| DATE IN | SUSPENSE | ENGINEER | LOGGED IN | TYPE | APP NO. |
|---|---|---|---|---|---|
| 2/12/09 | | T. Warnell | 2/12/09 | IPI | PKAA0904349661 |

RECEIVED
2009 FEB 12 AM 11 44

ABOVE THIS LINE FOR DIVISION USE ONLY

30-045-26460
MaryLou 1 SWD
Dugan
16515

# NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505

## ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

**Application Acronyms:**

**[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]**
**[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]**
**[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]**
**[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]**
**[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]**
**[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]**

690 PSI 7-2003
SWD-884
3708I-A 1-2004
642PSI-B 2-2006

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication
☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☐ SWD ☒ IPI ☐ EOR ☐ PPR

3458' Top perf
-3570
PSI 1004
.29034
2.89

[D] Other: Specify _____

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or (Does Not Apply)

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ☐ Offset Operators, Leaseholders or Surface Owner

[C] ☐ Application is One Which Requires Published Legal Notice

[D] ☐ Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ☐ For all of the above, Proof of Notification or Publication is Attached, and/or,

Teft eller Inc.

[F] ☐ Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

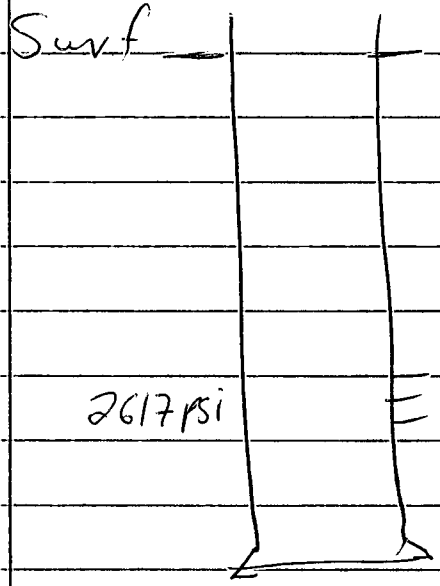
[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

**Note: Statement must be completed by an individual with managerial and/or supervisory capacity.**

| John Alexander | | Vice-President | 2/11/2009 |
|---|---|---|---|
| Print or Type Name | Signature | Title | Date |

johncalexander@duganproduction.com
e-mail Address

injection only to the Point Lookout.




Bottomhole gradient

$\frac{2617\ psi}{345\text{-}8'} = 0.757\ psi/ft$

$.757 - .433 = 0.324\ psi/ft$

$3488' \times 0.324\ psi/ft = 1,119\ psi$

$\frac{1,119\ psi}{3488'\ ft} = 0,32\ psi/ft$

dugan production corp.

2/10/2009

Engineering Bureau
New Mexico Oil Conservation Division
1220 South St. Frances Drive
Santa Fe, NM 87505

Re: Pressure Increase Request Mary Lou 1 SWD, Sec. 32, Twn. 24N, Rng 10W, 800' FNL & 800' FEL,
ADMINISTRATIVE ORDER SWD-884.

Gentlemen:

We request an increase in permitted surface injection at our Mary Lou No. 1 SWD well based on the attached step-rate-test. This test shows that the bottom hole fracture pressure is 2617 psi at the upper most perforation. The attachments contain all of the raw data files provided by Tefteller Inc for both bottom hole pressure recording devices. I have attached a tiff file with my graphical interpretation of the data, an Excel spreadsheet with the pressure device recording and injection rates, and a wellbore schematic.

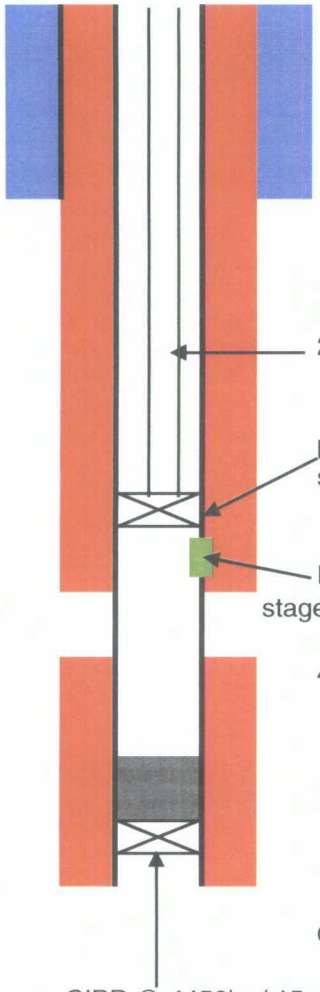
All attachments are on the enclosed CD which will be readable on any computer. Please contact me if you need further information.

Sincerely,

John Alexander
Vice President

709 E. MURRAY DR. • P. O. BOX 420 • FARMINGTON, N.M. 87499-0420 • PHONE: (505) 325-1821 • FAX# (505) 327-4613

Dugan Productiion Corp.
**Mary Lou #1 Wellbore Diagram**
Sec. 32, Twn. 24N, Rng 10W, 800' FNL & 800' FEL
**ADMINISTRATIVE ORDER SWD-884**



8-5/8" 24# @ 193' in 12-1/4" hole
cmt w/ 135 sx, circulated to surface

2-3/8" Plastic Lined Tubing

plastic lined Baker Model AD-1 packer
set at 3390'

Point Lookout from 3458'-3570' w/63 holes
stage tool @ 3679'

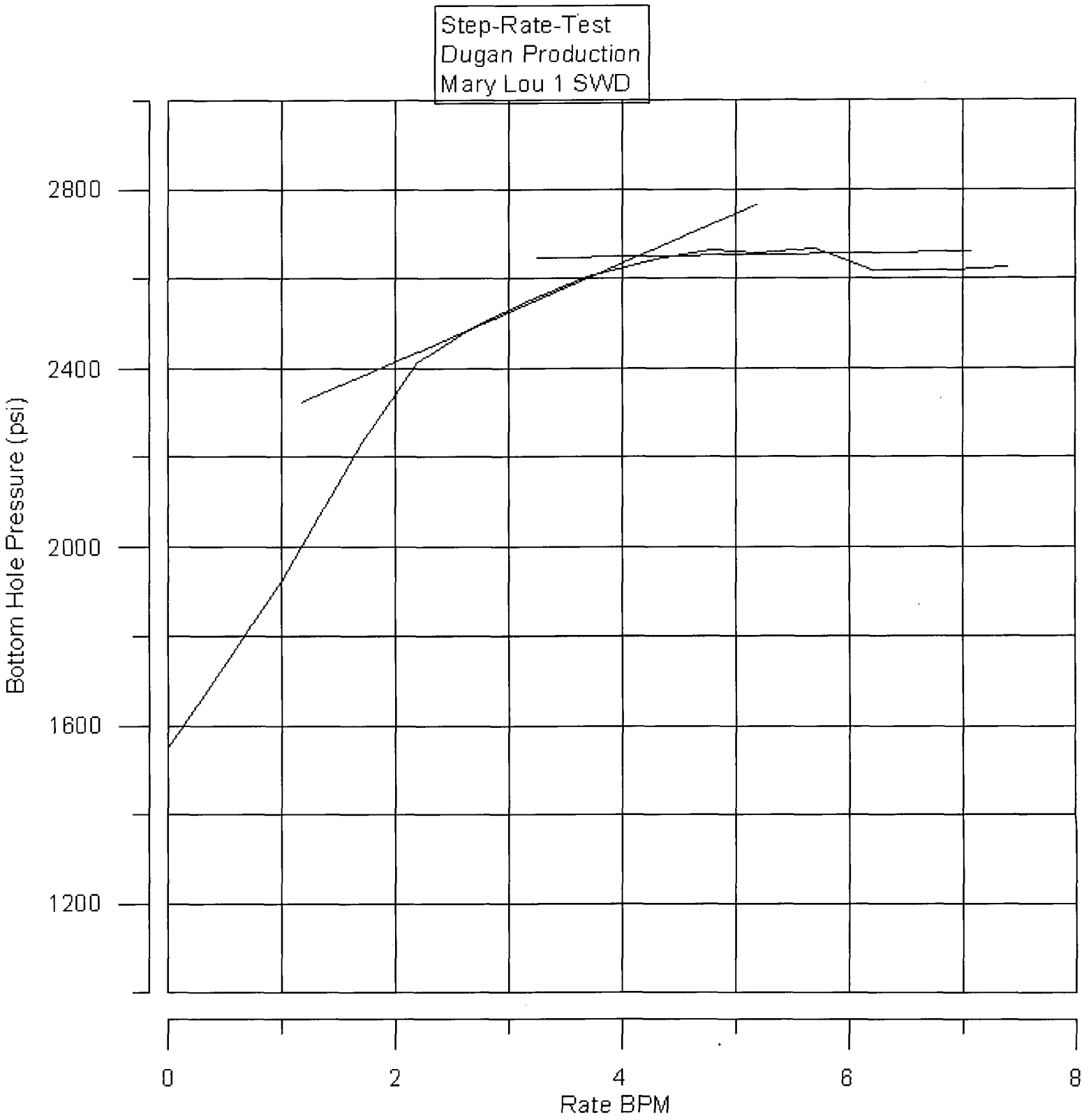
4-1/2" TOC 3834'

Gallup perfs: 4500-4768' (40 holes total)

CIBP @ 4450' w/ 15 sx Class "B" cmt on top of plug
cement from 4250-4450'

4-1/2" 10.5# csg @ 4815' in 7-7/8" hole
cmt 1st stage: 235 sx 50/50 poz & 2% gel (298 cu ft)
2nd stage: 550 sx 65/35 poz & 12% gel
tail w/ 80 sx 50/50poz & 2% gel (1318 cu ft)

X. Dat
X. cmt
X. Plt
X Tif


Step-Rate-Test
Dugan Production
Mary Lou 1 SWD
2800
2400
2000
1600
1200
Bottom Hole Pressure (psi)
0
2
4
6
8
Rate BPM

| step | press (psi) | temp F |
|---|---|---|
| 0 | 0.01 | 67.497 |
| 3 | 0.01 | 67.497 |
| 4 | 0.01 | 66.688 |
| 5 | 0.01 | 65.885 |
| 6 | 0.01 | 65.111 |
| 7 | 0.01 | 64.377 |
| 8 | 0.01 | 63.798 |
| 9 | 0.01 | 63.211 |
| 10 | 0.01 | 62.628 |
| 11 | 0.01 | 62.173 |
| 12 | 0.01 | 61.769 |
| 13 | 0.01 | 61.365 |
| 14 | 0.01 | 60.96 |
| 15 | 0.01 | 60.594 |
| 16 | 0.01 | 60.285 |
| 17 | 0.01 | 59.97 |
| 18 | 0.01 | 59.662 |
| 19 | 0.01 | 59.393 |
| 20 | 0.01 | 59.169 |
| 21 | 0.01 | 58.945 |
| 22 | 0.01 | 58.722 |
| 23 | 0.01 | 58.531 |
| 24 | 0.01 | 58.373 |
| 25 | 0.01 | 58.209 |
| 26 | 0.01 | 58.052 |
| 27 | 0.01 | 57.914 |
| 28 | 0.01 | 57.79 |
| 29 | 0.01 | 57.672 |
| 30 | 0.01 | 57.549 |
| 31 | 0.01 | 57.445 |
| 32 | 0.01 | 57.348 |
| 33 | 0.01 | 57.258 |
| 34 | 0.01 | 57.106 |
| 35 | 2844.428 | 57.006 |
| 36 | 4071.718 | 56.658 |
| 37 | 5.606 | 56.318 |
| 38 | 0.01 | 55.97 |
| 39 | 0.01 | 55.596 |
| 40 | 92.967 | 55.91 |
| 41 | 191.52 | 56.217 |
| 42 | 325.239 | 56.531 |
| 43 | 445.851 | 58.29 |
| 44 | 560.411 | 61.447 |
| 45 | 687.378 | 64.613 |
| 46 | 815.115 | 67.787 |
| 47 | 935.993 | 71.675 |
| 48 | 1059.336 | 75.91 |
| 49 | 1164.914 | 80.154 |
| 50 | 1281.731 | 84.422 |
| 51 | 1388.708 | 88.679 |
| 52 | 1430.205 | 89.946 |

Dugan Production Corp
Mary Lou 1 SWD Step-Rate-Test
Conducted 2/4/2009

54.0000 BEGAN PUMPING
67.0000 END RATE #1 - 1.0 BPM
82.0000 END RATE #2 - 1.7 BPM
97.0000 END RATE #3 - 2.2 BPM
113.0000 END RATE #4 - 2.7 BPM
128.0000 END RATE #5 - 3.2 BPM
144.0000 END RATE #6 - 3.7 BPM
160.0000 END RATE #7 - 4.3 BPM
175.0000 END RATE #8 - 4.8 BPM
191.0000 END RATE #9 - 5.2 BPM
207.0000 END RATE #10 - 5.7 BPM
222.0000 END RATE #11 - 6.2 BPM
237.0000 END RATE #12 - 6.9 BPM
252.0000 END RATE #13 - 7.4 BPM
253.0000 SHUT DOWN PUMPS
285.0000 TANDEM ELEC. MEMORY INST. OFF BOT
302.0000 INST. @ SURFACE/BLED OFF LUBRICATC

| | | | |
|---|---|---|---|
| 53 | 1433.674 | 91.214 | |
| 54 | 1550.726 | 92.483 | 0 |
| 55 | 1580.851 | 91.096 | |
| 56 | 1655.69 | 89.643 | |
| 57 | 1726.23 | 88.184 | |
| 58 | 1760.673 | 86.734 | |
| 59 | 1795.941 | 86.892 | |
| 60 | 1816.915 | 88.686 | |
| 61 | 1837.468 | 90.49 | |
| 62 | 1852.444 | 92.29 | |
| 63 | 1867.741 | 94.314 | |
| 64 | 1882.174 | 95.677 | |
| 65 | 1896.874 | 97.042 | |
| 66 | 1910.885 | 98.409 | |
| 67 | 1923.373 | 99.103 | 1 |
| 68 | 2005.661 | 99.346 | |
| 69 | 2087.541 | 99.583 | |
| 70 | 2139.464 | 99.826 | |
| 71 | 2157.536 | 99.701 | |
| 72 | 2159.344 | 99.263 | |
| 73 | 2160.609 | 98.819 | |
| 74 | 2167.974 | 98.381 | |
| 75 | 2174.265 | 97.59 | |
| 76 | 2181.029 | 96.647 | |
| 77 | 2190.105 | 95.698 | |
| 78 | 2200.538 | 94.757 | |
| 79 | 2208.292 | 93.754 | |
| 80 | 2220.374 | 92.78 | |
| 81 | 2227.576 | 91.814 | |
| 82 | 2233.696 | 90.841 | 1.7 |
| 83 | 2255.262 | 89.953 | |
| 84 | 2323.38 | 89.133 | |
| 85 | 2345.075 | 88.308 | |
| 86 | 2358.764 | 87.49 | |
| 87 | 2369.338 | 86.658 | |
| 88 | 2378.712 | 85.793 | |
| 89 | 2385.498 | 84.936 | |
| 90 | 2392.025 | 84.073 | |
| 91 | 2396.89 | 83.271 | |
| 92 | 2400.885 | 82.594 | |
| 93 | 2404.468 | 81.917 | |
| 94 | 2405.473 | 81.24 | |
| 95 | 2409.681 | 80.694 | |
| 96 | 2412.191 | 80.277 | |
| 97 | 2412.942 | 79.854 | 2.2 |
| 98 | 2416.814 | 79.438 | |
| 99 | 2445 | 79.124 | |
| 100 | 2454.245 | 78.858 | |
| 101 | 2461.182 | 78.592 | |
| 102 | 2466.755 | 78.326 | |
| 103 | 2471.375 | 78.074 | |
| 104 | 2473.788 | 77.87 | |

| | | | |
|---|---|---|---|
| 105 | 2478.521 | 77.659 | |
| 106 | 2480.531 | 77.454 | |
| 107 | 2484.553 | 77.298 | |
| 108 | 2485.95 | 77.23 | |
| 109 | 2488.168 | 77.155 | |
| 110 | 2491.874 | 77.087 | |
| 111 | 2492.569 | 77.06 | |
| 112 | 2493.517 | 77.066 | |
| 113 | 2492.968 | 77.08 | 2.7 |
| 114 | 2512.43 | 77.087 | |
| 115 | 2519.353 | 77.128 | |
| 116 | 2525.741 | 77.148 | |
| 117 | 2530.36 | 77.169 | |
| 118 | 2532.256 | 77.189 | |
| 119 | 2534.429 | 77.203 | |
| 120 | 2537.136 | 77.23 | |
| 121 | 2539.571 | 77.257 | |
| 122 | 2542.964 | 77.284 | |
| 123 | 2541.713 | 77.325 | |
| 124 | 2544.96 | 77.373 | |
| 125 | 2547.249 | 77.42 | |
| 126 | 2549.946 | 77.468 | |
| 127 | 2552.507 | 77.516 | |
| 128 | 2554.12 | 77.563 | 3.2 |
| 129 | 2561.309 | 77.611 | |
| 130 | 2569.859 | 77.659 | |
| 131 | 2575.55 | 77.706 | |
| 132 | 2579.351 | 77.734 | |
| 133 | 2583.011 | 77.761 | |
| 134 | 2585.582 | 77.788 | |
| 135 | 2588.294 | 77.809 | |
| 136 | 2591.676 | 77.849 | |
| 137 | 2593.021 | 77.884 | |
| 138 | 2595.723 | 77.924 | |
| 139 | 2596.655 | 77.958 | |
| 140 | 2597.314 | 77.999 | |
| 141 | 2598.524 | 78.033 | |
| 142 | 2601.089 | 78.074 | |
| 143 | 2603.377 | 78.115 | |
| 144 | 2605.817 | 78.142 | 3.7 |
| 145 | 2614.235 | 78.176 | |
| 146 | 2620.077 | 78.204 | |
| 147 | 2626.453 | 78.238 | |
| 148 | 2630.662 | 78.258 | |
| 149 | 2631.463 | 78.285 | |
| 150 | 2634.719 | 78.306 | |
| 151 | 2632.52 | 78.347 | |
| 152 | 2633.598 | 78.374 | |
| 153 | 2636.708 | 78.408 | |
| 154 | 2635.875 | 78.435 | |
| 155 | 2635.917 | 78.476 | |
| 156 | 2639.513 | 78.51 | |

| | | | |
|---|---|---|---|
| 157 | 2638.68 | 78.538 | |
| 158 | 2641.386 | 78.572 | |
| 159 | 2642.056 | 78.585 | |
| 160 | 2643.406 | 78.613 | 4.3 |
| 161 | 2648.704 | 78.633 | |
| 162 | 2650.185 | 78.66 | |
| 163 | 2652.896 | 78.681 | |
| 164 | 2654.922 | 78.708 | |
| 165 | 2656.811 | 78.735 | |
| 166 | 2658.026 | 78.763 | |
| 167 | 2663.595 | 78.776 | |
| 168 | 2666.816 | 78.613 | |
| 169 | 2660.505 | 78.449 | |
| 170 | 2658.413 | 78.285 | |
| 171 | 2659.63 | 78.047 | |
| 172 | 2661.007 | 78.02 | |
| 173 | 2660.479 | 77.993 | |
| 174 | 2663.212 | 77.965 | |
| 175 | 2665.571 | 78.136 | 4.8 |
| 176 | 2662.624 | 78.558 | |
| 177 | 2663.357 | 78.974 | |
| 178 | 2663.364 | 79.397 | |
| 179 | 2664.952 | 80.059 | |
| 180 | 2666.467 | 80.789 | |
| 181 | 2659.271 | 81.527 | |
| 182 | 2656.436 | 82.259 | |
| 183 | 2646.416 | 82.95 | |
| 184 | 2649.666 | 83.49 | |
| 185 | 2651.688 | 84.038 | |
| 186 | 2652.626 | 84.58 | |
| 187 | 2653.356 | 84.998 | |
| 188 | 2651.159 | 85.3 | |
| 189 | 2652.638 | 85.594 | |
| 190 | 2655.736 | 85.896 | |
| 191 | 2656.174 | 86.102 | 5.2 |
| 192 | 2657.721 | 86.26 | |
| 193 | 2659.539 | 86.425 | |
| 194 | 2662.444 | 86.583 | |
| 195 | 2664.538 | 86.727 | |
| 196 | 2665.024 | 86.844 | |
| 197 | 2667.547 | 86.954 | |
| 198 | 2666.668 | 87.07 | |
| 199 | 2668.262 | 87.139 | |
| 200 | 2669.866 | 87.194 | |
| 201 | 2670.383 | 87.242 | |
| 202 | 2669.943 | 87.297 | |
| 203 | 2672.101 | 87.331 | |
| 204 | 2666.385 | 87.352 | |
| 205 | 2671.537 | 87.373 | |
| 206 | 2672.205 | 87.393 | |
| 207 | 2666.766 | 87.4 | 5.7 |
| 208 | 2664.718 | 87.421 | |

| | | | |
|---|---|---|---|
| 209 | 2653.155 | 87.448 | |
| 210 | 2643.771 | 87.469 | |
| 211 | 2647.412 | 87.524 | |
| 212 | 2649.695 | 87.565 | |
| 213 | 2650.761 | 87.613 | |
| 214 | 2651.283 | 87.654 | |
| 215 | 2651.937 | 87.696 | |
| 216 | 2650.975 | 87.723 | |
| 217 | 2649.199 | 87.744 | |
| 218 | 2640.625 | 87.771 | |
| 219 | 2619.429 | 87.778 | |
| 220 | 2613.719 | 87.792 | |
| 221 | 2616.833 | 87.806 | |
| 222 | 2617.642 | 87.819 | 6.2 |
| 223 | 2618.583 | 87.84 | |
| 224 | 2619.644 | 87.888 | |
| 225 | 2621.389 | 87.929 | |
| 226 | 2621.412 | 87.975 | |
| 227 | 2619.838 | 88.039 | |
| 228 | 2614.791 | 88.081 | |
| 229 | 2612.185 | 88.129 | |
| 230 | 2611.213 | 88.17 | |
| 231 | 2611.213 | 88.209 | |
| 232 | 2612.269 | 88.232 | |
| 233 | 2612.661 | 88.259 | |
| 234 | 2613.33 | 88.28 | |
| 235 | 2613.373 | 88.301 | |
| 236 | 2613.41 | 88.32 | |
| 237 | 2619.411 | 88.335 | 6.9 |
| 238 | 2621.981 | 88.356 | |
| 239 | 2624.008 | 88.376 | |
| 240 | 2625.194 | 88.452 | |
| 241 | 2625.171 | 88.517 | |
| 242 | 2625.795 | 88.596 | |
| 243 | 2625.743 | 88.679 | |
| 244 | 2626.25 | 88.768 | |
| 245 | 2625.123 | 88.851 | |
| 246 | 2625.619 | 88.94 | |
| 247 | 2624.632 | 89.009 | |
| 248 | 2625.421 | 89.057 | |
| 249 | 2623.902 | 89.106 | |
| 250 | 2624.56 | 89.154 | |
| 251 | 2625.082 | 89.188 | |
| 252 | 2626.153 | 89.216 | 7.4 |
| 253 | 2534.21 | 89.243 | |
| 254 | 2469.151 | 89.271 | |
| 255 | 2418.1 | 89.264 | |
| 256 | 2373.276 | 89.291 | |
| 257 | 2330.486 | 89.326 | |
| 258 | 2290.285 | 89.353 | |
| 259 | 2251.898 | 89.574 | |
| 260 | 2216.455 | 89.897 | |

| | | |
|---|---|---|
| 261 | 2184.143 | 90.221 |
| 262 | 2154.683 | 90.545 |
| 263 | 2128.492 | 90.862 |
| 264 | 2104.641 | 91.103 |
| 265 | 2082.828 | 91.345 |
| 266 | 2063.049 | 91.586 |
| 267 | 2044.808 | 91.731 |
| 268 | 2027.55 | 91.793 |
| 269 | 2011.916 | 91.862 |
| 270 | 1997.508 | 91.924 |
| 271 | 1984.477 | 91.931 |
| 272 | 1972.139 | 91.897 |
| 273 | 1960.891 | 91.855 |
| 274 | 1950.185 | 91.821 |
| 275 | 1939.761 | 91.752 |
| 276 | 1930.151 | 91.676 |
| 277 | 1920.956 | 91.593 |
| 278 | 1912.296 | 91.517 |
| 279 | 1903.917 | 91.421 |
| 280 | 1896.075 | 91.338 |
| 281 | 1888.507 | 91.248 |
| 282 | 1881.206 | 91.165 |
| 283 | 1874.316 | 91.083 |
| 284 | 1867.826 | 91.007 |
| 285 | 1861.475 | 90.931 |
| 286 | 1827.701 | 90.855 |
| 287 | 1735.285 | 90.793 |
| 288 | 1633.844 | 90.917 |
| 289 | 1513.675 | 91.041 |
| 290 | 1398.119 | 91.165 |
| 291 | 1211.062 | 91.09 |
| 292 | 1050.138 | 90.497 |
| 293 | 877.196 | 89.911 |
| 294 | 695.617 | 89.319 |
| 295 | 534.374 | 88.253 |
| 296 | 403.629 | 86.96 |
| 297 | 300.408 | 85.677 |
| 298 | 277.567 | 84.388 |
| 299 | 273.914 | 83.107 |
| 300 | 270.263 | 81.78 |
| 301 | 266.475 | 80.461 |
| 302 | 262.552 | 79.138 |
| 303 | 13.838 | 78.074 |
| 304 | 0.01 | 77.271 |
| 305 | 0.01 | 76.461 |
| 306 | 0.01 | 75.658 |
| 307 | 0.01 | 75.043 |
| 308 | 0.01 | 73.668 |
| 309 | 0.01 | 72.319 |
| 310 | 0.01 | 70.978 |
| 311 | 0.01 | 69.135 |
| 312 | 0.01 | 67.544 |

| | | |
|---|---|---|
| 313 | 0.01 | 65.926 |
| 314 | 0.01 | 64.364 |
| 315 | 0.01 | 63.476 |
| 316 | 0.01 | 63.321 |
| 317 | 0.01 | 63.173 |
| 318 | 0.01 | 63.025 |

# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**
Governor
**Joanna Prukop**
Cabinet Secretary

**Lori Wrotenbery**
Director
**Oil Conservation Division**


*ADMINISTRATIVE ORDER SWD-884*

***APPLICATION OF DUGAN PRODUCTION CORPORATION FOR SALT WATER DISPOSAL, SAN JUAN COUNTY, NEW MEXICO.***

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Rule 701(B), Dugan Production Corporation made application to the New Mexico Oil Conservation Division on June 20, 2003, for permission to utilize for salt water disposal its Mary Lou Well No. 1 (API 30-045-26460) located 800 feet from the North line and 800 feet from the East line (Unit A) of Section 32, Township 24 North, Range 10 West, NMPM, San Juan County, New Mexico.

THE DIVISION DIRECTOR FINDS THAT:

(1) The application has been duly filed under the provisions of Rule 701(B) of the Division Rules and Regulations;

(2) Satisfactory information has been provided that all offset operators and surface owners have been duly notified;

(3) The applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 will be met; and

(4) No objections have been received within the waiting period prescribed by said rule.

IT IS THEREFORE ORDERED THAT:

Dugan Production Corporation is hereby authorized to utilize its Mary Lou Well No. 1 (API 30-045-26460) located 800 feet from the North line and 800 feet from the East line (Unit A) of Section 32, Township 24 North, Range 10 West, NMPM, San Juan County, New Mexico, in such a manner as to permit the injection of produced water for disposal purposes into the Point Lookout member of the Mesaverde formation from a depth of 3,450 to 3,570 feet through 2 3/8 inch plastic-lined tubing set in a packer located at approximately 3,400 feet.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

**Prior to injection, the operator shall plug back the well bore to the base of the Mesaverde using a procedure approved by the Aztec District office of the Division.**

The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

The injection well or system shall be equipped with a pressure limiting device which will limit the wellhead pressure on the injection well to **no more than 690 psi.**

The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formations. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

The operator shall notify the supervisor of the Aztec district office of the Division of the date and time of the installation of disposal equipment and of any mechanical integrity test so that the same may be inspected and witnessed.

The operator shall immediately notify the supervisor of the Aztec district office of the Division of the failure of the tubing, casing, or packer in said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

PROVIDED FURTHER THAT, jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh water or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein.

The operator shall submit monthly reports of the disposal operations on Division Form C-120-A, in accordance with Rule Nos. 706 and 1120 of the Division Rules and Regulations.

The injection authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

Approved at Santa Fe, New Mexico, on this 10th day of July 2003.

LORI WROTENBERY, Director

LW/wvjj

cc: Oil Conservation Division – Aztec
State Land Office – Mineral Resources Division

# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**
Governor
**Joanna Prukop**
Cabinet Secretary

**Lori Wrotenbery**
Director
**Oil Conservation Division**

*AMENDED ADMINISTRATIVE ORDER SWD-884-A*

***APPLICATION OF DUGAN PRODUCTION CORPORATION FOR SALT WATER DISPOSAL, SAN JUAN COUNTY, NEW MEXICO.***

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Rule 701(B), Dugan Production Corporation made application to the New Mexico Oil Conservation Division on June 20, 2003, for permission to utilize for salt water disposal its Mary Lou Well No. 1 (API 30-045-26460) located 800 feet from the North line and 800 feet from the East line (Unit A) of Section 32, Township 24 North, Range 10 West, NMPM, San Juan County, New Mexico. **On January 6, 2004, Dugan Production Corporation applied to amend the permit by adding perforations in the Cliff House member of the Mesaverde formation.**

THE DIVISION DIRECTOR FINDS THAT:

(1) The application has been duly filed under the provisions of Rule 701(B) of the Division Rules and Regulations;

(2) Satisfactory information has been provided that all offset operators and surface owners have been duly notified **at the time of the original application of Dugan Production Corporation's intention to inject into the Cliff House and the Point Lookout;**

(3) The applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 will be met.

IT IS THEREFORE ORDERED THAT:

Dugan Production Corporation is hereby authorized to utilize its Mary Lou Well No. 1 (API 30-045-26460) located 800 feet from the North line and 800 feet from the East line (Unit A) of Section 32, Township 24 North, Range 10 West, NMPM, San Juan County, New Mexico, in such a manner as to permit the injection of produced water for disposal purposes into the **Cliff House** and Point Lookout members of the Mesaverde formation from approximate depths of **1,850 to 1,950 feet and 3,450 to 3,570 feet respectively** through 2 3/8 inch plastic-lined tubing set in a packer located at approximately **1,800 feet.**

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

The injection well or system shall be equipped with a pressure limiting device which will limit the wellhead pressure on the injection well to **no more than 370 psi.**

The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formations. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

The operator shall notify the supervisor of the Aztec district office of the Division of the date and time of the installation of disposal equipment and of any mechanical integrity test so that the same may be inspected and witnessed.

The operator shall immediately notify the supervisor of the Aztec district office of the Division of the failure of the tubing, casing, or packer in said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

PROVIDED FURTHER THAT, jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh water or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein.

**The operator shall provide written notice of the date of commencement of injection to the Aztec district office of the Division.** The operator shall submit monthly reports of the disposal operations on Division Form C-120-A, in accordance with Rule Nos. 706 and 1120 of the Division Rules and Regulations.

The injection authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

Amended application approved at Santa Fe, New Mexico, on this 6th day of January 2004.

Lori Wrotenbery (WVJJ)

LORI WROTENBERY, Director

LW/wvjj

cc: Oil Conservation Division – Aztec
State Land Office – Mineral Resources Division

# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**
Governor
**Joanna Prukop**
Cabinet Secretary

**Mark E. Fesmire, P.E.**
Director
**Oil Conservation Division**

ADMINISTRATIVE ORDER SWD-884-B

***APPLICATION OF DUGAN PRODUCTION CORPORATION FOR SALT WATER DISPOSAL, SAN JUAN COUNTY, NEW MEXICO.***

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Rule 701(B), Dugan Production Corporation made application to the New Mexico Oil Conservation Division for permission to utilize for salt water disposal its Mary Lou Well No. 1 (API 30-045-26460) located 800 feet from the North line and 800 feet from the East line (Unit A) of Section 32, Township 24 North, Range 10 West, NMPM, San Juan County, New Mexico. **Dugan has agreed to modify this existing permit to restrict injection to only the Point Lookout member of the Mesaverde formation.**

THE DIVISION DIRECTOR FINDS THAT:

(1) The application has been duly filed under the provisions of Rule 701(B) of the Division Rules and Regulations;

(2) Satisfactory information has been provided that all offset operators and surface owners have been duly notified;

(3) The applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 will be met; and

(4) No objections have been received within the waiting period prescribed by said rule.

IT IS THEREFORE ORDERED THAT:

Dugan Production Corporation is hereby authorized to utilize its Mary Lou Well No. 1 (API 30-045-26460) located 800 feet from the North line and 800 feet from the East line (Unit A) of Section 32, Township 24 North, Range 10 West, NMPM, San Juan County, New Mexico, in such a manner as to permit the injection of produced water for disposal purposes into the Point Lookout member of the Mesaverde formation from a depth of 3,458 to 3,570 feet through plastic-lined tubing set in a packer located within 100 feet above the top perforation.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

The injection well or system shall be equipped with a pressure limiting device which will limit the wellhead pressure on the injection well to **no more than 692 psi.**

The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formations. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

The operator shall notify the supervisor of the Aztec district office of the Division of the date and time of the installation of disposal equipment and of any mechanical integrity test so that the same may be inspected and witnessed.

The operator shall immediately notify the supervisor of the Aztec district office of the Division of the failure of the tubing, casing, or packer in said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

PROVIDED FURTHER THAT, jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh water or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein.

The operator shall submit monthly reports of the disposal operations on Division Form C-120-A, in accordance with Rule Nos. 706 and 1120 of the Division Rules and Regulations.

The injection authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

Approved at Santa Fe, New Mexico, on February 8, 2006.

MARK E. FESMIRE, P.E.
Director

MEF/wvjj

cc: Oil Conservation Division – Aztec
State Land Office – Oil, Gas, and Minerals Division

## Warnell, Terry G, EMNRD

**From:** John Alexander [John.Alexander@duganproduction.com]
**Sent:** Friday, February 13, 2009 2:32 PM
**To:** Warnell, Terry G, EMNRD
**Subject:** RE: Mary Lou #1

Terry:

1. The bottom hole frac pressure is 2640 psi from this test. The bottom hole pressure recorder was set at 3510'. This makes the frac gradient 0.7521 psi/ft. This is in good agreement with the frac gradient established after the fracture treatment of 0.722 psi/ft. With the top perforation being at 3458', the bottom hole frac pressure at that point is 2601 psi. Using 0.433 psi/ft as the hydrostatic pressure of injected water, the hydrostatic pressure at 3458' is 1497 psi. The surface frac pressure is then 1104 psi. If you consider 100 psi below frac pressure to be an adequate safety factor, the surface pressure maximum I am requesting is 1004 psi.
2. There are no other operators with Mesaverde producing wells within ½ mile of this well.
3. The current rate is 250 bwpd our maximum pressure of 690 psi. This well is part of a gathering system which collects water from about 20 coal bed methane wells. This group of wells produces much more water than 250 bwpd requiring the excess water be transferred of other injection facilities.

Thank you for getting started on this so quickly. Please let me know if you need further information.
John Alexander

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**From:** Warnell, Terry G, EMNRD [mailto:TerryG.Warnell@state.nm.us]
**Sent:** Friday, February 13, 2009 11:48
**To:** John Alexander
**Cc:** Jones, William V., EMNRD
**Subject:** Mary Lou #1

Mr. Alexander:

We received your IPI request and data CD for your Mary Lou No. 1 SWD.

I will be the Engineer working on the Order and I'm going to need a little more information, please.

1. I see your top perf is at 3458' what surface pressure and gradient are you requesting?
2. Are there any other operators with producing wells in this interval located within 1/2 mile of you well?
3. What is the rate and source of the water you are presently injecting in the perforated interval from 3458'-3570'?

John, I hope to start next week on your order and will have it finished by the end of the month.

Thanks for the help,

Terry G. Warnell
New Mexico Oil Conservation Division
1220 South St. Francis
Santa Fe, NM 87505
505-476-3466

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