J. Scott Hall
Senior Attorney
LOGOS Resources II, LLC
317 Paseo de Peralta
P. O. Box 1946
Santa Fe, NM 87504
Office: 505.303.7236
Mobile: 505.670.7362
shall@logosresourcesllc.com

September 14, 2021

Re: NMOCD Case No. 22155
Application of LOGOS Operating, LLC for Authorization to Inject
And for Approval of an Enhanced Recovery Pilot Project, and for an
Exception to the Project Area Formation Provisions of NMAC 19.15.26.8,
San Juan County, New Mexico

Attn: Ms. Marlene Salvidrez

Dear Ms. Salvidrez:

As requested by Mr. Lamkin at the September 9, 2021 hearing in the above matter, the following materials are being filed in the case file via the Division's Hearings portal: (1) Proposed wellbore schematic, and (2) compression parameters and calculations used to predict a maximum discharge pressure of 200 psi using a stream of 65% CO2.

Copies of these materials will be provided to counsel for the Division and Hilcorp Energy by separate email.

Thank you.

J. Scott Hall
Senior Attorney

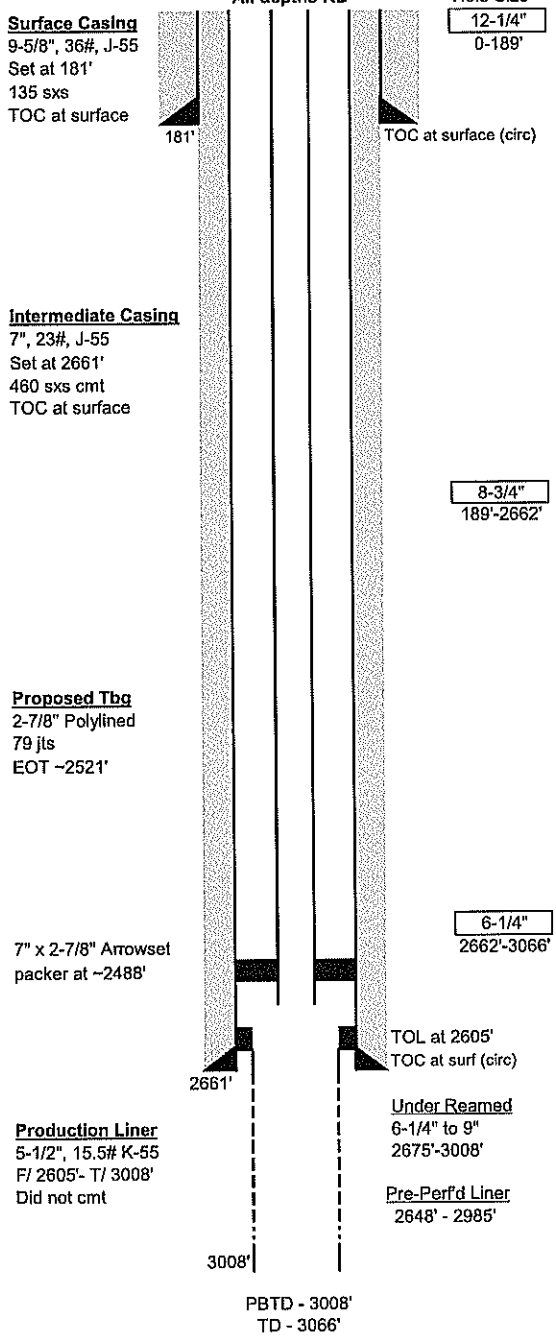
Encl.

LOGOS RESOURCES II, LLC

Proposed Wellbore Schematic

Well Name: Quinn 338S
Location: Sec 7, T-31N, R-08W 1690' FSL & 1045' FWL
County: San Juan
API #: 30-045-32527
Co-ordinates: Lat 36.9097176, Long -107.7195969 NAD83
Elevations: GROUND: 6112'
KB: 6125'
Depths (KB): PBTD: 3008'
TD: 3066'

Date Prepared: 9/24/2020 Moss
Reviewed By: 10/22/2020 Gomez
Last Updated: 9/8/2021 Gomez
Spud Date: 5/13/2006
Completion Date: 7/6/2006
Last Workover Date: 8/18/2008



Surface Casing: (5/14/06)
Drilled a 12-1/4" surface hole to 189'. Set 9-5/8", 36#, J-55 casing at 181'.
Cmt'd with 135 sxs Type III + 3%CaCl + 1/4#/sk Celloflake , circ 11 bbls cmt to surface

Intermediate Casing: (5/18/06)
Drilled a 8-3/4" intermediate hole to 2662'. Set 7", 23#, J-55 csg at 2661'
Cmt lead w/ 360 sxs Prem lite + 3% CaCl + 1/4#/sk Celloflake + 5#/sk LCM-1
+ 0.4% FL-52 + 8% bentonite + 0.4% sodium metasilicate
Cmt tail w/ 100 sxs Type III + 1% CaCl + 1/4#/sk Celloflake + 0.2% FL-52
Circ 33 bbls cmt to surface

Production Casing Liner: (7/06/06)
Drilled a 6-1/4" production hole to 3066'. Under reamed 6-1/4" to 9" F/ 2675' - T/ 3008'.
Set 10 jnts, 5-1/2", 15.5#, K-55. From top to bottom: blank, 8 pre-perf'd, blank.
Liner set F/ 2605' - T/ 3008'. Did not cmt

Proposed Tubing: (2021)	Length (ft)
KB	13
(~78) 2-7/8" Polylined tubing joints	2474
(1) On/Off Tool	1
(1) 7" x 2-7/8" AS1X packer w/ f nipple	1
(1) 2-7/8" Polylined tubing joint	32
Approximately Set at:	2521 ft

Perforations: (07/06/06)
Perforated liner: 2648-2985, 2SPF, 674 holes, 0.5".
Liner jnts top to bottom: 1 blank, 8 pre-perf'd, 1 blank.

Formations:

Ojo Alamo-	1675'
Kirtland-	1736'
Fruitland Coal-	2448'
Pictured Cliffs -	2998'

Workover History:
(05/17/07) Replaced pump
(07/10/07) Pump was found stuck with coal fines. Tagged fill at 2993', C/O to PBTD. TOL has a tight spot. Ran a 24' muleshoe BHA landed EOT at 2988' w/ SN at 2963'. Replaced pump.
(07/31/07) Tbg jt #74 had a collar leak and was replaced, as well as 8 plugged tbg joints and 23' MA, Landed EOT at 2972' w/ SN at 2948'.
(08/18/08) Replaced pump w/ 2"x1-1/2"x14' top hold down pump dressed w/ 4' Farr plunger

****Max deviation 1.25 degrees at 662'**

LeROI
by Gardner Denver

sales@leroigas.com
www.leroigas.com

Date:	6/25/2021 , 11:05 AM	**Case Description:**	CASE #1
Customer/End-User:		**Project Name:**	
Packager/OEM:		**Site Location:**	

Unit Performance

Gas Flow:	Mscfd	215.92	**Oil Heat Load:**	BTU/min	2156.73
Shaft Power:	HP	61.23	**Oil Inj. Diff.:**	°F	31.57
Oil Injection Temp.:	°F	178.43	**Oil Flow:**	gal/min	18.96

ERRORS/NOTES:

Unit Information: HG12150H5I(E)

Maximum Discharge Pressure:	psiG	350.00
Maximum Discharge Temperature:	°F	250.00
Maximum Shaft Power:	HP	125.00
Minimum Oil Flow:	gal/min	8.00
Oil Orifice/Oil Pump:		1/4in orifice
Torsional Inertia:	Lbm-ft²	1.63
Fan offered:		Yes, but not using it

Environmental Conditions

Suction Temperature:	°F	95.00	**Shaft Speed:**	RPM	1780
Suction Pressure:	psiG	8.00	**@ Flange:**	psiG	7.50
Discharge Pressure:	psiG	200.00	**@ Flange:**	psiG	205.00
Discharge Temperature:	°F	210.00			
Suction Pressure Drop:	psi	0.50			
Discharge Pressure Drop:	psi	5.00			

Site Information

Elevation:	ft	6500.00	**Base Temp.**	°F	60.00
Atmospheric Pressure:	psiA	11.58	**Base Press.**	psiA	14.70

Gas Analysis – ProSim Thermodynamics (100% R.H.)

Gas	Amount
CARBON DIOXIDE:	100
TOTALS (%):	**100**
Specific Gravity:	1.4861
K Value (Cp/Cv @ 150 °F):	1.2937
Mole Weight:	43.0462

Stage Data:		Stage 1	Stage 2	
Internal Ratio:		5		
Rotor Diameter:	mm	127.500		mm
Gear Ratio:		1.501		
Versatrol Ports Available:		2	N/A	
Versatrol Ports Open:		0	N/A	
Turn Valve Setting:	%	N/A	N/A	%
Tip Speed:	m/sec	17.836		m/sec
Suction Pressure:	psiG	8.00		psiG
Discharge Pressure:	psiG	200.00		psiG
Suction Temperature:	°F	95.00		°F
Discharge Temperature:	°F	210.00		°F
Power:	HP	61.23		HP

All power and flow values are +/- 5%

NOTES

-Minimum oil viscosity is 15 centistokes at injection temperature.
-Higher viscosity oil may cause higher than predicted shaft power.
-Discharge temperatures between 230 °F and 250°F are acceptable for certain applications. Consult the factory if this condition is required.

Report made with version 1.11.1.0

LeROI Screw Compressor Performance Program (Ver. 3.0.2.0) 9/14/2021 11:49:02 AM

Tabular Report

INQUIRY

Job No:

Customer Name:
Site Name:

COMPRESSOR

Model: HG12168
Gear Ratio: 1.682 **PREMIUM**
JShaft K (in-lb/rad): 1.830E+6
Rotor Diameter (mm): 128
Max. Allow. Pressure (psig): 350
Minimum Oil Flow (gpm): 8.0

Internal Ratio: High
Oil Orifice/Pump: 3/16" orifice
WR^2 (lb-ft^2): 2.0
Number of Versatrol Ports: 2
Maximum Power (hp): 125
Max. Discharge Temperature (F): 230

Input Speed (rpm): 1800

Tip Speed (m/s): 20

CONDITIONS

Elevation (ft): 6000
Suction Temperature (F): 80
Suction Pressure (psig): 8.0
Pkg. Suct. Press. Drop (psi): 1.0
Oil Specific Gravity: 0.90

Atmospheric Pressure (psi): 11.8
Discharge Temperature (F): 180
Discharge Pressure (psig): 200.0
Pkg. Dis. Press. Drop (psi): 6.0
Oil Specific Heat (Btu/lb/F): 0.48

TABULAR PERFORMANCE

Ps psig	Pd psig	T Inj degF	Flow mscfd	Power hp	Ports Open	Int. Ratio	Oil gpm
8.0	200.0	119	248	66.0	0	High	10.7
8.0	210.0	117	246	69.4	0	High	11.0
9.0	200.0	118	262	67.1	0	High	10.7
9.0	210.0	116	260	70.5	0	High	11.0

Inlet	Suction	Discharge	Mcfd		Injection
Pressure (PSIG)	75	560	1100		Pressure (PSIG)
		SG	Btu		
CO2	23.69%	0.359939	0		CO2
C1	74.93%	0.415037	758.5439		C1
C2	1.07%	0.011088	18.94412		C2
C3	0.22%	0.003395	5.623884		C3
iC4	0.03%	0.000582	0.945233		iC4
nC4	0.02%	0.000482	0.784763		nC4
iC5	0.01%	0.000125	0.200508		iC5
nC5	0.00%	4.98E-05	0.080359		nC5
C6+	0.00%	0.000119	0.190676		C6+
N2	0.03%	0.000261	0		N2
Totals	100.00%	0.791078	785.3134		Totals

Suction	Discharge	Mcfd
8	200	250
	SG	Btu
64.953%	0.986961	0
34.792%	0.192713	352.2122
0.0207%	0.000215	0.367175
0.2070%	0.003152	5.220377
0.0030%	6.02E-05	0.097783
0.0020%	4.01E-05	0.065397
0.0010%	2.49E-05	0.040102
0.0063%	0.000157	0.253132
0.0010%	2.98E-05	0.047669
0.014%	0.000135	0
100.000%	1.183488	358.3038

Fuel			
		SG	Btu
CO2	11.374%	0.172828	0
C1	86.908%	0.481383	879.8016
C2	1.3250%	0.013756	23.50277
C3	0.2810%	0.004278	7.086598
iC4	0.0370%	0.000743	1.205987
nC4	0.0300%	0.000602	0.980954
iC5	0.0060%	0.000149	0.240609
nC5	0.0030%	7.47E-05	0.120539
C6+	0.0050%	0.000149	0.238345
N2	0.031%	0.0003	0
Totals	100.000%	0.674263	913.1774

Constants

	14.73 D	
	Btu/Cf	SG
CO2		1.5195
C1	1,012.3	0.5539
C2	1,773.8	1.0382
C3	2,521.9	1.5225
iC4	3,259.4	2.0068
NC4	3,269.8	2.0068
iC5	4,010.2	2.4911
nC5	4,018.0	2.4911
C6	4,766.9	2.9754
N2		0.9672