

# Bureau of Land Management

Amarillo Field Office

Helium Operations

Statistical Report

for

April - 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: July 12, 2017

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

Approved for Distribution: **SAMUEL R.M. BURTON**

Date: **July 12, 2017**

Table 1 - Summary of Helium Operations

April - 2017

**Helium Enrichment Unit Operations**

Gas Processed	Month Gross Volume	Month Net Helium	Average Percent	Gross FYTD	Net FYTD
Measured Plant Feed (Mcf*)	442,080	66,733	15.10%	3,392,866	567,137
Helium Product (Mcf*)	90,443	65,693	72.63%	758,894	562,761
Residue Natural Gas (Mcf*)	231,209	7	0.00%	1,771,660	31

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

**Natural Gas & Liquids Produced**

Gas Processed	Month	FYTD
Natural Gas Sales (Mcf***)	252,913	1,936,478
NGL Sales (gallons)	79,914	650,127

\*\*\* 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Total Withdrawn (Mcf*)	473,435	72,007	15.21%	3,622,527	601,047
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*)		4,417,657			

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

**In Kind Helium**

	Month	FYTD	CYTD	Cumulative
Sale Volumes Transferred (Mcf*)	25,957	100,626	61,051	3,486,104
Sale Volumes Outstanding (Mcf*)	4,611			

\* 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*)	21,464	11,615	54.11%	156,924
Crude Disposed (Mcf*)	114,302	81,302	71.13%	694,697
Net Balance (Mcf*)	(92,838)	(69,687)		(537,773)
Balance of Stored Helium End Of Month (Mcf*)		3,133,450		

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

**Revenue / Charges**

Helium Storage Contracts (Charges Billed (\$))	Month	FYTD
Storage Fees Billed (\$)	\$661,133	\$4,840,312
Reservoir Management Fees Billed (\$)	\$172,999	\$1,037,996

**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	\$1,037,996
Total operating costs	(\$928,114)	(\$6,271,687)
Sub Total - Items provided by BLM	\$418,155	\$2,701,969
Total - Cliffside Refiners, LP, GDA030001	(\$509,960)	(\$3,569,718)

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

	Month	FYTD
Conservation Crude Helium Sales	\$0	\$0
In Kind Sales	\$0	\$5,313,132
Natural Gas & Liquid Sales	\$728,484	\$5,465,745

**Helium Resources Evaluation**

	Month	FYTD
Revenue Collected from Federal Lease Holds	\$138,938	\$8,714,343
Helium Sample Collection Report for month	Submitted - 0	Received - 0
		Analyzed - 19

\*Rounded to nearest dollar

Table 2 - Bush Dome Reservoir Operations

April - 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>473,435</b>	<b>229,855,172</b>	<b>72,007</b>	<b>42,912,324</b>	<b>118,094</b>	<b>56,655,069</b>	<b>252,937</b>	<b>116,571,367</b>	<b>26,149</b>	<b>11,786,723</b>	<b>4,247</b>	<b>1,929,689</b>
BIVINS A-3	Apr-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	Apr-17	21,888	11,872,364	10,104	7,012,658	5,455	2,918,974	5,582	1,713,667	585	170,330	162	56,735
BIVINS A-13	Apr-17	21,303	8,811,502	7,339	4,570,826	5,290	2,263,206	7,665	1,733,350	850	192,655	158	51,465
BIVINS A-14	Apr-17	32,415	9,939,029	9,705	5,616,112	7,960	2,517,327	13,065	1,575,272	1,397	170,584	288	59,733
BIVINS A-4	Apr-17	36,724	13,863,758	4,211	2,434,022	8,861	3,358,860	21,057	7,220,514	2,207	726,386	389	123,977
BUSH A-2	Apr-17	41,428	13,586,693	3,820	1,991,648	10,407	3,334,129	24,298	7,389,057	2,627	759,058	278	112,801
Injection	Apr-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	Apr-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	Apr-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	Apr-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	Apr-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	Apr-17	0	(2,527,801)	0	(1,848,815)	0	(601,353)	0	(42,016)	0	0	0	(35,617)
inj Bush A-2	Apr-17	0	(867,658)	0	(625,258)	0	(215,406)	0	(13,980)	0	0	0	(13,015)
Production	Apr-17	0	1,254,876	0	924,742	0	270,231	0	48,129	0	3,199	0	8,575
BIVINS A-1	Apr-17	0	2,686,608	0	48,896	0	636,995	0	1,798,415	0	175,704	0	26,597
BIVINS A-2	Apr-17	19,357	14,191,876	674	1,887,089	4,518	3,473,682	12,640	7,921,949	1,332	790,428	193	118,729
BIVINS A-5	Apr-17	52,940	16,441,631	9,801	2,119,908	13,510	4,035,147	26,348	9,215,596	2,868	929,086	412	141,895
BIVINS A-7	Apr-17	5,622	11,964,195	1,703	2,831,323	1,465	3,014,213	2,176	5,472,737	241	558,667	37	87,256
BIVINS A-9	Apr-17	31,936	10,724,863	768	205,834	8,179	2,642,000	20,498	7,063,885	2,222	715,523	269	97,621
BIVINS A-11	Apr-17	394	6,573,920	12	142,869	100	1,636,249	251	4,291,506	27	441,350	4	61,945
BIVINS A-15	Apr-17	32,237	10,163,310	563	436,610	7,549	2,419,867	21,511	6,544,822	2,220	656,190	394	105,822
BIVINS B-1	Apr-17	32,940	8,384,330	758	308,048	8,347	2,035,607	22,231	5,410,085	1,443	546,332	161	84,257
BIVINS B-2	Apr-17	25,582	6,947,573	485	130,956	6,500	1,741,977	16,401	4,510,966	1,742	464,974	454	98,699
BUSH A-1	Apr-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	Apr-17	27,178	12,408,692	9,054	2,961,588	6,896	3,070,493	9,912	5,691,256	1,091	577,114	225	108,241
BUSH A-4	Apr-17	19,767	8,842,318	1,817	1,598,400	5,059	2,212,921	11,532	4,507,199	1,247	460,518	112	63,280
BUSH A-5	Apr-17	40,762	17,026,607	10,600	3,927,199	10,419	4,276,326	17,570	7,902,287	1,935	803,159	238	117,636
BUSH A-8	Apr-17	19,344	4,448,112	358	81,561	4,805	1,078,629	12,542	2,934,937	1,315	296,533	325	56,451
BUSH A-9	Apr-17	0	3,860,915	0	105,037	0	930,915	0	2,537,187	0	253,463	0	34,312
BUSH A-11	Apr-17	8,342	4,652,603	175	134,837	2,004	1,112,953	5,481	3,042,143	565	309,013	116	53,656
BUSH B-1	Apr-17	3,274	3,368,546	58	63,198	771	799,241	2,178	2,250,865	235	222,271	32	32,972
FUQUA A-1	Apr-17	0	2,954,098	0	53,854	0	702,798	0	1,975,175	0	193,573	0	28,699
FUQUA A-2	Apr-17	0	132,119	0	2,404	0	31,322	0	88,458	0	8,637	0	1,297
FUQUA A-3	Apr-17	0	9,303,912	0	577,005	0	2,277,687	0	5,790,357	0	583,701	0	75,162
TT Fuel	Apr-17	109	0	0	0	5	0	89	0	15	0	0	0
field-wide pct's				15.21%	18.67%	24.94%	24.65%	53.43%	50.72%	5.52%	5.13%	0.90%	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 Apr-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	2.045	0.341
Injected to Date 2017	0.000	0.000
Amount of Raw Gas Available to CHEU	84.513	====> 10.612 total helium in reservoir
Estimated Bottom Hole Pressure	311.261	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

April - 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	Apr-17	442,080	94,655,417	66,733	22,876,534	110,006	23,731,151	236,507	42,687,071	24,794	4,543,945	4,039	816,715
Calculated Feed	Apr-17	473,329	94,638,970	72,007	22,890,433	118,090	23,723,593	252,849	42,642,059	26,136	4,564,863	4,247	818,021
Feed to Box	Apr-17	469,718	94,042,210	72,007	22,890,612	118,090	23,723,675	252,849	42,642,105	26,134	4,564,862	639	220,956
Cheu Product	Apr-17	90,443	28,842,298	65,693	22,495,800	22,236	5,577,855	1,928	568,017	14	800	571	199,826
Residue	Apr-17	231,209	42,462,412	7	2,069	4,976	1,045,666	205,669	37,678,221	20,558	3,735,198	0	1,258
Cold Box Vent	Apr-17	66,768	15,870,305	147	89,658	58,090	14,056,732	8,519	1,662,566	0	118	12	61,232
Flare/Boot Strap	Apr-17	66,768	6,386,554	147	50,438	58,090	5,311,734	8,519	924,735	0	93,583	12	6,065
Fuel From Cheu	Apr-17	7,284	1,290,976	4	400	189	37,768	5,874	1,046,801	1,217	206,007	0	0
Shrinkage/Loss	Apr-17	3,689	468,864	0	0	0	0	0	0	3,689	468,864	0	0
Unaccounted*	Apr-17	63,615	3,388,485	5,707	202,336	30,754	2,411,171	26,856	769,418	246	1,617	52	3,944

\*Before October 2004, the values are estimated

#### Storage Operations

##### Inventory (contained helium)

	Government	Private
Beginning inventory	4,444,599	3,177,180
net acceptances +	0	0
redeliveries	0	(69,687)
In Kind Transfers	(25,957)	25,957
Conservation Crude Sales	0	0
Gain/loss	(985)	
Ending Inventory	4,417,657	3,133,450
Total Helium in Reservoir	10,612,175	
Total Helium in Storage	7,551,107	
Helium in native gas	3,061,068	

##### Crude Helium Pipeline

	Gross	Net Helium	Percent
Beginning inventory	43,138	31,428	72.86%
Measured to Pipeline (Private Plants)	21,464	11,885	55.37%
Measured from Pipeline (Private Plant)	114,502	81,302	71.00%
HEU Production	90,443	65,693	72.63%
Injection	0	0	00.00%
Production	0	0	
Ending Inventory	38,075	26,719	70.17%
Gain/Loss	(2,467)	(985)	

#### 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

April - 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>	28,328	6	0	8	292	35,756	64,389	63,396	\$5,313,132	
<b>Total CYTD</b>	9,840	6	0	8	292	17,053	27,198	26,779	\$2,222,657	
<b>Cumulative</b>	1,914,349	108,683	450	271,593	422,045	828,422	3,545,541	3,490,640	\$204,184,543	
<b>In Kind Transfers</b>							Month	FYTD	CYTD	Cumulative
Transferred							25,957	100,626	61,051	3,486,104
Volume outstanding							4,611			

\* 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

April - 2017

## Helium &amp; 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	0	0	\$0	
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	0	0	\$0	
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	0	0	\$0	
FYTD	0	0	21,844	\$2,337,308	
Cumulative	998,957		998,957	\$68,353,106	
<b>Matheson Tri-Gas, Inc.</b>					
Month	0	0	0	\$0	
FYTD	0	0	46,700	\$4,996,900	
Cumulative	328,700		328,700	\$34,316,400	
<b>Praxair, Inc.</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>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	0	0	\$0	
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	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>					
Transferred		Month	FYTD	CYTD	Cumulative
Volume outstanding		0	825,000	0	21,937,729
		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 (\$)*** (billed monthly)	
<b>El Paso Natural Gas</b>						
		Provides Measured Firm/Interruptible Transportation Services				
Month	252,913	---	231,210	914	(\$27,997)	
FYTD	1,936,478	---	1,771,661	915	(\$195,979)	
Cumulative	42,019,026	---	45,726,201	1,088	(\$4,780,358)	
<b>Minerals Management Service</b>						
		No Longer Provides Natural Gas Marketing Services				
Cumulative	---	---	---	---	(\$179,913)	
<b>ETC Marketing Ltd</b>						
		Purchaser - Natural Gas			\$/Unit	
Month	---	---	254,614	\$2.775415	\$706.660	
FYTD	---	---	1,930,814	\$2.728079	\$5,267,413	
Cumulative	---	---	45,555,919	\$4.500582	\$204,201,589	
<b>Sandstone</b>						
		Purchaser - Natural Gas Liquids				
Month	---	79,914	8,525	\$5.844194	\$49,822	
FYTD	---	650,127	67,926	\$5.805013	\$394,311	
Cumulative	---	12,730,521	1,353,915	\$11.325235	\$15,333,405	
	Natural Gas (Mcf)***	NGLs (gal)	Purchased (Dth's)	\$\$ Per Unit (\$\$/Dth)	Total (\$\$)	
<b>Total month</b>	252,913	79,914	263,139	\$2.768439	\$728,484	
<b>Total FYTD</b>	1,936,478	650,127	1,998,740	\$2.734595	\$5,465,745	
<b>Total CYTD</b>	1,094,084	373,653	1,127,571	\$2.750352	\$3,101,217	
<b>Cumulative</b>	42,019,026	12,730,521	46,909,834	\$4.591815	\$214,574,723	

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

\*\*Rounded to nearest dollar

## Table 6 - Helium Resources Evaluation

April - 2017

All Volumes in Mcf at 14.7 psia & 70°F

<b>Revenue Collected From Federal Leaseholds</b>	Month*	FYTD*
Fee Sales & Royalties	\$161,808	\$8,676,966
Natural Gas Royalties (1)	\$0	\$0
Natural Gas Rentals	\$0	\$0
Other	\$37,377	\$255,277
<b>Revenue Collected from Federal Lease Holds</b>	<b>\$138,938</b>	<b>\$8,714,343</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	1
Total Number of Other Samples Analyzed (2)	19	111

### 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

April - 2017

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	21,464	54.1%	11,615	156,924	65,156	32,057,695	45,340	56,778,178				
Crude Disposed	114,302	71.1%	81,302	694,697	383,905	52,226,947	19,383	30,886,733			\$661,133	Storage Fees
Grade-A Rdlvrd	0		0	0	0	1,478,718					\$172,999	RMF Fees
Net/Balance	(92,838)		(69,687)	(537,773)	(318,749)	(21,647,970)	25,957	25,891,445	3,133,450		\$834,131.89	\$5,878,308
<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	4,444,599
Crude Disposed: In Kind Sales transferred for the month	(25,957)
Conservation Crude Sales/Reserve Sell Down transferred (month)	0
Gains and Losses for the month	(985)
Net/Balance of Purchased Helium Remaining for Sale	4,417,657

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

\*\*Rounded to nearest dollar



## Table 8 - Compression & CHEU (Charges & Operations)

April - 2017

### Field/CHEU Compressor Operations

		Month	FYTD	Cumulative
Spot gas fuel price *	\$ per/MMBTU	\$2.78	\$2.76	\$4.81
Fuel used * (now includes field compression well head)	total MMBTU	8,510	59,229	1,770,152
Field Compression Fuel Cost *	\$dollars	\$0	\$0	\$658,447
CHEU Compression Fuel Cost *	\$dollars	\$14,998	\$99,437	\$4,395,441
CHEU Process Fuel Cost *	\$dollars	\$8,663	\$64,027	\$2,937,701
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	450	4,489	106,755
#2 Compressor run time *	hours	704	3,083	68,546
#3 Compressor run time *	hours	164	1,834	61,158

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

### Crude Helium Enrichment Unit (CHEU)

#### CHEU Runtime

	Month		FYTD		Cumulative
	Runtime Hrs	Percent	Runtime Hrs	Percent	Runtime Hrs
Processing feed gas	720	100.0%	4,917	96.6%	117,486
Producing residue gas	718	99.7%	4,858	95.5%	114,665
Producing helium product	708	98.3%	4,754	93.4%	111,099
Producing natural gas liquids	720	100.0%	4,812	94.6%	110,122

#### CHEU Charges

	Charges Billed (\$)*		
	Month	FYTD	Cumulative
Reservior Management Fees (RMF)	\$172,999	\$1,037,996	\$32,869,118
Total operating costs	(\$928,114)	(\$6,271,687)	(\$143,101,845)
Labor	\$161,237	\$1,128,656	\$15,467,272
Compressor fuel cost Mar 17	\$14,346	\$93,173	\$4,400,368
HEU fuel cost Mar 17	\$9,165	\$64,240	\$2,943,707
Electrical power cost Mar 17	\$149,825	\$830,829	\$21,281,809
Other	\$83,582	\$585,071	\$13,644,331
Sub Total - Items provided by BLM	\$418,155	\$2,701,969	\$60,946,842
Total - Cliffside Refiners, LP, GDA030001	(\$509,960)	(\$3,569,718)	(\$82,155,003)

\*Rounded to nearest dollar

#### CHEU Utility Usage

	Month	FYTD	Cumulative
Cheu Fuel Gas (Mcf) usage Apr 17	2,715	20,364	560,003
Cheu Pure Water Usage (gallons) Apr 17	388	9,720	304,168
Electricity Metered (Kwh) consumed Mar 17	2,937,650	13,682,060	133,799,278