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COLO. OIL & GAS CONS. COMM.

R 69 W

<p>C 2/82 * IPP 70MCF C&amp;J 7/79 40BO * 10BW IPF 1599MCF J 4/83 250BO * C 3/83 IPF 47BW 17 * IP NA</p>	<p>C 2/81 * IPF 71MCF, 16BO 16  C 4/83 * IP NA</p>	<p>J 1/83 * IP NA  15  J 8/81 * IPF 598MCF 7BO</p>
<p>C 4/81 * IPF 125MCF, 1BO, 1BW 20</p>	<p>C * No info  21  Noarko Res. Montgomery #1 12/84 * IPF 27 BO, 180 MCF</p>	<p>S 12/58 *  J 3/82, C 3/84 * Martin IPF 460MCF, 210 BW 22 Shan 4/73 *</p>
<p>29</p>	<p>J 7/84 Martin * IP NA 28</p>	<p>C 11/83 * Martin IPF 860MCF, 80BO, 220BW  27  J * IPF 508 MCF</p>

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EXPLANATION

- \* CODELL WELL
- ☼ "J" SAND WELL
- ⊗ DUAL CODELL AND "J" SAND WELL

LOCATION PLAT

NOARKO RESOURCES No. 1-21 Montgomery  
SE SE Section 21 - T1N - R69W  
Boulder County, Colorado  
PROPOSED NIOBRARA RECOMPLETION  
January 1985

ENGINEERING

OPERATIONS

January 16, 1985

RECOMPLETION PROCEDURE  
Noarko Resources, Inc.  
Montgomery No. 1-21  
Sec. 21-T1N-R69W  
Boulder County, Colorado  
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1. Move in and rig up service rig. Trip and catch plunger. Calculate static BHP from shut in casing pressure and verify with tubing pressure immediately after plunger arrival. Kill well with lease crude if possible. If not, kill well with minimum of treated 3% KCl water.
2. Nipple down wellhead and nipple up BOP. Trip out of hole with tubing.
3. Rig up lubricator and run in hole with wireline set, tubing retrievable bridge plug. Set bridge plug at 7903' KB (elements).
4. Trip in hole with tubing and seating nipple. Spot 50 lbs. of 20-40 frac sand on top of plug. Pull up and swab well down to 6000'.
5. Rig up to perforate under lubricator and perforate 1 JSPF at the following depths:

7894', 7890', 7787', 7785', 7782', 7668', 7666', <sup>7663'</sup> 7658', <sup>7654'</sup> ~~7664'~~,  
7489', 7487', ~~7474'~~, ~~7468'~~ - 14 holes

NOTE: Use 0.375" holes. All depths are KB and are to be correlated to the CNL-Lithodensity.

6. a) If entry is strong, and well then dies, trip in hole with tubing and swab test. If well flows, test through separator.
- b) If entry is weak, trip in hole with tubing and packer. Set tubing at 7895' (run tail joint on packer). Spot 300 gallons 7-1/2% HCL with iron sequestering agent (BHT is estimated to be 200°F +), non-emulsifiers, clay stabilizers, oxygen scavenger. Load hole with 3% KCl with non-emulsifier. Raise tubing and set tubing at 7400'. Break down formation. Open unloader and spot 1500 gallons 7-1/2% HCL with additives as before to end of tubing. Drop 22 balls, starting after 200 gallons. Drop first 14 balls in first 1000 gallons, and last 7 balls in last 300 gallons.

Swab to recover load fluids and to determine fluid entry. If well flows, test through separator.

7. Release packer and trip out of hole. Nipple down BOP and install 10,000 psi frac valve. Hot oil frac water to 80°F.
8. Rig up to frac well in accordance with procedure. Frac with gelled 3% KCl water and 160,000 lbs 20-40 sand. Use low residue cross linked gel. Adjust breaker for four break at BHT of 200°F.
9. Open well after six hours. If shut in pressure is 500 psi or more under the ISDP, open on 12/64" positive choke and adjust as necessary to maintain less than 20 BFPH rate for first four hours. If shut in pressure is not 500 psi below ISDP, open on a 8/64" positive choke unless freezing across the choke is a problem. If freezing occurs, use smallest size choke that will allow uninterrupted flow. Monitor flowback for gel break and frac sand return.
10. If well continues to flow, turn through separator as soon as enough gas is produced to light burner. If separator dumps can handle water rate, rig up to dump frac water to frac tank and oil to production tanks. If separator dumps cannot handle rate, produce all fluid to frac tank.  
  
DO NOT SHUT WELL IN EXCEPT FOR EMERGENCY.
11. If well dies, run tubing through stripping head. Tag for sand, clean out if necessary and swab well in.
12. Production test the Niobrara Formation for approximately 30 days, move in service rig and retrieve bridge plug, Land 2-3/8" tbg. at 7400'+, return well to production.

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Noarko Resources, Inc.  
 Montgomery #1-21 well  
 700' FSL and 700' FEL  
 Sec. 21-T1N-R69W  
 Boulder County, Colo.

Present status of well  
 Producing from the Codell  
 Formation

Proposed completion and  
 testing of the Niobrara  
 Formation

Proposed mechanical  
 installation for the producing  
 (commining) of the Niobrara  
 and Codell Formations

