

# Bureau of Land Management

Amarillo Field Office

Helium Operations

Statistical Report

for

January - 2017



## *Distribution:*

Fluid Minerals Group Manager, Washington Office  
NMSO, New Mexico State Director  
NMSO, Associate State Director  
NMSO, Petroleum Engineer  
Field Manager, Amarillo Field Office  
Assistant Field Managers (3)  
Team Leaders  
-Federal Leased Lands  
-Resources Evaluation & Gas Analysis  
-Division Of Helium Operations, -  
Engineering and Technical Support

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Amarillo, Texas

Compiled by: *Joan Grochowina*

Issued: May 11, 2017

**REVISED**

**"Please Note: Data in this report is accurate as of print date; however all data is subject to change."**

Approved for Distribution: Joan Grochowina  
Helium Storage Analyst, AmFO

Date: June 9, 2017

Table 1 - Summary of Helium Operations

January - 2017

**Helium Enrichment Unit Operations**

Gas Processed	Month Gross Volume	Month Net Helium	Average Percent	Gross FYTD	Net FYTD
Measured Plant Feed (Mcf*)	433,492	73,167	16.88%	1,918,615	321,506
Helium Product (Mcf*)	99,251	72,833	73.38%	430,396	319,781
Residue Natural Gas (Mcf*)	223,640	0	00.00%	995,985	24

\* Volumes in Mcf at 14.65 psia & 60°F

**Natural Gas & Liquids Produced**

Gas Processed	Month	FYTD
Natural Gas Sales (Mcf***)	244,882	1,087,276
NGL Sales (gallons)	92,161	368,635

\*\*\* Volumes in Mcf at 14.73 psia & 60°F

**Bush Dome Reservoir Operations**

Conservation gases from all sources	Month Gross Volume	Month Net Helium	Average Percent	Gross FYTD	Net FYTD
Total Withdrawn (Mcf*)	462,651	77,174	16.68%	2,040,645	336,922
Crude Injection (Mcf*)	0	0	00.00%	9,764	7,204
Crude Production (Mcf*)	0	0	00.00%	0	0

\* Volumes in Mcf at 14.65 psia & 60°F

**Storage Operations**

Conservation Helium	Volume Outstanding	Month	FYTD	CYTD	Cumulative
Conservation Crude Sale Volume Sold/Paid (Mcf*)		0	825,000	0	21,952,729
Conservation Crude Sale Volume Transferred (Mcf*)	15,000	0	825,000	0	21,937,729
Conservation Helium in Storage (EOM) (Mcf*)		4,445,336			

\* Volumes in Mcf at 14.65 psia & 60°F

**In Kind Helium**

	Month	FYTD	CYTD	Cumulative
Sale Volumes Transferred (Mcf*)	35,094	74,669	35,094	3,460,147
Sale Volumes Outstanding (Mcf*)	3,789			

\* Volumes in Mcf at 14.65 psia & 60°F

**Private Company Helium Storage Contracts**

Contact Activity	Month Gross Volume	Month Net Helium	Average Percent	Annual Helium FYTD
Crude Acquired (Mcf*)	28,889	19,241	66.60%	111,009
Crude Disposed (Mcf*)	127,475	91,815	72.03%	402,607
Net Balance (Mcf*)	(98,586)	(72,574)		(291,598)
Balance of Stored Helium End Of Month (Mcf*)		3,353,668		

\* Volumes in Mcf at 14.65 psia & 60°F

**Revenue / Charges**

Helium Storage Contracts (Charges Billed (\$))	Month	FYTD
Storage Fees Billed (\$)	\$707,780	\$2,760,972
Reservoir Management Fees Billed (\$)	\$172,999	\$518,998

**Field Compressor Charges (Charges Billed (\$))**

	Month	FYTD
Funded by the Refiners (provides for booster compression services)	\$0	\$0
Cliffside Refiners, LP, by Agreement #GDA010003 (reimburses BLM for fuel, labor, supplies, etc.)	\$0	\$0
Net-Total (Funded by the Refiners for compression costs.)	\$0	\$0

**Enrichment Unit Charges (Charges Billed (\$))**

	Month	FYTD
Reservoir Management Fees (RMF)	\$172,999	\$518,998
Total operating costs	(\$786,734)	(\$3,495,932)
Sub Total - Items provided by BLM	\$276,774	\$1,456,093
Total - Cliffside Refiners, LP, GDA030001	(\$509,960)	(\$2,039,839)

**Conservation Helium - Natural Gas - Liquid Sales (Charges Billed (\$))**

	Month	FYTD
Conservation Crude Helium Sales	\$0	\$0
In Kind Sales	\$0	\$3,090,475
Natural Gas & Liquid Sales	\$781,119	\$3,145,647

**Helium Resources Evaluation**

	Month	FYTD
Revenue Collected from Federal Lease Holds	\$1,381,587	\$5,302,713
Helium Sample Collection Report for month	Submitted - 0	Received - 0
		Analyzed - 19

\*Rounded to nearest dollar

Table 2 - Bush Dome Reservoir Operations

January - 2017

		Gross Withdrawal		Net Helium Withdrawal		Nitrogen		Methane	Methane	Ethane plus		Other (CO2, Ar, H2)	
		Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative
<b>TOTAL</b>		<b>462,651</b>	<b>228,273,291</b>	<b>77,174</b>	<b>42,648,198</b>	<b>115,654</b>	<b>56,260,292</b>	<b>241,405</b>	<b>115,747,673</b>	<b>24,404</b>	<b>11,701,492</b>	<b>4,015</b>	<b>1,915,636</b>
BIVINS A-3	Jan-17	0	10,961,112	0	3,548,629	0	2,772,147	0	4,159,384	0	407,301	0	73,653
BIVINS A-6	Jan-17	36,224	11,749,207	17,380	6,955,581	9,010	2,888,267	8,661	1,682,490	908	167,045	265	55,824
BIVINS A-13	Jan-17	22,764	8,721,948	7,790	4,540,900	5,655	2,240,969	8,236	1,700,303	914	188,981	170	50,796
BIVINS A-14	Jan-17	27,437	9,825,649	8,318	5,582,303	6,740	2,489,479	10,963	1,529,467	1,173	165,677	243	58,724
BIVINS A-4	Jan-17	32,796	13,748,643	3,785	2,420,803	7,914	3,331,069	18,795	7,154,479	1,958	719,527	344	122,765
BUSH A-2	Jan-17	37,814	13,458,600	3,486	1,979,838	9,499	3,301,952	22,178	7,313,931	2,397	750,937	253	111,942
Injection	Jan-17	0	66,474,735	0	48,019,788	0	17,121,580	0	780,676	0	37	0	552,655
inj Bivins A-3	Jan-17	0	(25,652,315)	0	(18,384,452)	0	(6,554,549)	0	(332,777)	0	0	0	(380,537)
inj Bivins A-6	Jan-17	0	(24,412,686)	0	(17,669,978)	0	(6,486,588)	0	(143,192)	0	(72)	0	(112,856)
inj Bivins A-13	Jan-17	0	(6,490,417)	0	(4,706,191)	0	(1,656,853)	0	(122,391)	0	(2)	0	(4,980)
inj Bivins A-14	Jan-17	0	(6,501,333)	0	(4,767,421)	0	(1,602,106)	0	(126,303)	0	(7)	0	(5,497)
inj Bivins A-4	Jan-17	0	(2,527,801)	0	(1,848,815)	0	(601,353)	0	(42,016)	0	0	0	(35,617)
inj Bush A-2	Jan-17	0	(867,658)	0	(625,258)	0	(215,406)	0	(13,980)	0	0	0	(13,015)
Production	Jan-17	0	1,254,876	0	924,742	0	270,231	0	48,129	0	3,199	0	8,575
BIVINS A-1	Jan-17	0	2,686,608	0	48,896	0	636,995	0	1,798,415	0	175,704	0	26,597
BIVINS A-2	Jan-17	18,615	14,131,223	624	1,884,992	4,354	3,459,523	12,204	7,882,330	1,251	786,254	182	118,124
BIVINS A-5	Jan-17	46,861	16,274,469	8,868	2,088,719	12,022	3,992,445	23,237	9,132,650	2,401	920,058	333	140,597
BIVINS A-7	Jan-17	16,029	11,943,132	4,716	2,824,877	4,185	3,008,724	6,340	5,464,644	684	557,769	104	87,118
BIVINS A-9	Jan-17	29,498	10,622,689	690	203,402	7,560	2,615,811	18,938	6,998,313	2,062	708,402	248	96,760
BIVINS A-11	Jan-17	4,208	6,571,440	125	142,795	1,069	1,635,618	2,683	4,289,926	291	441,180	40	61,922
BIVINS A-15	Jan-17	29,694	10,063,503	518	434,866	6,955	2,396,480	19,803	6,478,249	2,055	649,305	362	104,603
BIVINS B-1	Jan-17	29,075	8,281,233	669	305,677	7,368	2,009,482	19,623	5,340,505	1,273	541,817	142	83,752
BIVINS B-2	Jan-17	22,691	6,866,214	430	129,411	5,766	1,721,294	14,541	4,458,827	1,551	459,427	403	97,253
BUSH A-1	Jan-17	0	5,721,962	0	104,140	0	1,356,677	0	3,830,281	0	374,216	0	56,647
BUSH A-3	Jan-17	24,140	12,320,620	8,109	2,932,153	6,147	3,048,133	8,767	5,659,239	929	573,584	188	107,511
BUSH A-4	Jan-17	17,747	8,780,815	1,645	1,592,732	4,552	2,197,179	10,362	4,471,336	1,086	456,638	101	62,930
BUSH A-5	Jan-17	37,906	16,898,096	9,461	3,893,770	9,746	4,243,467	17,024	7,846,843	1,475	797,127	200	116,889
BUSH A-8	Jan-17	14,998	4,388,068	278	80,448	3,726	1,063,710	9,721	2,896,021	1,023	292,444	250	55,445
BUSH A-9	Jan-17	0	3,860,915	0	105,037	0	930,915	0	2,537,187	0	253,463	0	34,312
BUSH A-11	Jan-17	10,969	4,625,506	224	134,263	2,637	1,106,436	7,212	3,024,338	743	307,186	154	53,283
BUSH B-1	Jan-17	3,185	3,358,986	57	63,028	750	796,987	2,117	2,244,509	230	221,585	31	32,878
FUQUA A-1	Jan-17	0	2,954,098	0	53,854	0	702,798	0	1,975,175	0	193,573	0	28,699
FUQUA A-2	Jan-17	0	132,119	0	2,404	0	31,322	0	88,458	0	8,637	0	1,297
FUQUA A-3	Jan-17	0	9,303,912	0	577,005	0	2,277,687	0	5,790,357	0	583,701	0	75,162
TT Fuel	Jan-17	0	0	0	0	0	0	0	0	0	0	0	0
field-wide pct				16.68%	18.68%	25.00%	24.65%	52.18%	50.71%	5.27%	5.13%	0.87%	0.84%

Latest estimates of reserves and feed to HEU

Based on NITEC's 2003 reserves study  
from NITEC's interim report

As of EOM Jan-17 Volumes in BCF

Initial Gas In Place	330.040	
Produced 1924 to 1961	48.830	
Injected 1924 to 1961	0.450	
Remaining Gas In Place 1961	281.660	
Left Behind Pipe, 1961	82.060	=====> 1.500 BCF of contained helium
Remaining in Place, 1961	199.600	
Gas In Place 1961	199.600	
Produced 1961 to July 2002	82.450	
Injected 1961 to July 2002	64.510	Net Helium
Remaining Gas In Place July 2002	181.660	33.997
Produced July 2002 through Dec 2002	1.096	0.743
Production 2003 - 16	95.429	23.389
Injection 2003 - 16	(1.423)	(1.089)
Produced to Date 2017	0.463	0.077
Injected to Date 2017	0.000	0.000
Amount of Raw Gas Available to CHEU	86.095	=====> 10.876 total helium in reservoir
Estimated Bottom Hole Pressure	317.080	est z-factor 0.980

\* All volumes on Table 2 are reported in Mcf at 14.65 psia & 60°F

### Table 3 - Gas Volumes & Inventory

January - 2017

#### Crude Helium Enrichment Unit Operations

		Gross Withdrawal		Net Helium Withdrawal		Nitrogen		Methane		Ethane plus		Other (CO <sub>2</sub> , Ar, H <sub>2</sub> )	
		Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative
Measured Feed	Jan-17	433,492	93,181,166	73,167	22,630,904	108,310	23,363,501	225,424	41,919,080	22,824	4,464,135	3,768	803,546
Calculated Feed	Jan-17	464,175	93,057,195	78,299	22,626,308	116,007	23,328,821	241,440	41,818,453	24,404	4,479,645	4,025	803,968
Feed to Box	Jan-17	460,853	92,472,119	78,299	22,626,486	116,007	23,328,903	241,440	41,818,499	24,404	4,479,646	703	218,585
Cheu Product	Jan-17	99,251	28,513,800	72,833	22,252,820	23,565	5,501,538	2,214	560,986	3	764	637	197,693
Residue	Jan-17	223,640	41,686,738	0	2,063	4,578	1,028,512	199,175	36,988,117	19,887	3,666,788	0	1,258
Cold Box Vent	Jan-17	74,359	15,639,890	42	89,405	63,369	13,852,436	10,935	1,636,744	0	118	13	61,187
Flare/Boot Strap	Jan-17	74,359	6,156,138	42	50,184	63,369	5,107,438	10,935	898,913	0	93,583	13	6,021
Fuel From Cheu	Jan-17	7,808	1,268,421	4	389	202	37,184	6,298	1,028,610	1,305	202,238	0	0
Shrinkage/Loss	Jan-17	3,210	456,520	0	0	0	0	0	0	3,210	456,520	0	0
Unaccounted*	Jan-17	52,585	3,194,592	5,420	181,911	24,300	2,316,594	22,820	690,961	(0)	1,371	46	3,754

\*Before October 2004, the values are estimated

#### Storage Operations

##### Inventory (contained helium)

	Government	Private
Beginning inventory	4,482,648	3,391,148
net acceptances +	0	0
redeliveries	0	(72,574)
In Kind Transfers	(35,094)	35,094
Conservation Crude Sales	0	0
Gain/loss	(2,219)	
Ending Inventory	4,445,336	3,353,668
Total Helium in Reservoir	10,876,301	
Total Helium in Storage	7,799,004	
Helium in native gas	3,077,297	

##### Crude Helium Pipeline

	Gross	Net Helium	Percent
Beginning inventory	44,957	32,567	72.44%
Measured to Pipeline (Private Plants)	28,889	19,354	66.99%
Measured from Pipeline (Private Plant)	127,475	91,815	72.03%
HEU Production	99,251	72,833	73.38%
Injection	0	0	00.00%
Production	0	0	
Ending Inventory	42,676	30,720	71.98%
Gain/Loss	(2,946)	(2,219)	

#### Tuck Trigg Reservoir Operations

Native Gas (Gross)	Since Field		
	Month	Fiscal Year	Discovery
Total in place, beg. of period	5,198,688	5,198,688	5,890,000
Recoverable in place, beg. of period	4,528,688	4,528,688	5,220,000
Production during period to date	0	0	691,312
Total in place, end of month	5,198,688	5,198,688	5,198,688
Recoverable in place, end of month	4,528,688	4,528,688	4,528,688

\* All volumes on Table 3 are reported in Mcf at 14.65 psia & 60°F

Table 4 - In Kind Helium Sales

January - 2017

	NASA*	Navy*	Army*	Air Force*	DOE*	Other Fed*	Subtotal*	In Kind+	Charges Billed (\$)**		
<b>In Kind Helium</b>											
<b>AirGas South West, Contract no. INC98-0101</b>									(billed quarterly)		
Month											
FYTD											
<b>AirGas North Central, Contract no. INC98-0102</b>											
Month											
FYTD											
<b>AirGas Intermountain, Contract no. INC98-0103</b>											
Month											
FYTD											
<b>Air Liquide Helium America, Inc., Contract no. INC98-0104</b>											
Month											
FYTD											
<b>Air Products, L.P., Contract no. INC98-0105</b>											
Month											
FYTD											
<b>Linde Gas North America, LLC, Contract no. INC98-0106</b>											
Month											
FYTD											
<b>Corp Brothers, Inc., Contract no. INC98-0107</b>											
Month											
FYTD											
<b>FIBA Technologies, Inc., Contract no. INC98-0108</b>											
Month											
FYTD											
<b>General Air Service &amp; Supply Co., Contract no. INC98-0109</b>											
Month											
FYTD											
<b>Praxair, Inc., Contract no. INC98-0112</b>											
Month											
FYTD											
<b>United States Welding, Inc., Contract no. INC98-0113</b>											
Month											
FYTD											
<b>Matheson Tri-Gas, Inc., Contract no. INC98-0114</b>											
Month											
FYTD											
<b>GT &amp; S, Contract no. INC00-0115</b>											
Month											
FYTD											
<b>Global Gases America, Contract no. INC13-0116</b>											
Month											
FYTD											
<b>Total month</b>	0	0	0	0	0	0	0	0	\$0		
<b>Total FYTD</b>	18,488	0	0	0	0	18,703	37,191	36,617	\$3,090,475		
<b>Total CYTD</b>	0	0	0	0	0	0	0	0	\$0		
<b>Cumulative</b>	1,904,509	108,677	450	271,584	421,753	811,369	3,518,342	3,463,861	\$201,961,886		
<b>In Kind Transfers</b>								Month	FYTD	CYTD	Cumulative
Transferred								35,094	74,669	35,094	3,460,147
Volume outstanding								3,789			

\* Volumes in Mcf at 14.7 psia & 70°F  
 + Volumes in Mcf at 14.65 psia & 60°F

\*\*Rounded to nearest dollar

Table 5 - Conservation Crude Sales/Reserve Sell-down

January - 2017

## Helium &amp; Natural Gas Sales

	Award Volume*	Outstanding*	Sales*	Charges Billed (\$)**	
<b>Conservation Helium</b>				<b>(billed quarterly)</b>	
<b><u>Air Liquide Helium America, Inc.</u></b>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	335,217		335,217	\$25,454,815	
<b><u>Air Products, L.P.</u></b>					
Month	0	0	0	\$0	
FYTD	0	0	419,309	\$44,881,063	
Cumulative	8,448,745		8,448,745	\$610,716,090	
<b><u>Linde Gas North America, LLC</u></b>					
Month	0	0	0	\$0	
FYTD	0	0	140,334	\$15,015,738	
Cumulative	6,170,987		6,170,987	\$419,707,591	
<b><u>Keyes Helium Co., LLC</u></b>					
Month	0	0	0	\$0	
FYTD	0	0	21,844	\$2,337,308	
Cumulative	998,957		998,957	\$68,353,106	
<b><u>Matheson Tri-Gas, Inc.</u></b>					
Month	0	0	0	\$0	
FYTD	0	0	46,700	\$4,996,900	
Cumulative	328,700		328,700	\$34,316,400	
<b><u>Praxair, Inc.</u></b>					
Month	0	0	0	\$0	
FYTD	0	0	183,513	\$19,635,891	
Cumulative	5,403,189		5,403,189	\$404,125,671	
<b><u>Linde Gas, LLC discontinued 10 2008</u></b>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	200,000		200,000	\$11,035,000	
<b><u>Global Gases America</u></b>					
Month	0	0	0	\$0	
FYTD	0	0	13,300	\$1,423,100	
Cumulative	36,267		36,267	\$3,535,665	
<b><u>Airgas Merchant Gases</u></b>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	15,667		15,667	\$1,488,365	
<b><u>IACX Energy</u></b>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	15,000		15,000	\$1,575,000	
<b>Total month</b>	0	0	0		0
<b>Total FYTD</b>	0	0	825,000		\$0
<b>Total CYTD</b>	0	0	0		\$0
<b>Cumulative</b>	21,952,729		21,952,729		\$1,580,307,703
<b>Conservation Crude Transfers</b>		Month	FYTD	CYTD	Cumulative
Transferred		0	825,000	0	21,937,729
Volume outstanding		15,000			

\* Volumes in Mcf at 14.65 psia &amp; 60°F

## Natural Gas/Liquid Sales

	Natural Gas (Mcf)***	NGLs (gal)	Decatherms	Avg Btu Value	Charges Billed (\$)**	
<b><u>El Paso Natural Gas</u></b>		Provides Measured Firm/Interruptible Transportation Services			(billed monthly)	
Month	244,882	---	223,641	913	(\$27,997)	
FYTD	1,087,276	---	995,988	916	(\$111,988)	
Cumulative	41,169,824	---	44,950,528	1,092	(\$4,696,367)	
<b><u>Minerals Management Service</u></b>		No Longer Provides Natural Gas Marketing Services				
Cumulative	---	---	---	---	(\$179,913)	
<b><u>Tenaska</u></b>		Purchaser - Natural Gas			\$/Unit	
Month	---	---	235,600	\$3.157736	\$743,963	
FYTD	---	---	1,077,800	\$2.813650	\$3,032,552	
Cumulative	---	---	44,702,905	\$4.536468	\$201,966,728	
<b><u>Sandstone</u></b>		Purchaser - Natural Gas Liquids				
Month	---	92,161	9,530	\$6.836629	\$65,153	
FYTD	---	368,635	38,499	\$5.846472	\$225,083	
Cumulative	---	12,449,029	1,324,488	\$11.449086	\$15,164,177	
	Natural Gas (Mcf)***	NGLs (gal)	Purchased (Dth's)	\$\$ Per Unit (\$\$/Dth)	Total (\$\$)	
<b>Total month</b>	244,882	92,161	245,130	\$3.186548	<b>\$781,119</b>	
<b>Total FYTD</b>	1,087,276	368,635	1,116,299	\$2.817925	<b>\$3,145,647</b>	
<b>Total CYTD</b>	244,882	92,161	245,130	\$3.186548	<b>\$781,119</b>	
<b>Cumulative</b>	41,169,824	12,449,029	46,027,393	\$4.629443	<b>\$212,254,625</b>	

\*\*\* Volumes in Mcf at 14.73 psia &amp; 60°F

\*\*Rounded to nearest dollar

## Table 6 - Helium Resources Evaluation

January - 2017

All Volumes in Mcf at 14.7 psia & 70°F

<b>Revenue Collected From Federal Leaseholds</b>	Month*	FYTD*
Fee Sales & Royalties	\$1,380,821	\$5,271,621
Natural Gas Royalties (1)	\$0	\$0
Natural Gas Rentals	\$0	\$0
Other	\$31,092	\$118,675
<b>Revenue Collected from Federal Lease Holds</b>	<b>\$1,381,587</b>	<b>\$5,302,713</b>

\*Totals do not sum

<b>Helium Analysis and Evaluation</b>	Month	FYTD
Number of Sample Request Letters Sent	0	0
Number of Samples Received	0	0
Number of Samples Analyzed	0	0
Total Number of Samples Analyzed For Resources Division	1	1
Total Number of Other Samples Analyzed (2)	19	58

### U. S. Helium Production

<i>Domestic</i>	FY Volume	CY Volume
2012 Helium Sold	4,531,140	4,645,930
2013 Helium Sold	4,725,187	4,623,130
2014 Helium Sold	3,815,746	3,463,698
2015 Helium Sold	3,282,185	3,104,695
2016 Helium Sold	4,559,100	4,644,278
Estimated Helium Resources as of 12/31/2006 (Mcf)		732,000,000

	FY-2015	CY-2015
<b>U.S. Helium Exports</b> (3)	2,423,915	2,334,648
<b>US Helium Imports</b>	491,006	565,023

(1) Includes drip gas sales & other miscellaneous gas sales.

(2) Includes pipeline, field survey, and other requested analyses.

(3) Data from Department of Commerce - Bureau of the Census.

# Table 7 - Helium Storage Contract Activity

January - 2017

All Volumes in Mcf at 14.65 psia & 60°F

	1	2	3	4	5	6	7	8	9	10	11	
	Metered Gas						Transferred Gas		Stored Helium EOM	Charges	Billed	
	Gross Gas	Helium %	Helium	Helium			Helium	Month			Cumulative	Month
	Month		FYTD	CYTD	Cumulative		Month	Cumulative				
<b>Total All Contracts*</b>												
Crude Acquired	28,889	66.6%	19,241	111,009	19,241	32,011,780	58,879	56,706,634				
Crude Disposed	127,475	72.0%	91,815	402,607	91,815	51,934,857	23,785	30,841,146		\$707,780	Storage Fees	
Grade-A Rdlvrd	0		0	0	0	1,478,718				<u>\$172,999</u>	RMF Fees	
Net/Balance	(98,586)		(72,574)	(291,598)	(72,574)	(21,401,795)	35,094	25,865,488	3,353,668	\$880,779.59	\$3,279,970	
<b>Total Prior Contracts (TERMINATED)</b>												
Crude Acquired			0	0	17,406,129		0	18,196,898				
Crude Disposed			0	0	11,830,863		0	19,148,768				
Grade-A Rdlvrd			0	0	1,478,718							
Number of trailers			0	0	9,834				0			
<b>Linde Gas North America, LLC, Contract no. 3249</b>												
Crude Acquired												
Crude Disposed												
Net/Balance												
<b>Praxair, Inc., Contract no. 3251</b>												
Crude Acquired												
Crude Disposed												
Net/Balance												
<b>Air Products, L.P., Contract no. 3256</b>												
Crude Acquired												
Crude Disposed												
Net/Balance												
<b>IACX Energy, Contract no. 3297</b>												
Crude Acquired												
Crude Disposed												
Net/Balance												
<b>Pioneer Natural Resources USA, Inc, Contract no. 3286</b>												
Crude Acquired												
Crude Disposed												
Net/Balance												
<b>Keyes Helium Co., LLC, Contract no. 3287</b>												
Crude Acquired												
Crude Disposed												
Net/Balance												
<b>Air Liquide Helium America, Inc., Contract no. 3284</b>												
Crude Acquired												
Crude Disposed												
Net/Balance												
<b>Matheson Tri-Gas, Inc., Contract no. 3288</b>												
Crude Acquired												
Crude Disposed												
Net/Balance												
<b>Airgas Merchant Gases, Contract no. 3290</b>												
Crude Acquired												
Crude Disposed												
Net/Balance												
<b>Global Gases America, Contract no. 3293</b>												
Crude Acquired												
Crude Disposed												
Net/Balance												
<b>Linn Operating, Inc., Contract no. 3296</b>												
Crude Acquired												
Crude Disposed												
Net/Balance												

<b>Government Helium</b>	
Remaining Crude Acquired beginning of the month	4,482,648
Crude Disposed: In Kind Sales transferred for the month	(35,094)
Conservation Crude Sales/Reserve Sell Down transferred (mont	0
Gains and Loses for the month	(2,219)
Net/Balance of Purchased Helium Remaining for Sale	4,445,336

\*Includes In Kind and Conservation Crude transfers from Government storage

\*\*Rounded to nearest dollar



Table 8 - Compression & CHEU (C) January - 2017

Field/CHEU Compressor Operation	Month	FYTD	Cumulative
Spot gas fuel price *	\$3.16	\$2.87	\$4.84
Fuel used * (now includes field compression well head)	8,732	33,065	1,743,988
Field Compression Fuel Cost *	\$0	\$0	\$658,447
CHEU Compression Fuel Cost *	\$17,541	\$56,560	\$4,352,564
CHEU Process Fuel Cost *	\$10,052	\$38,223	\$2,911,897
Rental compressor(s) fuel consumed (well head)	\$0	\$0	\$207,234
Rental Compressor(s) helium in fuel (Mcf x \$\$)	\$0	\$0	\$315,893
Rental compressor(s) helium in fuel (Mcf)	0	0	3645
#1 Compressor run time *	744	2,648	104,914
#2 Compressor run time *	742	1,460	66,923
#3 Compressor run time *	0	1,150	60,474

\* Field/CHEU Compressor Operations based on Jan 17 activity

Field Compressor Charges	Charges Billed (\$)*		
Linde Gas North America, LLC, Contract no. 3249			
Praxair, Inc., Contract no. 3251			
Air Products, L.P., Contract no. 3256			
Keyes Helium Co., LLC, Contract no. 3287			
SubTotal - Cliffside Refiners, LP (provides both)	\$0	\$0	(\$11,422,651)
Cliffside Refiners, LP, GDA010003 (BLM provided)	\$0	\$0	\$2,880,795
Net Total - Cliffside Refiners, LP	\$0	\$0	(\$8,541,856)

\* BLM provided fuel cost is based on Dec 16 fuel consumed

\*Rounded to nearest dollar

Crude Helium Enrichment Unit	FYTD		Cumulative
CHEU Runtime	Runtime Hrs	Percent	Runtime Hrs
Processing feed gas	2,782	94.3%	115,351
Producing residue gas	2,726	92.3%	112,532
Producing helium product	2,631	89.1%	108,977
Producing natural gas liquids	2,677	90.7%	107,987

CHEU Charges	Charges Billed (\$)*		
	Month	FYTD	Cummulative
Reservoir Management Fees (RMF)	\$172,999	\$518,998	\$32,350,121
Total operating costs	(\$786,734)	(\$3,495,932)	(\$140,326,090)
Labor	\$161,237	\$644,946	\$14,983,562
Compressor fuel cost Dec 16	\$18,261	\$47,753	\$4,354,948
HEU fuel cost Dec 16	\$12,017	\$37,047	\$2,916,514
Electrical power cost Dec 16	\$1,678	\$392,020	\$20,843,001
Other	\$83,582	\$334,326	\$13,393,586
Sub Total - Items provided by BLM	\$276,774	\$1,456,093	\$59,700,966
Total - Cliffside Refiners, LP, GDA030001	(\$509,960)	(\$2,039,839)	(\$80,625,124)

\*Rounded to nearest dollar

CHEU Utility Usage	Month	FYTD	Cumulative
CheU Fuel Gas (Mcf) usage Jan 17	2,751	11,834	551,473
CheU Pure Water Usage (gallons) Jan 17	1,360	7,655	302,103
Electricity Metered (Kwh) consumed Dec 16	27,959	4,962,491	125,079,709