

Bureau of Land Management

Amarillo Field Office

Helium Operations

Statistical Report

for

June - 2020



Distribution:

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

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Amarillo, Texas

Issued: October 21, 2021

**"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:

October 20, 2021

Table 1 - Summary of Helium Operations

June - 2020

Helium Enrichment Unit Operations

Gas Processed	Month	Month	Average Percent	Gross FYTD	Net FYTD
	Gross Volume	Net Helium			
Measured Plant Feed (Mcf*)	347,395	44,216	12.73%	3,816,805	540,281
Helium Product (Mcf*)	64,042	45,175	70.54%	760,408	541,650
Residue Natural Gas (Mcf*)	100,466	0	00.00%	1,675,247	86

* Volumes in Mcf at 14.65 psia & 60°F

Natural Gas & Liquids Produced

Gas Processed	Month	FYTD
Natural Gas Sales (Mcf****)	97,735	1,654,804
NGL Sales (gallons)	76,212	663,545

*** 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Total Withdrawn (Mcf*)	348,036	44,251	12.71%	3,831,482	541,320
Crude Injection (Mcf*)	43,495	30,789	70.79%	181,672	127,776
Crude Production (Mcf*)	0	0	00.00%	0	0

* Volumes in Mcf at 14.65 psia & 60°F

Storage Operations

In Kind Helium	Month	FYTD	CYTD	Cumulative
Sale Volumes Transferred (Mcf*)	5,980	157,077	105,608	4,006,821
Sale Volumes Outstanding (Mcf*)	41,401			

* Volumes in Mcf at 14.65 psia & 60°F

Private Company Helium Storage Contracts

Contact Activity	Month	Month	Average Percent	Annual
	Gross Volume	Net Helium		Helium FYTD
Crude Acquired (Mcf*)	19,906	13,967	70.16%	110,669
Crude Disposed (Mcf*)	19,385	13,790	71.14%	447,507
Net Balance (Mcf*)	521	177		(336,838)
Balance of Stored Helium End Of Month (Mcf*)		2,250,126		

* Volumes in Mcf at 14.65 psia & 60°F

Revenue / Charges

Helium Storage Contracts (Charges Billed (\$))	Month	FYTD
Storage Fees Billed (\$)	\$790,633	\$7,702,159
Resource Management Fees Billed (\$)	\$274,090	\$2,192,733
Total Storage and RMF Collected	\$1,064,723	\$9,894,892

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

	Month	FYTD
In Kind Sales	\$4,772,012	\$13,742,753
Natural Gas & Liquid Sales	\$204,307	\$2,165,011

Helium Resources Evaluation

	Month	FYTD
Revenue Collected from Federal Lease Holds	\$1,986,291	\$16,892,351
Helium Sample Collection Report for month	Submitted - 0	Received - 0
		Analyzed - 11

*Rounded to nearest dollar

Table 2 - Bush Dome Reservoir Operations

June - 2020

		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		348,036	248,245,998	44,251	45,758,491	85,920	61,205,913	194,137	126,317,703	20,274	12,847,251	3,454	2,116,639
BIVINS A-3	Jun-20	0	10,961,114	0	3,548,629	0	2,772,147	0	4,159,384	0	407,301	0	73,653
BIVINS A-6	Jun-20	0	13,478,503	0	7,657,998	0	3,319,504	0	2,207,724	0	224,102	0	69,175
BIVINS A-13	Jun-20	28,977	10,063,324	8,181	4,963,666	7,250	2,576,032	11,935	2,215,067	1,388	247,596	223	60,965
BIVINS A-14	Jun-20	32,734	11,388,029	6,594	5,986,890	7,963	2,873,065	16,048	2,213,921	1,810	240,993	318	73,160
BIVINS A-4	Jun-20	24,759	15,113,315	2,191	2,561,867	5,886	3,658,899	14,781	7,951,819	1,609	802,506	292	138,226
BUSH A-2	Jun-20	3,310	14,129,633	138	2,024,982	825	3,470,617	2,084	7,721,016	242	796,503	21	116,515
Injection	Jun-20	43,495	66,656,407	30,789	48,147,564	11,527	17,170,369	879	784,321	0	42	300	554,112
inj Bivins A-3	Jun-20	0	(25,652,315)	0	(18,384,452)	0	(6,554,549)	0	(332,777)	0	0	0	(380,537)
inj Bivins A-6	Jun-20	(43,495)	(24,592,436)	(30,653)	(17,796,161)	(11,658)	(6,535,120)	(913)	(147,115)	(1)	(80)	(269)	(113,960)
inj Bivins A-13	Jun-20	0	(6,492,339)	0	(4,707,153)	0	(1,657,381)	0	(122,769)	0	(44)	0	(4,992)
inj Bivins A-14	Jun-20	0	(6,501,333)	0	(4,767,421)	0	(1,602,106)	0	(126,303)	0	(7)	0	(5,497)
inj Bivins A-4	Jun-20	0	(2,527,801)	0	(1,848,815)	0	(601,353)	0	(42,016)	0	0	0	(35,617)
inj Bush A-2	Jun-20	0	(867,658)	0	(625,258)	0	(215,406)	0	(13,980)	0	0	0	(13,015)
Production	Jun-20	0	1,254,876	0	924,742	0	270,231	0	48,129	0	3,199	0	8,575
BIVINS A-1	Jun-20	0	2,686,608	0	48,896	0	636,995	0	1,798,415	0	175,704	0	26,597
BIVINS A-2	Jun-20	14,582	14,931,058	456	1,911,360	3,612	3,646,679	10,150	8,406,032	347	840,985	16	126,001
BIVINS A-5	Jun-20	20,165	17,275,032	3,513	2,269,165	5,086	4,246,974	10,231	9,636,399	1,166	973,735	170	148,760
BIVINS A-7	Jun-20	12,581	12,469,024	3,803	2,981,803	3,248	3,144,774	4,952	5,671,337	498	580,407	79	90,704
BIVINS A-9	Jun-20	21,787	11,838,737	665	236,456	5,521	2,924,372	13,859	7,775,696	1,547	794,699	196	107,514
BIVINS A-11	Jun-20	15,106	7,330,012	447	165,238	3,761	1,826,287	9,667	4,774,277	1,072	494,533	159	69,678
BIVINS A-15	Jun-20	21,610	11,384,340	355	457,315	4,950	2,702,416	14,514	7,361,518	1,512	741,726	280	121,365
BIVINS B-1	Jun-20	24,931	9,572,464	563	335,696	6,063	2,324,334	16,205	6,175,005	1,713	635,068	386	102,361
BIVINS B-2	Jun-20	22,110	8,002,675	403	150,629	5,526	2,006,133	14,218	5,189,741	1,533	538,647	430	117,524
BUSH A-1	Jun-20	0	5,721,962	0	104,140	0	1,356,677	0	3,830,281	0	374,216	0	56,647
BUSH A-3	Jun-20	22,634	13,494,327	7,284	3,308,167	5,763	3,343,908	8,832	6,103,941	677	620,865	79	117,445
BUSH A-4	Jun-20	19,302	9,668,211	1,296	1,665,368	4,911	2,424,314	11,660	4,997,568	1,319	512,931	116	68,030
BUSH A-5	Jun-20	33,795	18,592,740	7,648	4,316,526	8,541	4,674,221	15,607	8,592,920	1,790	881,409	210	127,664
BUSH A-8	Jun-20	12,738	5,101,978	228	93,455	3,126	1,239,810	8,271	3,359,025	878	341,687	235	68,002
BUSH A-9	Jun-20	0	3,860,915	0	105,037	0	930,915	0	2,537,187	0	253,463	0	34,312
BUSH A-11	Jun-20	13,390	5,228,710	291	147,467	3,208	1,251,282	8,800	3,420,509	916	347,508	175	61,944
BUSH B-1	Jun-20	3,526	3,540,633	60	66,177	812	839,296	2,358	2,365,568	259	234,846	37	34,746
FUQUA A-1	Jun-20	0	2,954,098	0	53,854	0	702,798	0	1,975,175	0	193,573	0	28,699
FUQUA A-2	Jun-20	0	132,119	0	2,404	0	31,322	0	88,458	0	8,637	0	1,297
FUQUA A-3	Jun-20	0	9,303,912	0	577,005	0	2,277,687	0	5,790,357	0	583,701	0	75,162
TT Fuel	Jun-20	468	0	8	0	108	0	312	0	34	0	5	0
field-wide pcts				12.71%	18.43%	24.69%	24.66%	55.78%	50.88%	5.83%	5.18%	0.99%	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 Jun-20 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 - 19	113.305	27.048
Injection 2003 - 19	(1.423)	(1.159)
Produced to Date 2020	2.605	0.362
Injected to Date 2020	(0.182)	(0.128)
Amount of Raw Gas Available to CHEU	66.258	=====> 7.130 total helium in reservoir
Estimated Bottom Hole Pressure	244.104	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

June - 2020

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	Jun-20	347,395	113,135,192	44,216	25,721,378	85,555	28,302,533	192,547	52,482,535	21,412	5,626,377	3,665	1,002,369
Calculated Feed	Jun-20	361,315	113,084,737	53,840	25,761,378	89,584	28,284,832	194,136	52,391,341	20,240	5,642,283	3,514	1,004,903
Feed to Box	Jun-20	358,290	112,327,467	53,840	25,761,557	89,584	28,284,914	194,136	52,391,387	20,240	5,642,277	489	247,332
Cheu Product	Jun-20	64,042	32,741,135	45,175	25,354,275	17,130	6,509,868	1,340	651,005	2	942	397	225,044
Residue	Jun-20	100,466	51,849,354	0	2,258	2,740	1,266,075	88,552	45,998,548	9,174	4,581,208	0	1,265
Cold Box Vent	Jun-20	51,850	18,430,774	26	92,489	44,995	16,328,325	6,818	1,947,936	1	246	10	61,778
Flare/Boot Strap	Jun-20	3,154	8,635,936	154	57,270	697	7,282,809	2,095	1,191,535	207	97,740	1	6,581
Fuel From Cheu	Jun-20	5,813	1,547,597	3	529	151	44,415	4,688	1,253,766	971	248,888	0	0
Shrinkage/Loss	Jun-20	9,886	610,183	0	0	0	0	0	0	9,886	610,183	0	0
Unaccounted*	Jun-20	123,079	4,822,302	8,483	200,212	23,872	3,255,411	90,644	1,361,374	(1)	973	81	4,332

*Before October 2004, the values are estimated

Storage Operations

Inventory (contained helium)

	Government	Private
Beginning inventory	2,602,834	2,243,969
net acceptances +	0	0
redeliveries	0	177
In Kind Transfers	(5,980)	5,980
Conservation Crude Sales	0	0
Gain/loss	(12,278)	0
Ending Inventory	2,584,577	2,250,126
Total Helium in Reservoir	7,129,637	
Total Helium in Storage	4,834,703	
Helium in native gas	2,294,934	

Crude Helium Pipeline

	Gross	Net Helium	Percent
Beginning inventory	38,787	27,681	71.37%
Measured to Pipeline (Private Plants)	19,906	13,971	70.18%
Measured from Pipeline (Private Plant:	19,385	13,808	71.23%
HEU Production	64,042	45,175	70.54%
Injection	43,495	30,789	70.79%
Production	0	0	
Ending Inventory	42,424	29,952	70.60%
Gain/Loss	(17,431)	(12,278)	70.44%

Tuck Trigg Reservoir Operations

Native Gas (Gross)	Month	Since Field	
		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

June - 2020

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	30,192	0	0	0	0	19,779	49,971	49,196	\$4,772,012	
Total FYTD	71,815	96	0	0	0	72,931	144,841	142,599	\$13,742,753	
Total CYTD	51,520	43	0	0	0	47,998	99,562	98,021	\$9,507,843	
Cumulative	2,204,880	108,913	450	271,593	422,045	1,103,935	4,111,816	4,048,147	\$254,462,180	
In Kind Transfers							Month	FYTD	CYTD	Cumulative
Transferred							5,980	157,077	105,608	4,006,821
Volume outstanding							41,401			

* 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 (\$)**
EI Paso Natural Gas Provides Measured Firm/Interruptible Transportation Services (billed monthly)					
Month	97,735	---	107,468	1,100	\$0
FYTD	1,654,804	---	1,821,964	1,101	\$0
Cumulative	51,170,842	---	55,736,733	1,089	(\$5,088,325)
Minerals Management Service No Longer Provides Natural Gas Marketing Services					
Cumulative	---	---	---	---	(\$179,913)
ETC Marketing Ltd Purchaser - Natural Gas					
Month	---	---	121,800	\$1.496531	\$182,277
FYTD	---	---	1,875,900	\$1.031862	\$1,935,670
Cumulative	---	---	55,681,259	\$3.999233	\$221,855,789
Sandstone Purchaser - Natural Gas Liquids					
Month	---	76,212	8,281	\$2.660286	\$22,030
FYTD	---	663,545	71,809	\$3.193770	\$229,341
Cumulative	---	16,111,366	1,718,451	\$10.106154	\$17,366,931
	Natural Gas (Mcf)***	NGLs (gal)	Purchased (Dth's)	\$\$ Per Unit (\$\$/Dth)	Total (\$\$)
Total month	97,735	76,212	130,081	\$1.570616	\$204,307
Total FYTD	1,654,804	663,545	1,947,709	\$1.111568	\$2,165,011
Total CYTD	1,202,434	462,262	1,418,815	\$0.966253	\$1,370,934
Cumulative	51,170,842	16,111,366	57,399,710	\$4.090283	\$233,954,482

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

**Rounded to nearest dollar

Table 5 - Conservation Crude Sales/Reserve Sell-down

June - 2020

Helium & Natural Gas Sales

This Table has been suspended as of 9/30/2018, BLM is no longer selling crude helium on the Open Market per Helium Stewardship Act of 2013.

Table 6 - Helium Resources Evaluation

June - 2020

All Volumes in Mcf at 14.7 psia & 70°F

Revenue Collected From Federal Leaseholds	Month*	FYTD*
Fee Sales & Royalties	\$2,015,830	\$16,819,602
Natural Gas Royalties (1)	\$0	\$0
Natural Gas Rentals	\$0	\$0
Other	\$70,081	\$690,218
Revenue Collected from Federal Lease Holds	\$1,986,291	\$16,892,351

*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)	11	130

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

June - 2020

All Volumes in Mcf at 14.65 psia & 60°F

	Metered Gas						Transferred Gas		Stored Helium EOM	Charges Billed (\$)**	
	Gross Gas	Helium % Month	Helium	FYTD	Helium CYTD	Cumulative	Helium Month	Cumulative		Month	FYTD
Total All Contracts*											
Crude Acquired	19,906	70.2%	13,967	110,669	87,481	27,568,422	11,042	61,498,694			
Crude Disposed	19,385	71.1%	13,790	447,507	258,759	55,255,917	5,062	26,994,214		\$790,632.67	Storage Fees
Grade-A Rdlvrd	0		0	0	0	1,478,718				<u>\$274,090.06</u>	RMF Fees
Net/Balance	521		177	(336,838)	(171,278)	(29,166,213)	5,980	34,504,480	2,250,126	\$1,064,722.73	\$9,894,892
Total Prior Contracts (TERMINATED)											
Crude Acquired				0	0	17,406,129	0	18,235,232			
Crude Disposed				0	0	11,830,863	0	19,187,102			
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											
Scout Energy Partners, Contract no. 3294											
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											

Government Helium	
Remaining Crude Acquired beginning of the month	2,602,834
Crude Disposed: In Kind Sales transferred for the month	(5,980)
Conservation Crude Sales/Reserve Sell Down transferred (month)	0
Gains and Losses for the month	(12,278)
Net/Balance of Purchased Helium Remaining for Sale	2,584,577

*Includes In Kind and Conservation Crude transfers from Government storage

**Rounded to nearest dollar

** New Contracts

Table 8 - Compression & CHEU (Operations)

June - 2020

Field/CHEU Compressor Operations		Month	FYTD	Cumulative
Spot gas fuel price *	\$ per/MMBTU	\$1.50		
Fuel used * (now includes field compression well head)	total MMBTU	7,405	74,506	2,070,521
#1 Compressor run time *	hours	1	1,623	125,167
#2 Compressor run time *	hours	579	5,482	89,228
#3 Compressor run time *	hours	581	5,113	73,968

* Field/CHEU Compressor Operations based on Jun 20 activity

Crude Helium Enrichment Unit (CHEU) CHEU Runtime	Month		FYTD		Cumulative
	Runtime Hrs	Percent	Runtime Hrs	Percent	Runtime Hrs
Processing feed gas	581	80.7%	6,179	94.0%	144,282
Producing residue gas	581	80.7%	6,103	92.8%	141,053
Producing helium product	581	80.7%	5,964	90.7%	137,077
Producing natural gas liquids	581	80.7%	6,074	92.4%	136,384

CHEU Utility Usage	Month	FYTD	Cumulative
Cheu Fuel Gas (Mcf) usage Jun 20	2,947	48,323	694,430
Cheu Pure Water Usage (gallons) Jun 20	197	2,746	328,540
Electricity Metered (Kwh) CHEU consumed May 20	2,870,316	23,308,417	236,504,044

Booster Compressor Operations and Usage	Month	FYTD	Cumulative
Electricity Metered (Kwh) Booster Compressor consumed May 20	616,524	4,034,203	4,034,203