

Bureau of Land Management

Amarillo Field Office

Helium Operations

Statistical Report

for



December - 2018

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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REVISED

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

Approved for Distribution: Amanda L. Clark

Date: September 25, 2019

Table 1 - Summary of Helium Operations

December - 2018

**Helium Enrichment Unit Operations
Gas Processed**

	Month Gross Volume	Month Net Helium	Average Percent	Gross FYTD	Net FYTD
Measured Plant Feed (Mcf*)	520,950	82,556	15.85%	1,561,499	247,563
Helium Product (Mcf*)	113,085	82,797	73.22%	337,762	248,350
Residue Natural Gas (Mcf*)	284,081	0	00.00%	847,786	0

* Volumes in Mcf at 14.65 psia & 60°F

Natural Gas & Liquids Produced

Gas Processed

	Month	FYTD
Natural Gas Sales (Mcf***)	281,588	840,453
NGL Sales (gallons)	96,355	289,261

*** 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Total Withdrawn (Mcf*)	522,969	82,876	15.85%	1,570,631	249,012
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*)		0	0	300,000	23,073,063
Conservation Crude Sale Volume Transferred (Mcf*)	0	0	0	300,000	1,203,477
Conservation Helium in Storage (EOM) (Mcf*)		2,949,557			

* Volumes in Mcf at 14.65 psia & 60°F

In Kind Helium

	Month	FYTD	CYTD	Cumulative
Sale Volumes Transferred (Mcf*)	28,177	41,864	165,711	3,722,112
Sale Volumes Outstanding (Mcf*)	53,486			

* 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*)	12,383	7,059	57.01%	26058
Crude Disposed (Mcf*)	123,133	88,288	71.70%	255785
Net Balance (Mcf*)	(110,750)	(81,229)		(229,727)
Balance of Stored Helium End Of Month (Mcf*)		2,908,671		

* Volumes in Mcf at 14.65 psia & 60°F

Revenue / Charges

Helium Storage Contracts (Charges Billed (\$))

	Month	FYTD
Storage Fees Billed (\$)	\$487,825	\$1,550,258
Reservoir Management Fees Billed (\$)	\$312,458	\$624,923
Total Storage and Resource Management fees collected (\$)	\$800,283	\$2,175,180

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

	Month	FYTD
Conservation Crude Helium Sales	\$0	\$0
In Kind Sales	\$3,989,884	\$3,989,884
Natural Gas & Liquid Sales	\$678,882	\$1,947,565

Helium Resources Evaluation

	Month	FYTD
Revenue Collected from Federal Lease Holds	\$1,683,973	\$6,616,847
Helium Sample Collection Report for month	Submitted - 0	Received - 0
		Analyzed - 12

*Rounded to nearest dollar

Table 2 - Bush Dome Reservoir Operations

December - 2018

		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		522,969	240,364,730	82,876	44,603,378	129,586	59,255,500	275,653	122,071,695	29,707	12,398,297	5,147	2,035,860
BIVINS A-3	Dec-18	0	10,961,113	0	3,548,629	0	2,772,147	0	4,159,384	0	407,301	0	73,653
BIVINS A-6	Dec-18	50,706	12,851,690	19,866	7,429,634	12,672	3,163,236	16,014	1,994,365	1,754	200,275	401	64,180
BIVINS A-13	Dec-18	35,932	9,517,166	11,338	4,798,821	9,010	2,439,104	13,738	1,999,761	1,570	222,702	276	56,779
BIVINS A-14	Dec-18	40,533	10,754,875	10,344	5,842,279	9,990	2,717,860	17,846	1,919,662	1,973	207,950	380	67,123
BIVINS A-4	Dec-18	33,455	14,594,070	3,398	2,513,012	8,012	3,534,651	19,662	7,642,649	2,017	771,592	367	132,166
BUSH A-2	Dec-18	8,092	14,019,281	357	2,020,228	2,021	3,442,978	5,098	7,651,253	563	789,027	52	115,795
Injection	Dec-18	0	66,474,735	0	48,019,788	0	17,121,580	0	780,676	0	37	0	552,655
inj Bivins A-3	Dec-18	0	(25,652,315)	0	(18,384,452)	0	(6,554,549)	0	(332,777)	0	0	0	(380,537)
inj Bivins A-6	Dec-18	0	(24,412,686)	0	(17,669,978)	0	(6,486,588)	0	(143,192)	0	(72)	0	(112,856)
inj Bivins A-13	Dec-18	0	(6,490,417)	0	(4,706,191)	0	(1,656,853)	0	(122,391)	0	(2)	0	(4,980)
inj Bivins A-14	Dec-18	0	(6,501,333)	0	(4,767,421)	0	(1,602,106)	0	(126,303)	0	(7)	0	(5,497)
inj Bivins A-4	Dec-18	0	(2,527,801)	0	(1,848,815)	0	(601,353)	0	(42,016)	0	0	0	(35,617)
inj Bush A-2	Dec-18	0	(867,658)	0	(625,258)	0	(215,406)	0	(13,980)	0	0	0	(13,015)
Production	Dec-18	0	1,254,876	0	924,742	0	270,231	0	48,129	0	3,199	0	8,575
BIVINS A-1	Dec-18	0	2,686,608	0	48,896	0	636,995	0	1,798,415	0	175,704	0	26,597
BIVINS A-2	Dec-18	21,283	14,618,404	696	1,901,632	4,968	3,573,167	13,950	8,199,509	1,458	821,083	211	123,013
BIVINS A-5	Dec-18	27,315	16,859,467	4,934	2,195,956	6,967	4,141,530	13,873	9,424,798	1,316	951,884	225	145,300
BIVINS A-7	Dec-18	16,432	12,214,565	4,888	2,905,552	4,236	3,079,099	6,471	5,571,033	724	569,946	112	88,935
BIVINS A-9	Dec-18	31,039	11,376,795	872	222,886	7,890	2,807,382	19,786	7,481,631	2,216	761,591	276	103,305
BIVINS A-11	Dec-18	20,541	7,019,045	614	155,942	5,175	1,748,312	13,082	4,575,808	1,458	472,554	212	66,428
BIVINS A-15	Dec-18	35,705	10,869,441	607	448,695	8,289	2,583,543	23,831	7,016,905	2,517	705,563	460	114,735
BIVINS B-1	Dec-18	32,993	9,043,020	779	323,434	8,062	2,194,819	21,520	5,828,940	2,215	600,580	416	95,247
BIVINS B-2	Dec-18	28,637	7,547,216	517	142,039	7,196	1,891,569	18,271	4,897,680	2,181	506,892	472	109,037
BUSH A-1	Dec-18	0	5,721,962	0	104,140	0	1,356,677	0	3,830,281	0	374,216	0	56,647
BUSH A-3	Dec-18	31,412	13,029,764	9,865	3,162,122	7,894	3,227,176	12,120	5,924,169	1,270	602,752	262	113,545
BUSH A-4	Dec-18	24,556	9,277,993	2,049	1,636,165	6,249	2,324,530	14,512	4,763,117	1,600	488,477	146	65,703
BUSH A-5	Dec-18	44,763	17,899,397	10,962	4,152,816	11,354	4,498,112	20,010	8,276,655	2,167	848,468	269	123,345
BUSH A-8	Dec-18	17,600	4,829,502	321	88,519	4,354	1,172,601	11,386	3,182,485	1,221	322,813	317	63,085
BUSH A-9	Dec-18	0	3,860,915	0	105,037	0	930,915	0	2,537,187	0	253,463	0	34,312
BUSH A-11	Dec-18	18,301	4,947,872	404	141,361	4,388	1,183,898	12,039	3,235,574	1,215	329,235	255	57,803
BUSH B-1	Dec-18	3,674	3,451,917	64	64,648	857	818,665	2,444	2,306,424	271	228,363	38	33,817
FUQUA A-1	Dec-18	0	2,954,098	0	53,854	0	702,798	0	1,975,175	0	193,573	0	28,699
FUQUA A-2	Dec-18	0	132,119	0	2,404	0	31,322	0	88,458	0	8,637	0	1,297
FUQUA A-3	Dec-18	0	9,303,912	0	577,005	0	2,277,687	0	5,790,357	0	583,701	0	75,162
TT Fuel	Dec-18	0	0	0	0	0	0	0	0	0	0	0	0
field-wide pct				15.85%	18.56%	24.78%	24.65%	52.71%	50.79%	5.68%	5.16%	0.98%	0.85%

Latest estimates of reserves and feed to HEU

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

As of EOM Dec-18 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 - 17	101.638	25.237
Injection 2003 - 17	(1.423)	(1.159)
Produced to Date 2018	6.390	1.019
Injected to Date 2018	0.000	0.000
Amount of Raw Gas Available to CHEU	73.958	====> 8.157 total helium in reservoir
Estimated Bottom Hole Pressure	272.430	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

December - 2018

Crude Helium Enrichment Unit Operations

		Gross Withdrawal		Net Helium Withdrawal		Nitrogen		Methane		Ethane plus		Other (CO ₂ , Ar, H ₂)	
		Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative
Measured Feed	Dec-18	520,950	105,269,490	82,556	24,567,251	129,085	26,356,190	274,586	48,247,711	29,595	5,176,564	5,128	921,774
Calculated Feed	Dec-18	522,969	105,145,857	82,876	24,563,251	129,586	26,318,596	275,653	48,146,378	29,707	5,193,608	5,147	924,024
Feed to Box	Dec-18	518,589	104,458,367	82,876	24,563,430	129,586	26,318,678	275,653	48,146,424	29,707	5,193,604	767	236,231
Cheu Product	Dec-18	113,085	31,138,686	82,797	24,201,307	27,116	6,106,173	2,423	615,535	3	891	746	214,780
Residue	Dec-18	284,081	48,169,260	0	2,171	5,717	1,175,433	252,452	42,744,398	25,912	4,245,995	0	1,263
Cold Box Vent	Dec-18	80,797	17,261,886	48	90,212	71,081	15,320,116	9,651	1,789,936	0	121	16	61,501
Flare/Boot Strap	Dec-18	80,797	7,778,135	48	50,991	71,081	6,575,118	9,651	1,052,105	0	93,586	16	6,334
Fuel From Cheu	Dec-18	7,654	1,431,052	4	470	198	41,396	6,173	1,159,772	1,279	229,414	0	0
Shrinkage/Loss	Dec-18	2,514	530,805	0	0	0	0	0	0	2,514	530,805	0	0
Unaccounted*	Dec-18	30,459	3,827,708	26	169,615	25,473	2,863,984	4,954	789,129	(0)	1,098	5	3,881

*Before October 2004, the values are estimated

Storage Operations

Inventory (contained helium)

	Government	Private
Beginning inventory	2,979,806	2,961,723
net acceptances + redeliveries	0	0
	0	(81,229)
In Kind Transfers	(28,177)	28,177
Conservation Crude Sales	0	0
Gain/loss	(2,072)	
Ending Inventory	2,949,557	2,908,671
Total Helium in Reservoir	8,156,975	
Total Helium in Storage	5,858,228	
Helium in native gas	2,298,746	

Crude Helium Pipeline

	Gross	Net Helium	Percent
Beginning inventory	38,848	28,063	72.24%
Measured to Pipeline (Private Plants)	12,383	7,222	58.32%
Measured from Pipeline (Private Plants)	123,133	88,288	71.70%
HEU Production	113,085	82,797	73.22%
Injection	0	0	00.00%
Production	0	0	
Ending Inventory	38,651	27,722	71.72%
Gain/Loss	(2,532)	(2,072)	

Tuck Trigg Reservoir Operations

Native Gas (Gross)	Month	Fiscal Year	Since Field
			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

December - 2018

NASA*	Navy*	Army*	Air Force*	DOE*	Other Fed*	Subtotal*	In Kind+	Charges Billed (\$)**		
In Kind Helium (billed quarterly)										
Airgas Merchant Gases, Contract no. INC18-0102										
Month										
FYTD										
Air Liquide Helium America, Inc., Contract no. INC18-0104										
Month										
FYTD										
Air Products, L.P., Contract no. INC18-0105										
Month										
FYTD										
Messer, LLC, Contract no. INC18-0106										
Month										
FYTD										
Praxair, Inc., Contract no. INC18-0112										
Month										
FYTD										
Matheson Tri-Gas, Inc., Contract no. INC18-0114										
Month										
FYTD										
Global Gases America, Contract no. INC18-0116										
Month										
FYTD										
Total month										
26,754	0	0	0	0	0	20,370	47,124	46,394	\$3,989,884	
Total FYTD										
26,754	0	0	0	0	0	20,370	47,124	46,394	\$3,989,884	
Total CYTD										
109,042	0	0	0	0	0	75,884	184,926	182,061	\$15,651,685	
Cumulative										
2,075,205	108,685	450	271,593	422,045	956,928	3,834,904	3,775,523		\$228,370,454	
In Kind Transfers							Month	FYTD	CYTD	Cumulative
Transferred							28,177	41,864	165,711	3,722,112
Volume outstanding							53,486			

* Volumes in Mcf at 14.7 psia & 70°F

**Rounded to nearest dollar

+ Volumes in Mcf at 14.65 psia & 60°F

Natural Gas / 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	281,588	---	311,299	1,106	\$0
FYTD	840,453	---	928,130	1,104	\$0
Cumulative	47,711,996	---	51,928,032	1,088	(\$5,088,325)
Minerals Management Service					
No Longer Provides Natural Gas Marketing Services					
Cumulative	---	---	---	---	(\$179,913)
Tenaska					
Purchaser - Natural Gas					
Month	---	---	310,200	\$2.031562	\$630,191
FYTD	---	---	932,400	\$1.895416	\$1,767,286
Cumulative	---	---	51,789,539	\$4.230111	\$218,248,928
Sandstone					
Purchaser - Natural Gas Liquids					
Month	---	96,355	10,535	\$4.621835	\$48,691
FYTD	---	289,261	31,227	\$5.773183	\$180,279
Cumulative	---	14,746,082	1,570,362	\$10.682676	\$16,775,669
Total					
	Natural Gas (Mcf)**	NGLs (gal)	Purchased (Dth's)	\$\$ Per Unit (\$\$/Dth)	Total (\$\$)
Total month	281,588	96,355	320,735	\$2.116643	\$678,882
Total FYTD	840,453	289,261	963,627	\$2.021078	\$1,947,565
Total CYTD	3,457,977	1,238,407	3,923,097	\$2.164562	\$8,491,788
Cumulative	47,711,996	14,746,082	53,359,901	\$4.321277	\$229,756,358

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

**Rounded to nearest dollar

Table 5 - Conservation Crude Sales/Reserve Sell-down

December - 2018

Helium & Natural Gas Sales

	Award Volume*	Outstanding*	Sales*	Charges Billed (\$)** (billed quarterly)	
Conservation Helium					
<u>Air Liquide Helium America, Inc.</u>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	335,217		335,217	\$25,454,815	
<u>Air Products, L.P.</u>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	9,201,991		9,201,991	\$735,759,540	
<u>Messer, LLC</u>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	6,310,276		6,310,276	\$437,286,782	
<u>Keyes Helium Co., LLC</u>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	1,016,747		1,016,747	\$70,653,572	
<u>Matheson Tri-Gas, Inc.</u>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	361,534		361,534	\$38,417,646	
<u>Praxair, Inc.</u>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	5,577,644		5,577,644	\$426,522,384	
<u>Global Gases America</u>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	37,767		37,767	\$3,798,165	
<u>Airgas Merchant Gases</u>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	15,667		15,667	\$1,488,365	
<u>IACX Energy</u>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	16,220		16,220	\$1,720,180	
<u>Uniper Global Commodities North America LLC</u>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	42,834		42,834	\$5,301,246	
<u>Weil Group Resources LLC</u>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	22,500		22,500	\$2,791,500	
<u>NAH USA Helium Marketing, Inc</u>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	12,834		12,834	\$1,611,246	
<u>Progressive Chemical Technologies LLC</u>					
Month	0	0	0	\$0	
FYTD	0	0	0	\$0	
Cumulative	1,500		1,500	\$262,500	
Total month	0	0	0	0	
Total FYTD	0	0	0	\$0	
Total CYTD	300,000		300,000	\$74,540,000	
Cumulative	23,073,063		23,073,063	\$1,762,102,941	
Conservation Crude Transfers		Month	FYTD	CYTD	Cumulative
Transferred		0	0	300,000	1,203,477
Volume outstanding		0			

* Volumes in Mcf at 14.65 psia & 60°F

Table 6 - Helium Resources Evaluation

December - 2018

All Volumes in Mcf at 14.7 psia & 70°F

Revenue Collected From Federal Leaseholds	Month*	FYTD*
Fee Sales & Royalties	\$1,682,594	\$6,576,240
Natural Gas Royalties (1)	\$0	\$0
Natural Gas Rentals	\$0	\$0
Other	\$40,607	\$115,059
Revenue Collected from Federal Lease Holds	\$1,683,973	\$6,616,847

*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)	12	47

U. S. Helium Production

<i>Domestic</i>	FY Volume	CY Volume
2013 Helium Sold	4,725,187	4,623,130
2014 Helium Sold	4,279,765	4,166,708
2015 Helium Sold	3,815,746	3,463,698
2016 Helium Sold	3,282,185	3,466,014
2017 Helium Sold	4,559,100	4,644,278
Estimated Helium Resources as of 12/31/2016 (Mcf)		723,000,000

	FY-2017	CY-2017
U.S. Helium Exports (3)	2,520,645	2,451,207
US Helium Imports	731,407	666,908

(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

December - 2018

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	Cumulative		Month	FYTD	Month
	Month		FYTD	CYTD	Cumulative		Month	Cumulative				
Total All Contracts*												
Crude Acquired	12,383	57.0%	7,059	26,058	108,538	27,366,222	59,850	60,879,093				
Crude Disposed	123,133	71.7%	88,288	255,785	1,107,993	54,110,463	31,673	26,758,930			\$487,825.29	Storage Fees
Grade-A Rdlvrd	0		0	0	0	1,478,718					<u>\$312,457.68</u>	RMF Fees
Net/Balance	(110,750)		(81,229)	(229,727)	(999,455)	(28,222,959)	28,177	34,120,163	2,908,671		\$800,282.96	\$2,175,180
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			
Messer, 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												
Air Liquide Helium America, Inc., Contract no. 3284												
Crude Acquired												
Crude Disposed												
Net/Balance												
Keyes Helium Co., LLC, Contract no. 3287												
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												
IACX Energy, Contract no. 3297												
Crude Acquired												
Crude Disposed												
Net/Balance												
Uniper Global Commodities North America LLC, Contract no. 3298												
Crude Acquired												
Crude Disposed												
Net/Balance												
Weil Group Resources LLC, Contract no. 3299												
Crude Acquired												
Crude Disposed												
Net/Balance												
NAH USA Helium Marketing, Inc, Contract no. 3300												
Crude Acquired												
Crude Disposed												
Net/Balance												
Progressive Chemical Technologies LLC, Contract no. 3301												
Crude Acquired												
Crude Disposed												
Net/Balance												

Government Helium	
Remaining Crude Acquired beginning of the month	2,979,806
Crude Disposed: In Kind Sales transferred for the month	(28,177)
Conservation Crude Sales/Reserve Sell Down transferred (n	0
Gains and Losses for the month	(2,072)
Net/Balance of Purchased Helium Remaining for Sale	2,949,557

*Includes In Kind and Conservation Crude transfers from Government storage

**Rounded to nearest dollar

** New Contracts

Table 8 - Compression & CHEU (Operations)

December - 2018

Field/CHEU Compressor Operations		Month	FYTD	Cumulative
Spot gas fuel price *	\$ per/MMBTU	\$2.03	\$1.92	\$4.60
Fuel used * (now includes field compression well head)	total MMBTU	8,848	26,504	1,933,787
Rental compressor(s) helium in fuel (Mcf)	Mcf	0	0	0
#1 Compressor run time *	hours	744	2,209	119,057
#2 Compressor run time *	hours	328	466	80,096
#3 Compressor run time *	hours	419	1,195	65,014

* Field/CHEU Compressor Operations based on Dec 18 activity

Crude Helium Enrichment Unit (CHEU) CHEU Runtime	Month		FYTD		Cumulative
	Runtime Hrs	Percent	Runtime Hrs	Percent	Runtime Hrs
Processing feed gas	744	100.0%	2,209	100.0%	131,844
Producing residue gas	744	100.0%	2,209	100.0%	128,842
Producing helium product	744	100.0%	2,209	100.0%	125,165
Producing natural gas liquids	744	100.0%	2,208	100.0%	124,246

CHEU Utility Usage	Month	FYTD	Cumulative
Cheu Fuel Gas (Mcf) usage Dec 18	3,223	9,431	620,565
Cheu Pure Water Usage (gallons) Dec 18	30	174	316,338
Electricity Metered (Kwh) consumed Nov 18	2,883,035	8,649,105	187,586,727