

Bureau of Land Management

Amarillo Field Office

Helium Operations

Statistical Report

for

November - 2016



Distribution:

Fluid Minerals Group Manager, Washington Office
NMSO, New Mexico State Director
NMSO, Associate State Director
NMSO, Petroleum Engineer
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-Federal Leased Lands
-Resources Evaluation & Gas Analysis
-Division Of Helium Operations, -
Engineering and Technical Support

List of Tables

Table 1 - Summary of Helium Operations
Table 2 - Bush Dome Reservoir Operations
Table 3 - Gas Volumes & Inventory
Table 4 - In Kind Helium Sales
Table 5 - Conservation Crude Sales/Reserve Sell-down
Table 5 - Natural Gas/Liquid Sales
Table 6 - Helium Resources Evaluation
Table 7 - Helium Storage Contract Activity
Table 8 - Compression & CHEU (Charges & Operations)

Amarillo, Texas

Compiled by: *Joan Grochowina*

Issued: May 31, 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

November - 2016

Helium Enrichment Unit Operations

Gas Processed	Month Gross Volume	Month Net Helium	Average Percent	Gross FYTD	Net FYTD
Measured Plant Feed (Mcf*)	558,887	94,255	16.86%	986,696	163,864
Helium Product (Mcf*)	131,574	98,345	74.74%	220,570	165,134
Residue Natural Gas (Mcf*)	315,955	0	00.00%	521,274	1

* Volumes in Mcf at 14.65 psia & 60°F

Natural Gas & Liquids Produced

Gas Processed	Month	FYTD
Natural Gas Sales (Mcf***)	344,445	568,200
NGL Sales (gallons)	120,555	191,513

*** 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Total Withdrawn (Mcf*)	613,039	101,788	16.60%	1,059,069	174,351
Crude Injection (Mcf*)	5,956	4,391	73.72%	5,956	4,391
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	1,000,000	21,952,729
Conservation Crude Sale Volume Transferred (Mcf*)	15,000	0	825,000	1,000,000	21,937,729
Conservation Helium in Storage (EOM) (Mcf*)		4,491,589			

* Volumes in Mcf at 14.65 psia & 60°F

In Kind Helium

	Month	FYTD	CYTD	Cumulative
Sale Volumes Transferred (Mcf*)	39,575	39,575	136,746	3,425,053
Sale Volumes Outstanding (Mcf*)	2,266			

* 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*)	55,546	36,635	65.95%	70,897
Crude Disposed (Mcf*)	168,833	122,465	72.54%	220,307
Net Balance (Mcf*)	(113,287)	(85,830)		(149,410)
Balance of Stored Helium End Of Month (Mcf*)		3,460,762		

* Volumes in Mcf at 14.65 psia & 60°F

Revenue / Charges

Helium Storage Contracts (Charges Billed (\$))	Month	FYTD
Storage Fees Billed (\$)	\$797,220	\$1,391,944
Reservoir Management Fees Billed (\$)	\$172,999	\$172,999

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	\$172,999
Total operating costs	(\$889,421)	(\$1,798,143)
Sub Total - Items provided by BLM	\$379,461	\$778,224
Total - Cliffside Refiners, LP, GDA030001	(\$509,960)	(\$1,019,919)

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	\$809,835	\$1,404,881

Helium Resources Evaluation

	Month	FYTD
Revenue Collected from Federal Lease Holds	\$1,510,658	\$2,250,058
Helium Sample Collection Report for month	Submitted - 0	Received - 0
		Analyzed - 20

*Rounded to nearest dollar

Table 2 - Bush Dome Reservoir Operations

November - 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
TOTAL		613,039	227,291,714	101,788	42,485,628	153,165	56,015,145	320,060	115,234,316	32,567	11,649,578	5,460	1,907,048
BIVINS A-3	Nov-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	Nov-16	44,784	11,683,781	21,190	6,921,464	11,177	2,872,150	10,938	1,669,142	1,148	165,671	331	55,354
BIVINS A-13	Nov-16	37,066	8,668,349	12,425	4,522,556	9,203	2,227,657	13,642	1,680,912	1,520	186,827	277	50,397
BIVINS A-14	Nov-16	44,338	9,761,249	13,381	5,562,716	10,899	2,473,654	17,758	1,503,794	1,911	162,930	390	58,155
BIVINS A-4	Nov-16	41,441	13,679,316	4,782	2,412,803	10,000	3,314,340	23,750	7,114,747	2,474	715,388	435	122,037
BUSH A-2	Nov-16	46,083	13,378,717	4,249	1,972,473	11,576	3,281,886	27,028	7,267,079	2,922	745,872	309	111,407
Injection	Nov-16	5,956	66,470,927	4,391	48,016,975	1,398	17,120,696	129	780,590	1	37	38	552,630
inj Bivins A-3	Nov-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	Nov-16	(5,956)	(24,408,878)	(4,389)	(17,667,165)	(1,399)	(6,485,703)	(128)	(143,107)	(1)	(72)	(38)	(112,832)
inj Bivins A-13	Nov-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	Nov-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	Nov-16	0	(2,527,801)	0	(1,848,815)	0	(601,353)	0	(42,016)	0	0	0	(35,617)
inj Bush A-2	Nov-16	0	(867,658)	0	(625,258)	0	(215,406)	0	(13,980)	0	0	0	(13,015)
Production	Nov-16	0	1,254,876	0	924,742	0	270,231	0	48,129	0	3,199	0	8,575
BIVINS A-1	Nov-16	0	2,686,608	0	48,896	0	636,995	0	1,798,415	0	175,704	0	26,597
BIVINS A-2	Nov-16	22,995	14,092,075	770	1,883,681	5,378	3,450,367	15,075	7,856,665	1,545	783,623	225	117,740
BIVINS A-5	Nov-16	47,803	16,188,953	8,982	2,072,588	12,218	3,970,543	23,715	9,090,236	2,524	915,616	363	139,970
BIVINS A-7	Nov-16	23,480	11,907,135	6,908	2,814,287	6,131	2,999,325	9,286	5,450,407	1,003	556,232	153	86,884
BIVINS A-9	Nov-16	30,008	10,565,981	696	202,088	7,693	2,601,275	19,274	6,961,900	2,094	704,436	252	96,281
BIVINS A-11	Nov-16	24,328	6,547,733	715	142,094	6,190	1,629,585	15,509	4,274,825	1,678	439,536	236	61,693
BIVINS A-15	Nov-16	36,262	10,000,995	634	433,774	8,499	2,381,830	24,181	6,436,580	2,506	644,970	442	103,841
BIVINS B-1	Nov-16	37,738	8,219,196	868	304,250	9,563	1,993,762	25,469	5,298,636	1,653	539,099	185	83,448
BIVINS B-2	Nov-16	29,972	6,817,875	568	128,494	7,620	1,709,004	19,208	4,427,862	2,045	456,118	531	96,397
BUSH A-1	Nov-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	Nov-16	32,084	12,269,731	11,014	2,914,855	8,162	3,035,136	11,386	5,640,849	1,254	571,751	266	107,140
BUSH A-4	Nov-16	22,111	8,743,582	2,050	1,589,281	5,672	2,187,629	12,911	4,449,596	1,353	454,359	126	62,718
BUSH A-5	Nov-16	46,770	16,819,520	11,674	3,874,158	12,025	4,223,265	21,005	7,811,554	1,808	794,064	260	116,479
BUSH A-8	Nov-16	22,297	4,353,480	413	79,808	5,537	1,055,114	14,457	2,873,610	1,520	290,079	370	54,869
BUSH A-9	Nov-16	0	3,860,915	0	105,037	0	930,915	0	2,537,187	0	253,463	0	34,312
BUSH A-11	Nov-16	18,972	4,598,884	387	133,720	4,561	1,100,036	12,474	3,006,834	1,284	305,384	266	52,910
BUSH B-1	Nov-16	4,507	3,351,913	80	62,902	1,063	795,319	2,995	2,239,810	324	221,073	44	32,809
FUQUA A-1	Nov-16	0	2,954,098	0	53,854	0	702,798	0	1,975,175	0	193,573	0	28,699
FUQUA A-2	Nov-16	0	132,119	0	2,404	0	31,322	0	88,458	0	8,637	0	1,297
FUQUA A-3	Nov-16	0	9,303,912	0	577,005	0	2,277,687	0	5,790,357	0	583,701	0	75,162
TT Fuel	Nov-16	0	0	0	0	0	0	0	0	0	0	0	0
field-wide pct				16.60%	18.69%	24.98%	24.64%	52.21%	50.70%	5.31%	5.13%	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 Nov-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	4.764	0.830
Injected to Date 2016	(0.025)	(0.019)
Amount of Raw Gas Available to CHEU	87.073	=====> 10.272 total helium in reservoir
Estimated Bottom Hole Pressure	320.677	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

November - 2016

Crude Helium Enrichment Unit Operations

		Gross Withdrawal		Net Helium Withdrawal		Nitrogen		Methane		Ethane plus		Other (CO2, Ar, H2)	
		Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative
Measured Feed	Nov-16	558,887	92,249,246	94,255	22,473,262	139,426	23,131,119	290,372	41,434,723	29,811	4,414,820	5,022	795,322
Calculated Feed	Nov-16	615,497	92,070,457	103,605	22,459,650	153,736	23,082,475	320,113	41,305,223	32,568	4,427,759	5,476	795,349
Feed to Box	Nov-16	610,964	91,492,518	103,605	22,459,829	153,736	23,082,557	320,113	41,305,269	32,568	4,427,760	943	217,103
Cheu Product	Nov-16	131,574	28,303,974	98,345	22,098,173	29,588	5,452,526	2,772	556,169	5	756	864	196,349
Residue	Nov-16	315,955	41,212,027	0	2,040	7,278	1,018,388	280,946	36,565,620	27,731	3,624,722	0	1,256
Cold Box Vent	Nov-16	92,152	15,488,174	61	89,316	83,901	13,720,590	8,171	1,616,988	0	118	18	61,162
Flare/Boot Strap	Nov-16	92,152	6,004,423	61	50,095	83,901	4,975,593	8,171	879,157	0	93,583	18	5,995
Fuel From Cheu	Nov-16	7,879	1,253,203	4	381	204	36,790	6,354	1,016,337	1,317	199,695	0	0
Shrinkage/Loss	Nov-16	3,515	450,526	0	0	0	0	0	0	3,515	450,526	0	0
Unaccounted*	Nov-16	59,890	3,096,592	5,196	172,243	32,765	2,269,092	21,869	650,219	(0)	1,371	60	3,666

*Before October 2004, the values are estimated

Storage Operations

Inventory (contained helium)

	Government	Private
Beginning inventory	4,533,761	3,507,017
net acceptances +	0	0
redeliveries	0	(85,830)
In Kind Transfers	(39,575)	39,575
Conservation Crude Sales	0	0
Gain/loss	(2,597)	
Ending Inventory	4,491,589	3,460,762
Total Helium in Reservoir	10,271,911	
Total Helium in Storage	7,952,351	
Helium in native gas	2,319,560	

Crude Helium Pipeline

	Gross	Net Helium	Percent
Beginning inventory	36,235	26,127	72.11%
Measured to Pipeline (Private Plants)	55,546	37,014	66.64%
Measured from Pipeline (Private Plant)	168,833	122,465	72.54%
HEU Production	131,574	98,345	74.74%
Injection	5,956	4,391	73.72%
Production	0	0	
Ending Inventory	44,225	32,033	72.43%
Gain/Loss	(4,340)	(2,597)	

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

November - 2016

	NASA*	Navy*	Army*	Air Force*	DOE*	Other Fed*	Subtotal*	In Kind+	Charges Billed (\$)**	
In Kind Helium										
AirGas South West, Contract no. INC98-0101									(billed quarterly)	
Month										
FYTD										
AirGas North Central, Contract no. INC98-0102										
Month										
FYTD										
AirGas Intermountain, Contract no. INC98-0103										
Month										
FYTD										
Air Liquide Helium America, Inc., Contract no. INC98-0104										
Month										
FYTD										
Air Products, L.P., Contract no. INC98-0105										
Month										
FYTD										
Linde Gas North America, LLC, Contract no. INC98-0106										
Month										
FYTD										
Corp Brothers, Inc., Contract no. INC98-0107										
Month										
FYTD										
FIBA Technologies, Inc., Contract no. INC98-0108										
Month										
FYTD										
General Air Service & Supply Co., Contract no. INC98-0109										
Month										
FYTD										
Praxair, Inc., Contract no. INC98-0112										
Month										
FYTD										
United States Welding, Inc., Contract no. INC98-0113										
Month										
FYTD										
Matheson Tri-Gas, Inc., Contract no. INC98-0114										
Month										
FYTD										
GT & S, Contract no. INC00-0115										
Month										
FYTD										
Global Gases America, Contract no. INC13-0116										
Month										
FYTD										
Total month	0	0	0	0	0	0	0	0	\$0	
Total FYTD	0	0	0	0	0	0	0	0	\$0	
Total CYTD	58,863	4	0	0	0	48,752	107,619	105,959	\$8,942,940	
Cumulative	1,886,021	108,677	450	271,584	421,753	792,666	3,481,151	3,427,244	\$198,871,411	
In Kind Transfers							Month	FYTD	CYTD	Cumulative
Transferred							39,575	39,575	136,746	3,425,053
Volume outstanding							2,266			

* 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

November - 2016

Helium & Natural Gas Sales

	Award Volume*	Outstanding*	Sales*	Charges Billed (\$)**	
Conservation Helium				(billed quarterly)	
Air Liquide Helium America, Inc.					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	335,217		335,217	\$25,454,815	
Air Products, L.P.					
Month	0	0	0	\$0	
FYTD	0	0	419,309	\$44,881,063	
Cumulative	8,448,745		8,448,745	\$610,716,090	
Linde Gas North America, LLC					
Month	0	0	0	\$0	
FYTD	0	0	140,334	\$15,015,738	
Cumulative	6,170,987		6,170,987	\$419,707,591	
Keyes Helium Co., LLC					
Month	0	0	0	\$0	
FYTD	0	0	21,844	\$2,337,308	
Cumulative	998,957		998,957	\$68,353,106	
Matheson Tri-Gas, Inc.					
Month	0	0	0	\$0	
FYTD	0	0	46,700	\$4,996,900	
Cumulative	328,700		328,700	\$34,316,400	
Praxair, Inc.					
Month	0	0	0	\$0	
FYTD	0	0	183,513	\$19,635,891	
Cumulative	5,403,189		5,403,189	\$404,125,671	
Linde Gas, LLC discontinued 10 2008					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	200,000		200,000	\$11,035,000	
Global Gases America					
Month	0	0	0	\$0	
FYTD	0	0	13,300	\$1,423,100	
Cumulative	36,267		36,267	\$3,535,665	
Airgas Merchant Gases					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	15,667		15,667	\$1,488,365	
IACX Energy					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	15,000		15,000	\$1,575,000	
Total month	0	0	0		0
Total FYTD	0	0	825,000		\$0
Total CYTD	1,000,000		1,000,000		\$0
Cumulative	21,952,729		21,952,729		\$1,580,307,703
Conservation Crude Transfers		Month	FYTD	CYTD	Cumulative
Transferred		0	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 (\$)**	
El Paso Natural Gas		Provides Measured Firm/Interruptible Transportation Services			(billed monthly)	
Month	344,445	---	315,955	917	(\$27,997)	
FYTD	568,200	---	521,275	917	(\$55,994)	
Cumulative	40,650,748	---	44,475,815	1,094	(\$4,640,373)	
Minerals Management Service		No Longer Provides Natural Gas Marketing Services				
Cumulative	---	---	---	---	(\$179,913)	
Tenaska		Purchaser - Natural Gas			\$/Unit	
Month	---	---	349,200	\$2.224807	\$776.903	
FYTD	---	---	568,500	\$2.381672	\$1,353,981	
Cumulative	---	---	44,193,605	\$4.550765	\$200,288,157	
Sandstone		Purchaser - Natural Gas Liquids				
Month	---	120,555	12,600	\$4.835678	\$60,930	
FYTD	---	191,513	20,278	\$5.271455	\$106,895	
Cumulative	---	12,271,907	1,306,267	\$11.518310	\$15,045,988	
	Natural Gas (Mcf)***	NGLs (gal)	Purchased (Dth's)	\$\$ Per Unit (\$\$/Dth)	Total (\$\$)	
Total month	344,445	120,555	361,800	\$2.238350	\$809,835	
Total FYTD	568,200	191,513	588,778	\$2.386096	\$1,404,881	
Total CYTD	2,309,336	674,862	2,503,417	\$2.184262	\$5,468,120	
Cumulative	40,650,748	12,271,907	45,499,872	\$4.644857	\$210,513,859	

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

**Rounded to nearest dollar

Table 6 - Helium Resources Evaluation

November - 2016

All Volumes in Mcf at 14.7 psia & 70°F

Revenue Collected From Federal Leaseholds	Month*	FYTD*
Fee Sales & Royalties	\$1,509,866	\$2,221,034
Natural Gas Royalties (1)	\$0	\$0
Natural Gas Rentals	\$0	\$0
Other	\$29,024	\$57,257
Revenue Collected from Federal Lease Holds	\$1,510,658	\$2,250,058

*Totals do not sum

Helium Analysis and Evaluation	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)	20	20

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-2014	CY-2014
U.S. Helium Exports (3)	2,553,129	2,432,311
US Helium Imports	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

November - 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				
Total All Contracts*												
Crude Acquired	55,546	66.0%	36,635	70,897	427,457	31,971,668	69,312	56,583,643				
Crude Disposed	168,833	72.5%	122,465	220,307	1,173,680	51,752,557	29,737	30,753,249			\$797,220	Storage Fees
Grade-A Rdlvrd	0		0	0	0	1,478,718					<u>\$172,999</u>	RMF Fees
Net/Balance	(113,287)		(85,830)	(149,410)	(746,223)	(21,259,607)	39,575	25,830,394	3,460,762	\$970,219.59		\$1,564,944
Total Prior Contracts (TERMINATED)												
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			
Linde Gas North America, LLC, Contract no. 3249												
Crude Acquired												
Crude Disposed												
Net/Balance												
Praxair, Inc., Contract no. 3251												
Crude Acquired												
Crude Disposed												
Net/Balance												
Air Products, L.P., Contract no. 3256												
Crude Acquired												
Crude Disposed												
Net/Balance												
IACX Energy, Contract no. 3297												
Crude Acquired												
Crude Disposed												
Net/Balance												
Pioneer Natural Resources USA, Inc, Contract no. 3286												
Crude Acquired												
Crude Disposed												
Net/Balance												
Keyes Helium Co., LLC, Contract no. 3287												
Crude Acquired												
Crude Disposed												
Net/Balance												
Air Liquide Helium America, Inc., Contract no. 3284												
Crude Acquired												
Crude Disposed												
Net/Balance												
Matheson Tri-Gas, Inc., Contract no. 3288												
Crude Acquired												
Crude Disposed												
Net/Balance												
Airgas Merchant Gases, Contract no. 3290												
Crude Acquired												
Crude Disposed												
Net/Balance												
Global Gases America, Contract no. 3293												
Crude Acquired												
Crude Disposed												
Net/Balance												
Linn Operating, Inc., Contract no. 3296												
Crude Acquired												
Crude Disposed												
Net/Balance												

Government Helium

Remaining Crude Acquired beginning of the month	4,533,761
Crude Disposed: In Kind Sales transferred for the month	(39,575)
Conservation Crude Sales/Reserve Sell Down transferred (mont	0
Gains and Losses for the month	(2,597)
Net/Balance of Purchased Helium Remaining for Sale	4,491,589

*Includes In Kind and Conservation Crude transfers from Government storage

**Rounded to nearest dollar

Table 8 - Compression & CHEU (Charges & Operations) November - 2016

Field/CHEU Compressor Operations		Month	FYTD	Cumulative
Spot gas fuel price *	\$ per/MMBTU	\$2.22	\$2.39	\$4.86
Fuel used * (now includes field compression well head)	total MMBTU	9,108	15,454	1,726,377
Field Compression Fuel Cost *	\$dollars	\$0	\$0	\$658,447
CHEU Compression Fuel Cost *	\$dollars	\$12,024	\$20,758	\$4,316,762
CHEU Process Fuel Cost *	\$dollars	\$8,196	\$16,154	\$2,889,828
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	721	1,221	103,487
#2 Compressor run time *	hours	91	344	65,807
#3 Compressor run time *	hours	624	825	60,149

* Field/CHEU Compressor Operations based on Nov 16 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 booster compression services)	\$0	\$0	(\$11,422,651)
Cliffside Refiners, LP, GDA010003 (BLM provided fuel *, labor, supplies, etc.)	\$0	\$0	\$2,880,795
Net Total - Cliffside Refiners, LP	\$0	\$0	(\$8,541,856)

* BLM provided fuel cost is based on Oct 16 fuel consumed

*Rounded to nearest dollar

Crude Helium Enrichment Unit (CHEU) CHEU Runtime	Month		FYTD		Cumulative
	Runtime Hrs	Percent	Runtime Hrs	Percent	Runtime Hrs
Processing feed gas	721	100.1%	1,294	88.4%	113,863
Producing residue gas	721	100.1%	1,249	85.3%	111,055
Producing helium product	721	100.1%	1,198	81.8%	107,543
Producing natural gas liquids	721	100.1%	1,231	84.1%	106,540

CHEU Charges	Charges Billed (\$)*		
	Month	FYTD	Cumulative
Reservoir Management Fees (RMF)	\$172,999	\$172,999	\$32,004,122
Total operating costs	(\$889,421)	(\$1,798,143)	(\$138,628,301)
Labor	\$161,237	\$322,473	\$14,661,089
Compressor fuel cost Oct 16	\$8,734	\$17,468	\$4,324,663
HEU fuel cost Oct 16	\$7,958	\$16,834	\$2,896,301
Electrical power cost Oct 16	\$117,951	\$254,285	\$20,705,265
Other	\$83,582	\$167,163	\$13,226,423
Sub Total - Items provided by BLM	\$379,461	\$778,224	\$59,023,096
Total - Cliffside Refiners, LP, GDA030001	(\$509,960)	(\$1,019,919)	(\$79,605,205)

*Rounded to nearest dollar

CHEU Utility Usage	Month	FYTD	Cumulative
Cheu Fuel Gas (Mcf) usage Nov 16	3,194	5,960	545,599
Cheu Pure Water Usage (gallons) Nov 16	112	791	295,239
Electricity Metered (Kwh) consumed Oct 16	2,107,317	2,112,917	122,230,135