

# Bureau of Land Management

Amarillo Field Office

Helium Operations

Statistical Report

for

October - 2016



## *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: April 28, 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

October - 2016

**Helium Enrichment Unit Operations**

Gas Processed	Month	Month	Average Percent	Gross FYTD	Net FYTD
	Gross Volume	Net Helium			
Measured Plant Feed (Mcf*)	427,809	69,609	16.27%	427,809	69,609
Helium Product (Mcf*)	88,996	66,789	75.05%	88,996	66,789
Residue Natural Gas (Mcf*)	205,319	1	0.00%	205,319	1

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

**Natural Gas & Liquids Produced**

Gas Processed	Month	FYTD
Natural Gas Sales (Mcf***)	223,755	223,755
NGL Sales (gallons)	70,958	70,958

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

**Bush Dome Reservoir Operations**

Conservation gases from all sources	Month	Month	Average Percent	Gross FYTD	Net FYTD
	Gross Volume	Net Helium			
Total Withdrawn (Mcf*)	446,029	72,563	16.27%	446,029	72,563
Crude Injection (Mcf*)	0	0	00.00%	0	0
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*)		825,000	825,000	1,000,000	21,952,729
Conservation Crude Sale Volume Transferred (Mcf*)	15,000	825,000	825,000	1,000,000	21,937,729
Conservation Helium in Storage (EOM) (Mcf*)		4,533,761			

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

**In Kind Helium**

	Month	FYTD	CYTD	Cumulative
Sale Volumes Transferred (Mcf*)	0	0	97,171	3,385,478
Sale Volumes Outstanding (Mcf*)	41,841			

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

**Private Company Helium Storage Contracts**

Contact Activity	Month	Month	Average Percent	Annual Helium FYTD
	Gross Volume	Net Helium		
Crude Acquired (Mcf*)	51,639	34,262	66.35%	34,262
Crude Disposed (Mcf*)	135,483	97,842	72.22%	97,842
Net Balance (Mcf*)	(83,844)	(63,580)		(63,580)
Balance of Stored Helium End Of Month (Mcf*)		3,507,017		

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

**Revenue / Charges**

Helium Storage Contracts (Charges Billed (\$))	Month	FYTD
Storage Fees Billed (\$)	\$594,724	\$594,724
Reservoir Management Fees Billed (\$)	\$0	\$0

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)	\$0	\$0
Total operating costs	(\$908,722)	(\$908,722)
Sub Total - Items provided by BLM	\$398,762	\$398,762
Total - Cliffside Refiners, LP, GDA030001	(\$509,960)	(\$509,960)

Conservation Helium - Natural Gas - Liquid Sales (Charges Billed (\$))	Month	FYTD
Conservation Crude Helium Sales	\$0	\$0
In Kind Sales	\$0	\$0
Natural Gas & Liquid Sales	\$595,046	\$595,046

Helium Resources Evaluation	Month	FYTD
Revenue Collected from Federal Lease Holds	\$739,400	\$739,400
Helium Sample Collection Report for month	Submitted - 0	Received - 0
		Analyzed - 0

\*Rounded to nearest dollar

Table 2 - Bush Dome Reservoir Operations

October - 2016

		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>446,029</b>	<b>226,678,675</b>	<b>72,563</b>	<b>42,383,840</b>	<b>111,398</b>	<b>55,861,979</b>	<b>234,320</b>	<b>114,914,256</b>	<b>23,778</b>	<b>11,617,011</b>	<b>3,970</b>	<b>1,901,588</b>
BIVINS A-3	Oct-16	0	10,961,112	0	3,548,629	0	2,772,147	0	4,159,383	0	407,301	0	73,653
BIVINS A-6	Oct-16	34,735	11,638,997	16,541	6,900,274	8,667	2,860,973	8,390	1,658,205	880	164,523	256	55,023
BIVINS A-13	Oct-16	23,935	8,631,283	8,238	4,510,131	5,944	2,218,455	8,619	1,667,270	954	185,307	179	50,120
BIVINS A-14	Oct-16	28,506	9,716,910	8,997	5,549,335	7,011	2,462,754	11,067	1,486,037	1,181	161,019	250	57,765
BIVINS A-4	Oct-16	30,675	13,637,874	3,540	2,408,021	7,402	3,304,341	17,580	7,090,997	1,831	712,914	322	121,602
BUSH A-2	Oct-16	36,123	13,332,634	3,331	1,968,224	9,074	3,270,310	21,186	7,240,052	2,290	742,950	242	111,098
Injection	Oct-16	0	66,464,971	0	48,012,584	0	17,119,298	0	780,461	0	36	0	552,592
inj Bivins A-3	Oct-16	0	(25,652,315)	0	(18,384,452)	0	(6,554,549)	0	(332,777)	0	0	0	(380,537)
inj Bivins A-6	Oct-16	0	(24,402,922)	0	(17,662,775)	0	(6,484,304)	0	(142,978)	0	(71)	0	(112,794)
inj Bivins A-13	Oct-16	0	(6,490,417)	0	(4,706,191)	0	(1,656,853)	0	(122,391)	0	(2)	0	(4,980)
inj Bivins A-14	Oct-16	0	(6,501,333)	0	(4,767,421)	0	(1,602,106)	0	(126,303)	0	(7)	0	(5,497)
inj Bivins A-4	Oct-16	0	(2,527,801)	0	(1,848,815)	0	(601,353)	0	(42,016)	0	0	0	(35,617)
inj Bush A-2	Oct-16	0	(867,658)	0	(625,258)	0	(215,406)	0	(13,980)	0	0	0	(13,015)
Production	Oct-16	0	1,254,876	0	924,742	0	270,231	0	48,129	0	3,199	0	8,575
BIVINS A-1	Oct-16	0	2,686,608	0	48,896	0	636,995	0	1,798,415	0	175,704	0	26,597
BIVINS A-2	Oct-16	17,987	14,069,081	603	1,882,910	4,207	3,444,988	11,792	7,841,590	1,209	782,078	176	117,515
BIVINS A-5	Oct-16	28,928	16,141,150	5,436	2,063,606	7,394	3,958,325	14,351	9,066,521	1,527	913,092	220	139,607
BIVINS A-7	Oct-16	16,456	11,883,654	4,841	2,807,379	4,297	2,993,194	6,508	5,441,121	703	555,229	107	86,731
BIVINS A-9	Oct-16	23,973	10,535,973	554	201,392	6,147	2,593,582	15,404	6,942,627	1,666	702,342	201	96,029
BIVINS A-11	Oct-16	18,688	6,523,405	549	141,379	4,754	1,623,395	11,919	4,259,316	1,286	437,858	181	61,457
BIVINS A-15	Oct-16	29,086	9,964,732	510	433,140	6,812	2,373,330	19,404	6,412,400	2,002	642,464	358	103,399
BIVINS B-1	Oct-16	29,187	8,181,458	671	303,382	7,396	1,984,199	19,698	5,273,167	1,278	537,446	143	83,263
BIVINS B-2	Oct-16	23,155	6,787,903	439	127,926	5,882	1,701,384	14,846	4,408,654	1,578	454,073	410	95,866
BUSH A-1	Oct-16	0	5,721,962	0	104,140	0	1,356,677	0	3,830,281	0	374,216	0	56,647
BUSH A-3	Oct-16	23,052	12,237,648	7,914	2,903,841	5,864	3,026,974	8,181	5,629,463	901	570,497	191	106,873
BUSH A-4	Oct-16	17,116	8,721,471	1,587	1,587,231	4,390	2,181,957	9,994	4,436,685	1,047	453,006	98	62,592
BUSH A-5	Oct-16	32,915	16,772,749	8,215	3,862,484	8,462	4,211,240	14,782	7,790,550	1,285	792,257	170	116,219
BUSH A-8	Oct-16	17,724	4,331,183	328	79,395	4,399	1,049,577	11,496	2,859,154	1,206	288,559	294	54,499
BUSH A-9	Oct-16	0	3,860,915	0	105,037	0	930,915	0	2,537,187	0	253,463	0	34,312
BUSH A-11	Oct-16	9,110	4,579,912	186	133,333	2,190	1,095,475	5,990	2,994,360	617	304,100	128	52,644
BUSH B-1	Oct-16	4,679	3,347,406	84	62,821	1,104	794,256	3,111	2,236,815	336	220,749	45	32,765
FUQUA A-1	Oct-16	0	2,954,098	0	53,854	0	702,798	0	1,975,175	0	193,573	0	28,699
FUQUA A-2	Oct-16	0	132,119	0	2,404	0	31,322	0	88,458	0	8,637	0	1,297
FUQUA A-3	Oct-16	0	9,303,912	0	577,005	0	2,277,687	0	5,790,357	0	583,701	0	75,162
TT Fuel	Oct-16	624	0	0	0	26	0	509	0	88	0	0	0
field-wide pct				16.27%	18.70%	24.98%	24.64%	52.53%	50.69%	5.33%	5.12%	0.89%	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 Oct-16 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 - 15	90.147	23.308
Injection 2003 - 15	(1.394)	(1.137)
Produced to Date 2016	4.151	0.728
Injected to Date 2016	(0.019)	(0.014)
Amount of Raw Gas Available to CHEU	87.680	=====> 10.369 total helium in reservoir
Estimated Bottom Hole Pressure	322.911	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

October - 2016

#### 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	Oct-16	427,809	91,690,360	69,609	22,379,007	106,862	22,991,692	224,651	41,144,351	22,859	4,385,009	3,829	790,300
Calculated Feed	Oct-16	445,406	91,454,959	72,563	22,356,045	111,372	22,928,739	233,811	40,985,110	23,691	4,395,192	3,969	789,873
Feed to Box	Oct-16	442,086	90,881,553	72,563	22,356,224	111,372	22,928,821	233,811	40,985,156	23,691	4,395,193	649	216,160
Cheu Product	Oct-16	88,996	28,172,400	66,789	21,999,828	19,724	5,422,938	1,891	553,397	15	751	577	195,486
Residue	Oct-16	205,319	40,896,072	1	2,040	5,012	1,011,110	182,292	36,284,674	18,014	3,596,991	0	1,256
Cold Box Vent	Oct-16	56,367	15,396,023	48	89,255	51,820	13,636,689	4,488	1,608,817	0	118	11	61,144
Flare/Boot Strap	Oct-16	56,367	5,912,271	48	50,034	51,820	4,891,691	4,488	870,986	0	93,583	11	5,977
Fuel From Cheu	Oct-16	5,040	1,245,324	3	377	131	36,586	4,065	1,009,983	842	198,379	0	0
Shrinkage/Loss	Oct-16	2,154	447,011	0	0	0	0	0	0	2,154	447,011	0	0
Unaccounted*	Oct-16	39,847	3,036,702	3,974	167,048	21,730	2,236,327	14,097	628,350	(0)	1,371	46	3,606

\*Before October 2004, the values are estimated

#### Storage Operations

##### Inventory (contained helium)

	Government	Private
Beginning inventory	5,360,727	2,745,597
net acceptances +	0	0
redeliveries	0	(63,580)
In Kind Transfers	0	0
Conservation Crude Sales	(825,000)	825,000
Gain/loss	(1,966)	
Ending Inventory	4,533,761	3,507,017
Total Helium in Reservoir	10,369,308	
Total Helium in Storage	8,040,778	
Helium in native gas	2,328,530	

##### Crude Helium Pipeline

	Gross	Net Helium	Percent
Beginning inventory	33,777	24,682	73.07%
Measured to Pipeline (Private Plants)	51,639	34,464	66.74%
Measured from Pipeline (Private Plant)	135,483	97,842	72.22%
HEU Production	88,996	66,789	75.05%
Injection	0	0	00.00%
Production	0	0	
Ending Inventory	36,235	26,127	72.11%
Gain/Loss	(2,695)	(1,966)	

#### 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

October - 2016

	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>	0	0	0	0	0	0	0	0	\$0	
<b>Total CYTD</b>	58,863	4	0	0	0	48,752	107,619	105,959	\$8,942,940	
<b>Cumulative</b>	1,886,021	108,677	450	271,584	421,753	792,666	3,481,151	3,427,244	\$198,871,411	
<b>In Kind Transfers</b>							Month	FYTD	CYTD	Cumulative
Transferred							0	0	97,171	3,385,478
Volume outstanding							41,841			

\* 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

October - 2016

**Helium & Natural Gas Sales**

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

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

**Natural Gas/Liquid Sales**

	Natural Gas (Mcf)***	NGLs (gal)	Decatherms	Avg Btu Value	Charges Billed (\$)** (billed monthly)	
<b>El Paso Natural Gas</b>						
		Provides Measured Firm/Interruptible Transportation Services				
Month	223,755	---	205,320	918	(\$27,997)	
FYTD	223,755	---	205,320	918	(\$27,997)	
Cumulative	40,306,303	---	44,159,860	1,096	(\$4,612,376)	
<b>Minerals Management Service</b>						
		No Longer Provides Natural Gas Marketing Services				
Cumulative	---	---	---	---	(\$179,913)	
<b>Tenaska</b>						
		Purchaser - Natural Gas			\$/Unit	
Month	---	---	219,300	\$2.631455	\$577,078	
FYTD	---	---	219,300	\$2.631455	\$577,078	
Cumulative	---	---	43,844,405	\$4.569290	\$199,511,254	
<b>Sandstone</b>						
		Purchaser - Natural Gas Liquids				
Month	---	70,958	7,678	\$5.986588	\$45,965	
FYTD	---	70,958	7,678	\$5.986588	\$45,965	
Cumulative	---	12,151,352	1,293,667	\$11.583397	\$14,985,059	
	Natural Gas (Mcf)***	NGLs (gal)	Purchased (Dth's)	\$\$ Per Unit (\$\$/Dth)	Total (\$\$)	
<b>Total month</b>	223,755	70,958	226,978	\$2.621602	\$595,046	
<b>Total FYTD</b>	223,755	70,958	226,978	\$2.621602	\$595,046	
<b>Total CYTD</b>	1,964,891	554,307	2,141,617	\$2.175125	\$4,658,285	
<b>Cumulative</b>	40,306,303	12,151,352	45,138,072	\$4.664146	\$209,704,024	

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

\*\*Rounded to nearest dollar

## Table 6 - Helium Resources Evaluation

October - 2016

All Volumes in Mcf at 14.7 psia & 70°F

<b>Revenue Collected From Federal Leaseholds</b>	Month*	FYTD*
Fee Sales & Royalties	\$711,168	\$711,168
Natural Gas Royalties (1)	\$0	\$0
Natural Gas Rentals	\$0	\$0
Other	\$28,233	\$28,233
<b>Revenue Collected from Federal Lease Holds</b>	<b>\$739,400</b>	<b>\$739,400</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	0	0
Total Number of Other Samples Analyzed (2)	0	0

### U. S. Helium Production

<i>Domestic</i>	FY Volume	CY Volume
2012 Helium Sold	4,725,187	4,623,130
2013 Helium Sold	4,279,765	4,166,708
2014 Helium Sold	3,815,746	3,463,698
2015 Helium Sold	3,282,185	3,466,014
2016 Helium Sold	4,559,100	4,644,278
Estimated Helium Resources as of 12/31/2006 (Mcf)		732,000,000

	FY-2014	CY-2014
<b>U.S. Helium Exports</b> (3)	2,553,129	2,432,311
<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

October - 2016

All Volumes in Mcf at 14.65 psia & 60°F

	Metered Gas						Transferred Gas		Stored Helium EOM	Charges Month	Billed (\$)**	
	Gross Gas	Helium %	Helium	Helium			Helium				Month	FYTD
				FYTD	CYTD	Cumulative	Month	Cumulative				
<b>Total All Contracts*</b>												
Crude Acquired	51,639	66.3%	34,262	34,262	390,822	31,935,033	1,284,402	56,514,331				
Crude Disposed	135,483	72.2%	97,842	97,842	1,051,215	51,630,092	459,402	30,723,512		\$594,724	Storage Fees	
Grade-A Rdlvrd	0		0	0	0	1,478,718				\$0	RMF Fees	
Net/Balance	(83,844)		(63,580)	(63,580)	(660,393)	(21,173,777)	825,000	25,790,819	3,507,017	\$594,723.93		\$594,724
<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	5,360,727
Crude Disposed: In Kind Sales transferred for the month	0
Conservation Crude Sales/Reserve Sell Down transferred (mont	(825,000)
Gains and Losses for the month	(1,966)
Net/Balance of Purchased Helium Remaining for Sale	4,533,761

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

\*\*Rounded to nearest dollar



Table 8 - Compression & CHEU (Charges & Operations)

October - 2016

Field/CHEU Compressor Operations		Month	FYTD	Cumulative
Spot gas fuel price *	\$ per/MMBTU	\$2.63	\$2.63	\$4.87
Fuel used * (now includes field compression well head)	total MMBTU	6,346	6,346	1,717,269
Field Compression Fuel Cost *	\$dollars	\$0	\$0	\$658,447
CHEU Compression Fuel Cost *	\$dollars	\$8,734	\$8,734	\$4,304,738
CHEU Process Fuel Cost *	\$dollars	\$7,958	\$7,958	\$2,881,632
Rental compressor(s) fuel consumed (well head)	\$dollars	\$0	\$0	\$207,234
Rental Compressor(s) helium in fuel (Mcf x \$\$)	\$dollars	\$0	\$0	\$315,893
Rental compressor(s) helium in fuel (Mcf)	Mcf	0	0	3645
#1 Compressor run time *	hours	500	500	102,766
#2 Compressor run time *	hours	253	253	65,716
#3 Compressor run time *	hours	201	201	59,525

\* Field/CHEU Compressor Operations based on Oct 16 activity

Crude Helium Enrichment Unit (CHEU) CHEU Runtime	Month		FYTD		Cumulative
	Runtime Hrs	Percent	Runtime Hrs	Percent	Runtime Hrs
Processing feed gas	573	77.1%	573	77.1%	113,142
Producing residue gas	528	70.9%	528	70.9%	110,334
Producing helium product	477	64.1%	477	64.1%	106,822
Producing natural gas liquids	510	68.6%	510	68.6%	105,819

CHEU Charges	Charges Billed (\$)*		
	Month	FYTD	Cumulative
Reservoir Management Fees (RMF)	\$0	\$0	\$31,831,123
Total operating costs	(\$908,722)	(\$908,722)	(\$137,738,880)
Labor	\$161,237	\$161,237	\$14,499,853
Compressor fuel cost Sep 16	\$8,734	\$8,734	\$4,315,929
HEU fuel cost Sep 16	\$8,876	\$8,876	\$2,888,343
Electrical power cost Sep 16	\$136,334	\$136,334	\$20,587,314
Other	\$83,582	\$83,582	\$13,142,841
Sub Total - Items provided by BLM	\$398,762	\$398,762	\$58,643,635
Total - Cliffside Refiners, LP, GDA030001	(\$509,960)	(\$509,960)	(\$79,095,245)

\*Rounded to nearest dollar

CHEU Utility Usage	Month	FYTD	Cumulative
CheU Fuel Gas (Mcf) usage Oct 16	2,766	2,766	542,405
CheU Pure Water Usage (gallons) Oct 16	679	679	295,127
Electricity Metered (Kwh) consumed Sep 16	2,574,674	2,574,674	122,691,892