OVERVIEW

- PROCESS & TOOLING OF FLOODED RC DRILLING
- FEATURES FLOODED RC DRILLING RIG
- SIERRA MADRE PROJECT - WELL #7
• FLOODED REVERSE CIRCULATION
• DEPTHS TO 2000 FT
• 7” H/F DRILL PIPE
• INTERNAL AIR
• SULLAIR 1150 / 350 COMPRESSOR

EDSI / EWANK
M100 RC
DRILL RIG
Well History

Drilling Contractor: Snowys Drilling, Lexington, Nebraska
Project Manager: P.M.W. Oilfield Services, Kansas, Wyoming
Project Geologist: M.G. Oilfield Services, Kansas, Wyoming

Dec. 15, 2013
Start surface casing to 50 ft with centraliser - C750 mast and cemented into 10 inch hole, water at depth 20 ft.

Dec. 18, 2013
Make mudline and set preparation.

Dec. 19, 2013
Camel 8.5-in buck in hand in 100 ft, 1.0 bar of circulating with solids from 218 bar, 3400 lb/m3 over mud cake, 3750 lb/m3 in the bottom of the well. Use “oil field grade,” 300 psi of mud cake, and a pump “oil field grade” at the rate of 4000 gpm. Pump 150 bars to three drill collars, used 20 bars in 400 bar. Run perforated casing.

Dec. 21, 2013
Start 8.5-in. OD C750 mast in casing at 450 ft, with 150 lb/m3 of cement, 3500 bar, 3000 bar of cement, 2000 bar of cement. Run “oil field grade” at the rate of 3000 gpm. Pump 150 bars to three drill collars, used 20 bars in 400 bar. Run perforated casing.

Dec. 16, 2013
Start 8.5-in. OD C750 mast in casing at 450 ft, with 150 lb/m3 of cement, 3500 bar, 3000 bar of cement, 2000 bar of cement. Run “oil field grade” at the rate of 3000 gpm. Pump 150 bars to three drill collars, used 20 bars in 400 bar. Run perforated casing.

Fig 3 - Completion Diagram: Fill in the figure with relevant data and labels.
Table 1: Riverside Well No. 7 Pump Test Summary

<table>
<thead>
<tr>
<th>Date</th>
<th>Discharge (gpm)</th>
<th>Duration (hrs)</th>
<th>Drawdown (ft)</th>
<th>Specific Capacity (gpm/ft)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/0</td>
<td>40</td>
<td>30.5</td>
<td>0.01</td>
<td></td>
<td>control, from previous run</td>
</tr>
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<td>40</td>
<td>30.5</td>
<td>0.3</td>
<td></td>
<td>control, from previous run</td>
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<tr>
<td>4/2</td>
<td>40</td>
<td>30.5</td>
<td>0.3</td>
<td></td>
<td>control, from previous run</td>
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<tr>
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<td>40</td>
<td>30.5</td>
<td>0.3</td>
<td></td>
<td>control, from previous run</td>
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<tr>
<td>4/4</td>
<td>40</td>
<td>30.5</td>
<td>0.3</td>
<td></td>
<td>control, from previous run</td>
</tr>
</tbody>
</table>

test period, i.e. horizontal groundwater flow within the individual water-bearing strata consists for the two wells is vastly more than the vertical groundwater flow during recover phase.

Calculations of the theoretical drawdown at Well No. 7 using the aquifer parameters derived from the Wolf No. 6 observation indicate Well No. 7 is an efficient well at the 300-gpm production rate, i.e. without substantial fluid losses due to formation damage, foundation development, “heat” effects, etc. This is consistent with the steady 40-50 gpm specific capacities measured at 40 gpm.

QUESTIONS?

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ACKNOWLEDGMENTS

- HANDBOOK OF GROUNDWATER DEVELOPMENT
- GROUNDWATER AND WELLS, SECOND EDITION
- GROUNDWATER AND WELLS, THIRD EDITION
- SIERRA MADRE WATER AND SEWER JOINT POWERS BOARD
  GROUNDWATER EXPLORATION PROGRAM RIVERSIDE NO. 7 WELL, FINAL REPORT, MAY, 2011

POWERPOINT PRESENTATION – JOSIE BAUER, ADMIN. ASSISTANT
FOR DOWNEY DRILLING, INC., LEXINGTON, NE

NEBRASKA THUNDERSTOM