12/15/2017

Subject: Remediation Update/Plan

***This location was under Encana Oil and Gas during the initial Remediation and now needs to be transferred to Utah Gas Corp. (Operator ID 10539)**

****This location was included in a multi-pit closure and needs to be issued a new Remediation #.**

7712 Douglas Pass Unit – Pit Investigation and Remediation System
COGCC Location ID: 322452 / Facility ID: 110533
**Both Location and facility ID are registered to Encana but are closed.
SWSE, Sec. 20, T5S, R102W, 6th PM
Garfield County, Colorado

Attn: Stan Spencer

Background

- 2012: Pit was excavated by HCSI and was unable to fully delineate due to safety precautions. Excavation and material was sampled and reburied within pit boundary.
- 2012: LTE advanced borings to delineate area; 3 wells were converted to SVE wells. O&M readings were collected periodically after installation of passive vent wells.
- 3rd Quarter 2016: SVE pilot trailer testing was performed by Encana.
- 4th Quarter 2016: Active SVE trailer installed. (Removed Q1 2017 after acquisition) (unable to locate data that was collected during Encana's efforts).
- December 2017: New active SVE trailer installed.

SVE pilot trailer data

In 2016, before the sales acquisition; Encana incorporated the use of an SVE pilot trailer to determine air flow in cubic feet per second, rate of influence, and vacuum pressures at which the air flow occurs. PID readings were collected to observe available hydrocarbon changes over time to help determine when additional drilling needs to occur to obtain site closure. This analysis demonstrates air movement occurring within the subsoils at the screened interval allowing for subsurface air exchange to occur. The continuous air exchange via the bio-vent wells allows for naturally occurring bacteria to consume the TPH (GRO/DRO ranges). The following table demonstrates data obtained with the use of the SVE pilot trailer in 2016:

12/15/2017

7712 Well Pad	Q3 2016	Well	Start Time	SCFM	Vacuum (inches of Hg)	Temp (F°)	PID (ppm)
		SVE01	11:30	70	12	72	370
		SVE02	11:15	50	12	64	2020
		SVE03	11:00	40	11	62	0.8

Rate of Influence

Well	Vacuum	Distance (feet)
SVE01 @ 20 CFM		
SVE02	*0.0*	*50*
SVE03	*0.0*	*80*
SVE02 @ 15 CFM		
SVE01	*0.0*	*50*
SVE03	*0.01*	*35*
SVE03 @ 15 CFM		
SVE01	*0.0*	*80*
SVE02	*0.04*	*35*

Q4 - 2017

Utah Gas Corp incorporated a solar Active SVE Trailer to intermittently run during daytime hours. The vacuum blower was connected to 2 bio-vents wells. PID readings were collected periodically to determine the effectiveness of the system. The following table demonstrates data obtained with the use of the Active SVE Trailer:

7712 Well Pad	Date	Hour Meter	Well: SVE01 (Inches of Hg)	Well: SVES02 (Inches of Hg)	Well: SVES03 (Inches of Hg)	PID (ppm)	Free product Recovered (oz)
	12/14/17	673.5	1.5	1	x	678.5	0
	12/19/17	711	1.5	1	x	1649	0

*12/14/17 initial start

12/15/2017

Approach

Based on the 2012 sampling data, allowable air movement at the location, impact depths, and the elevated PID readings, it has been determined that for 2018 the 7712 will continue to have the Active SVE Trailer vacuum blower installed. The trailer is going to be rotated between two locations that are within close proximity (B12 Location ID: 322420 / REM# 9341 [see attached map for reference]). PID readings will be collected periodically throughout the year to determine the effectiveness of the trailer. When PID readings fall below 500ppm at the exhaust of the SVE system the location a Form 27 will be submitted and drilling will be scheduled to collect samples. If the active system proves to be ineffective at this location, an alternative remediation approach will be evaluated and proposed to the COGCC for approval.

If you have any questions pertaining to this project, please do not hesitate to contact me at (970) 901-9007 or mattkasten@dirtco.info.

Attachments

- Site diagram

Regards,
Matt Kasten
Dirtco - EHS Manager