

United States Environmental Protection Agency
Region IV
POLLUTION REPORT

Date: Thursday, March 12, 2009
From: Perry Gaughan and Chuck Eger

Subject: Final Polrep - Oil Well Plugging Complete
FE Midkiff #W-35 Oil Well (E09409)
Oaks, Ohio County, KY
Latitude: 37.6403000
Longitude: -86.6819000

POLREP No.:	2	Site #:	Z4QJ
Reporting Period:		D.O. #:	
Start Date:	10/30/2008	Response Authority:	OPA
Mob Date:		Response Type:	Time-Critical
Demob Date:		NPL Status:	Non NPL
Completion Date:		Incident Category:	Removal Action
CERCLIS ID #:		Contract #	
RCRIS ID #:		Reimbursable Account #	Z4QJ
FPN#	E09409		

Site Description

The Midkiff Farm #W-35 Orphan Oil Well was referred to EPA-Region 4 ERRB by the KY-DNR-Division of Oil and Gas representative on October 30, 2008 during ongoing well plugging operations on the Fuqua Farm located in Oaks, Ohio County, Kentucky. KY-DNR representative, Mr. Greg Welsh, notified Mr. Chuck Eger, EPA, that numerous flowing and abandoned wells had been discovered on the Midkiff Farm (which is situated approximately 2 miles from the aforementioned farm). At the time of EPA's visit, the Midkiff Farm #W-35 Well was noted to be discharging live oil, oily brine, and natural gas to land surface and threatening nearby Adams Creek. The well is situated in an agricultural field which is routinely flooded by Adams Creek at a minimum of 2 to 3 times per year. When this catastrophic flooding occurs, the well is completely submerged and/or filled up with creek and runoff waters. As such, large amounts of oil and oily brine are emptied from the borehole of the Midkiff Farm #W-35 onto the shorelines and waters of Adams Creek. Adams Creek empties into Slover's Creek which in turn empties into the Rough River. The Rough River is a tributary to the Green River. The Green River, which is over 300 miles in total length, eventually empties into the Ohio River.

Given the well's age (i.e. 70 plus years), its lack of mechanical integrity (as evidenced by ongoing discharges of oil, oily brine and natural gas to land surface via leaking casing strings), its shallow depth (i.e. less than 250 vertical feet below land surface), its location within the 25 year flood plain of Adams Creek and its documented history of being routinely submerged by flood waters emanating from Adams Creek, the well's potential to impact Surface Waters of the United States is extremely high. Additionally, at least 10 or more adjacent and orphaned oil wells (i.e. which also penetrate the Tar Springs Oil Reservoir at approximately 250 vertical feet and are drilled to similar depths) are in close proximity to this well. When the Midkiff Farm #W-32 Orphan Oil Well is permanently plugged, residual reservoir pressures from the Tar Springs Oil Reservoir will shift from this well to these nearby wells. As these pressures migrate from an area of high pressure (i.e. at the plugged well) to an area of low pressure (i.e. areas surrounding unplugged oil wells), discharges of oil at or near land surface will only increase over time. In order to stem these mitigate these predictable discharges, all wells penetrating the Tar Springs Reservoir will likely require permanent plugging.

Current Activities

On December 17, 2008, CMC (EPA's ERRS Contractor) conducted a Health and Safety meeting at the Fordsville, Kentucky field office. Upon conclusion of this activity, the CMC work crew loaded equipment and supplies and mobilized to the Midkiff Farm #W-35 Well Site to assist Barnett & Smith (Oil Field Services Subcontractor) in the "rigging up" of the pulling unit over the well. B & S personnel ran one inch diameter tubing inside the existing 4 1/2 inch diameter production casing to "wash-down" the well to the total depth of the hole. By the end of the day, they have successfully reached 210 feet below land surface (i.e. on the inside of the production casing).

On December 18, 2008, B & S personnel set up over the well and attached a 4 1/2 inch diameter milling

bit to a two inch diameter work string. Power tongs were utilized to assist the bit in removing pipe scale from inside the casing. The well was “washed down” continuously to remove the milled out solids. Southern Well Survey (SWS) mobilized to the well site to perform a casing collar locator survey, a cement bond log evaluation, and a Gamma survey. They “rigged up” on the pulling unit and performed the aforementioned surveys on the Midkiff Farm #W-35. The total depth of the hole (as determined by the wire line survey) was found to be 213 feet below land surface. “Good” cement was identified by the cement bond log (i.e. in the annular space between the production casing and the bore hole) to be between the depths of 213 feet and 110 feet. A cast-iron bridge plug was set at 149 feet at a collar which was surrounded by good cement. The well was then perforated at 100 feet below land surface to eventually allow for the squeezing of cement behind the production casing and the bore hole. SWS “rigged down” and departed the site. B & S staged their pump truck adjacent to the well in anticipation of plugging the well on the following day.

On December 19, 2008, B & S personnel run in the well with 2 inch diameter circulation tubing and “tag” the top of the cast-iron bridge plug located at 149 feet. The tubing is pulled up to 146 feet to allow for the circulating of cement back to land surface. Seventy five sacks of Class-A Pozmix cement with two percent calcium chloride additives were circulated (on the inside and outside of the casing/bore hole) back to land surface. B & S tear down the rig and demobilized from the site for the upcoming holiday work break.

Planned Removal Actions

Disturbed areas will be regarded and reseeded as the weather allows. Casing will be cut off at approximately 4 feet below land surface as required by the local plugging regulations.

response.epa.gov/midkiffw35