

5

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3N/29E/16aa

STATE OF OREGON WATER WELL REPORT (as required by ORS 537.765)

WATER RESOURCES DEPT SALEM, OREGON

(START CARD)# 46232

UMAT 5970

(1) OWNER: City of Echo Well Number 5- Name City of Echo Address P.O. Box 9 City Echo State OR Zip 97826

(2) TYPE OF WORK: [X] New Well [] Deepen [] Recondition [] Abandon

(3) DRILL METHOD: [] Rotary Air [] Rotary Mud [X] Cable [X] Other Reverse Circulation Rotary

(4) PROPOSED USE: [] Domestic [X] Community [] Industrial [] Irrigation [] Thermal [] Injection [] Other

(5) BORE HOLE CONSTRUCTION: Special Construction approval [X] Yes [] No Depth of Completed Well 1282 ft. Explosives used [] Yes [X] No Type Amount

Table with columns: HOLE Diameter, From, To, SEAL Material, From, To, Amount sacks or pounds. Rows include Bentonite and Cement Grout.

How was seal placed: Method [X] A [] B [X] C [] D [] E [X] Other Bentonite was manually placed dry

(6) CASING/LINER: Diameter, From, To, Gauge, Steel, Plastic, Welded, Threaded

Table for casing and liner with columns: Diameter, From, To, Gauge, Steel, Plastic, Welded, Threaded. Includes notes like 'except at screens 955'.

(7) PERFORATIONS/SCREENS: [X] Perforations Method Factory mild cut [X] Screens Type V shape wire Material 304ss

Table for screens with columns: From, To, Slot size, Number, Diameter, Tele/pipe size, Casing, Liner.

(8) WELL TESTS: Minimum testing time is 1 hour [X] Pump [] Bailer [] Air [] Artesian also see attached graphs of 24 hour test/recovery

Temperature of Water 84°F Depth Artesian Flow Found Was a water analysis done? [] Yes By whom Did any strata contain water not suitable for intended use? [] Too little

(9) LOCATION OF WELL by legal description: County Umatilla Latitude Longitude Township 3N N or S. Range 29E E or W. WM. Section 16 NE 1/4 NE 1/4 Tax Lot 100 Lot Block Subdivision Street Address of Well (or nearest address) Golf Course Road Echo, OR

(10) STATIC WATER LEVEL: 153 ft. below land surface. Date 10/26/93 Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES: Table with columns: From, To, Estimated Flow Rate, SWL. Rows include 662, 674, and screened/perforated interval.

(12) WELL LOG: Ground elevation approx. 800

Table for well log with columns: Material, From, To, SWL. Includes 'see attached log' and 'Perforations in 8" liner are all 3/16x3 slots 32 slots per foot.'

Date started 5/12/93 Completed 1/7/94

(unbonded) Water Well Constructor Certification: I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards.

(bonded) Water Well Constructor Certification: I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above.

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WATER RESOURCES DEPT.
SALEM, OREGON

City of Echo Well No. 5
Start Card No. 46232
by Schneider Drilling Co.

<u>Depth</u>		<u>Description</u>
<u>From</u>	<u>To</u>	
0	6	Sand & gravel, brown
6	11	Gravel, 5"-, & sand, w/some clay, brown
11	21	Clay & gravel, 3"-, brown
21	32	Clay, brown, w/coarse sand & small gravel
32	38	Gravel & sand, cemented
38	52	Clay, brown, soft, sandy, w/some cs & small gravel
52	55	Gravel, 3"- & sand, cemented, brown
55	57	Gravel, 3"- & sand, med, cemented, brown
57	67	Gravel, 1/2"-, cem, w/some clay, brown
67	70	Gravel, 1-1/2"-, cem, w/some clay, brown
70	76	Clay, brown, w/claystone & some gravel, small
76	84	Clay, brown, sandy, & claystone
84	90	Gravel, 3/4"-, & sand, cem, w/some clay, brn
90	93	Clay, brown, sandy, & claystone
93	105	Gravel, 3"-, & clay, tan-brown
105	115	Basalt, gray, hard
115	118	Basalt, blk & red, fractured, med
118	124	Basalt, red & blk, fractured, med
124	125	Basalt, drk red & blk, frac, w/some cs
125	130	Basalt, drk red & blk, frac, med
130	131	Basalt, drk gray & red, frac, med
131	132	Basalt, drk gray & red, frac, med-hard
132	140	Basalt, drk red, frac, med
140	180	Basalt, gray, w/some frac, hard
180	191	Basalt, gray, fractured, hard
191	192	Basalt, blk & red, ves, medium, w/cs, blue-grn
192	193	Basalt, blk & red, brkn, ves, med, w/some cs, blue-grn
193	200	Basalt, brown, med, some frac, some cs, blue-grn
200	203	Basalt, gray, w/some brown
203	206	Basalt, brn & gry, med-hd, frac, w/some cs, blue-grn
206	207	Basalt, lt gray, frac, med-hard
207	215	Basalt, gray, frac, hard
215	216	Basalt, gray, med, broken, w/some cs, blue-grn
216	220	Basalt, gray & brown, med, brkn, ves, w/cs, blue-grn
220	225	Basalt, gray & red, med, brkn, w/some cs, blue-grn
225	230	Basalt, gray, med-hard, brkn, w/some cs, blue-grn
230	235	Basalt, gray, med-hard, brkn
235	237	Basalt, gray, hard, frac

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237	241	Basalt, gray & brown, hard, frac
241	243	Basalt, gry & brn, med-hd, frac, w/some cs, blue-grn
243	244	Basalt, gray, med-hard, frac, w/some cs, blue-grn
244	250	Basalt, gray, hard, frac
250	252	Basalt, gray & brown, med-hard, frac
252	258	Bslt, gry & brn, med, brkn, ves, w/some cs, blue-grn
258	268	Basalt, gray, med-hard, frac
268	275	Basalt, gray & brn, med, brkn, w/some cs, blue-grn
275	285	Basalt, gray, med-hard, brkn, w/some cs, blue-grn
285	295	Basalt, gray, med-hard, frac
295	300	Basalt, gray, med, brkn, w/some claystone, blue-grn
300	313	Basalt, gray, med-hard, frac
313	315	Basalt, gray & brn, med, brkn, w/some cs, blue-grn, & sandstone, lt brown
315	326	Basalt, gray & brown, med, brkn, ves, w/cs, blue-grn
326	328	Basalt, gray, med, brkn
328	338	Basalt, gray, hard, brkn
338	341	Basalt, gray, med-hard, brkn, w/some cs, blue-grn
341	343	Bslt, gry, frac, hard, some ves, w/some cs, blue-grn
343	349	Basalt, gray, ves, hard, w/some cs, blue-grn
349	353	Basalt, gray w/green, ves, hard
353	358	Basalt, gray, w/some frac, hard
358	365	Basalt, gray w/blue, ves, hard
365	367	Basalt, gray w/some frac, hard
367	379	Basalt, gray, frac, some ves, hard, w/some cs, blue
379	393	Basalt, gray, w/some blue, frac, hard
393	398	Basalt, gray, hard
398	412	Basalt, gray, w/some frac, hard
412	419	Basalt, gray, ves, med, w/cs, blue-grn
419	433	Basalt, gray, ves, frac, med, w/some cs, blue-grn
433	478	Basalt, gray, frac, some ves, hard
478	499	Basalt, gray, frac, some ves, hard, w/cs, blue-grn
499	569	Basalt, gray, some frac, hard
569	572	Basalt, black & gray, frac, hard
572	576	Basalt, gray, frac, hard
576	578	Basalt, gray, frac, hard, w/some cs, blue
578	581	Basalt, grn-gray, med, frac, w/clay & cs, gray
581	583	Bslt, gry-brn, frac, ves, med, clay & cs, brn-blue-grn
583	586	Basalt, gry & brown w/grn, frac, ves, med
586	597	Basalt, gray, frac, ves, med, w/cs, blue-grn
597	602	Basalt, gray w/blue, frac, ves
602	622	Basalt, gray, frac, hard
622	627	Basalt, gray, frac, w/some ves, hard
627	659	Basalt, gray, frac, hard
659	662	Basalt, gray & red-brn, med-hard, frac
662	666	Basalt, rusty-red, med-soft, ves, w/cs, blue-grn
666	672	Basalt, red-brn, med-soft, w/cs, light grn

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WATER RESOURCES DEPT.
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672	674	Basalt, gray-brn, med-hard, frac, ves
674	704	Basalt, gray, hard, frac
704	714	Basalt, gray & brn, med-soft, ves, brkn
714	717	Basalt, black, med-soft, ves, brkn
717	719	Basalt, black, med-soft, brkn, ves, w/cs, light grn
719	724	Basalt, drk gray & brn, w/some cs, blue-grn
724	726	Basalt, gray, med-hard, frac, w/some cs, blue-grn
726	728	Basalt, gray, hard, broken, ves
728	739	Basalt, gray, hard, fractured
739	740	Basalt, drk gray, hard, fractured
740	743	Basalt, drk gray, hard, frac, some quartz
743	754	Basalt, black, soft, some quartz, cs layers, grn
754	759	Basalt, gray & brown, med-soft, ves, cs, grn
759	787	Basalt, dk gray, med-soft, ves, some cs, grn
787	790	Basalt, dk gray, hard, fractured
790	793	Basalt, dk gray, med-hard, frac, ves, some quartz & cs, grn
793	796	Basalt, gray, hard, frac
796	805	Basalt, dk gray, med-hard, frac, ves
805	808	Basalt, gray, med-hard, broken
808	812	Basalt, gray, med-hard, frac
812	816	Basalt, gray, hard, frac
816	826	Basalt, med, dk gray, med-hard, frac
826	834	Basalt, dk gray, med-hard, frac, ves
834	838	Basalt, gray, med-hard, frac
838	851	Basalt, gray, hard, frac
851	854	Basalt, gry & grn, md-sft, well frac, some cs, blk-grn
854	861	Basalt, brown, med, well frac, w/cs, yellow
861	868	Basalt, gray, hard, frac
868	869	Basalt, brown & gray, med, well frac, w/cs, yellow
869	874	Basalt, gray, hard, frac
874	884	Basalt, blk, med-soft, ves, w/cs, blue-grn
884	887	Basalt, dk gray, med-hard, frac, some ves
887	890	Basalt, dk gray, med-hard, frac
890	898	Basalt, dk gray, med, brkn, ves, w/cs, blue-grn
898	903	Basalt, brn-red, med, brkn, ves, w/cs, blue-grn
903	905	Basalt, gray & brn, med, brkn, ves, w/cs, blue-grn
905	909	Basalt, gray, med-hard, frac, some ves, w/some cs, blue-grn
909	916	Basalt, gray, med-hard, frac
916	931	Basalt, gray, hard, frac
931	940	Basalt, dk gray, med-hd, brkn, ves, w/cs, blue-grn
940	942	Basalt, dk gray, med-hard, brkn
942	961	Basalt, dk gray, hard, frac, w/some quartz
961	969	Basalt, gray, m-h, frac, some cs, gray
969	977	Basalt, gray, soft, brkn, ves, w/cs, blue-grn
977	983	Basalt, brn, broken, soft, w/cs, blue-grn
983	985	Basalt, red-brn, brkn, soft, w/clay & cs, brn-grn

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985	987	Basalt, soft, brkn, ves $\frac{1}{2}$ claystone, blue-grn & brn
987	989	Basalt, dk gry, brkn, soft, w/cs, blue-grn, some quartz
989	991	Basalt, gray-brn, med, brkn, w/cs, blue-grn
991	993	Basalt, gray & brown, med, frac
993	995	Basalt, dk gray, med, frac, w/cs, blue-grn
995	999	Basalt, brn, med, frac, w/some cs, blue-grn
999	1002	Basalt, gray, med, frac, w/some cs, blue-grn
1002	1017	Basalt, gray, hard, frac
1017	1018	Basalt, gray & red, brkn, med-soft, w/cs, blue-grn
1018	1019	Basalt, red, brkn, ves, med, w/cs, blue-grn
1019	1020	Basalt, gray w/red, brkn, med, ves, w/cs, blue-grn
1020	1029	Basalt, gray, med, brkn, ves, w/cs, blue-grn
1029	1036	Basalt, brown, med, frac
1036	1062	Basalt, gray, hard, frac
1062	1064	Basalt, gray, frac, med-hard
1064	1067	Basalt, brn-gray, frac, med
1067	1069	Basalt, yellow & red, frac, med-soft, w/some clay
1069	1074	Basalt, yellow & red, some ves, brkn, soft
1074	1077	Basalt, yellow-brn, brkn, some ves, med-soft
1077	1080	Basalt, red-brn, brkn, some ves, soft
1080	1091	Basalt, red, brkn, some ves, soft
1091	1092	Basalt, dk red w/some yellow-brn, brkn, ves, soft
1092	1094	Basalt, gray, frac, med
1094	1095	Basalt, brn w/orange, ves, frac, med, w/cs, blue
1095	1100	Basalt, brn-gray, ves, frac, med, w/some cs, blue
1100	1103	Basalt, gray w/red, frac, med, some quartz
1103	1108	Basalt, gray w/blue, frac, some ves, med-hard
1108	1112	Basalt, gray, some ves, frac, med-hard, w/cs, blue-grn
1112	1174	Basalt, gray, frac, hard
1174	1176	Basalt, gray, some red, med-hard, frac, w/some cs, blue-grn
1176	1178	Basalt, gray & red, med, frac, w/cs, blue-grn
1178	1179	Basalt, red, med-soft, frac, w/some sandstone, coarse, blue-grn
1179	1180	Basalt, red, med, frac, w/some ves
1180	1185	Basalt, red-brn, med-hard, frac
1185	1189	Basalt, red w/some drk gray, med-soft, ves
1189	1192	Basalt, brown w/some red & gray, med, brkn, some ves
1192	1193	Basalt, brn, med-hard, frac, some ves
1193	1194	Basalt, gray-brn, med-hard, frac
1194	1245	Basalt, gray, med-hard, frac
1245	1267	Basalt, gray w/some brn, med-soft, brkn, ves, w/cs, blue-grn, & some ss, blue-grn
1267	1268	Bslt, gry w/some brn, md-sft, brkn, ves, w/cs, blue-grn, w/some ss, crse, blue-grn
1268	1275	Basalt, gray & brownish red, med-soft, brkn, ves
1275	1282	Basalt, gray w/some brn, med-hard, frac

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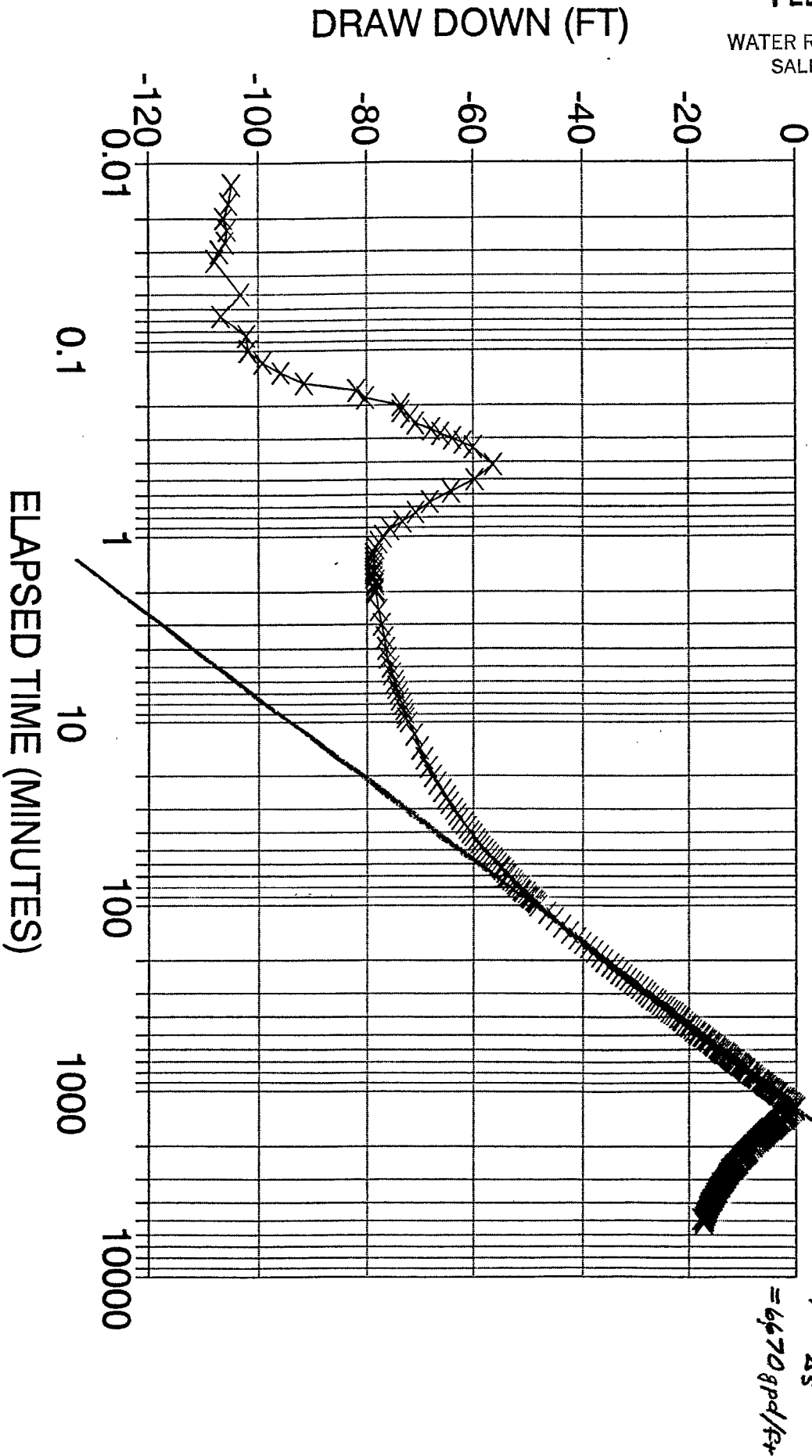
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WATER RESOURCES DEPT.
SALEM, OREGON

ECHO WELL #5

10/28-29/93 RECOVERY FROM 24HR TEST

SWL 157.5



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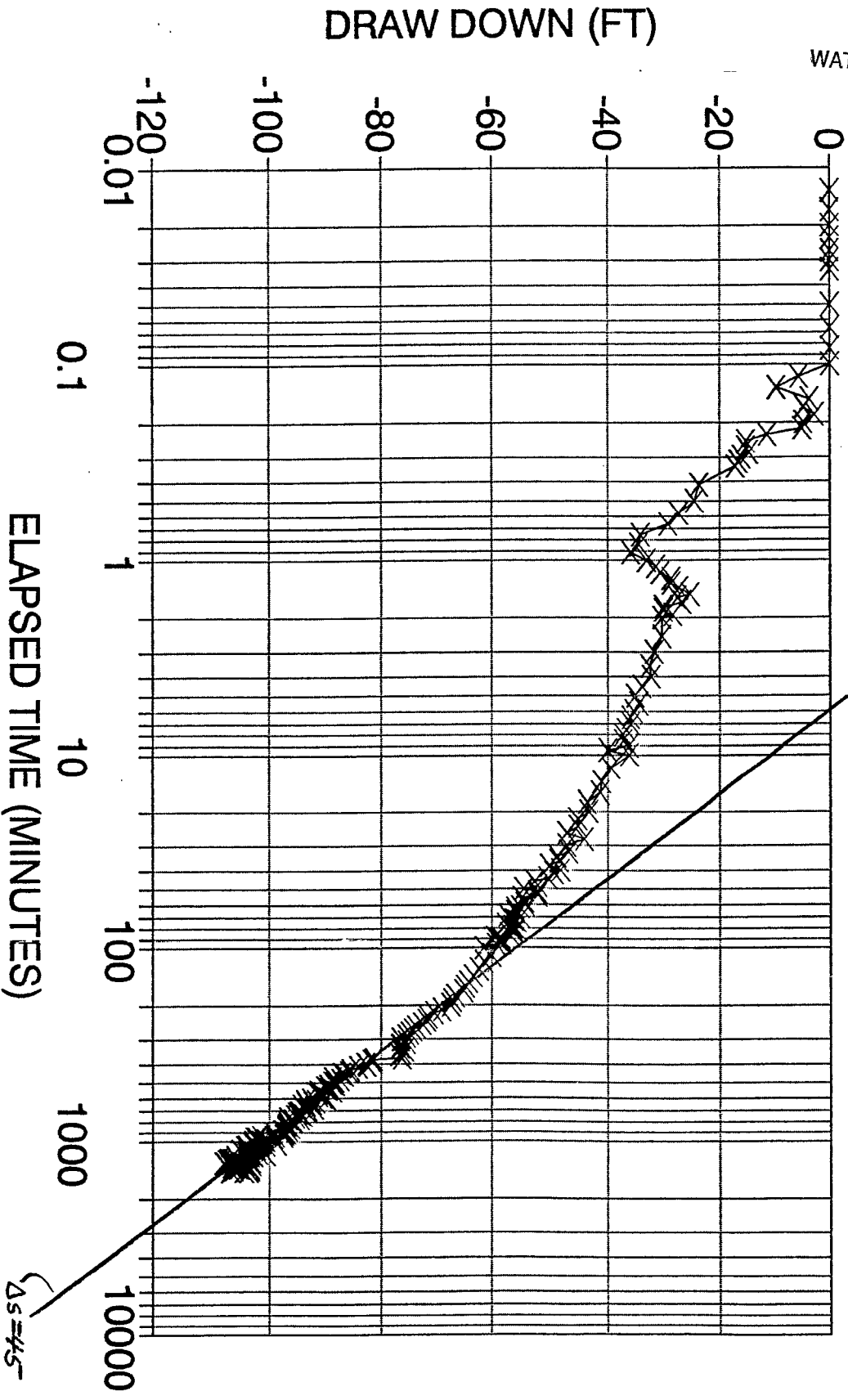
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WATER RESOURCES DEPT.
SALEM, OREGON

ECHO WELL #5

10/28/93-AVG. FLOW 1137 GPM-SWL 157.5

24 HOUR CONSTANT RATE TEST



$T = \frac{364.9}{\Delta S}$
 $= 4670 \text{ gpd/ft}$

$\Delta S = 45$