

5

3N/29E/16aa

FEB - 9 1994 UMAT 5970

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 Backfill placed from ft. to ft. Material Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER: Table with columns: Diameter, From, To, Gauge, Steel, Plastic, Welded, Threaded. Includes Pitless Casing and Liner data.

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

Table with columns: Screens From, To, Slot size, Number, Diameter, Tele/pipe size, Casing, Liner. Lists screen specifications.

(8) WELL TESTS: Minimum testing time is 1 hour [X] Pump [ ] Bailer [ ] Air [ ] Artesian also see attached graphs of 24 hour test/recovery Yield gal/min Drawdown Drill stem at Time

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 [ ] Salty [ ] Muddy [ ] Odor [ ] Colored [ ] Other Depth of strata: SEI 9405

(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: Depth at which water was first found 1st significant @ 662

Table with columns: From, To, Estimated Flow Rate, SWL. Shows water bearing zones at 662 and 674 ft.

(12) WELL LOG: Ground elevation approx. 800

Table with columns: Material, From, To, SWL. Contains well log entries including '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. Signed [Signature] WWC Number 1578 Date 1/28/94

(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. Signed [Signature] WWC Number 649 Date 1/28/94

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

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 WATER RESOURCES DEPT.  
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| <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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|     |     |   |
|-----|-----|---|
| 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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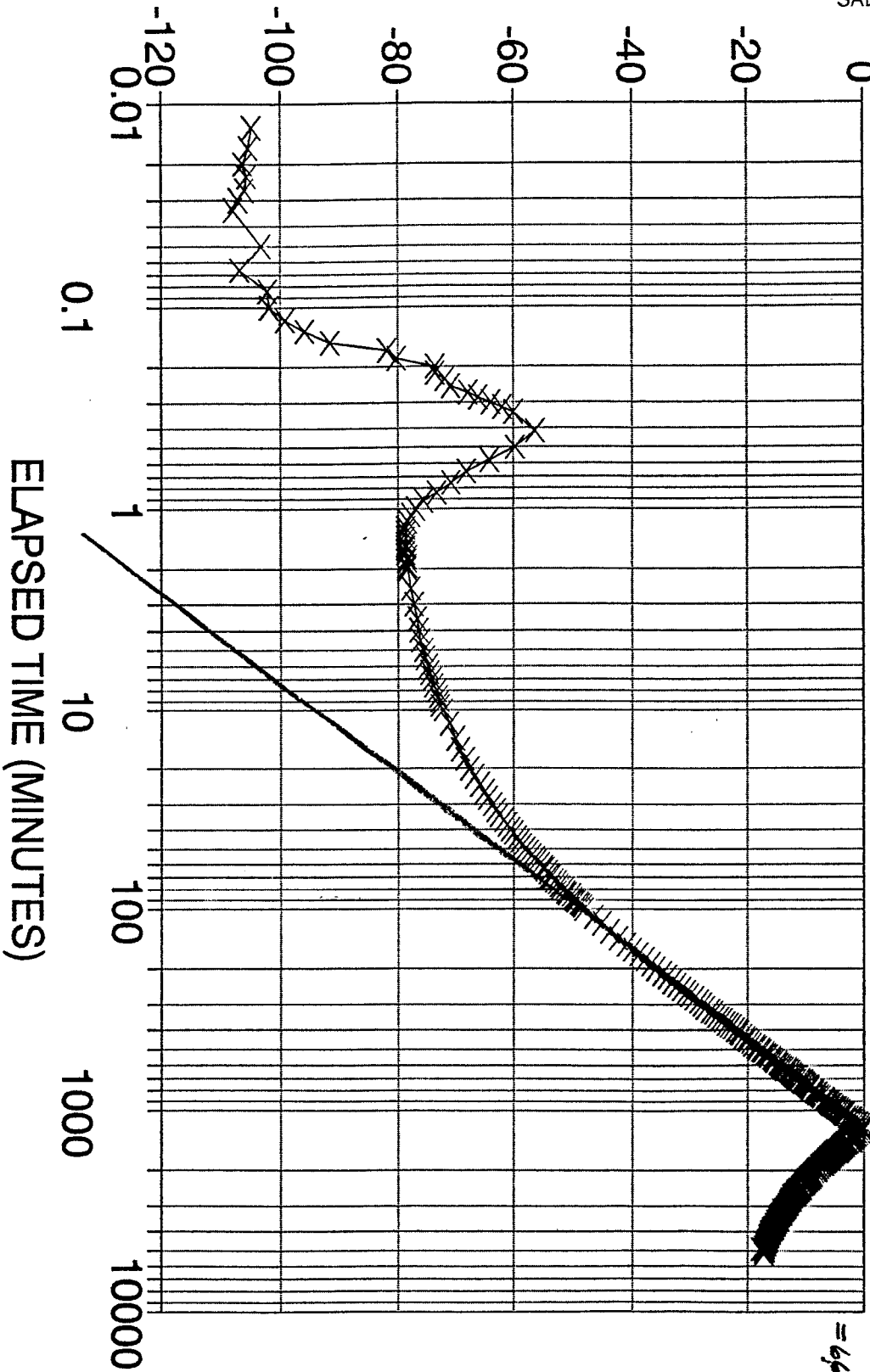
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SALEM, OREGON

DRAW DOWN (FT)

# ECHO WELL #5

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

SWL 157.5



$Q = 1137 \text{ gpm}$

$\Delta S = 45$

Transmissivity =  $\frac{2.64 \cdot Q}{\Delta S}$

= 6670 gpd/ft

ELAPSED TIME (MINUTES)

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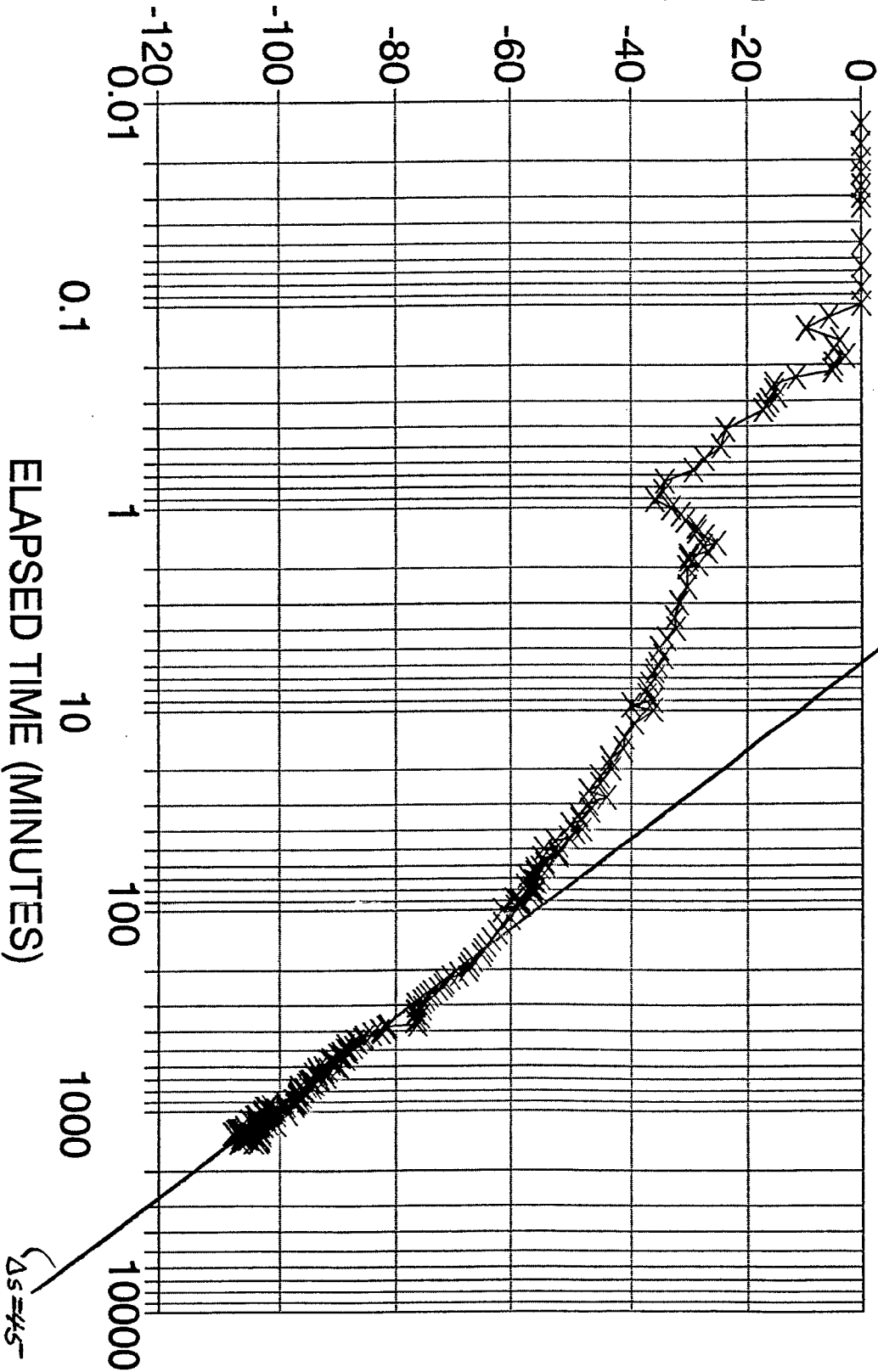
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DRAW DOWN (FT)

# ECHO WELL #5

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

24 HOUR CONSTANT RATE TEST



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