WHITE--DIVISION OF WATER RESOURCES
CANARY--CLIENT'S COPY
PINK--WELL DRILLER'S COPY

PRINT OR TYPE ONLY
DO NOT WRITE ON BACK

STATE OF NEVADA
DIVISION OF WATER RESOURCES

WELL DRILLER'S REPORT

Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340

OFFICE USE ONLY
Log No. 58766
Permit No.
Basin 121A

NOTICE OF INTENT NO. 2[illegible]2

1. OWNER Hawthorne Utilities
MAILING ADDRESS Box 1448
Hawthorne, NV 89415

ADDRESS AT WELL LOCATION
2 mi East of Mina

2. LOCATION SW ¼ NW ¼ Sec. 3 T. 6 N/S R. 35 E. Mineral County
PERMIT NO. W445A 62300 (Issued by Water Resources) | Parcel No. NA | Subdivision Name NA

3. WORK PERFORMED
☒ New Well ☐ Replace ☐ Recondition
☐ Deepen ☐ Abandon ☐ Other

4. PROPOSED USE
☐ Domestic ☐ Irrigation ☐ Test
☒ Municipal/Industrial ☐ Monitor ☐ Stock

5. WELL TYPE
☐ Cable ☒ Rotary ☐ RVC
☒ Air ☐ Other

6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thickness
ATTACHED				

Date started 3/26, 1996
Date completed 6/4, 1996

7. WELL TEST DATA
TEST METHOD: ☐ Bailer ☒ Pump ☐ Air Lift

G.P.M.	Draw Down (Feet Below Static)	Time (Hours)
200	3.4	24

8. WELL CONSTRUCTION
Depth Drilled 310 Feet Depth Cased 300 Feet

HOLE DIAMETER (BIT SIZE)

Inches	From (Feet)	To (Feet)
15	0	5
13	5	300

CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
8 5/8		1/4	+2	300

Perforations:
Type perforation Sawcut
Size perforation 3X 3/32
From feet to feet
From 100 feet to 260 feet
From feet to feet
From 280 feet to 300 feet
From feet to feet

Surface Seal: ☒ Yes ☐ No
Depth of Seal 55
Placement Method: ☐ Pumped ☐ Poured
Seal Type: ☒ Neat Cement ☐ Cement Grout ☐ Concrete Grout

Gravel Packed: ☒ Yes ☐ No
From 55 feet to 300 feet

9. WATER LEVEL
Static water level 84 feet below land surface
Artesian flow No G.P.M. P.S.I.
Water temperature Cold °F Quality Good

10. DRILLER'S CERTIFICATION
This well was drilled under my supervision and the report is true to the best of my knowledge.
Name Nevada Drilling, Inc (Contractor)
Address 75 Lewers Crk Rd (Contractor)
Carson City, NV 89704
Nevada contractor's license number issued by the State Contractor's Board ~~1790~~ 13697A
Nevada driller's license number issued by the Division of Water Resources, the on-site driller 1790
Signed Joe Leisch (By driller performing actual drilling on site or contractor)
Date 8/23/96

(Rev. 3-91)

USE ADDITIONAL SHEETS IF NECESSARY

(O)-627

LOG OF BOREHOLE

BOREHOLE Mine / Leaning

PAGE 1 OF

LOC. OR COORDS. SW¼ NW¼ Sec 13, T6N, R55E

GROUND ELEV. ~4,840' m.s.l.

TOTAL DEPTH

BOREHOLE DIAM. 9⅞" 0-5', 6" 5'-

DRILLER Nevada Drilling

RIG Midway

BIT(S) 9⅞" roller, 6" Hammer

FLUID Air / foam / mist

	START	FINIS
DATE	3/26/78	
TIME	0808	
GEOPHYS. LOG	YES X	
HOW LEFT	0800 to 12-1	

LOCATION ~ 2 mi. East of Mina

LOGGED BY J. Bugenig

PROJECT Mina / Leaning Water Supply

DEPTH	PEN. RATE ft/min	CIRC. RET.	CIRC. LOSS	AIR LIFT Q(GPM)	MATERIAL	SYMBOL	DESCRIPTION AND COMMENTS
0	0842			0	Limestone		Limestone. Gray massive
	0840						
10	0900						med. dk gray (N4) w/ calcareous coating, chips subangular
	0.42						
20	0920						@ 19' mud red brown 10YR 2/6 clay
	1.0				L.S.		@ 20' back to lm stone
	0925				shale		@ 23' lt brown shale limy; alternate beds w/ L.S.
	0.5				L.S.		@ 26' mix of L.S. & soft limy shale.
30	1010				Interbedded limestone & shale		Mixture of dk gray limestone & lt brown shale
	0.42						
	1022						
	0.83						
40	1028						
	0.71						Mixture of limestone & brown shale. drills like beds are inclined [illegible]
	1041						
50	1048						@ 48'
	0.71						mixture of dk gray L.S. & brown shale 90/10
	1053						L.S. is fractured. $CaCO_3$ weak the fractures
	0.71						
60	1102						
	0.5						
65	1118						Mostly shale @ 62' to 67'
	1116						mixture of (L.S. as above) & brown shale
	0.83						most shale is washing out of cuttings
70	1122						
	1.25						Mixture of L.S. & shale (90/10)
	1126						Mostly L.S. to 74, at which depth shale increases
	0.71						
80	1133						
	1.1						Mixture similar to above.
85.5	1139						Calcite filled fractures are at least 0.2"
	1.1				Limestone		chips to 0.5" greyish black (N2)
90	1146						
	1.0						greyish black limestone. chips 0.1-0.2"
	1151						~5% $CaCO_3$ veins.
	1.0						
100	1156			1st Water			Shale @ 100
	0.67			120 gpm			
105	1204						
110	1205						Shale @ 109'
							Mixture of limestone & shale 90/10
	2.0						L.S. - chips to 1", greyish black
120	1219						Shale - brick red, soft 2.5YR 4/8
	0.5						
127	1227						Block @ 127'
	1228						L.S. chips to 1.5". Surface is sugary, suggesting solution surfaces.
130				50			Yellow stain on fractures.
				100			
							@ color @ 135'
140	1254			200			L.S. Highly fractured 20% calcite
							L.S. Highly fractured. chips to 1½"
147.5							100%
150							

LOG OF BOREHOLE

BOREHOLE Mine / Lanning

PAGE 2 OF ____

LOC. OR COORDS. SW ¼ NW ¼ Sec 3, T.6N., R.35E.

GROUND ELEV. ~4,840' m.s.l.

TOTAL DEPTH ____

BOREHOLE DIAM. 9⅞" 0-[illegible] 6" [illegible]

DRILLER Nevada Drilling

RIG Midway

BIT(S) 9⅞" [illegible] 6" [illegible]

FLUID AIR / FOAM

	START	FINISH
DATE	3/26/96	
TIME	0808	

GEOPHYS. LOG ___ YES X NO

HOW LEFT [illegible] TO 12-INCH

LOCATION ~2 mi. East of Mine

LOGGED BY D. Bugenig

PROJECT Mine / Lanning Water Supply

DEPTH	PEN. RATE	CIRC. RET.	CIRC. LOSS	AIR LIFT Q(GPM)	MATERIAL	SYMBOL	DESCRIPTION AND COMMENTS
				200+	Limestone		Large fracture, rough @ 162' [illegible]
160							
165.1	12:48 / 1:02			300+			@ 163', EC = 878 µmhos/cm TDS 7.8 measured from discharge.
170							
	0.44						
180							dark gray to black limestone. Slope 0°-15° highly fractured. larger chips are 1.5" [illegible] coated w/ calcite
189.1	1:22						
190							Fracture @ 192. Limestone, dark gray to black, chips 0.5"-2.5" relatively consistent. ~2-3% calcite
200							
208.6	1:57 / 4:30			40+			drilling suspended due to borehole instability, collected water sample. TD 210' EC = 802 µmhos/cm, pH = 7.6 water level = 86.65' below TOC. Flow after airlift ceased.
210							end 3/26/96 start 4/25/96 (continued) LIMESTONE, DARK BLACK, SOME CALCITE, NO APPARENT FRACTURES.
220	7:30 / 7:50						4/25/96 SWITCHED FROM TRIPLING TO HAMMER. 4/26/96 220'-222' 30 minutes, limestone with some calcite + iron staining on apparent fractures
226.25	5:17 / 5:31						
230							
240							Limestone with some iron staining (which exists not always fractures)
246.25	6:50 / 7:45 / 9:36						4/26 / 4/27
250							
260				40+			Easy drilling no calcite or iron stain. Just black limestone (wet - 20-40) water bearer but then hard. end pm 7.04 T 66.9°F EC = 821 µmhos/cm pH = 8.25
266.25	10:10 / 10:20						
270							272' Possible fractures, calcite. Hard, slow drilling
280							Black limestone/shale, calcite @ 280-282' 284' 20-30% calcite
286.25	1:00 / 2:20						
290							
300							

TOTAL P.08

CONSTANT-DISCHARGE TESTING

The constant-discharge test entailed pumping the well continuously for a period of 48 hours at a constant rate and monitoring the change in water level. The results of the constant-discharge test are summarized below.

Static water level prior to testing - 85.90 feet below the measuring point (M.P. = top of casing, 1.9 feet above the land surface).
Pumping started - 0730 hrs 6/2/96
Pumping ended - 0730 hours 6/4/96
Pumping rate - 200 gpm
Pumping level at the end of the test - 89.3 feet below the M.P., a drawdown of 3.4 feet.

The pumping level stablized at 89.3 feet after approximately 24 hours of pumping. The inference drawn is that the withdrawal from the well is small compared to the groundwater flux in the aquifer. Following the end of the pumping test, water levels were monitored for 12 hours, at which time the water level in the well had recovered 96.5 per cent. The drawdown and recovery data are plotted in Figures 6, 7 and 8.

The drawdown data were analyzed in the field by the Cooper-Jacob approximation of the Theis Equation. This yielded a value for the transmissivity of the aquifer, the overall ability of the aquifer to transmit groundwater, of 13,400feet^2/day. The field analysis was supplemented by a more comprehensive analysis using the computer program WHIP (Well Hydraulics Interpretation Package: Hydro-Geo Chem, Inc., 1988).