

Air Drilling Specialist  
Oil & Gas Wells

**THORNTON AIR ROTARY, LLC**  
Office Phone: 620-879-2073

PO Box 449  
Caney, KS 67333

Date Started	<b>6/23/2011</b>
Date Completed	<b>6/24/2011</b>

Well No.	Operator	Lease	A.P.I #	County	State
<b>13-9</b>	<b>Layne Energy Operating</b>	<b>Arnold</b>	<b>15-125-32104-00-00</b>	<b>Montgomery</b>	<b>Kansas</b>

1/4	1/4	1/4	Sec.	Twp.	Rge.
			<b>9</b>	<b>34</b>	<b>16</b>

Driller	Type/Well	Cement Used	Casing Used	Depth	Size of Hole
<b>Billy</b>	<b>Gas</b>	<b>4</b>	<b>22' 8 5/8</b>	<b>1208</b>	<b>6 3/4</b>

**Formation Record**

0-5	DIRT	739-747	SHALE	1038-1064	SHALE
5-34	SAND	747-748	COAL	1062	GAS TEST-8#, 3/4", 227 MCF
34-81	SANDY SHALE	748-756	SHALE	1064-1080	SAND
81-96	SHALE	756-761	SAND	1080-1117	SHALE
96-108	LIME	761-763	COAL	1117-1118	COAL
108-200	SHALE	762	GAS TEST - NO GAS	1118-1131	SHALE
200-235	SANDY SHALE	763-772	SHALE	1131-1132	COAL
235-316	SHALE	772-774	LIME	1132-1177	SHALE
316-325	LIME	774-779	SHALE	1137	GAS TEST-SAME
325-350	SAND	779-780	COAL ?	1177-1179	COAL (RIVERTON)
350-387	SHALE	780-786	SHALE	1179-1193	SHALE
387-396	LIME	786-791	SAND	1193-1208	CHATT/LIME (MISS.)
396-406	SHALE	791-811	SANDY SHALE	1208	GAS TEST-10#,3/4",259 MCF
411	WENT TO WATER	811-829	SHALE	1208	TD
406-440	SAND	829-830	COAL		
440-449	SANDY SHALE	830-854	SHALE		
449-538	SHALE	854-855	COAL		
538-562	LIME (PAWNEE)	855-883	SHALE		
562-569	BLACK SHALE	883-884	COAL		
569-570	COAL	884-709	SANDY SHALE		
570-591	SHALE	886	GAS TEST - NO GAS		
591-621	SAND	709-910	COAL		
621-656	SHALE	910-944	SHALE		
656-683	LIME (OSWEGO)	911	GAS TEST - NO GAS		
683-688	BLK SHALE (SUMMIT)	944-954	SAND		
688-718	LIME	954-976	SHALE		
718-724	BLACK SHALE	976-977	COAL		
724-736	LIME	977-1008	SHALE		
736	GAS TEST - NO GAS	1008-1022	SAND / OIL ODOR		
736-739	SHALE	1022-1038	SAND/SANDY SHALE / LITE OIL ODOR		