	Surface	1882'	5070' K.B.
Dakota	1882'	68'	2188'
Cedar Mountain	1950'	70'	3120'

<u>Formation</u>	<u>Depth to Top</u>	<u>Thickness</u>	<u>Datum</u>
Morrison (Brushy B.)	2020'	230'	3050'
(Salt Wash)	2250'	190'	2820'
Curtis-Summerville	2440'	70'	2630'
Entrada	2510'	—	2560'
Total Depth	2548'		

A detailed description of the samples from 1200' to total depth is attached hereto.

Comparison of the above data with similar data on the Bar Ck Unit #5 well indicates that the subject well is about 115 feet lower structurally on the top of the Dakota; 81 feet lower on the top of the Morrison formation; and only 68' lower on the top of the Entrada. Thus it is evident that the fault between the wells was moving during the depositional periods; but the movement was erratic as shown by the differences in the thicknesses of the formation strata. The thickness of the Morrison sediments is about the same in both wells. The big change in thickness is in the Dakota-Cedar Mt. strata. This section is 34 feet thicker in the Bar Ck #5 well than in the subject well.

Conclusion

The Bar Creek Unit #4 well confirmed the unfavorable nature of the east flank of the Stateline Anticline for natural gas accumulations. The lenticular sands in the potentially productive formations (Dakota, Cedar Mt. and Morrison) are flooded and have little gas. The subject well also had very poor sand development. The Dakota had poor sands and the Morrison had no significant sands.

It is recommended that future wells on the Bar Creek Unit be located on the north flank of the Stateline structure; and/or on the south flank of the Bar-X Anticline; and removed (500 feet or more) from all possible fault zones.

W. Don Quigley
W. Don Quigley
Consulting Geologist
AAPG Cert. #1296
APGS Cert. #3038

Only Lind
1100 0 1 2 3 4 5

Willard Pease Dil. Logs

Bar Brack Unit # Well
NE, NW, Sec 30-175-26E
Grand County, Utah

Elev.: 5060' gal; 5070' K.R

46 0860

5 X 5 TO 1 1/2 INCH 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

1100
1200
1300
1400
1500
1600
1700
1800
Ka
1900
Kc
2000



DK. gray calc. marine sh. w/wh calc. spots

DK. gray arg. calc. sh.

Blk. mica calc. sh.

+ anaginite

Slk. to dk. gray calc. sh. sily sh.

* Blk. v. calc. sily to sl. sdy sh. w/dil. odor + good dil. cut.

* Blk. v. calc. + foss. sh. + blk. arg. ms.

DK. gray sily to sdy calc. sh.

Sily. dk. gray non-calc sh.

sdv

Lt. gray vfg. arg. ss. (sily)

gray sily grave. sh. + sily

Wh. bent sh. + coal + dk. gray carb. sh.

Lt. brown bent sily + lt. gray bent sh.

* Lt. brown, vfg. to m.g. v. bent. ss. - no fluid; but has sh. cut.

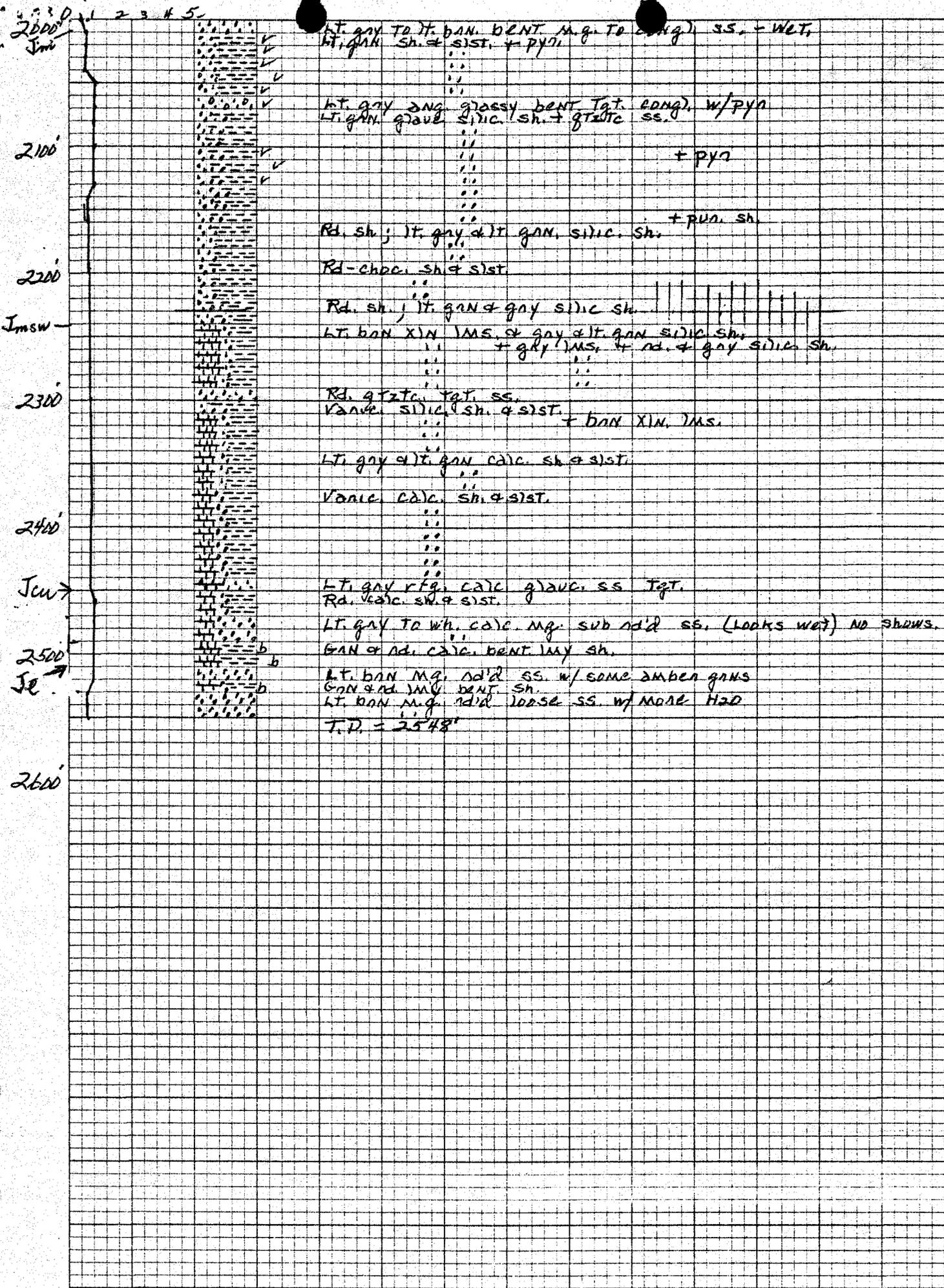
* small gas flow - 5 ft. for 5 sec in 3 p.m.

* Lt. gray to wh. arg. mig. to lg. to cong. bent. ss. w/ spotted. fluid.

* - got wet - mist/dripping

Only Lime-min/ft.

W. P. O & G. Co. Bar 6k Unit # 4 cont



46 0860

5 X 5 TO 1/2 INCH 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

2000
2100
2200
Jmsw
2300
2400
Jcu
2500
Je
2600

1 2 3 4 5

lt. gny to lt. bn. bent m. g. to cong. ss. - wet,
lt. gny sh. & sst. + pyn

lt. gny & ng. glassy bent lat. cong. ss. w/pyn
lt. gny g. sh. & g. silic. sh. + g. silic. ss.

+ pyn

Rd. sh; lt. gny & lt. gny silic. sh. + pyn sh

Rd. chca. sh & sst

Rd. sh; lt. gny & gny silic sh.

lt. bn xln ms. & gny & lt. gny silic sh.
+ gny ms. + rd. & gny silic sh.

Rd. & g. lat. cong. ss.
Varic silic. sh. & sst. + bn xln ms.

lt. gny & lt. gny calc. sh & sst.

Varic calc. sh. & sst.

lt. gny rfg. calc. g. sh. & sst. lat. cong. ss. lat. cong. ss.

Rd. varic sh. & sst.

lt. gny to wh. calc. m. g. sub nd'd ss. (looks wet) no shows.

bn & rd. calc. bent. m. g. sh.

lt. bn m. g. nd'd ss. w/ some amber gms
bn & rd. m. g. bent. sh.

lt. bn m. g. nd'd loose ss w/ more H2O

T.P. = 2548'

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE*

(See other instructions on reverse side)

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

3

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *

5. LEASE DESIGNATION AND SERIAL NO.

U-16925

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

Bar Creek

8. FARM OR LEASE NAME

Federal-Anschutz

9. WELL NO.

Bar Ck #4

10. FIELD AND POOL, OR WILDCAT

Stateline

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

NE. NW. Sec. 30-17S-26E S.L.M.

12. COUNTY OR PARISH

Grand

13. STATE

Utah

1a. TYPE OF WELL: OIL WELL GAS WELL DRY Other _____

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

2. NAME OF OPERATOR

Willard Pease Oil & Gas

3. ADDRESS OF OPERATOR

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*

At surface 1980 FWL & 660 FM NE NW

At top prod. interval reported below

At total depth

14. PERMIT NO. DATE ISSUED

15. DATE SPUDED 16. DATE T.D. REACHED 17. DATE COMPL. (Ready to prod.) 18. ELEVATIONS (DF, REB, RT, GR, ETC.)* 19. ELEV. CASINGHEAD

Oct. 6, '78 Oct. 8, '78 ← None 5060' grd; 5070' K.B.

20. TOTAL DEPTH, MD & TVD 21. PLUG, BAGH T.D., MD & TVD 22. IF MULTIPLE COMPL., HOW MANY* 23. INTERVALS DRILLED BY ROTARY TOOLS CABLE TOOLS

2548' None None → 10-2548'

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)* 25. WAS DIRECTIONAL SURVEY MADE

None No

26. TYPE ELECTRIC AND OTHER LOGS RUN 27. WAS WELL CORED

Dual-Induction-Laterolog; Gamma-Density-CNL No

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

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8"	24.00	213'	12 1/2"	110 sks	None

29. LINER RECORD 30. TUBING RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
		None				None	

31. PERFORATION RECORD (Interval, size and number) 32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
	None

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)					
None		D & A					
DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
				None			
FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)	
				None			

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) TEST WITNESSED BY

35. LIST OF ATTACHMENTS
Drilling History and Geologic Report

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

SIGNED W. Now Gungley TITLE Consulting Geologist DATE Nov. 8, 1978

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

Utah State

UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE (Other instructions on reverse side)

Form approved. Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

U-16925

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL [] GAS WELL [] OTHER [] Dry Hole

2. NAME OF OPERATOR Willard Pease Oil & Gas Co.

3. ADDRESS OF OPERATOR 570 Kennecott Bldg., Salt Lake City, Utah 84133

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface NE. NW. Sec. 30, T 17S, R 26E, S.L.M. 1980' fr. W-line and 660' fr. N-line

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, OR, etc.) 5060' grd; 5070' K.B.

7. UNIT AGREEMENT NAME Bar Creek

8. FARM OR LEASE NAME Federal-Anschutz

9. WELL NO. Bar Ck Unit #4

10. FIELD AND POOL, OR WILDCAT Stateline

11. SEC., T., E., M., OR BLEK. AND SURVEY OR AREA NE. NW. Sec 30-17S-26E S.L.M.

12. COUNTY OR PARISH Grand

13. STATE Utah

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

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

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

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

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

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Subject well was drilled to a depth of 2548' which was about 40 feet below the top of the Entrada formation. No good productive sands were found in this well, so the hole was plugged and abandoned as follows:

- Plug #1: 2548' to 2400' (148') 50 sks cement - across Entrada
Plug #2: 2020' to 1800' (220') 80 sks cement - across Cedar Mt. and Dakota
Plug #3: 250' to 175' (75') 30 sks cement - across bottom of casing
Plug #4: 5' to 0' (5') 10 sks cement in top of casing with marker

Location has been cleaned, pits folded-in, recontoured, and seeded. Access road has been seeded and scarred (?),

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

SIGNED W. Rowley TITLE Consulting Geologist DATE Nov. 8, 1978

(This space for Federal or State office use)

APPROVED BY TITLE DATE CONDITIONS OF APPROVAL, IF ANY: