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WATER WELL DRILLERS REPORT

(Sections 7079, 7080, 7081, 7082, Water Code)

Do Not Fill In

No. 40869

THE RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF WATER RESOURCES

State Well No. 2

Other Well No. _____

(1) OWNER: Name <u>City of Bishop</u> Address <u>City Hall</u> <u>Bishop, Calif.</u>				(11) WELL LOG: Total depth <u>506</u> ft. Depth of completed well <u>493</u> ft. Formation: Describe by color, character, size of material, and structure _____ _____ _____																																			
(2) LOCATION OF WELL: County <u>INYO</u> Owner's number, if any <u>No. 2</u> Township, Range, and Section <u>Sec. 6T, 7S, R 33E E</u> Distance from cities, roads, railroads, etc. <u>1200 ft. S. and 2200 ft. East of N.W. Corner of Sec. 6</u>				SEE ATTACHED																																			
(3) TYPE OF WORK (check): New Well <input checked="" type="checkbox"/> Deepening <input type="checkbox"/> Reconditioning <input type="checkbox"/> Destroying <input type="checkbox"/> If destruction, describe material and procedure in Item 11.																																							
(4) PROPOSED USE (check): Domestic <input type="checkbox"/> Industrial <input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Irrigation <input type="checkbox"/> Test Well <input type="checkbox"/> Other <input type="checkbox"/>		(5) EQUIPMENT: Rotary Reverser <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Other <input type="checkbox"/>																																					
(6) CASING INSTALLED: STEEL: SINGLE <input checked="" type="checkbox"/> DOUBLE <input type="checkbox"/> OTHER: _____ <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="2">STEEL</th> <th colspan="2">OTHER</th> <th colspan="2">If gravel packed</th> </tr> <tr> <th>From ft.</th> <th>To ft.</th> <th>Diam.</th> <th>Gage or Wall</th> <th>Diameter of Bore</th> <th>From ft.</th> <th>To ft.</th> <th></th> </tr> </thead> <tbody> <tr> <td>0</td> <td>52</td> <td>30"</td> <td>1/4"</td> <td>36"</td> <td>0</td> <td>50</td> <td></td> </tr> <tr> <td>0</td> <td>493</td> <td>16"</td> <td>1/4"</td> <td>28"</td> <td>50</td> <td>506</td> <td></td> </tr> </tbody> </table> Size of shoe or well ring: _____ Size of gravel: <u>minus 3/8"</u> Describe joint <u>XXXXXXXXXXXXXXXXXXXX</u>						STEEL		OTHER		If gravel packed		From ft.	To ft.	Diam.	Gage or Wall	Diameter of Bore	From ft.	To ft.		0	52	30"	1/4"	36"	0	50		0	493	16"	1/4"	28"	50	506					
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(8) CONSTRUCTION: Was a surface sanitary seal provided? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> To what depth <u>52</u> ft. Were any strata sealed against pollution? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, note depth of strata From <u>0</u> ft. to <u>52</u> ft. From _____ ft. to _____ ft. Method of sealing <u>30" x 1/4" conductor pipe cement</u>																																							
(9) WATER LEVELS: Depth at which water was first found, if known <u>8.5</u> ft. Standing level before perforating, if known _____ ft. Standing level after perforating and developing <u>8.5</u> ft.				Work started <u>9-20-68</u> Completed <u>Oct 4 19 68</u> WELL DRILLER'S STATEMENT: This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief. NAME <u>BEYLIK DRILLING, INC</u> (Person, firm, or corporation) (Typed or printed) Address <u>11118 La Mirada Blvd. WHITTIER, CALIF. 90604</u> [SIGNED] <u>John A. Beylik</u> License No. <u>125085-C-687</u> <u>Oct. 11, 1968</u>																																			
(10) WELL TESTS: Pump test made? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, by whom? <u>BEYLIK DRILLING, INC</u> <u>3100</u> gal./min. with <u>61</u> ft. drawdown after <u>27</u> hrs. Temperature of water _____ Was a chemical analysis made? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Was electric log made of well? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, attach copy <input checked="" type="checkbox"/>																																							

SKETCH LOCATION OF WELL ON REVERSE SIDE

October 22, 1968

Engineering-Science, Inc.
3260 $\frac{1}{2}$ Rosecrans Street
San Diego, California

Attention: Mr. Kline P. Barney, Jr.

Gentlemen:

I am sending herewith the attached "Report On Drilling, Construction, Development and Pump Testing- City Of Bishop Well No. 2" and an itemized expense account covering incurred field charges.

As noted in the report, the well has a high yield but would benefit from additional pumping and surging at the maximum rate possible with the equipment to be installed.

A pump-bowl setting of 100 to 120 feet appears adequate with respect to the present discharge-drawdown relationships, expected city pumpage and anticipated water level conditions (essentially full) in the Owens Valley Basin.

I am grateful for the opportunity provided by Engineering-Science to assist in the construction of Well No. 2. It has been a pleasure meeting and working with you and renewing a lost acquaintance in Dick. I am hopeful that we may become close working associates in the near future.

Sincerely yours,

John R. Cummings
John R. Cummings

RECEIVED OCT 24 1968

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CITY OF BISHOP WELL NO. 2

FACT SHEET

<u>Item</u>	<u>Depth in Feet Below Rotary Table</u>
Total Depth of Hole	506
Diameter of Hole	
Backhoe trench	7-14
42 inch	14-53
28 inch	53-506
Drilling Method: Reverse Circulation	
Drilling Contractor: Beylik Drilling Inc.	
Date drilled: September 23-26, 1968	
Casing installed	
48-inch ID x 14-foot conductor, $\frac{1}{4}$ -inch wall	1-15
30-inch OD x 52.25-foot conduct, $\frac{3}{8}$ -inch wall	2-54.25
16-inch ID x 493-foot well casing, $\frac{1}{4}$ -inch wall	3-496
108-feet blank	3-111
229-feet $1\frac{1}{8}$ x 1-inch Roscoe Moss Full-Flow	
Horizontal Louver	111-340
60-feet blank	340-400
96-feet perforated as above	400-496
Bottom closed with SE Head	
Casing joined by overlapping collars and welded seams	
Centralizers 4 at 90° intervals spaced at ± 100-foot spans	
Surface seal: Approximately 8 cubic yards 3:1 sand-cement	
grout around 30-inch conductor	7-53

Gravel Pack:

30 cubic yards 6 x 20 well gravel, Western Rock Inc,

Fresno by perforations

28 cubic yards pea gravel, Hiat Sand and Gravel, Bishop

by Blank

Development: Swabbing followed by turbine pumping and surging (17 hours)

Pump Test: Step-Drawdown, Q 1000-2500 gpm (5 hours)

Specific Capacity: 54 gpm/ft. Q 2900 gpm, 1 hour pumping

Final Sand Content: less than 4 ppm at Q 2500 gpm

CITY OF BISHOP WELL NO. 2
SUMMARY OF DRILLING, CONSTRUCTION
AND DEVELOPMENT WORK

September 18-20, 1968

Excavated back hoe trench through 1.5 feet of fill (provided and spread by City of Bishop) and approximately 7 feet of soil. Set and cemented in 48 inch ID by 14 foot conductor casing, $\frac{1}{4}$ inch wall. Built up earth ramp approximately 4 feet above fill surface and set drill rig on ramp.

Rotary table (RT) approximately 8 feet above natural ground surface. RT used as datum for all depth measurements. Top of 48 inch casing 1 foot below RT.

September 23, 1968

Reverse circulation drilled 42 inch diameter hole to total depth (TD) of 53 feet. Installed 30 inch OD by 52.25 foot conductor casing, $\frac{3}{8}$ inch wall, joined by overlapping collars and welded seams. Top of 30 inch casing 2 feet below RT.

Filled hole annulus with approximately 8 cubic yards 3:1 sand-cement grout with CaCl additive. Grout placed by gravity fall through 4 inch ID tremie from 53 to 7 feet below RT.

September 24-26, 1968

Reverse circulation drilled 28 inch diameter hole to TD of 506 feet (498 feet from natural ground surface).

September 27 to 2:30, September 28, 1968

Ran induction electric log (after waiting for Schlumberger 8:00 - 14:45). Installed 4 inch ID by 446 feet gravel tremie. Installed 16 inch ID by 493 feet well casing Top of 16 inch casing suspended 3 feet below RT. Casing length as follows:

- 0-108 feet - blank casing
- 108-337 feet - 1/8 by 1 inch Roscoe Moss Horizontal Full-Flow lower perforated casing.
313 to 334 foot section double wrapped with 6 inch PVC sheeting to blank off fine sand and silt beds. PVC attached by stainless steel band clamps on 3 foot centers.
- 337-397 feet - blank casing
- 397-493 feet - Full-Flow lower casing as above.
- Bottom - Closed with steel SE Head.

Total blank casing 168 feet. Total perforated casing 325 feet.

Total casing 493 feet.

24 foot casing sections joined by 3 inch overlapping collars and welded seams. 4 steel centralizer bands welded at 90° intervals located at 5, 108, 204, 397 and 492 feet below top of casing.

September 28, 1968

Gravel packed hole annulus by gravity fall through 4 inch ID tremie withdrawn incrementally. Placed approximately 49.5 tons,

30 cubic yards of 6 x 20 gravel from Western Rock Inc., Fresno, by perforated casing and approximately 24 cubic yards of pea gravel from Hiat Sand and Gravel, Bishop, by blank casing. Top of gravel 19 feet below RT. Calculated annulus volume 51.0 cubic yards to 19 feet below RT. Three cubic yards, 5.5% more gravel installed than calculated.

September 30, 1968

Cut slots in 30 inch conductor, set clamps around 16 inch casing and landed clamps in slot. Swabbed inside of 16 inch casing with 1.5 inch thick by 15.75 inch diameter OD rubber gasket attached to drill pipe flange. Easy swab drops opposite perforated casing until gravel pack settlement stabilized. Total settlement of gravel pack 12 feet, 1 inch. Air developed well for 1 hour, 45 minutes to clear debris drawn into well during swabbing and slop from gravel packing. Well clear to total depth 493 feet.

October 1, 1968

Pulled swab line from hole. Gravel packed 30 inch conductor annulus from 30 to 14.5 feet, 2.3 cubic yards. Installed pump bowls, 4 stage and 100 feet of pump shaft. Bottom of bowls at 115 feet. Connected peerless deep well turbine pump and aligned motor to pump head.

October 2, 1968

Completed motor-pump direct universal connection. Motor diesel powered V-12, 540 horse power GMC, truck mounted. Developed well by pumping and intermittent surging (4 times each) from initial

discharge (Q) of 1000 gallons per minute (gpm) to 2500 gpm. Pump on 8:44 to 10:10 and 15:10 to 23:45. Pump off 10:10 to 15:10 for replacement of broken shaft couple. Total development pumping time 10 hours and 1 minute.

Sand content of discharge measured by Rossum Sand Tester. Final sand content at 2500 gpm < 1 part per million (ppm).

October 3, 1968

Developed well by pumping and surging as before from Q of 2900 gpm to 3050 gpm. Pump on 8:15 to 13:24. Total development pumping time, October 3, 1968, 5 hours and 9 minutes. Total pumpage (including previous day) 2,127,000 gallons. Final sand content at 3050 gpm < 13 ppm.

Ran step-drawdown pumping test at incremental Q increases of 500 gpm starting at 1000 gpm and increasing to 2500 gpm. Pump on 13:59 to 19:00. Total step-drawdown pumping time 5 hours and 1 minute. Total pumpage during step-drawdown test 573,000 gallons. Final sand content at Q 2500 < 4 ppm.

Corrected specific capacities (Q in gpm/drawdown in feet) during step-drawdown test, at 60 minutes pumping time each step, as follows:

1000 gpm	-	63.3 gallons/foot of drawdown
1500	-	57.4
2000	-	56.5
2500	-	55.3
2900	-	54.0 (from development pumping)