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dcp Midstream

DCP MIDSTREAM LP – LINAM RANCH AGI FACILITY

ALTERNATIVE CONDITIONAL OPERATING STRATEGY TO COMPLY WITH NMOCD REQUIREMENT TO REPLACE NON-FUNCTIONING BOTTOM HOLE PRESSURE/TEMPERATURE GAUGE IN LINAM AGI#2

Background

The Linam AGI #2 well was completed for DCP Midstream, LP (DCP) by Geolex, Inc. ® (Geolex) and WSP in October 2015. Shortly after the well was completed, the downhole pressure and temperature sensors (P/T sensors) in AGI #2 failed, understood to have occurred due to a lightning strike in 2015 to the well shortly after installation. Replacement or repair of these down-hole components will require a complete well workover, in which the full string of tubing is unlatched from the packer and removed in order to repair/replace the non-functioning Schlumberger bottom hole P/T gauge. This magnitude of remedial operation on the well is necessary because the P/T gauge is located immediately above the packer at the base of the tubing string in a special mandrel that holds the P/T sensors (see Figures 1 and 2).

Due to the damaged and inoperable P/T sensors in Linam AGI #2, the assessment of down-hole conditions for Linam AGI #2 has been completed by monitoring down-hole P/T sensors installed in the Linam AGI #1 well, a well that is located approximately 450 feet to the northeast and is completed in the same injection reservoir. These P/T sensors were installed on the AGI #1 well during a workover completed to stack an injection packer on June 8, 2017, and the AGI #1 was put back in service in July 2017. The AGI #1 P/T gauge currently serves to monitor downhole and reservoir conditions for both AGI wells, since the downhole P/T sensors in AGI #2 failed as described above.

Until the P/T sensors in AGI #2 are replaced or repaired, and in order to confirm that reservoir data which would have been provided by those sensors is consistent with measurements in AGI #1, a slick line with a pressure recorder was placed into AGI #2 and downhole pressure data collected under both injection and non-injection conditions for both wells. That action successfully correlated AGI #1 P/T sensor data with AGI #2 bottom hole conditions. Since that time, the downhole sensors in AGI #1 have provided the necessary reservoir data required to evaluate the performance of the two wells. Monthly and annual reports submitted for this system clearly demonstrate that the sensors in the AGI #1 provide adequate downhole reservoir data for the facility, including both wells.

Rationale for Proposed Request

NMOCD and DCP have jointly developed a plan for the monitoring of bottom hole P/T conditions at these types of facilities as well as contingency plans for non-working bottom hole P/T sensors that allow for the collection of reservoir data in the event of a failure of one or both measurement systems. One contingency approach involves the collection and analysis of surface data, which can be examined and used to deduce bottom hole conditions. This method, however, is not preferred for these wells as it does not provide an as reliable or quantifiably useful picture of the downhole conditions as the use of the data, in this case, provided by sensors in the AGI #1 well because both wells are completed in the same injection zone and are only 450 feet apart at the bottom hole in a common strata.

Because repair of the bottom hole P/T sensors in the AGI #2 will require a complete reworking and disassembly of the well, which is functioning perfectly and has demonstrated good integrity, it is simply

not worth the risk of developing a problem (leak) or damaging equipment while performing the workover solely to replace the inoperative gauge assembly. For this reason, DCP and Geolex have developed the contingency approach proposed herein, which minimizes the potential of damaging the AGI #2 well while continuing to provide bottom hole P/T data useful to analyze the behavior of the reservoir over time using the AGI #1 sensors. It is understood that the best subsequent alternative is to repair/replace the inoperative bottom hole gauge when AGI #2 requires workover for another reason, or in the event the AGI #1 bottom hole sensors were to fail.

Key Elements of Proposed Strategy

DCP and Geolex have developed the contingency approach described below in order to achieve the following objectives:

1. Continue to provide reliable bottom hole data from AGI #1 that has been demonstrated to be sufficient for evaluating the effects of injection from both wells that inject treated acid gas (TAG) into the same reservoir.

2. Assure the ability to use both wells in parallel by installing discreet volumetric measurement for both wells so flow can measured separately in each well when both wells are used simultaneously.

3. Maintain the ability to replace the bottom hole P/T gauge on demand in the event the AGI #1 sensor were to fail or AGI #2 requires a workover unrelated to the operational status of its downhole P/T sensors.

DCP's Proposal to NMOCD/NMOCC

DCP and Geolex have developed a contingency approach, which has been preliminarily discussed with the NMOCD Underground Injection Control (UIC) program, to implement an approvable strategy that will avoid an unnecessary workover of the Linam AGI #2 well, which could potentially damage an injection system with demonstrated integrity and, with the exception of its bottom-hole P/T sensors, continues to operate normally and reliably.

This proposed strategy includes multiple steps to assure the ongoing collection and reporting of adequate, and accurate reservoir data from the DCP Linam AGI facility, which will track conditions in the injection zone over the operational lifetime of the two Linam AGI wells. These steps include the following:

1. DCP will purchase and maintain inventory of a critical spare Halliburton ROC gauge and surface panel, which will be immediately available as a replacement should the gauges in the AGI#1 fail or if the AGI #2 well needs to be reworked for an unrelated reason.

2. DCP will enable discreet volume measurement into both AGI wells at the Linam Ranch facility no later than the end of calendar year 2021.

3. Until such time as the reliable discreet volume measurement is installed and operational on the wells at the facility, DCP will continue to switch between the AGI #1 and #2 wells on approximately a six-month cycle.

4. DCP will assure that either well is able to be utilized to take the entire TAG flow from the gas plant, as consistently demonstrated, in the event that for some reason one or the other well becomes compromised and requires a workover.

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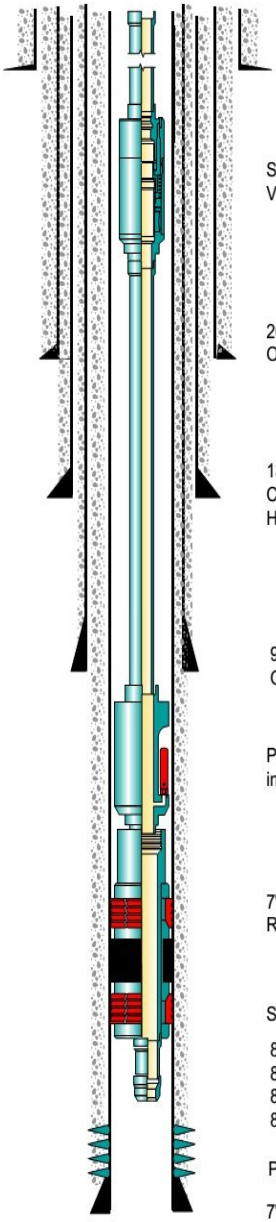
5. DCP will continue to provide monthly and annual reporting, which has been maintained at the facility since the initial workover of the AGI #1 well in 2012. DCP proposes annual MIT testing for the AGI#1 well to match the schedule for the AGI#2 well.

6. Pursuant to NMOCD Order R-12546-K regarding Linam AGI #2, DCP will complete the required report comparing original assumptions about reservoir pressures and plume characteristics by end of the calendar year 2025.

Geolex submits this proposal on behalf of DCP following preliminary discussions with NMOCD regarding the key elements of this strategy and the UIC director has indicated that OCD is open to favorably considering such a strategy.

Figure 1 AGI#1 Well Schematic



30"Conductor csg set at 120 ft (GL)

Subsurface Safety Valve set at 250 ft

20" Surface csg set in 26" Open Hole at 1,570 ft KB

13-3/8" Upper Intermediate Csg set in 17-½" Open Hole at 3,219 ft KB

9-5/8" Lower Intermediate Csg set in 12-¼" Open Hole at 8,604 ft KB

Pressure / Temperature Gauge above packer with internal and external (annular) measurement.

7" Permanent Injection Packer set in Corrosion Resistant Alloy (CRA) joint at 8,690 ft

Selective perforations in Lower Bone Spring

8,765 – 8,769 ft	8,925 – 8,945
8,795 – 8,801	8,956 – 8,978
8,817 – 8,832	8,995 – 9,006
8,840 – 8,885	

PBTD = 9,055 ft KB

7" Production Csg set in 8-1/2" Open Hole at 9,204 ft (TD)

TD = 9,234 ft

DCP MIDSTREAM, LP
LINAM AGI #2

Location:	1,600 FSL & 1,750' FWL (Unit K)
STR	S30-T18S-R37E
County, St.:	LEA COUNTY, NEW MEXICO

CONDUCTOR PIPE
30" Conductor set at 120 ft. (GL)
Cemented to surface

SURFACE CASING
20", 94#, J55, BTC to 500 ft
20", 106.5#, J55, BTC from 500 ft to 1,570 ft (KB)
Cemented to surface

UPPER INTERMEDIATE CASING
13 3/8", 68#, J-55, BTC, set at 3,219 ft (KB)
Cemented to surface

LOWER INTERMEDIATE CASING
9-5/8", 47#, HCL-80, LT&C set at 8,604 ft (KB)
Cemented to surface

PRODUCTION CASING:
7", 26#, HCL-80 LT&C, from surface to 8,500 ft
7", 26#, 28Cr, VAM TOP from 8,500 ft to 9,204 ft (TD) (KB)
Cemented to surface

PACKER:
Permanent injection packer with Incaloy components set in Corrosion Resistant Alloy (CRA) csg at 8,620 ft

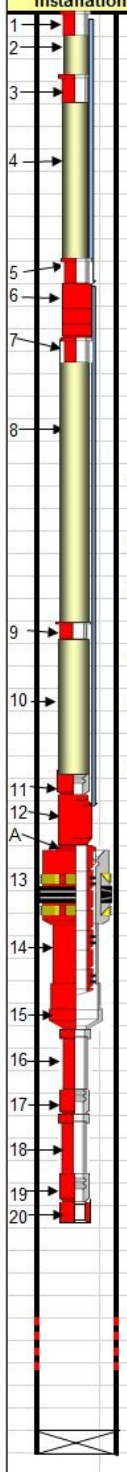
TUBING:
Subsurface Safety Valve at 250 ft
3-1/2", 9.3#/ft, L80 from surface to 8,530 ft
3-1/2", 9.3#/ft, SM2550 from 8,530 ft 8,620 ft
Premium thread utilizing metal to metal sealing in collars

NOTE: RKB = 25 ft

Figure 2 Detailed AGI#2 Equipment Tally

HALLIBURTON ENERGY SERVICES

Company Rep.	RUSSELL BENTLEY		
Tool Specialist	SCOTT WALTON		
Final Installation	LINAM AGI #2	Office	ODESSA
	LEA COUNTY, NEW MEXICO	SAP No.	901820451
	1/31/15		



Installation	Length	Depth	Description	OD	ID
	23.00		KB CORRECTION		
	0.50	21.54	TUBING HANGER		2.992
1	3.75	22.04	DOUBLE PIN ADAPTER	3.500	2.992
2	30.99	25.79	1 JOINT 3.5" 9.3# L-80 TS-HP TUBING	3.500	2.992
3	23.49	56.78	3.5" 9.3# L80 TS-HP TUBING SUBS(1.97, 3.89, 7.88, 9.75)	3.500	2.992
4	216.24	80.27	7 JOINT 3.5" 9.3# L-80 TS-HP TUBING	3.500	2.992
5	3.91	296.51	3.5" 9.3# X-OVER SUB TS-HP BOX X VAMTOP PIN	3.500	2.992
6	6.19	300.42	SCHLUMBERGER 3.5" PENNICLE 15 Tubing Retrievable Safety	5.700	2.562
			Valve SN-H125-0049 2.56 DS profile 15,000# W/P VAMTOP		
7	4.00	306.61	3.5" 9.3# X-OVER SUB VAMTOP BOX X TS-HP PIN	3.500	2.992
8	8239.74	310.61	268 JOINTS 3.5" 9.3# L80 TS-HP TUBING	3.500	2.992
9	4.00	8,550.35	X-OVER PUP JOINT 3.5" 9.3# TS-HP X 3.5" 9.3# VAMTOP	3.930	2.992
10	129.47	8,554.35	3 JOINTS 3.5" 9.3# VAMTOP NICKEL ALLOY TUBING	3.500	2.992
11	1.93	8,683.82	HALLIBURTON 2.562 X 3.5# 9.3# L-80 VAM TOP LANDING	3.930	2.562
			NIPPLE (811R25635)(102204262)(SN-G3364192-1) NICKEL ALLOY 925		
12	4.25	8,685.75	SCHLUMBERGER P-T RECEPTACLE ALLOY PN 101643587 REV-AA	4.910	2.992
a-2			SN C14GM-1026 WO ID-6441704 3.5" 9.2# SGM ASSY SQ1		
			DRIFT OD-5.227 DRIFT ID-2.867		
A			HALLIBURTON SEAL ASSEMBLY		
a-1	1.76	8,690.00	STRAIGHT SLOT LOCATOR 3.5" VAMTOP X 3.5" 10.2# VAMINSIDE	4.450	2.883
			INCOLOY 925 (212S4042-D)(188825)(SN-G3362241-3)		
a-2	2.00	8,691.76	2 -SEAL UNIT 4" X 3.5" 10.2 VAMINSIDE NICKEL ALLOY 925	3.970	2.883
			MOLDED AFLAS SEALS 4.07 OD, 8000 PSI		
			(812MSA40003-D)(102133617)(G3362236-7 & G3362236-9)		
a-3	4.05	8,693.76	EXTENSION 3.5" 10.2# VAMINSIDE NICKEL ALLOY 925	3.840	2.902
			(212X38814-D) (158726)(SN-G3362256-2)		
a-4	3.00	8,697.81	3 -SEAL UNIT 4" X 3.5" 10.2 VAM TOP NICKEL ALLOY 925	3.970	2.883
			MOLDED AFLAS SEALS 4.07 OD, 8000 PSI		
			(812MSA40003-D)(102133617)(SN-G3362236-6 G3362236-8 G3362236-5)		
a-5	0.54	8,700.81	MULE SHOE GUIDE 3.5" 10.2# VAMINSIDE NICKEL ALLOY 925	3.960	2.972
			(812G40137-D) (102133560)(SN-3362243-2)		
			TUBING LANDED IN HANGER WITH 40000# COMPRESSION		
			PICK UP WEIGHT IS 100,000# SLACK OFF IS 100,000#		
			HALLIBURTON PACKER ASSEMBLY		
13	3.11	8,690.00	HALLIBURTON 7" 26-32# BWD PERMINANT PACKER WITH	5.875	4.000
			4" BORE, 4.75" 8UN THREAD, INCOLOY 925		
			(212BWD70412-D)(101303583)(SN C3121028-1)		
			WAS RUN ON WIRELINE AND TOP @ 8690'		
14	7.45	8,693.11	SEAL BORE EXTENSION 4" X 8' INCOLOY 925 4.75 8UN PXP	5.030	4.000
			(PN212C7674)(120051359)(SN-G3364190)		
15	0.85	8,700.56	X-OVER 4 75" 8UN BOX X 3.5" 9.3# VAM INCOLOY 925	5.660	2.992
			(212N100131)(101719647)(SN-G3362251-2)		
16	6.34	8,701.41	PUP JOINT 3.5" 9.3# VAM TOP INCOLOY 925 WITH COUPLING	3.520	2.992
17	1.30	8,707.75	HALLIBURTON 2.562" X 3.5" VAMTOP LANDING NIPPLE	3.930	2.562
			(811X25635) (102204262) (S.N. G3364192-8) NICKEL ALLOY 925		
18	6.34	8,709.05	PUP JOINT 3.5" 9.3# VAM INCOLOY 925 WITH COUPLING	3.520	2.992
19	1.33	8,715.39	HALLIBURTON 2.562" X 3.5" VAMTOP LANDING NIPPLE	3.930	2.562
			(811X25635) (102204262) (S.N. G3364192-9) NICKEL ALLOY 925		
20	0.60	8,716.72	WIRELINE RE-ENTRY GUIDE 3.5" 9.3# VAM INCOLOY 925	3.960	2.972
		8,717.32	BOTTOM OF ASSEMBLY		
			CASING - 7" 26# L80 STC 0'-9100'		
			PERFS - 8710' TO 9085'		
			7" PBTD - 9100'		
			TD - 9100		
			DIESEL USED FOR PACKER FLUID		

Sante Fe Main Office
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General Information
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Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

COMMENTS

Action 174710

COMMENTS

Operator: DCP OPERATING COMPANY, LP 2331 Citywest Blvd Houston, TX 77042	OGRID: 36785
	Action Number: 174710
	Action Type: [C-103] NOI General Sundry (C-103X)

COMMENTS

Created By	Comment	Comment Date
pgoetze	Already been approved. I'll check with the case file, but this was provided through the Engineering e-mail. PRG	11/15/2023

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CONDITIONS

Created By	Condition	Condition Date
mgebremichael	None	6/11/2025