

FILE NOTATIONS

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

Checked by Chief *P.W.B.*
Approval Letter *3-11-71*
Disapproval Letter

COMPLETION DATA:

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

Location Inspected
Bond released
State or Federal
.....

LOGS FILED

Driller's Log.....
Electric Logs (No.)
E..... I..... Dual I Lat..... GR-N.....
BHC Sonic GR..... Lat..... MI-L..... S.....
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
322 Newhouse Bldg., 30 Exchange Place, Salt Lake City, Utah

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)
 At surface **700' NSL 2070' EWL of well 11 - loc 8**
 At proposed prod. zone **Lot 8 (SE 1/4 SW 1/4) 700 ft. North of S 1/4 cor. & 555' West of S 1/4 corner of Sec. 11**

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
2 miles SE of Hurricane, Utah *NESESW*

16. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig. unit line, if any)
2070 ft. from west line

16. NO. OF ACRES IN LEASE
326.25

17. NO. OF ACRES ASSIGNED TO THIS WELL
30

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.
No other

19. PROPOSED DEPTH
5,700'

20. ROTARY OR CABLE TOOLS
Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
+108.0, Ingraded, gnd.

22. APPROX. DATE WORK WILL START*
March 15, 1971

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
13 3/4"	10 3/4"	32#	300'	150 ax.
9 7/8"	7 5/8"	26.6#	3500'	75 ax.

Plan to drill 13 3/4" hole to approximately 300' and set 10 3/4", 32# surface casing & cement with 150 ax. Plan to drill with air a 9 7/8" hole to approx 3500' and set 3500' of 7 5/8", 26.6# intermediate casing and cement with 75 ax.. Plan to drill 6 3/4" hole to T.D. 5700 feet using air or air mist drilling. If production of oil or gas is encountered, plan to run 5 1/2" production casing.

Operator request permission to drill well on unorthodox location due to the roughness of terrain.

not searched

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. TOLEDO MINING COMPANY, OPERATOR
 SIGNED **By: [Signature]** TITLE **Comptroller** DATE **3/18/71**

(This space for Federal or State office use)

PERMIT NO. **43-053-30005** APPROVAL DATE _____

APPROVED BY _____ TITLE _____

CONDITIONS OF APPROVAL, IF ANY:



SCALE: 1" = 1000'

RANGE 13 WEST

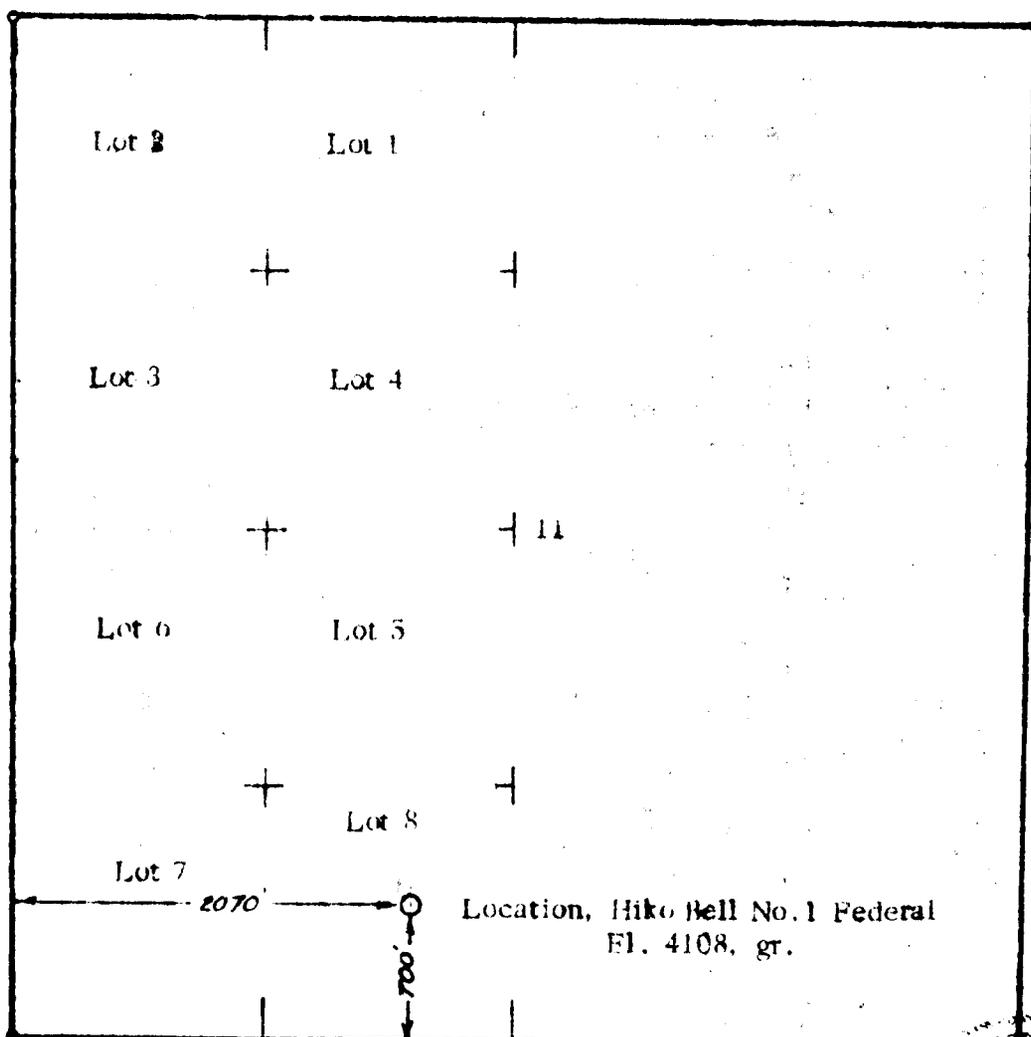
PROPOSED LOCATION
 TOLEDO MINING COMPANY
 Suite 322, Newhouse Bldg.
 Salt Lake City, Utah

UTAH, WASHINGTON COUNTY

Location: Lot 8, T42S-R13W
 (700'N & 555'W of
 S 1/4 corner Sec. 11)

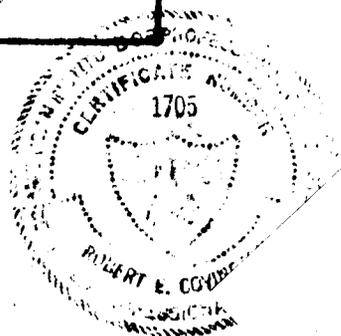
Elevation: 4108.0 grd, ungraded

Proposed Depth: 5700'



I, Robert E. Covington, Certified Professional Geologist
 No. 1705, P.O. Drawer AB, Vernal, Utah, hereby state that
 I personally staked the above location with plane table eqpt.
 and that the above plat is a true and accurate plat to my best
 knowledge. Rodman was Lawrence Craig Caldwell, II., and
 location was staked on March 5, 1971.

Robert E. Covington
 Robert E. Covington



DESIGNATION OF OPERATOR

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

DISTRICT LAND OFFICE: SALT LAKE CITY UTAH
SERIAL No.: U.5550.

and hereby designates

NAME: TOLEDO MINING COMPANY
ADDRESS: 320 NEWHOUSE SALT LAKE CITY UTAH 84111.

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

T42S R13W Salt Lake Meridian

Sect.11 Lots 5-8, SE $\frac{1}{4}$

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

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

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

HIKO BELL MINING AND OIL COMPANY

BY

Robert E. Livingston, Sec. Treas.
.....
(Signature of lessee)

19 Feb 1971.

.....
(Date)

P.O. DRAWER AB

.....
VERNAL UTAH (Address)



SCALE: 1" = 1000'
RANGE 13 WEST

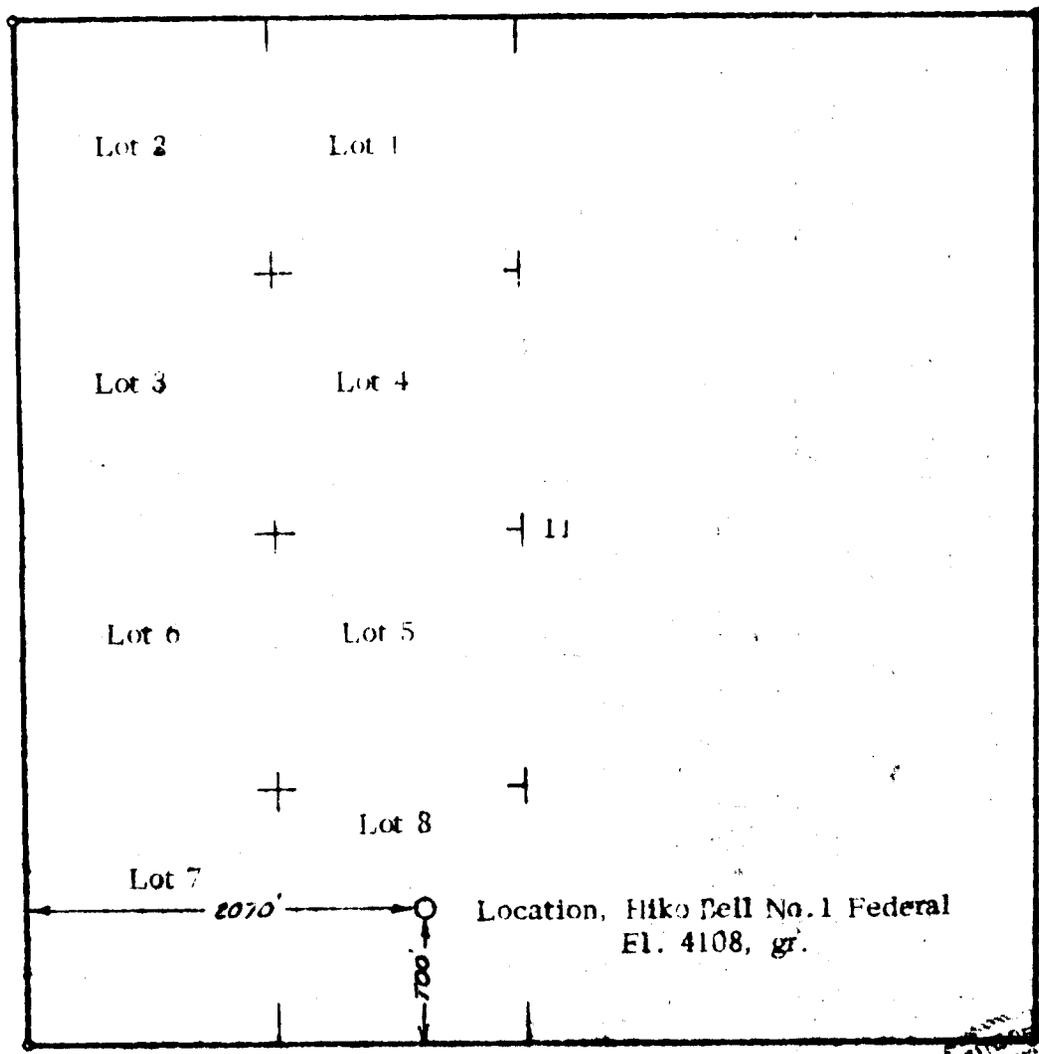
PROPOSED LOCATION
TOLFDO MINING COMPANY
Suite 322, Newhouse Bldg.
Salt Lake City, Utah

UTAH, WASHINGTON COUNTY

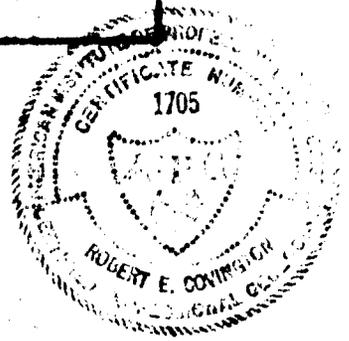
Location: Lot 8, T42S-R13W
(700'N & 555'W of
S 1/4 corner Sec. 11)

Elevation: 4108.0 grd, ungraded

Proposed Depth: 5700'



I, Robert E. Covington, Certified Professional Geologist No. 1705, P.O. Drawer AB, Vernal, Utah, hereby state that I personally staked the above location with plane table eqpt. and that the above plat is a true and accurate plat to my best knowledge. Rodman was Lawrence Craig Caldwell, II., and location was staked on March 5, 1971.



Robert E. Covington

March 11, 1971

Toledo Mining Company
322 Newhouse Building
Salt Lake City, Utah

Re: Hiko Bell Federal 1
Sec. 11, T. 42 S, R. 13 W,
Washington County, Utah

Gentlemen:

Insofar as this office is concerned, approval to drill the above referred to well is hereby granted.

Should you determine that it will be necessary for your 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

This approval terminates within 90 days if the well has not been spudded-in within said period.

Enclosed please find Form OGC-8-X, which is to be completed whether or not water sands (aquifers) are encountered during drilling. The API number assigned to this well is 43-053-30005.

Very truly yours,

DIVISION OF OIL & GAS CONSERVATION

CLEON B. FEIGHT
DIRECTOR

CBF:sd
cc: U.S. Geological Survey

THE STATE OF UTAH
DIVISION OF OIL AND GAS CONSERVATION

SUBMIT IN TRIPPLICATE*
(Other instructions on reverse side)

5. LEASE DESIGNATION AND SERIAL NO.
U-5550

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

9. WELL NO.
Toledo-Hiko Bell #1 Fed

10. FIELD AND POOL, OR WILDCAT
Wildcat

11. SEC., T., R., M., OR BLE. AND SURVEY OR AREA
Sec 11, T42S-R13W, SLM

12. COUNTY OR PARISH 13. STATE
Washington Utah

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. OIL WELL GAS WELL OTHER

2. NAME OF OPERATOR
Toledo Mining Co.

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

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)
At surface Lot 8 (SE 1/4 SW 1/4) 700 ft. North of S 1/4 cor. & 555 ft. West of S 1/4 corner of Sec. 11

14. PERMIT NO. 15. ELEVATIONS (Show whether DF, RT, GR, etc.)
4108.0 ingraded, grd.

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

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

(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.)

Toledo-Hiko Bell No. 1 Fed. was spudded 4-4-71. Willard Pease Drilling Co. contractor. Drilled 13 3/4" hole to 175 ft. Set 191.82 ft. of surface casing & cemented with 8 1/2 yards. Good returns. Drilled 9 7/8" hole to 3497. Drilled with air to 1240 ft. & had water. Air, Soap & Water injection used as circulating medium from 1240 ft. down. Set 3501.86 ft. of 7 5/8" casing set at 3497 ft. K.B. with Texas Pattern Guide Shoe. Pumped in 100 bbls. mud & displaced with 100 bbls. water. Drilled to 6943 ft. Ran Schlumberger logs: Gamma Ray-Neutron, Surface to 6934 ft. Dual Induction-Later log 3495-6927. Formation density log 3495-6931. Drilled 6934-7060 ft. Received verbal approval by phone to abandon. Plugged hole as follows: Pulled 7 5/8" casing. Cemented with Dowell Services as Follows: Set 25 sack plug 3800-3900 ft., set 25 sack plug 2300-2400, set 25 sack plug 1200-1300, set 25 sack plug in & out of surface casing & set 5 sacks in top of casing surface. Erected dry hole marker. T.D. 7060 P & A 5-5-71

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

SIGNED *[Signature]* TITLE *Comp* DATE _____

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

DIVISION OF OIL & GAS CONSERVATION
DEPARTMENT OF NATURAL RESOURCES

OMP

PLUGGING PROGRAMS

NAME OF COMPANY: Gold Mining Co.

WELL NAME: Kids Bell Fed. 1

Sec. 11 Township 42S Range 13W County Washington

Verbal Approval Was Given to Plug the Above Mentioned Well in the Following Manner:

TD - 7100' air-drilled

Casing: 13 3/8" at 175', 7 7/8" at 3495'
17 1/2" not cemented, will pull casing

Sample Logs:

- Kabat - surface
- Cocornio - 1240
- Pakon - 2340
- Callwell - 3320
- Mississippian - 3750
- Hedman - 5890

fresh water at 1240
base of fresh water
at 2300'

Plugs:

- 5900 - 5800
- 3900 - 3800
- 2400 - 2300
- 175 - 15

Date Approved: 5-3-71
(USGS approved - 4-30-71)

Signed: Schein

May 4, 1971

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

Re: Toledo-Hiko Bell Fed. 1
Sec. 11, T. 42 S, R. 13 W,
Washington County, Utah

Gentlemen:

It has come to the attention of this office that you would prefer the above mentioned well be held on a "confidential" status. If so, please refer to Rule C-5(b), General Rules and Regulations and Rules of Practice and Procedure.

Please notify this office by letter as soon as possible if you desire this particular well file to be withheld from open file. If we do not hear from you by May 17, 1971, we will assume the information may be released.

Very truly yours,

DIVISION OF OIL & GAS CONSERVATION

SCHEREE DeROSE
SUPERVISING STENOGRAPHER

:sd

HIKO BELL

MINING AND OIL COMPANY

P. O. DRAWER AB VERNAL, UTAH 84078 PHONE 801 / 789-3233

CRAIG CALDWELL, *President*
JACK A. DUBELL, *Vice President*
ROBERT E. COVINGTON, *Secretary-Treasurer*

May 25, 1971

Utah Oil & Gas Conservation Commission
State of Utah
1588 West North Temple
Salt Lake City, Utah, 84116

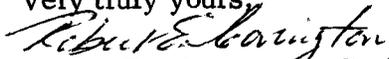
Re: Toledo Mining Company
Toledo-Hiko Bell No.1 Federal well
Section 11, T 42 S - R 13 W, SLM
Washington County, Utah

Gentlemen:

We respectfully request that the above well be kept as "Confidential" for the period allowed by the State of Utah Oil and Gas Conservation Commission rules. Enclosed are 3 copies of OGCC-3, Log of well.

Thank you for your attention to this matter.

Very truly yours,



Robert E. Covington, Geologist

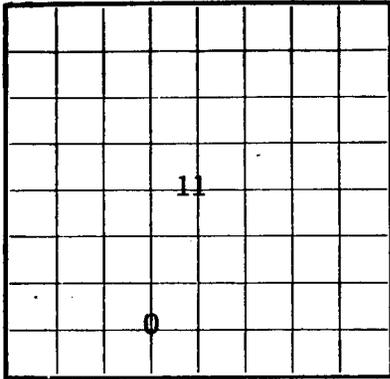
and Representative for Toledo Mining Company

rec/jr.

cc: Toledo Mining Company

STATE OF UTAH
OIL & GAS CONSERVATION COMMISSION

Salt Lake City, Utah



LOCATE WELL CORRECTLY

To be kept Confidential until Sept. 25, 1971
(Not to exceed 4 months after filing date)

LOG OF OIL OR GAS WELL

Operating Company TOLEDO MINING CO. Address 320 Newhouse Building, Salt Lake City, Utah
Lease or Tract U-5550 Field Wildcat State Utah
Toledo Hiko Bell
Well No. 1 Fed. Sec. 11 T. 42S R. 13W Meridian SLM County Washington
Location 700 ft. N. of S 1/4 cor. 555 ft. E. of S 1/4 cor. Sec. 11 Elevation 4108 gr. (Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records. Toledo Mining Company

Signed By Robert E. Covington Title Geologist
Date 5-25-71

The summary on this page is for the condition of the well at above date.

Commenced drilling 4-4-71, 19... Finished drilling 5-5-71, 19...

OIL OR GAS SANDS OR ZONES
(Denote gas by G)

No. 1, from None to ... No. 4, from ... to ...
No. 2, from ... to ... No. 5, from ... to ...
No. 3, from ... to ... No. 6, from ... to ...

IMPORTANT WATER SANDS

No. 1, from 1240' to 1260' No. 3, from ... to ...
No. 2, from ... to ... No. 4, from ... to ...

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated		Purpose
							From-	To-	
10 3/4"	40.5	8 rd	Armco	191.82'	Texas pattern	None			Surface
7 5/8"	26.4	8 rd	Armco	3497'	Texas pattern	3497'			Protect. string

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
10 3/4"	191.82	100	Circulated to surf.		

PLUGS AND ADAPTERS

Heaving plug—Material None Length ... Depth set ...

OLD MARK

Adapters—Material None Size

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out
		None				

TOOLS USED

Rotary tools were used from 0 feet to 7060' feet, and from feet to feet
 Cable tools were used from feet to feet, and from feet to feet

DATES

Date P & A 5-5-71, 19..... Put to producing, 19.....

The production for the first 24 hours was none barrels of fluid of which% was oil;% emulsion;% water; and% sediment. Gravity, °Bé.

If gas well, cu. ft. per 24 hours Gallons gasoline per 1,000 cu. ft. of gas

Rock pressure, lbs. per sq. in.

EMPLOYEES

Willard Pease Drilling Co., Grand Junction, Colo. Driller Jim Lang, Tool Pusher, Driller
 Driller Driller

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
<u>Electric Log Tops</u>			At the end of complete Driller's Log add Geologic Tops. State whether from Electric Logs or samples.
KAYAK Surface	10 1090	1090	Kaibab
Coconino 1090	2310	1220	X Coconino-Supai
2310	3050	740	Pakoon
3050	3490	440	Callville
3490	4560	1070	Mississippian: Red Wall
4560	5090	530	Devonian: Muddy Peaks
5090	6200	1110	Cambrian, undif.
6200	6490	290	Bright Angwl
6490	7060	570	Tapeats
T.D. 7060			

[OVER]

WELL COMPLETION REPORT

TOLEDO MINING COMPANY

Toledo-Hiko Bell #1 Federal
SE 1/4 SW 1/4 Section 11
T 42 S - R 13 W, SLM
Washington County, Utah

By

Robert F. Covington
Certified Professional Geologist
No. 1705

May 25, 1971

Vernal, Utah

CHRONOLOGICAL WELL HISTORY

- 4-4-71 Spud 2:00 PM. Willard Pease Drilling Company, Grand Junction, Colorado. Jim Lang, Toolpusher. Drilled 9 7/8" hole to 98' with air.
- 4-5-71 Drilled 98 to 488'. Reamed 9 7/8" to 13 3/4".
- 4-6-71 Reamed 13 3/4" to 175'. Ran 6 joints of 10 3/4", J-55, 40.5#/ft., 8 rd, Armco casing, 191.82" set at 170.07 K.B. Cemented with 100 sacks. Drilled mouse hole.
- 4-7-71 Nipped up. Tested blow out preventers. Reamed to bottom with 9 7/8" bit. Drilled 498-938'.
- 4-8-71 Drilled to 1441'. Spent 1/2 hr. trying to dry up hole. Hit water at 1240'.
- 4-9-71 Drilled to 1525. Lost 3 cones from bit in hole. Drilled on cones. Went in with magnet and fished.
- 4-10-71 Completed fishing. Drilled from 1525 to 1855.
- 4-11-71 Drilled 1855 to 2474.
- 4-12-71 Drilled 2474 to 2492. Rig down. Transmission out.
- 4-13-71 Repairing transmission. Rig down.
- 4-14-71 Drilled 2492 to 2669.
- 4-15-71 Drilled 2669 to 2933. Lost circulation for 45" at 2849. Lost circulation at 2902. Regained.
- 4-16-71 Drilled from 2933 to 3073. Had trouble unloading hole. Drilling with air, soap and water injection.
- 4-17-71 Drilled from 3073 to 3232.
- 4-18-71 Drilled from 3232 to 3431.
- 4-19-71 Drilled from 3431 to 3497. Ran 33 joints of 7 5/8, J-55, 26.4#, 8 rd casing, total 87 joints, 3501.86' set at 3497', K.B. with Texas pattern guide shoe. Pumped in 100 barrels of mud and displaced with 100 barrels of water.

BIT RECORD

<u>Bit No.</u>	<u>Make</u>	<u>Size</u>	<u>Type</u>	<u>Depth Out</u>	<u>Footage</u>	<u>Hours</u>
1	HTC	9 7/8	RG-7	488	488	--
2	Reed	13 3/4	Hole opener	175	175	10 1/2
1	HTC	9 7/8	RG-7	938	450	10 1/4
2	Smith	"	8AP	1525	587	26 1/2
3	CP	"	FH-1	1603	78	4 1/2
4	SFC	"	H8J	2048	445	20 3/4
5	SEC	"	H8J	2410	312	24
6	Reed	"	YCG-RB	2681	271	22 1/2
7	Reed	"	YCG- RA	3027	346	19 1/4
8	Reed	"	"	3386	359	19
9	Sec.	"	HEJ	3497	61	12 1/4
10	Smith	6 3/4	SST	4021	527	25 1/2
11	Smith	"	"	4647	626	29 1/4
12	Smith	"	SST	5018	371	14 1/2
13	Reed	"	YC-2G	5240	222	10 1/4
14	Reed	"	"	5446	206	11
15	Reed	"	YHG	5605	159	7 1/4
16	Reed	"	"	5731	126	8 1/4
17	HTC	"	Y55R	5941	210	12
18	Smith	"	SS5	6239	298	11 1/4
19	Smith	"	"	6518	279	12 1/4
20	Smith	"	"	6705	187	9 1/2
21	HTC	"	X55R	6875	175	11 3/4
22	Smith	"	SS5	6942	68	7 1/2
23	Smith	"	SS6	7060	118	10 1/4

HOLE SURVEY DATA

<u>DEPTH</u>	<u>DEVIATION, DEGREES</u>
210	1 1/2
1500	1 3/4
2040	3
2400	3
2681	3
3300	3 plus
4020	2 1/2
4647	3
5300	1 1/2

FORMATION TOPS (SCHLUMBERGER)

<u>FORMATION</u>	<u>DEPTH</u>	<u>THICKNESS</u>	<u>MEAN SEA ELEVATION</u>
Kai bab	Surface	1090	plus 4108
Coconi ni	1090	200	plus 3028
Hermit	1290	346	plus 2828
Queantoweap	1636	674	plus 2482
Pakoon	2310	740	plus 1808
Callville	3050	440	plus 1068
Redwall-Missi ssi ppian	3490	1070	plus 628
Devoni an-Muddy Peak	4560	530	minus 442
Cambrian	5090	1110	minus 972
Bright Angel	6200	-869	minus 2903
Total Depth	7060	--	minus 2942

STATISTICAL DATA

OPERATOR: Toledo Mining Company

FARM NAME: Toledo - Hiko Bell

WELL: No. J Federal

LOCATION: SE 1/4 SW 1/4 Sec. 11, T42S-R13W
Washington Co., Utah
(Lot 8, 700' N & 555' W of S 1/4 corner)

ELEVATION: 4108, grd., 4118 K.B.

CONTRACTOR: Willard Pease Drilling Company, Grand. Junction, Colo.

COMMENCED: 4-4-71

COMPLETED: 5-5-71

TOTAL DEPTH: 7060'

HOLE SIZE: 9 7/8 to 3500'
6 3/4", 3500' to T.D.

CASING: 191.82' of 10 3/4" set at 170.07' K.B.
3497' of 7 5/8" protective string (pulled)

LOGGING: Bariod Mud Logging Unit, 1240' to T.D.
Schlumberger: Gamma Ray - Neutron: Surface to 6933'
Dual Induction - Laterlog, 3495-6927'
Comp. Fm. Density Log, 3495-6933'

WELL GEOLOGIST: Robert E. Covington, C.P.G. #1705, Vernal, Utah

DRILL STEM TEST: Halliburton: DST #1: Interval 3410-40, packer failed immed.

DRILLING DATA: Rotary Tools, air-mist-soap water drilled to T.D.

CORES: None

RECAPITULATION OF SHOWS BY FORMATIONS

<u>PAKOON:</u>	40 feet live oil staining	
	290 feet dead oil staining	330' gross
<u>CALLVILLE:</u>	10 feet live oil staining	
	70 feet dead oil staining	80' gross
<u>MISSISSIPPIAN:</u>	80 feet live oil staining	
	200 feet dead oil staining	280' gross
<u>DEVONIAN:</u>	260 feet dead oil staining	
<u>CAMBRIAN:</u>		
Bright Angel	30' possible gas zone	
	40' dead oil staining	70' gross
Tapeats	20' possible gas zone	
	120' dead oil staining	<u>140' gross</u>
		1,120' gross

- I. Gross staining: 1,120'
- II. Live oil staining: 180', including 50' of possible gas zone.

RECAPITULATION OF SHOWS

PERMIAN: COCONINO

No shows of oil or gas.

PERMIAN: PAKOON

2380-90	live brown oil
2450-70	live brown & black oil
2560-70	spotty oil stain, live, brown
2600-40	tar particles, spotty
2640-90	dead oil staining
2820-40	dead oil staining
2840-80	increase in dead oil staining
2880-2950	strong increase in dead oil stain
2950-3020	spotty dead oil stain

PENNSYLVANIAN: CALLVILLE

3070-80	trace dead oil stain
3360-3400	trace dead oil stain, gassy odor
3430-40	slight dead oil stain
3460-80	increase in dead oil stain with trace live oil 3460-70

MISSISSIPPIAN: REDWALL

3530-70	dead oil staining
3610-40	dead oil staining
3720-30	live oil staining, rare
3760-3830	spotty live oil staining
4060-4120	dead (?) oil staining
4120-30	dead (?) oil stain, fast cut, gassy odor
4130-40	same as 4120-30
4140-50	marked increase in staining
4160-70	decrease in dead (?) oil staining
4170-80	trace dead oil
4180-4200	black, dead oil stain, faint oil odor
4200-10	decreasing dead oil stain

staining in limestone was seen in the interval 5870 to 5880. Several spotty shows of dead oil staining occurred from 5920 to 5930 feet. A slight increase of gas to 5 units was detected on the Baroid gas detector from 5943 to 5975 feet in a drilling break. Another show of dead oil was present from 6050 to 6060 and from 6070 to 6090 feet in a brown, sandy limestone. This show gave an instant cut with a bright yellow ring on the spot plate.

CAMBRIAN: BRIGHT ANGEL

The Bright Angel was topped at a depth of 6200 feet. From 6260 to 6280 feet a 15 unit methane gas kick was detected. Some black, tarry residue was present in a few pieces of white, granular limestone. From 6410 to 6420 feet a few more shows of similar type were noted and also from 6420 to 6430 feet. From 6440 to 6450 a 10 unit gas kick was detected, increasing to 15 units from 6450 to 6470 feet.

CAMBRIAN: TAPEATS FORMATION

The Tapeats (?) Formation was topped at a depth of 6490 feet. From 6500 to 6530 feet similar shows of patchy, dead oil staining were observed, including a black, live oil show in a white, sandy limestone. It had a pale yellow fluorescence with an instantaneous cut. Shows were also present from 6600 to 6660, with a gas increase to 20 units from 6630 to 6650. From 6820 feet to 6850 and from 6870 to 6890 feet several pieces of dark brown limestone had a little vuggy porosity and the vugs were filled with live, brown oil.

staining with a slight decrease in the oil odor. From 4150 to 4160 there was again a marked increase in dead oil staining with a slight oil and gas odor in the samples. From 4150 to 4160 there was no staining. From 4160 - 70 a slight increase in staining was noted, decreasing to trace from 4170 to 4180. From 4180 to 4200 the samples had a black, dead oil stain with faint odor. Saturation decreased from 4200 to 4210.

DEVONIAN: MUDDY PEAK

The Devonian Muddy Peak Formation was topped at 4560 feet. A dead oil show was present in limestone from 4640 to 4660 feet, with a strong increase in staining from 4660 to 4670 feet, decreasing from 4670 to 4690. At 4690 the samples had tar particles in sufficient amount to give the limestone a salt and pepper appearance, with quite a bit of dead oil staining from 4670 to 4780 feet. From 5040 to 5080 there were traces of dead oil staining in a white limestone. From 5080 to 5110 there was a marked increase in tar particles and a slight increase in dead oil staining. From 5110 to 5120 another increase in dead oil staining occurred. Other shows were from 5130 to 5150 and from 5170 to 5190 feet.

CAMBRIAN: UNDIFFERENTIATED

The Cambrian was topped at 5090 feet. A slight show of black oil was seen on the drill pipe when making a trip out of the hole and when computed up tallied to have come from a depth of approximately 5200 feet. This would be at approximately the unconformity between the Cambrian and the Devonian. From 5760 to 5780 there were dark brown and dark grey limestones that had dead oil staining which occurred in spotty patches. One piece of live oil

occurred in a coarsely granular limestone from 3360 to 3400 feet. The sample had a gassy, live oil odor. A white, calcareous sandstone was encountered from 3430 to 3440 with dead oil shows. From 3460 to 3480 a slight increase in the amount of staining was detected. A few pieces of limestone with pin point porosity were seen at 3460-70 with live, brown oil staining. At 3497 feet 7 5/8" casing was set to effect a water shut off.

MISSISSIPPIAN: REDWALL FORMATION

The Mississippian limestones were encountered at 3490 feet. Some dead oil staining was noted in a light grey limestone from 3530 to 3570 feet. Another show of dead oil was found in a dark brown to black, brecciated limestone from 3610 to 3640 feet. At 3720 - 30 one piece of limestone with live oil staining in vugs was seen. From 3760 to 3830 spotty live oil staining was present in a tan, soft, chalky limestone and in a brown, coarsely crystalline limestone.

Another interval in the Mississippian with live oil staining occurred from 4060 to 4120 feet. Again, these samples had no fluorescence under the ultraviolet light but gave a "live oil" type cut in acetone which ranged from fast to slow and in color from pale yellow to bright yellow ring on the spot plate under the ultraviolet light. At 4120 the samples began to have fluorescence, giving a mustard colored fluorescence and a fast, almost instantaneous cut with a pale yellow-blue ring. At 4130 - 40 the samples were oil stained and the entire cuttings had a black, oily appearance and had a faint odor of oil. From 4140 to 4150 there was a marked increase in dead oil

GEOLOGIC EVALUATION
OF THE TOLEDO MINING COMPANY'S
TOLEDO HIKO BELL NO.1 FED.
SF 1/4 -SW 1/4 SEC. 11
T 42 S - R 13 W, SLM
WASHINGTON CO., UTAH

The Toledo Mining Company's Toledo-Hiko Bell No.1 Federal well was drilled on the east or upthrown side of the Hurricane fault in southwestern Utah, 18 miles northeast of Saint George, Utah and three miles southeast of the town of Hurricane, Utah. The location was staked on the basis of structural closure from surface mapping on the Virgin limestone member of the Moenkopi Formation and on the top of the Kaibab limestone. The well penetrated the Permian, Pennsylvanian, Mississippian, Devonian and Cambrian carbonates, shales and sandstones. Many shows of both live and dead oil were encountered in the drilling of the well but the formations were lacking in both porosity and permeability, probably because of the proximity of the drill site to the Hurricane fault and the re-cementing and re-crystallizing of the formations by ascending thermal waters carrying mineral in solution.

PERMIAN: PAKOON - SUPAI

The Coconino sand was topped at 1090 feet. The formation is sandstone with interbedded shales and siltstones, increasing in shales toward the base. No shows of oil or gas were present and a water flow was encountered at 1240 feet which made 1 1/2" flow of fresh water.

PERMIAN: PAKOON

The Pakoon limestones, dolomites and interbedded shales and sandstones was reached at a depth of 2310 feet. The first showing of oil was at a depth

of 2380 feet in a reddish-brown, coarsely granular limestone. The limestone had a light brown oil stain. A show of black oil was noted in a sandstone from 2450-60 and a show of live oil occurred in a white limestone from 2460-70. Tar was noted from 2600 to 2640 feet in a tan to brown, sandy dolomite with spotty staining. From 2640 to 2690 dead oil staining was present in a white to tan dolomite. From 2820 to 2840 there was a fine to medium grain white, friable sandstone which had dead oil stain. This type of saturation increased from 2840 to 2880. Lost circulation was encountered at 2847 and an increase in sulfur water also accompanied the dead oil show at this depth. From 2880 to 2950 a very marked increase in dead oil staining occurred in a grey and in a tan to white limestone. The lack of fluorescence was the only reason for calling all of the "dead oil" shows as "dead". All gave very fast to slow cuts in acetone and gave bright yellow to pale yellow rings on the spot plate under the ultraviolet light. These types of "cuts" are normally classified with live oil shows. The author believes that perhaps the movement of hot mineral waters from the Hurricane fault have leached the more volatile, lighter ends, leaving only a residual "heavy" or dead oil. Further movement of these waters ceased when the minerals in solution precipitated out and effected closure of all original porosity. Some spotty dead oil staining was present from 2950 to 3023 with an increase in staining and with some tar particles from 3010 to 3027 feet.

PENNSYLVANIAN: CALLVILLE

The Pennsylvanian Callville Formation was topped at 3050 feet. Dead oil staining was noted from 3070 to 3080 feet. A trace of dead oil staining

Chronological Well History, Contd.

- 4-20-71 Nipped up. Picked up drill pipe. Blew hole, trying to dry it up. Had 1/4 to 1/2" stream of water. Drilled ahead with air, soap and water. Drilled to 3533. More water at 3510.
- 4-21-71 Drilled from 3533 to 3983.
- 4-22-71 Drilled from 3983 to 4316.
- 4-23-71 Drilled from 4316 to 4716.
- 4-24-71 Drilled from 4716 to 5018. Lost 3 cones in hole. Tripped in with junk sub. Drilled on junk.
- 4-25-71 T.D. 5018. Tripped out with junk sub. Went in with bit. Drilled from 5018 to 5240. Strapped drilled pipe. 5240 equals 5239.2.
- 4-26-71 Drilled from 5240 to 5558. Fluid level at 980' in hole.
- 4-27-71 Drilled from 5558 to 5751. At 5700' at 1:00 P.M.
- 4-28-71 Drilled from 5751 to 6149.
- 4-29-71 Drilled from 6149 to 6518.
- 4-30-71 Drilled from 6518 to 6705.
- 5-1-71 Drilled from 6705 to 6893. Right angle gear drive on rig went out.
- 5-2-71 Rig down. Worked on gear drive. Drilling at 6:00 P.M. Drilled to 6936.
- 5-3-71 Drilled 6936 to 6942. Tripped out for logging. Drilled 6942 to 6974.
- 5-4-71 Drilled 6974 to 7060, T.D. Ran Halliburton DST #1. Packers failed, no test of interval 3710 to 3740'. Recovered 2610 of water.
- 5-5-71 Pulled 7 5/8" casing. Cemented well with Dowell cementing services. Set 25 sx cement 3800-3900, 25 sx from 2300 to 2400, 25 sx from 1200 to 1300. Set cement plug at surface after spotting 25 sx in and out of bottom of surface casing. Erected dry hole marker, cleaned location, P. & A 5-5-71. T.D. 7060.