

**FILE NOTATIONS**

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

Checked by Chief  
Approval Letter  
Disapproval Letter

*Pub...*  
*12-22-71*

**COMPLETION DATA:**

Date Well Completed .....  
OW..... WW..... TA.....  
GW..... OS..... PA.....

Location Inspected  
Bond released  
State or Fee L

**LOGS FILED**

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

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  
 Toledo Mining Company

3. ADDRESS OF OPERATOR  
 321 Newhouse Bldg., Salt Lake City, Utah 84111

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.\*)  
 At surface SE.NW.Sec.4, T.20 S., R.21 E., S.L.M.  
 At proposed prod. zone 2563 ft. fr. W-line & 751 ft. fr. N-line

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*  
 20 miles north of Cisco, Utah

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

16. NO. OF ACRES IN LEASE  
 2395.16 Ac.

17. NO. OF ACRES ASSIGNED TO THIS WELL  
 114 ac.

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

19. PROPOSED DEPTH  
 4100'

20. ROTARY OR CABLE TOOLS  
 Rotary tools

21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
 Grd.: 5967'; D.F.: 5977'

22. APPROX. DATE WORK WILL START\*  
 Dec. 26, 1971

23. PROPOSED CASING AND CEMENTING PROGRAM\*

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
11"	8 5/8"	24#	250 ft.	150 sks.

It is planned to drill a well at the above location to test the gas and/or oil potential of the Dakota, Cedar Mountain, Morrison, and Entrada formations, unless good commercial production is obtained before all the above listed formations are penetrated. It is anticipated that the top of the Dakota will be encountered at about 3250 ft., the Morrison at about 3350 ft., and the Entrada at about 3950 ft. The well will be drilled about 100 ft. into the Entrada formation unless good production is obtained at a lesser depth. The well will be drilled with mud and 250' of 8 5/8" surface casing will be set and cemented with returns to the surface. If production is obtained, 5 1/2" casing will be set and cemented for the production string. All sand zones with shows will be drill-stem-tested. A blowout preventer will be set on the surface casing flange to insure control of the well at all times.

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 H. Dow Geigley TITLE Consulting Geologist DATE Dec. 21, 1971

(This space for Federal or State office use)  
 PERMIT NO. 13019-30078 APPROVAL DATE \_\_\_\_\_

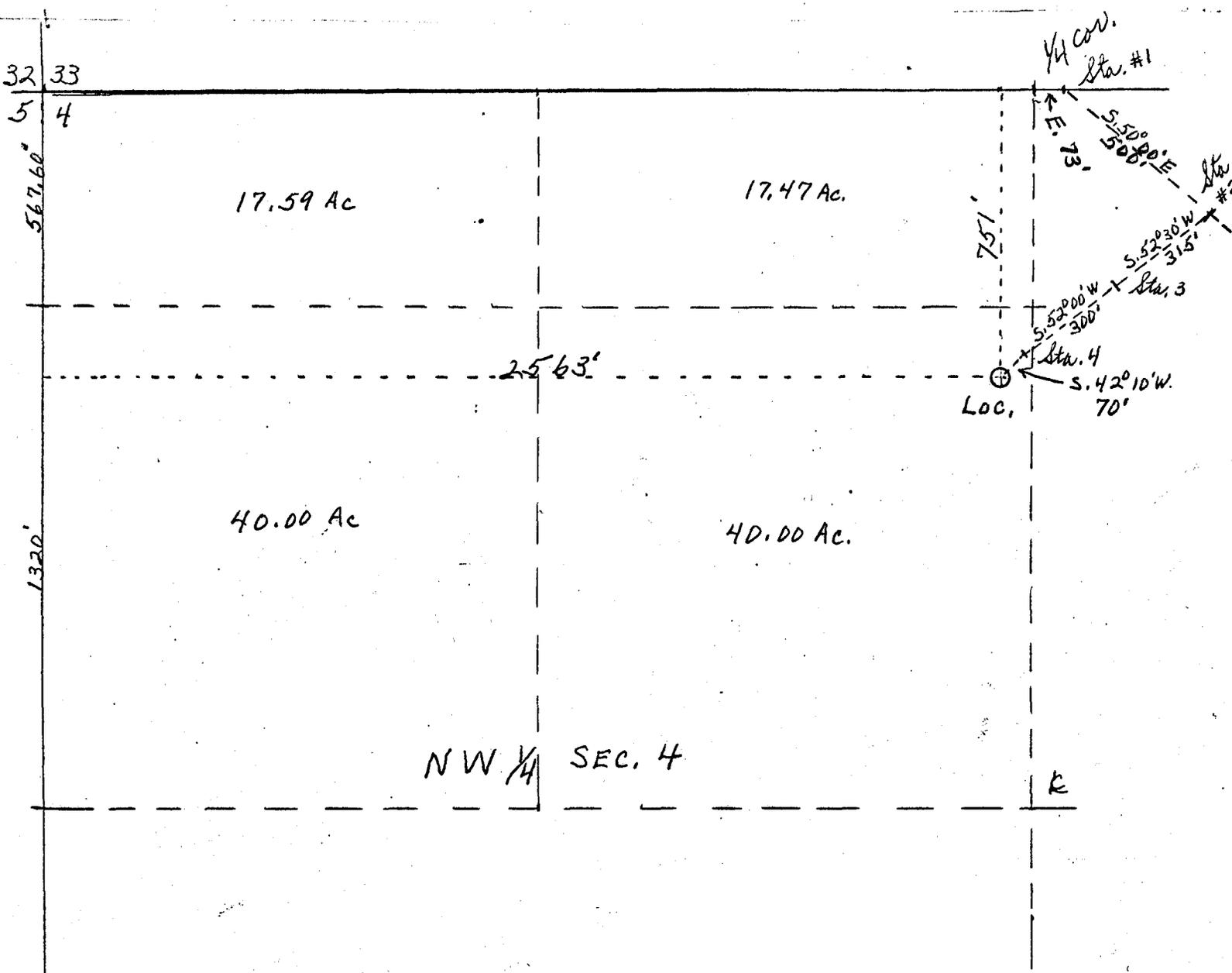
APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:  
 \_\_\_\_\_  
 \_\_\_\_\_

\*See Instructions On Reverse Side

PMB

WELL LOCATION PLAT  
 FOR  
 TOLEDO BULL CANYON NO. 1  
 SE. NW. SEC. 4, T20S. R21E.  
 (2563' fr. W-line & 751' fr. N-line)  
 GRAND COUNTY, UTAH  
 ELEV.: 5967' grd.



NW 1/4 SEC. 4

Scale: 1 in. = 400 ft.  
 Date: Dec. 20, 1971  
 Surveyed by: W. Don Quigley

*W. Don Quigley*



**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  OR GAS WELL  OTHER   
 SINGLE ZONE       MULTIPLE ZONE

2. NAME OF OPERATOR  
**Toledo Mining Company**

3. ADDRESS OF OPERATOR  
**321 Newhouse Bldg., Salt Lake City, Utah 84111**

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.\*)  
 At surface **SE.NW.Sec.4,T.20 S.,R.21 E., S.L.M.**  
 At proposed prod. zone **2563 ft. fr. W-line & 751 ft.fr.N-line**

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*  
**20 miles north of Cisco, Utah**

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

16. NO. OF ACRES IN LEASE  
**2395.16 Ac.**

17. NO. OF ACRES ASSIGNED TO THIS WELL  
**114 ac.**

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

19. PROPOSED DEPTH  
**4100'**

20. ROTARY OR CABLE TOOLS  
**Rotary tools**

21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
**Grd.:5967'; D.F.:5977'**

5. LEASE DESIGNATION AND SERIAL NO.  
**U-15104**

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME  
**Toledo**

9. WELL NO.  
**Bull Canyon #1**

10. FIELD AND POOL, OR WILDCAT  
**Wildcat**

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
**SE.NW.Sec.4, 20S., 21E. S.L.M.**

12. COUNTY OR PARISH      13. STATE  
**Grand      Utah**

22. APPROX. DATE WORK WILL START\*  
**Dec. 26, 1971**

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
11"	8 5/8"	24#	250 Ft.	150 sks.

It is planned to drill a well at the above location to test the gas and/or oil potential of the Dakota, Cedar Mountain, Morrison, and Entrada formations, unless good commercial production is obtained before all the above listed formations are penetrated. It is anticipated that the top of the Dakota will be encountered at about 3250 ft., the Morrison at about 3350 ft., and the Entrada at about 3950 ft. The well will be drilled about 100 ft. into the Entrada formation unless good production is obtained at a lesser depth. The well will be drilled with mud and 250' of 8 5/8" surface casing will be set and cemented with returns to the surface. If production is obtained, 5 1/2" casing will be set and cemented for the production string. All sand zones with shows will be drill-stem-tested. A blowout preventer will be set on the surface casing flange to insure control of the well at all times.

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. Don Gungley TITLE Consulting Geologist DATE Dec. 21, 1971

(This space for Federal or State office use)

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

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

CONDITIONS OF APPROVAL, IF ANY:

\*See Instructions On Reverse Side

## W. DON QUIGLEY

OIL AND MINERALS CONSULTANT  
803 PHILLIPS PETROLEUM BLDG. - SALT LAKE CITY, UTAH 84101

December 20, 1971

Re: Toledo Bull Canyon #1 Well

Oil & Gas Division  
U. S. Geological Survey  
Federal Bldg.  
Salt Lake City, Utah 84111

Dept. Of Natural Resources  
Oil & Gas Conservation Division  
1588 West N. Temple  
Salt Lake City, Utah 84116

Dear Sirs:

The enclosed application for a permit to drill a well, the Toledo Bull Canyon # 1, in Section 4, T.20 S., R.21 E., S.L.M., Grand County Utah is requesting a location which is less than the required distance from a sub-division line. The topography of the area is extremely rough and suitable locations for well sites are difficult to find. A copy of a portion of the topographic map of the area is attached. This shows the rugged nature of the location area. (The contour interval on the map is 80 feet)

It is therefore requested that an exception be granted to the ruling controlling the distance of a well site from a sub-division line due to topographic reasons. Toledo Mining Company controls all the lands within 750 ft. of the well site.

Sincerely yours,

*W. Don Quigley*  
W. Don Quigley

December 23, 1971

Toledo Mining Company  
321 Newhouse Building  
Salt Lake City, Utah 84111

Re: Bull Canyon Gov't. #1  
Sec. 4, T. 20 S, R. 21 E,  
Grand County, Utah

Gentlemen:

Insofar as this office is concerned, approval to drill the above referred to well is hereby granted in accordance with Rule C-3, General Rules and Regulations and Rules of Practice and Procedure.

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

PAUL W. BURCHELL - Chief Petroleum Engineer  
HOME: 277-2890  
OFFICE: 328-5771

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

The API number assigned to this well is 43-019-30078.

Very truly yours,

DIVISION OF OIL AND GAS CONSERVATION

CLEON B. FEIGHT  
DIRECTOR

CBF:sd

cc: U.S. Geological Survey



# TOLEDO MINING COMPANY

322 NEWHOUSE BLDG. • SALT LAKE CITY, UTAH 84111 • PHONE 801-322-0417

ANTHONY G. HATSI  
PRESIDENT

January 7, 1972

Re: West Cisco Area  
Toledo - Bull Canyon No. 1 Well  
S E N W Sec. 4, T20S, R21E  
Grand County, Utah

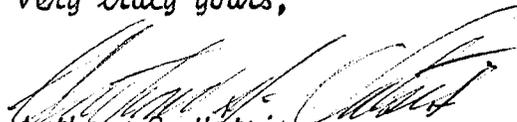
Dept. of Natural Resources of Utah  
Division of Oil & Gas Conservation  
1588 West Temple  
Salt Lake City, Utah 84116

Oil & Gas Division  
U. S. Geological Survey  
816 Federal Building  
Salt Lake City, Utah 84111

Gentlemen:

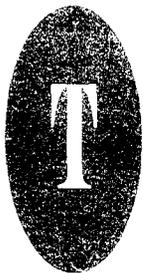
Toledo Mining Company desires the captioned well to be drilled as a "tight hole". Therefore, will you please treat the information on this well as confidential.

Very truly yours,

  
Anthony G. Hatsis  
President

AGH/ls

CC: W. Don Quigley, Supervising Geologist  
Willard Pease Drilling Co., Drilling Contractor



ANTHONY G. HATSIS  
PRESIDENT

TOLEDO MINING COMPANY

322 NEWHOUSE BLDG. • SALT LAKE CITY, UTAH 84111 • PHONE 801-322-0417

April 12, 1972

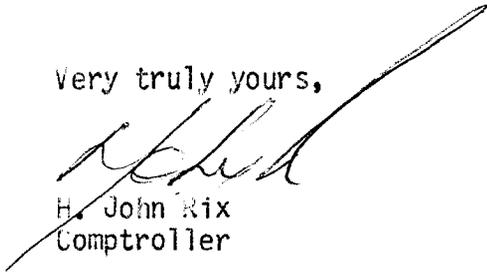
State of Utah  
Department of Natural Resources  
Division of Oil & Gas Conservation  
1588 West North Temple  
Salt Lake City, Utah 84116

Gentlemen:

With reference to your letter of March 20, 1972 we have now drilled two wells in the Left Hand Canyon and Bull Canyon area, Grand County, Utah.

We are advised by our geologist that no coal was encountered in either well.

Very truly yours,

  
H. John Rix  
Comptroller

HJR/Ts

**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 \***

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  
**Toledo Mining Company**

3. ADDRESS OF OPERATOR  
**321 Newhouse Bldg., Salt Lake City, Utah 84111**

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)\*  
At surface **SE.NW.Sec.4, T.20 S., R.21 E., S.L.M.**  
At top prod. interval reported below **2563' fr.W-line & 751' fr.N-line**  
At total depth \_\_\_\_\_

14. PERMIT NO. \_\_\_\_\_ DATE ISSUED \_\_\_\_\_

5. LEASE DESIGNATION AND SERIAL NO.  
**U-15104**

6. IF INDIAN, ALLOTTEE OR TRIBE NAME \_\_\_\_\_

7. UNIT AGREEMENT NAME \_\_\_\_\_

8. FARM OR LEASE NAME  
**Toledo- Federal**

9. WELL NO.  
**Bull-Canyon #1**

10. FIELD AND POOL, OR WILDCAT  
**Wildcat**

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA  
**SE.NW.Sec.4-20S-21E. S.L.M.**

12. COUNTY OR PARISH  
**Grand**

13. STATE  
**Utah**

15. DATE SPUNDED **1-1-1972** 16. DATE T.D. REACHED **1-22-1972** 17. DATE COMPL. (Ready to prod.) **3-6-72** 18. ELEVATIONS (DF, REB, RT, GR, ETC.)\* **Grd.:5967'; K.B.:5977'** 19. ELEV. CASINGHEAD **5968'**

20. TOTAL DEPTH, MD & TVD **4071'** 21. PLUG, BACK T.D., MD & TVD \_\_\_\_\_ 22. IF MULTIPLE COMPL., HOW MANY\* **2 sands in Jm** 23. INTERVALS DRILLED BY ROTARY TOOLS **0' to T.D.** CABLE TOOLS \_\_\_\_\_

24. PRODUCING INTERVAL(S), OF THIS COMPLETION--TOP, BOTTOM, NAME (MD AND TVD)\*  
**Morrison 3644' to 3657' & 3662' to 3679'**

26. TYPE ELECTRIC AND OTHER LOGS RUN  
**IES, gamma-neutron, & density-caliper.**

27. WAS WELL CORED  
**no**

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

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
<b>8 5/8"</b>	<b>24#</b>	<b>226'</b>	<b>11"</b>	<b>150 sks w/25 CaCl<sub>2</sub></b>	
<b>5 1/2"</b>	<b>14#</b>	<b>4050'</b>	<b>7 7/8"</b>	<b>175 sks w/2% CaCl<sub>2</sub></b>	

29. LINER RECORD

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

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
<b>2 7/8"</b>	<b>3684'</b>	<b>none</b>

31. PERFORATION RECORD (Interval, size and number)

**3645'-3655' (4 shots/ft.)**  
**3662'-3674' (4 shots/ft.)**

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
<b>3645'-3674'</b>	<b>100 bbl. of diesel &amp; 3300# of 20-40 sand.</b>

33.\* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping--size and type of pump)	WELL STATUS (Producing or shut-in)
<b>Mar 7, 1972</b>	<b>Pumping 1 1/2" 12 ft. barrel 48' stroke</b>	<b>Producing</b>
<b>Mar 6-8, '72</b>	<b>24 hrs</b>	
<b>FLOW, TUBING PRESS.</b>	<b>CASING PRESSURE</b>	<b>CALCULATED 24-HOUR RATE</b>
		<b>60</b>
		<b>10</b>
		<b>42°</b>

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)  
**Small gas flare (3-ft. flare)**

TEST WITNESSES  
**W. Don Quigley**

35. LIST OF ATTACHMENTS  
**Report on Drilling, Completion, and Geology of Well**

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

SIGNED W. Don Quigley TITLE **Consulting Geologist** DATE **April 20, 1972**

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



REPORT  
ON THE  
DRILLING, COMPLETION AND GEOLOGY  
OF THE  
TOLEDO- BULL CANYON #1 WELL  
GRAND CO., UTAH

By

W. Don Quigley  
Consulting Geologist  
Salt Lake City, Utah

April 20, 1972

DRILLING AND COMPLETION HISTORY  
OF  
TOLEDO BULL CANYON #1 WELL  
GRAND COUNTY, UTAH

Operator: Toledo Mining Co., 323 Newhouse Bldg., Salt Lake City, Utah 84111  
Contractor: Willard Pease Drilling Co., P.O. Box 548, Grand Junction, Colorado  
81501  
Location: SE, NW Sec. 4, T. 20 S., R. 21 E., S. L.M., Grand County, Utah  
(2563' fr. W-line and 751' fr. N-line)  
Elevations: Grd. 5967'; K. B. 5977'  
Spudded in: January 1, 1972  
Finished Drilling: January 22, 1972  
Total Depth: 4071'  
Pay Sections: Morrison, 3644' to 3657' and 3662' to 3679'  
Initial Production Rate: 60 bbl. oil and 10 bbl. water per day  
Completed: March 6, 1972

Dec. 30

1971 : Moving in rig and rigging up

Dec. 31

1971 : Rigging up, dig cellar, and mixing mud

Jan. 1

1972 : Rigging up. Drilled rat hole. Drilled mouse hole. Began drilling  
12 1/4" surface hole. Drilled 0' to 41'. Torque Convertor broke down.

Jan. 2: Took out Torque Convertor for repair. Waiting on repairs.

Jan. 3: Waiting on repair of Torque Convertor.

Jan. 4: Drilled 41' to 245' (204'). Thawed out kelly and stand pipe. Drilled  
ahead. Lost circulation at 95'. Mixed mud with loss-circulation mat-  
erial. Drilled surface hole to 245' and came out to run surface casing.  
Began running 8 5/8" surface casing.

Jan. 5: Finished running surface casing. Casing got stuck at 180'; but finally  
worked it loose. Ran 8 jts. of 8 5/8", 24#, J-55 casing (256 ft.) and  
landed at 226' K.B. Cemented casing with 150 sks. cement and 3% CaCl.  
Had returns to the surface. Plug down at 4:20 a.m. Waiting on cement.  
Took Torque Convertor out again for repairs.

- Jan. 6: Waiting on Torque Convertor repairs.
- Jan. 7: Drilled 245' to 333' (88'). Waited on Torque Convertor until noon. Installed Torque Convertor. Changed out swivel due to leaks. Began drilling ahead with 7 7/8" bit at 8 p. m. Castlegate sand must be behind surface casing since it was not encountered in first 100 feet below the surface casing.
- Jan. 8: Drilled 333' to 1275' (942'). Made rd. trip at 1173' for Bit #3. Bit #2, Reed-YTIA, made 928' (245' to 1173') in 18 hours. Drilled at rate of 52 ft./hr. in dark gray, calcareous, marine shale of Mancos formation. Lost circulation at 800' and had to mix more mud with loss-circulation material. Survey at 500' was 1/2°.
- Jan. 9: Drilled 1275' to 1815' (540'). Survey at 1500' was 1 1/2°. Lost circulation at 1628' and again at 1815'. Had to wait on mud and lost-circulation material. Plugged bit with loss-circulation material, so had to come out of hole to unplug bit. Dropped survey at 1815' - (1 1/2°). Bit #3, HTC-OSC-3, made 642' (1173-1815) in 16 3/4 hrs. Drilled at rate of 38 ft./hr.
- Jan. 10: Drilled 1815' to 2357' (542'). Made rd. trip at 2357' for Bit #5. Bit #4, HTC-OSC-3, made 542' (1815' to 2357') in 14 1/2 hrs. Drilled at rate of 38 ft./hr. Plugged bit again when back on bottom, so had to make rd. trip to unplug bit. Survey at 2350' was 2°.
- Jan. 11: Drilled 2357' to 2958' (601'). Began mixing mud and getting it in good shape at 2800'. Drilling at rate of about 35 ft./hr.
- Jan. 12: Drilled 2958' to 3312' (354'). Made rd. trip at 3083' for Bit # 6. Bit #5, Reed-YTIA, made 726' (2357' to 3083') in 24 1/2 hrs. Drilled at rate of about 30 ft./hr. Drilling rate decreased to about 17 ft./hr. at 3030 ft. Encountered more sandstone beds at this point. Survey at 3083' was 1 1/4°. Encountered top of Dakota at 3250' to 3280'. Difficult to tell exactly. First sand in Dakota at 3295'. Sand is medium sized with rounded grains and good blue fluorescence.
- Jan. 13: Drilled 3312' to 3350' (38'). Bit quit drilling at 3315', so had to make rd. trip for new bit, but was still in sand. Bit #6, Reed-YTIA, made 232' (3083' to 3315') in 14 1/2 hrs. Drilled at rate of 16 ft./hr. Drilled to 3350' and decided to test Dakota sand. Bottom of sand at about 3330'. Came out of hole for DST #1. Survey at 3350' was 1 1/4°.

DST #1 (Tool on bottom at 9:15 p. m.)

Interval: 3269' to 3350' (81')

Initial open: 5 minutes

Initial Shut-in: 1 hour and 8 minutes

Final Open: 1 hour

Final Shut-in: 1 hour

Blow: Moderate blow immediate continuing throughout the test.

(No gas to surface)

Recovery: 1300 ft. of fluid (250 ft. of gas cut and water cut mud plus 1050 ft. of sl. gas cut saline water). (Water has 18,000 ppm chlorides and 0.24 ohms resistance at 60°).

Pressures: I.H.P. - 1606#; I.F.P. - 40#-132#; I.S.I.P. - 900#;  
F.F.P. - 138# to 550#; F.S.I.P. - 900#; F.H.P. - 1616#.

Jan. 14: Drilled 3350' to 3389' (39'). Finished coming out of hole with test tool. Layed test tool down and went back in hole with Bit #7. Bit quit drilling at 3389', so started out of hole for new bit. Drilling in hard siliceous shale at rate of about 4 ft./hr. Bit #7, Reed-YMG, made 74 ft. (3315' to 3389') in 18 hrs. Drilled at average rate of 4 ft./hr. Went back in hole with a button bit. Estimate top of Morrison at 3380'.

Jan. 15: Drilled 3389' to 3448' (59'). Encountered good porous sand at 3400' to 3420' with good fluorescence. Had a drilling break through the sand. Hit another sand at 3437' to 3445' with good fluorescence, but appeared to be more quartzitic and less porous than the above sand. Decided to test these sands. Circulated for four hours waiting on tester and then started out of the hole for DST #2.

DST #2 (Tool on bottom at 6:20 p. m.)

Interval: 3395' to 3448' (53')

Initial Open: 5 minutes

Initial Shut-in: 45 minutes

Final Open: 1 hour

Final Shut-in: 1 hour

Blow: Strong blow immediate and slowly decreased throughout test.

Recovery: 1960' of fluid. (330' of gas-cut-mud and 1630' of gas-cut-saline water) Strong gas odor. Water has 15,000 ppm chlorides and resistance is 0.38 ohms at 60°.

Pressures: I.H.P. - 1616#; I.F.P. - 245#-536#; I.S.I.P. - 922#.

F.F.P. - 586#-911#; F.S.I.P. - 922#; F.H.P. - 1605#.

Jan. 16: Drilled 3448' to 3587' (139'). Went back in hole with the button bit, Bit #8 and continued drilling. Drilling in hard siliceous varicolored shale at average rate of about 7 ft./hour.

Jan. 17: Drilled 3587' to 3680' (93'). Had a drilling break at 3640' to 3653' and another at 3660' to 3673'. Both breaks were medium sized sand with 12 to 14% porosity with light blue to pale fluorescence. Drilled to 3680' and decided to run DST #3.

DST #3 (Opened tool at 7:30 p. m.) 3640'-3680' (40')

Initial Open: 10 minutes

Initial Shut-in: 50 minutes

Final Open: 1 hour, 15 minutes

Final Shut-in: 1 hour, 45 minutes

Blow: Weak blow initially, but increased rapidly to strong and remained steady throughout test. Gas to surface in 30 minutes. Burned with 3-ft. flare. Wet gas.

Recovery: 260 ft. of fluid (160 ft. of free oil, 45° gravity at 98° and 100 ft. of highly oil and gas cut mud).

Pressures: I. H. P. - 1762#; I. F. P. - 27# to 32#; I. S. I. P. - 1017#; F. F. P. - 37# to 111#; F. S. I. P. - 1017#; F. H. P. - 1762#.

M. F. E. Tool Recovery: 65# pressure; small amount of gas; 1800 cc fluid (1430 cc of oil and 370 cc mud).  
No water whatsoever.

Jan. 18: Drilled 3680' to 3755' (75'). Because of the light oil, had to wait until daylight to pull rest of test tool (2 a. m. until 7:30 a. m.) Pulled rest of test tool, loaded out test tool, and went back in hole with button bit (Bit #8). Drilled at average rate of 6 to 7 ft./hr. Encountered a sand at 3703' to 3715' which was f. g. to v. f. g. with sl. fluorescence--looks tight. Penetrated another sand at 3720' to 3763' with shale beds. Sand has slight fluorescence but looks tight. May decide to test when completely penetrated.

Jan. 19: Drilled 3755' to 3814' (59'). Bottom of above sand at 3763'. Drilled to 3785' and decided to test above two sands, particularly because of thickness of second sand. Came out of hole and picked up test tool. Ran DST #4.

DST #4 (Opened tool initially at 10:30 a. m.)

Interval: 3690' to 3785' (95')

Initial Open: 10 minutes

Initial Shut-in: 60 minutes

Final Open: 30 minutes

Final Shut-in: 30 minutes

Blow: Weak-dead in 15 minutes

Recovery: 60 ft. of mud

Pressures: I. H. P. - 1790#; I. F. P. - 27#; I. S. I. P. - 782#; F. F. P. - 38#; F. S. I. P. - 77#; F. H. P. - 1790#.

Remarks: Sands are very tight and contain no fluid or hydrocarbons.

Went back in the hole with Bit #8 and began drilling ahead. Encountered a sand at 3790' to 3820' which was medium-grained with good fluorescence. Decided to test this sand at the time the Entrada was tested.

- Jan. 20: Drilled 3814' to 3915' (101'). Drilled at average rate of 6 to 7 ft./hr. in red siltstone, sandy limestone, and v.f.g. sandstone.
- Jan. 21: Drilled 3915' to 4050' (135'). Est. top of Summerville at 3969' due to lots of red-brown limestone, siltstone, and shale in samples. Summerville section was real thick, since the top of the Entrada was finally encountered at 4040'. The Entrada coarse sand grains, well rounded, loosely consolidated and no fluorescence.
- Jan. 22: Drilled 4050' to 4071' (21'). Entrada sand drilling at rate of about 6 to 7 ft./hr. Decided to test the top 30-ft. section so came out of hole for DST #5 after circulating for one hour.

DST #5 (Opened tool at 11:00 a. m.) 4041' to 4071' (30')

Initial Open: 5 minutes

Initial Shut-in: 30 minutes

Final Flow: 1 hour

Final Shut-in: 1 hour

Blow: Strong blow immediately - gradually decreasing to dead at end of test.

Recovery: 2750' ft. of slightly mud cut fresh water (50 ppm chlorides)

Pressures: I.H.P. -2025; I.F.P. 237-668 I.S.I.P. -1239

F.F.P. 748-1229 F.S.I.P. -1248 ; F.H.P. -2025

B.H.T. -150 °

Went back in hole with test tool and hook-wall anchor to test zone 3790' to 3825'.

DST #6 (Opened tool at 11:40 p. m.)

Misrun! Bottom packer failed.

- Jan. 23: Came out of hole with test tool and rigged up Schlumberger to log hole. Ran I. E. S., Density, and Gamma-Neutron logs. Laid down drill collars. Went back in hole with drill pipe and circulated for 1 hr. in preparation for running casing. Started out of hole laying down drill pipe.
- Jan. 24: Finished laying down drill pipe. Began running casing at 4 a. m. Ran 127 jts. J-55, 5 1/2" 14 lb. casing and landed at 4050'. Ran guide shoe on bottom with insert float collar between first and second joints. Put 10 centralizers on casing at 1st, 4th, 7th, 10th, 13th, 17th, 20th, 25th, 30th, and 35 jts. Cemented casing with 175 sks. of regular cement with 2% CaCl. Preceded cement with 25 bbl. water and displaced with 99 bbl. water. Plug down at 10:40 a. m. Released rig.

COMPLETION HISTORY

- Feb. 4: Workover rig (Farmington Well Service) arrived on location at 10:00 a.m. Set up rig. Installed OCT 2 7/8" tubing head (Serial No. 34039) with 10 3/4" flange on bottom. Picked up tubing and ran it in hole. Ran in 3793' of 2 7/8" O. D. tubing with seating nipple on bottom. Rigged up swab and swabbed water out of casing. Quit at 6 p. m.
- Feb. 5: Arrived location at 8:30 a. m. Made one run with swab. Pulled 1/2 bbl. water. Drilled casing back up with diesel with tubing in hole. Came out of hole with tubing 2 p. m. Began running Gamma-bond-collar finder log. Found top of cement on inside of casing at 3950' and on the outside of the casing at 3246'. Good bond throughout cemented section. 4:45 p. m. Went in hole with first gun. Shot zone 3645' to 3655' with 4 sh./ft. and zone 3662' to 3674' with 4 sh./ft. Finished shooting at 7 p. m. Put valve and joint of tubing in hole and shut down for night. Quit at 7:15.
- Feb. 6: Arrived at 8:30 a. m. Put bridge plug in casing at 100' below surface and picked up casing and reset slips in head (Slips had been installed upside down). Had to cut casing off again. Pulled bridge plug out and went in hole with Johnston "Bobcat" packer and tubing. Set packer at 3625'. Installed tubing slips and master valve and connected Holliburton lines to head. 2:00 p. m. Put 1000# pressure on backside (between casing and tubing). Pressured lines to 6000#. Started to pressure on tubing. Well head gauge indicates pressure building on annulus due to leak of some sort. Reset packer and the results were the same; so had to start pulling tubing. Pulled 30 joints and found a joint split for 15". Reset packer at this point and put 2000# on annulus without leaks. Put 2300# and took fluid at 10 bbl./min. Shut down at 6:30 p. m.
- Feb. 7: Arrived at 8:30 a. m. Unseated packer and went back in hole. Set packer at 3620'. Waited on diesel for 1 hour. 11:45 started frac-treatment. Put 1000# on annulus. Pumped in 11 bbl./min. at 3000#. Pumped in 50 bbl. diesel with no sand at 2900# pressure at 10 bbl./min. rates. Pumped in 25 bbl. diesel with 1/4 lb. sand per gallon at 2850# pressure at 10 bbl./min. rate. Pumped in 30 bbl. diesel with 1/2 lb. sand per gallon at 2750# at 10 bbl./min. rate. Pumped in 90 bbl. diesel with 3/4# sand/gallon at 2950# pressure at 10 bbl./min. Started dropping balls at 4/min. after 10 minutes. Dropped 31 balls and pressure increased gradually and then jumped to 4200# all at once and split tubing. Had to stop frac-treatment and reverse out; but couldn't wash clean due to hole in tubing. Tried to work packer loose, but couldn't. Backed out tubing above packer and started out of hole with tubing. Found the 29th joint split; so went back in hole and screwed into packer. Hooked up pump truck to circulate, but couldn't break circulation either way. Worked tubing and packer slowly up and down and finally got one joint loose. Packer stuck again, so shut down for the night at 6:30 p. m.

- Feb. 8: Arrived at 8:30 a. m. and hooked up pump truck. Put packing gland around tubing and pumped down tubing. Broke circulation and pumped down tubing. Broke circulation and pumped for 20 minutes (100 bbl.); then reversed circulated down the casing for 30 minutes. Broke connections and started out of hole slowly. Slips on packer dragging some. Came out of hole slowly. Got out of hole at 2:00 p. m. Released Johnston man and packer. Went back in hole with tubing (one joint of tubing below seating nipple). Set seating nipple at 3653' and bottom of tubing at 3684'. On bottom at 3:30 p. m. Put in tubing slips and packing rubber. Nippled up and began swabbing at 4:30 p. m. Tank gauged 33" at beginning of swab; and 46" at end of swabbing (60 bbls.) in 1 hour. Quit at 6 p. m.
- Feb. 9: Arrived at 8:30 a. m. No pressure on casing or tubing. Started swabbing at 9 a. m. Found fluid level at 1500' below surface. Well very gassy. Had crude oil mixed with diesel on second swab. Lots of gas with each swab. Crude oil increased gradually. Swabbed continuously until 5:30 p. m. Fluid level dropped gradually from 1500' from surface to 2800' from surface (800' from bottom) and remained steady at that point. Pressure on casing gradually increased to 120# at end of day. Tank gauged 79" at end of swabbing. Swabbed out about 140 bbls. in 8 hours. Very little water in oil. Had some water on about 5 different runs. All other runs were all oil and diesel. Quit at 5:30 p. m.
- Feb. 10: Arrived at 8:30 a. m. Pressure on casing 530#. Pressure on tubing 70#. Pulled two swabs and well began to flow gas and oil. Put 8" in tank in one hour (Tank gauge -38" at start and 46" in after one hour). Tank gauged 55" at end of day. Swabbed every 1/2 hour after noon and pulled about 1 1/2 bbl. fluid each time. Pressure on casing dropped to 160# and remained steady at this pressure. Quit at 5 p. m. Swabbed about 80 bbl.
- Feb. 11: Arrived at 9 a. m. Tubing pressure - 150#; Casing pressure - 680#. Fluid level at 1750' from bottom (40 bbls.). Released pressure on tubing and casing. Picked up pump (H. F. 001, type RWBC, 2 1/2", 1 1/2" bore, 12' long; with spray metal -4' -.002 plunger; maximum stroke is 12 ft.). Ran 144 rods and 1 pup. (3/4"). Installed liner sucker rod stuffing box and clamp. Well is ready for pump jack. Quit at 3 p. m.
- March 2  
to  
March 8: Casing pressure 900 lbs. Installed pump jack and motor, heater-treater and tanks. Ran lines and connected all equipment together (Flow lines were buried). Started pumping well on March 6. Well

pumped up in 20 minutes. Well produced 40 bbls. of oil in first five hours of production, and 60 bbls. in first 24 hours, and about 10 bbls. water (estimate). Casing pressure was reduced to 100 lbs. Gas was flared. (Est. about 50 to 100 MCF per day). Well produced 53 bbls. oil on March 7, but motor quit during the night. Radiator leaks. Replaced radiator gasket three times on March 8 and radiator still leaked, so had to shut motor off at night. Finally replaced radiator and stopped leak.

March 9  
through

March 14: Well producing from 52 to 65 bbls. oil per day and estimate about 8 to 10 bbls. water per day.

March 15  
through

March 18: Production suddenly dropped to 14 to 22 bbls. of oil per day and after about 10 hours of pumping would pump gas only. Something mechanical is wrong and will have to pull rods and pump for inspection.

*W. Don Quigley*  
W. Don Quigley

### General Geologic Conditions

The Toledo - Bull Canyon #1 Well is located on a narrow north-west plunging anticlinal nose with a northeast trending fault crossing the feature just southeast (about 500 feet) of the well site. The anticlinal nose is located in the NW 1/4 of Section 4, T. 20 S., R. 21 E. and trends northwestward across the SW 1/4 of Section 33 and the NE 1/4 of Section 32 of T. 19 S., R. 21 E. This is a subsurface feature which is located on the west flank of a similar north-west plunging surface anticlinal feature.

The surface structure, evident from exposed beds of the Mesaverde and Mancos formation, is a northwest plunging anticline whose axis is located a short distance to the east of the subject well location. The subsurface is much older than the surface structure and was probably distorted somewhat by the later folding. All parts of the older structure may actually be lower structurally at the present than the younger structure as seen from the attitude of the surface rocks; but this is not critical, since the oil and gas were probably accumulated prior to the more recent folding and have been retained in the old structure. Considerable adjustment and variation of structure and movement have undoubtedly been absorbed by the thick sequence of Mancos shale in the area plus the unconformity at the top of the Morrison formation and in the middle Cretaceous section. There is considerable lensing and overlap in the upper Mancos and lower Mesaverde beds which tend to erase underlying structure.

Regionally, the prospect area is located on the northwest plunging flank of the Uncompahgre plateau into the Uinta Basin. On the flanks of this nose and southern edge of the Basin a number of natural gas fields have been found and developed during the last twenty years. These natural gas accumulations have been primarily found in the Dakota, Cedar Mountain, Morrison and Entrada formations. The reservoirs in the first three formations have been lenticular sands of varying thickness and areal extent. To date, the fields developed in these formations have been confined to good structural positions; but this may or may not be essential to the gas accumulation. Production may eventually be established in structurally unfavorable positions and the lenticularity of the sands could be found to provide their own trapping mechanism. The gas accumulations found in the Entrada formation to date have all been structurally controlled and have a water drive. The Entrada is a fairly consistent, blanket sand in the region and, visually has good porosity (15 to 20%), thus structural entrapment is necessary to contain the hydrocarbon accumulation. Generally the Entrada, where tested in the area, has contained water (usually saline) or natural gas having a low B. Y. U. content (480 to 720 B. T. U.). Thus the natural gas produced from the formation has had to be treated and/or mixed with better quality gas to permit marketing. No oil has been produced heretofore from the Entrada formation in the region. It has long been a primary aim of many companies to find an oil structure in the area to test for possible oil production from the Entrada. It is recognized by most that the Entrada would make an excellent reservoir rock, but the problem has been finding a structure with good quality hydrocarbons in the Entrada.

The rocks exposed in the area around the subject well site belong to the lower Mesa-verde and upper Mancos formations. The strata in the Mesaverde consist of a series of lenticular sandstone beds with interfingering layers of shale and siltstone. The upper Mancos strata are interbedded gray marine shales, siltstones and sandstones.

Considerable faulting and adjustment have taken place throughout the area due to the various rejuvenations of the Uncompahgre Uplift. In general, this faulting and movement is not apparent in the Mesaverde strata other than by stratigraphic irregularities. Through experience, it has been found that the faulting has not been essential to hydrocarbon accumulations, but has definitely effected the reservoir rocks adjacent to the fault plane. The natural porosity and permeability of the reservoir rock have been destroyed by the influx of clay minerals and gouge material, thus inhibiting production near the fault plane (nearer than 500 to 600 feet). This is particularly pertinent to the Dakota, Cedar Mountain, and Morrison reservoirs. It may not be so critical to the Entrada reservoirs, due to the greater porosity and permeability inherent with the sands of that formation. It is also possible that the faulting may have aided entrapment of hydrocarbons in the Entrada by the forming of fault traps. This has not been established to date.

#### Drilling History

A complete daily history of the drilling of the Toledo-Bull Canyon #1 Well is attached hereto. No unusual problems were encountered in the drilling of the well. Mud was used from the surface to total depth. The surface casing was set at 226 feet and cemented thoroughly. The well was spudded near the base of the Castlegate sandstone and all the near surface sands were sealed off behind the surface casing. Loss-circulation was encountered in the well at a depth of 800 feet, necessitating mixing mud and loss-circulation material. Circulation was again lost at 1628 feet and at 1815 feet requiring mixing mud and treatment to regain circulation.

Since mud was used for the circulating medium, it was necessary to drill-stem-test all shows. Six drill-stem-tests were run. The details and results of these tests are given under the Drilling History. The drill-stem-tests take about 12 to 18 hours to complete and thus add considerably to the overall drilling time; but they are invaluable and necessary for complete evaluation of the potential zones. They probably save time and money in the long run. The overall drilling time of the well was about 21 days.

#### Stratigraphy - Oil and Gas Shows

A detailed sample descriptive log is attached hereto. The stratigraphic section was nearly normal with a well developed Cedar Mountain section, and a thick Summervilles section. (The Cedar Mountain section was absent in the Anschutz well to the west and the Summerville was only 50 feet thick in the Anschutz well as compared with 90 feet in subject well) The formation tops were encountered at the approximate predicted depths.

The sands in the Dakota formation were poorly developed; in fact, only one sand was present. This sand, (3296' to 3308') in the middle of the section, was about 12 feet thick,

had 12 to 14% porosity, and yielded about 1100 feet of slightly gas cut saline water in one hour on drill-stem-test.

The Cedar Mountain formation had two different sand beds, (3404'-3419' and 3429' to 3448'), which were separated by ten feet, and which had 12 to 14% porosity. These sands were tested and yielded about 1650 feet of gas-cut-saline water in one hour.

The Morrison formation has five different sandstone beds of reasonable thickness (12' to 15'). The upper sand (3540'-52') in the Brushy Basin member was about 12' thick and was a medium-grained sandstone with rounded grains, but had no shows and looked wet. This sand was not tested and the logs confirmed the probable presence of water. Two good sands (3644' to 3656' and 3662' to 3678') were present at the top of the Salt Wash member. These sands had 12 to 14% porosity and had good oil and gas shows with staining and light blue fluorescence. A drill-stem-test of these sands yielded 160 feet of free oil (42° gravity at 60° F.) in one hour and gas to the surface in 30 minutes with no water. A shut-in pressure of 1017# was obtained on the test.

The fourth sand in the Morrison at 3728' to 3740' was fine-grained, quartzitic and looked tight, but had slight fluorescence. This sand was therefore tested, but the results were negative. The logs later confirmed the tight nature of the sand, showing only about 8% porosity.

The fifth sand in the Morrison at 3798' to 3808' was fine-grained, quartzitic, and tight; but had slight fluorescence. This sand was not tested because of its tight nature and the logs later showed a porosity of about 8%.

The Summerville formation, as mentioned above, was about 90 feet thick in the subject well rather than the 50-ft. thick section obtained in the Anschutz well. This suggests that the subject well location is positioned at a point which was lower structurally in early Morrison time than the Anschutz well, and thus provides a good clue as to the potential productivity of the Entrada formation below.

The Entrada formation was penetrated by 27 feet and drill-stem-tested. Approximately 2750' of slightly mud cut fresh water was recovered in one hour on the test. The Entrada is a coarse-grained, well-rounded, quartz sandstone which is loosely consolidated. No shows of oil or gas were evident in the cuttings. Visual porosity was estimated to be about 15%.

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

<u>Formation</u>	<u>Depth to Top</u>	<u>Thickness</u>	<u>Datum</u>
Mancos	Surface	3270'	5977'K. B.
Dakota	3270'	116'	2707'
Cedar Mountain	3386'	68'	2591'

<u>Formation</u>	<u>Depth to Top</u>	<u>Thickness</u>	<u>Datum</u>
Morrison	3454'	500'	2523'
Salt Wash	3644'	310'	2333'
Summerville	3954'	90'	2023'
Entrada	4044'	--	1933'

The increased thickness of the Summerville in the subject well is indicative of a depositional low (topographic low) during the period of its formation. The top part of the formation is the portion which thins and thickens over the area, thus it is disconformable with the overlying Morrison formation.

The Cedar Mountain formation is also disconformable with the top of the Morrison and is derived from the erosion of the upper Morrison strata; thus it is likewise thickest in the area of the depositional lows during its period of formation. Because of the nature of its origin, it is often found to contain water throughout the area, rather than gas.

#### Completion of the Well

A complete daily account of the completion work on the well is given under the "Completion History".

Only the two sands at the top of the Salt Wash member of the Morrison, from which free oil, without water, was recovered on drill-stem-test, were perforated. Perforations (four shots/ft.) were made at 3645' to 3655' and at 3662' to 3674'. These zones were fracture treated with diesel and sand through 2 7/8" tubing. Unfortunately, the tubing split when less than 1/3 of the treatment was completed; so it is quite probable that the well will have to be re-fractured after the sand has been removed and the well has produced for a few weeks. Further treatment can be accomplished with oil produced from the well. With successful treatment, the well should produce 80 to 100 bbls. of oil per day along with a quantity of gas.

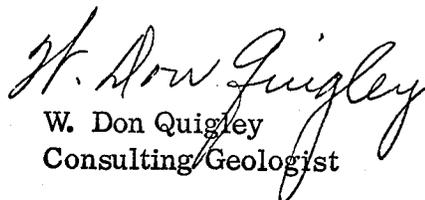
The Toledo-Bull Canyon #1 Well was drilled on a northwest trending anticlinal structure which is not discernible from surface studies, and on a northeast stratigraphic trend of sand development in the Dakota and Morrison formations. The data from the well tend to confirm the presence of the structure plus the sand trends in the Morrison formation. The Dakota sands were not well developed, but the Cedar Mountain formation had two good sands which were wet. The Entrada formation contained no shows of oil or gas and contained only fresh water when tested.

The Dakota formation had only one sand (12 feet thick) which had about 12% porosity. It contained a very small amount of gas with a quantity of saline water.

The Morrison formation contained five different sand benches, two of which were completed for commercial oil and gas production with fracture treatment. Mechanical problems during the fracture treatment prevented a completely successful job, and the well will have to be retreated at a later date. The well should ultimately produce between 80 and 100 bbls. of oil per day with a quantity of gas (25 to 50 MCF per day).

The Entrada formation contained fresh water (700 p.p.m. chlorides) and was thus sealed off below the casing. The older structural aspect of the Entrada was not favorable at the well site for hydrocarbon accumulations. There were no oil or gas shows of any kind in the samples, thus recovery of water on the drill-stem-test of the formation was not surprising.

The Toledo-Bull Canyon #1 Well more or less confirms the concept of the irregular and discontinuous nature of the structural and stratigraphic aspect of the Dakota, Cedar Mountain, Morrison and Entrada formations in the Book Cliff region. There are a number of older structures, faults, and alignments which do not conform to the structural aspect of the surface strata. Each well will be a wildcat and each site must be carefully studied and selected. A continuous, systematic development program will probably not be possible. Several more wells will have to be drilled on the older structurally favorable features before a definite concept or system of controls can be developed and understood. Eventually, some of the structurally unfavorable positions may be drilled to ascertain whether or not structure is essential to production. For the present, however, only the better structural positions should be drilled.

  
W. Don Quigley  
Consulting Geologist

Lodhi - Bull Canyon #1 Sec. 4 - T1S, - 21E

2800' to 3800'

2800  
2900  
3000  
3100  
3200  
3300  
3400  
3500  
3600  
3700  
3800

2800	g	DR. gray v. calc. man. sh., sil. mica. & w/pya
	b	some ban. dirty lms
2900	g	DR. gray v. calc. man. sh. w/pya
	g	DR. gray v. calc. sh., ban. lms., arby & sil. sdy - v. fossiliferous.
	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
3000	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
3100	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
3200	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
3300	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
3400	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
3500	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
3600	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
3700	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.
3800	FA	DR. gray v. calc. sh., some sdy arby, foss. & pya.

EUGENE DIETZGEN CO. MADE IN U. S. A.

D. 340DR-10 DIETZGEN GRAPH PAPER 10 X 10 PER INCH

DST #4 - Dead, Reb. 60' Mud

Colorado - Bull. Canyon - 11-1 (Civil)

3800

Mfg. con. of calc. ss. w/ good fluon. Rd. calc. siltst., bn. sdy. lms., varic. sh. & lg. calc. ss. sh. of bn. lms. 3800-4070'

3900

A b Vfg. hd. calc. ss. (w/ fluon.) fat. - may be wet & gray sdy. lms.  
 A b Gray hd. & vfg. quartzitic calc. ss. (w/ fluon.) gray sdy. lms. sh. & bent.  
 A b Gray & gn. sdy. lms. sh. vfg. hd. calc. gray ss. & rd. & blk. silic. sh. & bent.  
 A b Rd., pur. & gray calc. siltst., gray lms. & sdy. sh. & bent.  
 A b Gray & wh. sdy. lms., bn. sdy. calc. sh. (part of lms.)  
 A Rd. bn. calc. siltst., lms. & varic. sh.  
 A Rd. bn. siltst. & lms.  
 A Gray sdy. lms. - Rd. bn. calc. siltst., gray & wh. kg. quartzitic ss. & mangan. to amber cl.  
 A Gray sdy. lms. - w/ vfg. quartzitic ss. lots of  
 A Gray sdy. lms. - rd. blk. gn. & gray silic. sh.; vfg. wh. quartzitic ss. & amber cl.  
 A Bn. lms. - Rd. bn. calc. siltst. & wh. vfg. quartzitic ss. & hard sdy. sh. & blk. f. ss. sh.  
 A Rd. bn. lms. siltst. & sh.  
 A Rd. bn. sdy. lms., siltst. & sh.

4000

A Rd. bn. calc. sh. & lg. white con. of calc. ss. w/ rd. gans  
 A Rd. bn. sdy. lms., siltst. & sh. Rd. bn. kg. calc. ss.

A la. con. of calc. ss. w/ rd. gans - non calc. & loosely cemented.  
 T.D. - 4070

4100

4200

EUGENE DIETZGEN CO. MADE IN U. S. A.

ID. 340DR-10 DIETZGEN GRAPH PAPER 10 X 10 PER INCH

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

*Salt Lake City*  
*Water Analyses.*  
*RMB*

Laboratory - Casper, Wyoming

INFORMATION TO BE FURNISHED WITH EACH SAMPLE OF WATER

Marks on container \_\_\_\_\_ Lab. No. 72-W 151 (Filled by Chemist)

SOURCE OF SAMPLE:

Field Bull Canyon, Utah Farm or Lease Utah 15104 Permit \_\_\_\_\_  
(Serial Number)

Operator Toledo Mining Company Operator's Address \_\_\_\_\_

Well No. SENW,  $\frac{1}{2}$  Sec. 4, T. 20 S., R. 21 E., S. L. M. \_\_\_\_\_

Sample taken by G. R. Daniels Date taken 3/15/72

If known, name of sand (or formation) from which this sample is produced Salt Wash  
(If doubtful, so state)

Depth to top of sand 3,644' Depth to bottom of sand 3,954'

Depth well drilled 4,071' Present depth 4,050'

Depths (if known) where water encountered 3,645-74'

Depth at which water string is landed, cemented, mudded  $\frac{5}{2}$  cc @ 4,050' w/175 sacks

METHOD OF SAMPLING:

Place where sample was obtained (sump hole, lead line, flow tank, bailer, etc.)  
well head

Method of production (flowing, pumping, air, etc.) \_\_\_\_\_

Initial production:

Barrels Oil 60/day  
Barrels Water 10/day  
Gas Volume \_\_\_\_\_  
Rock Pressure \_\_\_\_\_

Present production

Barrels Oil \_\_\_\_\_  
Barrels Water \_\_\_\_\_  
Gas Volume \_\_\_\_\_  
Rock Pressure \_\_\_\_\_

REASON FOR ANALYSIS:

- (1) Future Reference: XXXX
- (2) \_\_\_\_\_
- (3) Correlation: \_\_\_\_\_
- (4) \_\_\_\_\_

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U.S. GEOLOGICAL SURVEY  
SALT LAKE CITY, UTAH  
JUN 22 1972

Note: A sample for analysis is of no value unless accompanied by above information. Complete information on this form is to be attached to each sample container; otherwise sample will be disregarded. Be sure to seal or tightly cork all containers immediately after sampling and label all samples so that there will be no confusion.

Condition of Sample \_\_\_\_\_ Lab. No. 72-W 151

Analysis by K. P. Moore at Casper, Wyoming Date 6/12/72

CHEMICAL and PHYSICAL PROPERTIES

Spec. Grav. @ 60/60°F \_\_\_\_\_ pH 7.9 Color \_\_\_\_\_

Spec. Resistance (ohm-meters) @ \_\_\_\_\_ °F., observed \_\_\_\_\_, calculated \_\_\_\_\_

Constituent	Milligrams Per Liter (mg./l.)	Reacting Value in	
		Milliequivalents Per Liter (meq./l.)	Per Cent
Sodium (Na) & Potassium (K) (calculated as Sodium .....	10,782	469.029	42.1114
Potassium (K) .....			
Calcium (Ca).....	1,395	69.611	6.299
Magnesium (Mg).....	169	13.892	1.257
Iron (Fe) .....			
.....			
Sulfate (SO <sub>4</sub> ) .....	165	3.132	0.310
Nitrate (NO <sub>3</sub> ) .....	8	0.130	0.012
Chloride (Cl) .....	19,230	512.286	49.073
Fluoride (F) .....	1.1	0.058	0.005
Carbonate (CO <sub>3</sub> ) .....			
Bicarbonate (HCO <sub>3</sub> ) .....	404	6.626	0.600
Hydroxide (OH) .....			
Silica (SiO <sub>2</sub> ) .....			
Boron (B) .....	2.5		
(calculated as B <sub>4</sub> O <sub>7</sub> ) .....			
Selenium (Se) .....	0.051		
Sulfide (S) .....			
Hydrogen Sulfide (H <sub>2</sub> S) .....			
Total Dissolved Solids			
By evaporation .....	35,152		
After ignition .....	31,804		
Calculated .....	31,753		

Properties of Reaction in Per Cent

Salinity, primary 84.89 secondary 13.91 chloride 99.34 sulfate 0.63  
 Alkalinity, primary 0.00 secondary 1.20

Remarks and Conclusions: Does not appear suitable for any common surface use.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

*Salt Lake City 2*  
BR. OF THE GEOLOGICAL SURVEY  
JUL 5 1972  
U. S. GEOLOGICAL SURVEY  
SALT LAKE CITY, UTAH  
(Filled in by Chemist)

Casper, Wyoming, Laboratory

INFORMATION TO BE FURNISHED WITH EACH SAMPLE

Marks on container ..... Lab. No. 72-053 (Filled in by Chemist)

Field Bull Canyon, Utah Farm or Lease Utah 15104  
(Serial Number)

Operator Toledo Mining Company Address .....

Well No. 1, SE 1/4 NE 1/4 sec. 4, T. 20 S., R. 21 E., S.L.M.

Sample taken by G. R. Daniels Date taken 3/15/72

Name of sand (or formation) from which this sample was obtained (if unknown or doubtful, so state) Salt Wash

Depth to top of sand 3,644' Depth to bottom of sand 3,954'

Depth well drilled 4,071' Present depth 4,050'

Depths at which casing is perforated 3,645-74'

If drill stem test, depth at which packer is set .....

Depth at which last shut-off string of casing is landed, cemented or mudded (state which) 5' cc @ 4,050' w/175 sacks

Depths (if known) where water encountered .....

If acidized, dates, depths and gallons of acid .....

Place where sample was obtained (drill stem, lead line, flow tank, bailer, etc.) well head

Method of production (flowing, pumping, air, etc.) .....

Initial Production:		Present Production:	
Barrels Oil	<u>60/cay</u>	Barrels Oil	.....
Barrels Water	<u>10/cay</u>	Barrels Water	.....
Gas Volume	.....	Gas Volume	.....
Rock Pressure	.....	Rock Pressure	.....

REASON FOR ANALYSIS .....

Note: A sample for analysis is of no value unless accompanied by above information. Complete information on this form is to be attached to each sample container; otherwise sample will be disregarded. Be sure to seal or tightly cork all containers immediately after sampling and label all samples so that there will be no confusion.

CRUDE OIL ANALYSIS

Condition of sample .....  
 Analysis by K. P. Moore ..... Laboratory No. 72-053  
 Date 6/22/72

GENERAL CHARACTERISTICS

Specific Gravity 0.8256 ..... A.P.I. Gravity 39.9  
 Per cent Sulphur 0.31 ..... Pour Point 55° F  
 Saybolt Universal Viscosity at 70°F 51.0 sec. Color brownish-green (dark)  
 Saybolt Universal Viscosity at 100°F 39.6 sec. Base Paraffin-intermediate

DISTILLATION, BUREAU OF MINES, HEMPEL METHOD

Distillation at atmospheric pressure 631 mm Hg ..... First Drop 69° C (156° F)

Fraction No.	Cut at °C.	Per °F.	Per Cent	Sum Per Cent	Sp.Gr. 60/60°F.	°A.P.I. 60°F.	C.I.*	S.U. Visc. 100°F.	Cloud Test °F.
1	50	122							
2	75	167	tr	tr					
3	100	212	3.7	3.7	0.804	75.4			
4	125	257	6.3	10.0	0.776	66.1	10		
5	150	302	5.3	15.3	0.741	59.5	15		
6	175	347	6.5	21.8	0.702	54.2	18		
7	200	392	6.6	28.4	0.779	50.2	20		
8	225	437	6.8	35.2	0.756	46.3	22		
9	250	482	8.6	43.8	0.810	43.2	24		
10	275	527	9.9	53.7	0.823	40.4	25		

\*Note: C.I. values calculated basis Bureau of Mines T.P. #610.

Distillation continued at 40 mm.

11	200	392	3.0	56.7	0.838	37.4	23	42	16
12	225	437	7.0	63.7	0.814	36.2	27	47	30
13	250	482	6.3	70.0	0.854	34.2	26	53	52
14	275	527	5.3	75.3	0.869	31.3	32	82	63
15	300	572	6.4	81.7	0.864	28.6	37	132	90

Residuum 17.7 100.0 0.933 20.2

Carbon residue of residuum 7.5% ..... Carbon residue of crude 1.6%

APPROXIMATE SUMMARY

	Per cent	Sp.Gr. 60/60°F.	°A.P.I. 60°F.	Viscosity, secs.
Light gasoline	3.7	0.804	75.4	
Total gasoline and naphtha	23.4	0.742	57.2	
Kerosene distillate	25.3	0.811	43.0	
Gas oil	9.1	0.843	35.4	
Nonviscous lubricating distillate	12.9	0.848-0.876	35.4-39.0	Below 50
Medium lubricating distillate	6.8	0.876-0.893	30.0-27.0	50-100
Viscous lubricating distillate				100-200
Residuum	17.7	0.933	20.2	Above 200
Distillation loss	0			

*W*  
CALVIN L. RAMPTON  
Governor



*Z*  
OIL & GAS CONSERVATION BOARD

GORDON E. HARMSTON  
Executive Director,  
NATURAL RESOURCES

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

GUY N. CARDON  
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JAMES P. COWLEY  
HYRUM L. LEE

1588 WEST NORTH TEMPLE  
SALT LAKE CITY, UTAH 84116

328-5771

11/12/74

Johnny Mora  
P. & A Toledo #1  
for Robin Robinson

Paperwork will be sent in

Toledo #2 - Plugdown perf.  
Will Pull production string  
and clean location after next spring

Wancock: USG 2  
#20 rec 9 } 17 S - 25 E  
#19 - rec 9 }  
#32 - stat we approved.

STATE OF UTAH  
OIL & GAS CONSERVATION COMMISSION

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

5. LEASE DESIGNATION AND SERIAL NO.

U.15104

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.)

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

Federal

9. WELL NO.

Bull Canyon No.1

10. FIELD AND POOL, OR WILDCAT

Wildcat

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

SE.NW.4. 20S 21E.

12. COUNTY OR PARISH

Grand

13. STATE

Utah

1.

OIL WELL  GAS WELL  OTHER

2. NAME OF OPERATOR

Toledo Mining Company

3. ADDRESS OF OPERATOR

322 Newhouse Building Salt Lake City Utah 84111.

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

SE4.NW4. Section 4, T20S, R21E,  
2563' from W.Line & 751' from N.Line.

14. PERMIT NO.

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

5968 GR.

16.

**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)

PULL 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.)\*

The well was plugged on August 27th 1974 by Mr. John Moore. Mr. Moore died in January 1975 prior to filing this report. The information was taken from his Log Book by Mr. L.R. Robinson of Grand Junction.

Removed 3674' of 2 3/8 tubing.  
Removed 300' 5 1/2 casing.  
Set 50 bags cement from 4050' to 3700'  
Set 50 bags cement from 3700' to 3650'  
Set 30 bags cement at top of hole and set dry hole marker.

The surface was approved by the B.L.M.

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

SIGNED

TITLE Secy Treasurer.

DATE 15th July 1975.

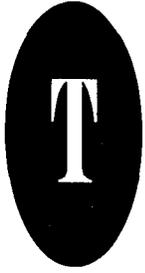
(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:



ANTHONY G. HATSIS  
PRESIDENT

TOLEDO MINING COMPANY

322 NEWHOUSE BLDG. • SALT LAKE CITY, UTAH 84111 • PHONE 801-322-0417

Rw  
/s/

July 16, 1975

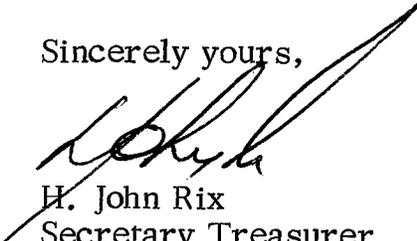
State of Utah  
Dept. of Natural Resources  
Division of Oil & Gas Conservation  
1588 West North Temple  
Salt Lake City, Utah 84116

Re: Bull Canyon No. 1

Gentlemen:

I enclose form No. OGCC 1 in connection with the abandonment of the above well for your information.

Sincerely yours,



H. John Rix  
Secretary Treasurer

HJR:erb  
Enclosure