Ohio Department of Natural Resources

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SUMMARY OF EVENTS
PREPARED BY DEPUTY CHIEF ROBERT S. WORSTALL
SHALLOW CASING SPLIT
CNX GAS COMPANY
CADLE - MAHN7CHSU WELL
PN 3409923184
MAHONING COUNTY - JACKSON TOWNSHIP

On August 29, 2012, CNX Gas Company was issued a permit to drill the Cadle MAHN7CHSU well in Jackson Township, Mahoning County. The well pad is located over 3.5 miles west of Meander Creek Reservoir and approximately 300 feet east of Clingeman Ditch. The proposed and approved casing program called for Conductor casing cemented to surface, Surface casing cemented to surface, First Intermediate casing cemented to surface, Second Intermediate casing cemented and Production casing cemented.

On September 4, 2012, Express Energy (a CNX contractor) augured a 42 inch hole and set 115 feet of 30 inch Conductor casing. O-Tex Pumping broke circulation and cemented the casing with 680 sacks of Class A cement. Cement circulated to surface and the job was witnessed by the inspector. On October 12, 2012 another CNX contractor, Nabors Drilling, drilled a 26 inch hole to 390 feet with air before setting 370 feet of 20 inch Surface casing. Five centralizers were placed on the casing. Halliburton Services broke circulation and cemented this casing with 650 sacks of Class A cement. Again cement circulated to surface and the job was witnessed by the inspector.

After waiting on cement for 11.5 hours, CNX prepared to complete a casing integrity test. The planned test called for using a mud pump to pressure the 20 inch casing to 140 psi which, when coupled with 160 psi of hydrostatic pressure would result in a 300 psi test. The well was equipped with a 20 inch swage screwed into the top casing collar located on the drilling floor. The swage was used to connect the well to the pump for this test. Water level inside of the 20 inch casing was 10 feet below ground level. The pump was brought on line and the pressure reading was 0 psi. After pumping approximately 5 to 6 barrels of water, with a pressure reading still at 0 psi, the 20 inch casing failed causing a vertical split in this casing approximately 4 feet long from ground level down. When the 20 inch casing split, it impacted the 30 inch casing causing a horizontal crack approximately 10 inches long.

On October 13, Weatherford Wireline ran a 3 Arm Caliper and a Cement Bond Log in order to evaluate the condition of the hole. Evaluation of these logs indicated that impact was limited to the near surface portion of the casing. CNX proposed cutting off the 20 inch casing 6 inches below the split (approximately 5 feet below ground level) before connecting to the 30 inch casing to drill the next section of the well (17.5 inch hole). Based on visual inspection and the log interpretation, CNX was given permission to proceed.

On October 19, Nabors completed drilling the 17.5 inch hole to 1,034 feet before running and cementing 1,034 feet of 13.375 Intermediate casing. Twelve centralizers and a float shoe were placed on the casing. Halliburton Services broke circulation and cemented this casing with 820 sacks of Class A cement. Cement circulated to surface and the job was witnessed by the inspector. The drilling of the well then proceeded as planned with the installation and cementing of two additional casing strings. The last casing string was cemented on December 23, 2012.

To summarize:

1. The well pad is located over 3.5 miles west of Meander Creek Reservoir. The pad is approximately 300 feet east of Clingeman Ditch, which does ultimately drain into the reservoir.
2. There are five casing strings with cement sheaths separating the production zone from any shallow aquifers or the ground surface.
3. The casing problem occurred during the early drilling phase of the well. The impact was limited to the top five feet of the 20 inch surface casing.
4. Subsequent casing and cement jobs were successful and completed without incident. In two of the subsequent cement jobs, cement circulated to surface by design.
5. The well has been drilled, the rig released and CNX is waiting to complete (frac) the well, which should occur in the near future.