

Bureau of Land Management

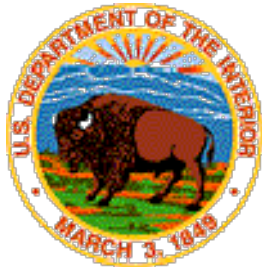
Amarillo Field Office

Helium Operations

Statistical Report

for

October - 2020



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

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 4 - Natural Gas / Natural Gas Liquid Sales
Table 5 - Conservation Crude Sales/Reserve Sell-down
Table 6 - Helium Resources Evaluation
Table 7 - Helium Storage Contract Activity
Table 8 - Compression & CHEU (Operations)

Compiled by: David Reeves
Amarillo, Texas
Issued: March 3, 2022

**"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:

March 3, 2022

Table 1 - Summary of Helium Operations

October - 2020

Helium Enrichment Unit Operations

Gas Processed	Month	Month	Average Percent	Gross FYTD	Net FYTD
	Gross Volume	Net Helium			
Measured Plant Feed (Mcf*)	437,097	55,091	12.60%	437,097	55,091
Helium Product (Mcf*)	79,137	55,619	70.28%	79,137	55,619
Residue Natural Gas (Mcf*)	214,947	0	00.00%	214,947	0

* Volumes in Mcf at 14.65 psia & 60°F

Natural Gas & Liquids Produced

Gas Processed	Month	FYTD
Natural Gas Sales (Mcf****)	211,471	211,471
NGL Sales (gallons)	67,737	67,737

*** 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Total Withdrawn (Mcf*)	431,452	54,137	12.55%	431,452	54,137
Crude Injection (Mcf*)	8,651	6,102	70.53%	8,651	6,102
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*)	7,422	7,422	173,267	4,074,480
Sale Volumes Outstanding (Mcf*)	15,778			

* 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*)	26,679	19,390	72.68%	19,390
Crude Disposed (Mcf*)	98,731	70,372	71.28%	70,372
Net Balance (Mcf*)	(72,052)	(50,982)		(50,982)
Balance of Stored Helium End Of Month (Mcf*)		2,205,253		

* Volumes in Mcf at 14.65 psia & 60°F

Revenue / Charges

Helium Storage Contracts (Charges Billed (\$))	Month	FYTD
Storage Fees Billed (\$)	\$568,921	\$568,921
Resource Management Fees Billed (\$)	\$0	\$0
Total Storage and RMF Collected	\$568,921	\$568,921

Conservation Helium - Natural Gas - Liquid Sales

(Charges Billed (\$))	Month	FYTD
In Kind Sales	\$0	\$0
Natural Gas & Liquid Sales	\$467,422	\$467,422

Helium Resources Evaluation

	Month	FYTD
Revenue Collected from Federal Lease Holds	\$2,085,522	\$2,085,522
Helium Sample Collection Report for month	Submitted - 0	Received - 0
		Analyzed - 15

*Rounded to nearest dollar

Table 2 - Bush Dome Reservoir Operations

October - 2020

		Gross Withdrawal		Net Helium Withdrawal		Nitrogen		Methane	Methane	Ethane plus		Other (CO2, Ar, H2)	Cumulative
		Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	
TOTAL		431,452	249,311,575	54,137	45,888,423	106,657	61,468,937	241,324	126,917,423	25,102	12,909,574	4,233	2,127,218
BIVINS A-3	Oct-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	Oct-20	2,477	13,488,500	1,749	7,665,003	660	3,322,211	53	2,207,949	(0)	224,102	15	69,234
BIVINS A-13	Oct-20	35,313	10,147,262	9,642	4,987,062	8,829	2,597,026	14,854	2,249,947	1,719	251,623	269	61,604
BIVINS A-14	Oct-20	39,594	11,483,515	7,551	6,004,855	9,621	2,896,185	19,807	2,261,989	2,229	246,388	386	74,098
BIVINS A-4	Oct-20	30,558	15,187,356	2,640	2,568,167	7,258	3,676,478	18,301	7,996,270	1,999	807,340	361	139,101
BUSH A-2	Oct-20	4,806	14,147,709	199	2,025,733	1,197	3,475,121	3,027	7,732,397	353	797,828	30	116,630
Injection	Oct-20	8,651	66,674,157	6,102	48,160,003	2,313	17,175,173	183	784,719	1	43	53	554,219
inj Bivins A-3	Oct-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	Oct-20	(8,651)	(24,610,186)	(6,103)	(17,808,595)	(2,312)	(6,539,947)	(182)	(147,495)	(1)	(81)	(53)	(114,068)
inj Bivins A-13	Oct-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	Oct-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	Oct-20	0	(2,527,801)	0	(1,848,815)	0	(601,353)	0	(42,016)	0	0	0	(35,617)
inj Bush A-2	Oct-20	0	(867,658)	0	(625,258)	0	(215,406)	0	(13,980)	0	0	0	(13,015)
Production	Oct-20	0	1,256,556	0	925,850	0	270,686	0	48,231	0	3,205	0	8,584
BIVINS A-1	Oct-20	0	2,686,608	0	48,896	0	636,995	0	1,798,415	0	175,704	0	26,597
BIVINS A-2	Oct-20	20,758	14,984,378	650	1,913,029	5,142	3,659,887	14,449	8,443,148	494	842,254	23	126,060
BIVINS A-5	Oct-20	23,782	17,333,260	4,267	2,279,334	5,994	4,261,488	11,952	9,666,085	1,370	977,100	200	149,253
BIVINS A-7	Oct-20	15,087	12,505,329	4,561	2,992,778	3,895	3,154,148	5,938	5,685,626	597	581,844	95	90,933
BIVINS A-9	Oct-20	27,464	11,907,730	838	238,560	6,959	2,941,855	17,470	7,819,583	1,950	799,597	247	108,135
BIVINS A-11	Oct-20	18,051	7,374,660	538	166,564	4,496	1,837,403	11,540	4,802,840	1,286	497,706	191	70,147
BIVINS A-15	Oct-20	29,351	11,457,084	478	458,501	6,724	2,719,055	19,707	7,410,389	2,061	746,826	382	122,314
BIVINS B-1	Oct-20	30,580	9,648,329	691	337,411	7,437	2,342,784	19,877	6,224,317	2,101	640,280	474	103,537
BIVINS B-2	Oct-20	26,882	8,071,586	488	151,882	6,728	2,023,369	17,265	5,234,018	1,869	543,424	532	118,892
BUSH A-1	Oct-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	Oct-20	27,264	13,546,364	8,773	3,324,913	6,941	3,357,157	10,638	6,124,246	815	622,421	95	117,627
BUSH A-4	Oct-20	23,562	9,726,732	1,470	1,669,011	5,995	2,439,207	14,329	5,033,174	1,627	516,958	141	68,381
BUSH A-5	Oct-20	40,556	18,690,450	8,914	4,338,372	10,245	4,698,909	18,960	8,638,283	2,183	886,613	253	128,273
BUSH A-8	Oct-20	15,237	5,141,417	272	94,159	3,744	1,249,499	9,885	3,384,615	1,054	344,409	284	68,735
BUSH A-9	Oct-20	0	3,860,915	0	105,037	0	930,915	0	2,537,187	0	253,463	0	34,312
BUSH A-11	Oct-20	16,382	5,271,151	355	148,388	3,925	1,261,450	10,766	3,448,401	1,121	350,411	215	62,500
BUSH B-1	Oct-20	3,748	3,555,508	63	66,428	864	842,729	2,504	2,375,506	277	235,943	40	34,902
FUQUA A-1	Oct-20	0	2,954,098	0	53,854	0	702,798	0	1,975,175	0	193,573	0	28,699
FUQUA A-2	Oct-20	0	132,119	0	2,404	0	31,322	0	88,458	0	8,637	0	1,297
FUQUA A-3	Oct-20	0	9,303,912	0	577,005	0	2,277,687	0	5,790,357	0	583,701	0	75,162
TT Fuel	Oct-20	144	0	0	0	142	0	1	0	0	0	0	0
field-wide pct's				12.55%	18.41%	24.72%	24.66%	55.93%	50.91%	5.82%	5.18%	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 Oct-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	3.670	0.492
Injected to Date 2020	(0.199)	(0.140)
Amount of Raw Gas Available to CHEU	65.211	=====> 7.012 total helium in reservoir
Estimated Bottom Hole Pressure	240.249	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 - 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	Oct-20	437,097	114,210,811	55,091	25,853,343	107,439	28,567,176	243,469	53,085,266	26,577	5,691,559	4,520	1,013,466
Calculated Feed	Oct-20	433,981	114,152,812	56,023	25,894,749	107,227	28,548,529	241,379	52,989,612	25,102	5,704,434	4,250	1,015,488
Feed to Box	Oct-20	430,228	113,386,126	56,023	25,894,928	107,227	28,548,611	241,379	52,989,658	25,102	5,704,428	497	248,502
Cheu Product	Oct-20	79,137	32,927,354	55,619	25,485,281	21,267	6,559,787	1,763	655,166	3	946	484	226,174
Residue	Oct-20	214,947	52,360,854	0	2,258	5,987	1,280,030	189,373	46,449,126	19,587	4,628,175	0	1,265
Cold Box Vent	Oct-20	62,989	18,584,902	165	93,219	53,558	16,458,147	9,252	1,971,403	0	319	14	61,815
Flare/Boot Strap	Oct-20	17,443	8,715,374	538	61,080	5,116	7,305,269	10,557	1,239,654	1,228	102,761	3	6,610
Fuel From Cheu	Oct-20	7,671	1,563,987	4	537	199	44,839	6,187	1,266,984	1,282	251,627	0	0
Shrinkage/Loss	Oct-20	3,002	617,603	0	0	0	0	0	0	3,002	617,603	0	0
Unaccounted*	Oct-20	45,040	4,925,865	(303)	198,029	21,101	3,302,527	24,246	1,420,102	(0)	901	(4)	4,306

*Before October 2004, the values are estimated

Storage Operations

Inventory (contained helium)

	Government	Private
Beginning inventory	2,514,650	2,248,813
net acceptances + redeliveries	0	0
In Kind Transfers	(7,422)	7,422
Conservation Crude Sales	0	0
Gain/loss	(6,846)	0
Ending Inventory	2,500,382	2,205,253
Total Helium in Reservoir	7,012,145	
Total Helium in Storage	4,705,635	
Helium in native gas	2,306,510	

Crude Helium Pipeline

	Gross	Net Helium	Percent
Beginning inventory	40,458	28,862	71.34%
Measured to Pipeline (Private Plants)	26,679	19,397	72.71%
Measured from Pipeline (Private Plant:	98,730	70,372	71.28%
HEU Production	79,137	55,619	70.28%
Injection	8,651	6,102	70.53%
Production	0	0	
Ending Inventory	28,924	20,559	71.08%
Gain/Loss	(9,968)	(6,846)	68.68%

Tuck Triqq 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

October - 2020

NASA*	Navy*	Army*	Air Force*	DOE*	Other Fed*	Subtotal*	In Kind+	Charges Billed (\$)**
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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	0	0	0	0	0	0	0	0	\$0		
Total FYTD	0	0	0	0	0	0	0	0	\$0		
Total CYTD	71,548	54	5	2	0	70,650	142,260	140,057	\$13,585,335		
Cumulative	2,224,908	108,924	455	271,594	422,045	1,126,588	4,154,514	4,090,183	\$258,539,672		
In Kind Transfers								Month	FYTD	CYTD	Cumulative
Transferred								7,422	7,422	173,267	4,074,480
Volume outstanding								15,778			

* Volumes in Mcf at 14.7 psia & 70°F
 + Volumes in Mcf at 14.65 psia & 60°F

**Rounded to nearest dollar

Natural Gas / Natural Gas Liquid Sales

	Natural Gas (Mcf)***	NGLs (gal)	Decatherms	Avg Btu Value	Charges Billed (\$)**
EI Paso Natural Gas	<Chk Data>	Provides Measured Firm/Interruptible Transportation Services			(billed monthly)
Month	211,471	---	232,257	1,098	\$0
FYTD	211,471	---	232,257	1,098	\$0
Cumulative	51,674,630	---	56,291,047	1,089	(\$5,088,325)
Minerals Management Service	No Longer Provides Natural Gas Marketing Services				
Cumulative	---	---	---	---	(\$179,913)
ETC Marketing Ltd		Purchaser - Natural Gas		\$\$/Unit	
Month	---	---	237,500	\$1.852980	\$440,083
FYTD	---	---	237,500	\$1.852980	\$440,083
Cumulative	---	---	56,259,359	\$3.974639	\$222,784,065
Sandstone		Purchaser - Natural Gas Liquids			
Month	---	67,737	7,335	\$3.727197	\$27,339
FYTD	---	67,737	7,335	\$3.727197	\$27,339
Cumulative	---	16,277,371	1,736,500	\$10.038011	\$17,431,006
	Natural Gas (Mcf)***	NGLs (gal)	Purchased (Dth's)	\$\$ Per Unit (\$\$/Dth)	Total (\$\$)
Total month	211,471	67,737	244,835	\$1.909130	\$467,422
Total FYTD	211,471	67,737	244,835	\$1.909130	\$467,422
Total CYTD	1,706,222	628,267	2,014,964	\$1.172867	\$2,363,285
Cumulative	51,674,630	16,277,371	57,995,859	\$4.065349	\$234,946,833

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

**Rounded to nearest dollar

Table 5 - Conservation Crude Sales/Reserve Sell-down

October - 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

October - 2020

All Volumes in Mcf at 14.7 psia & 70°F

Revenue Collected From Federal Leaseholds	Month*	FYTD*
Fee Sales & Royalties	\$2,040,558	\$2,040,558
Natural Gas Royalties (1)	\$0	\$0
Natural Gas Rentals	\$0	\$0
Other	\$44,964	\$44,964
Revenue Collected from Federal Lease Holds	\$2,085,522	\$2,085,522

*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)	15	15

U. S. Helium Production

<i>Domestic</i>			CY Volume
2013 Helium Sold			4,623,130
2014 Helium Sold			4,166,708
2015 Helium Sold			3,463,698
2016 Helium Sold			3,466,014
2017 Helium Sold			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

October - 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
Total All Contracts*										
Crude Acquired	26,679	72.7%	19,390	19,390	152,489	27,633,430	13,874	61,703,427		
Crude Disposed	98,731	71.3%	70,372	70,372	436,299	55,433,457	6,452	27,085,175	\$568,920.98	Storage Fees
Grade-A Rdlvrd	0		0	0	0	1,478,718			\$0.00	RMF Fees
Net/Balance	(72,052)		(50,982)	(50,982)	(283,810)	(29,278,745)	7,422	34,618,252	2,205,253	\$568,920.98 \$568,921
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	2,514,650
Crude Disposed: In Kind Sales transferred for the month	(7,422)
Conservation Crude Sales/Reserve Sell Down transferred (month)	0
Gains and Losses for the month	(6,846)
Net/Balance of Purchased Helium Remaining for Sale	2,500,382

*Includes In Kind and Conservation Crude transfers from Government storage

**Rounded to nearest dollar

** New Contracts

Table 8 - Compression & CHEU (Operations)

October - 2020

Field/CHEU Compressor Operations		Month	FYTD	Cumulative
Spot gas fuel price *	\$ per/MMBTU	\$1.85		
Fuel used * (now includes field compression well head)	total MMBTU	9,034	9,034	2,091,432
#1 Compressor run time *	hours	77	77	125,390
#2 Compressor run time *	hours	725	725	90,873
#3 Compressor run time *	hours	632	632	75,560

* Field/CHEU Compressor Operations based on Oct 20 activity

Crude Helium Enrichment Unit (CHEU) CHEU Runtime	Month		FYTD		Cumulative
	Runtime Hrs	Percent	Runtime Hrs	Percent	Runtime Hrs
Processing feed gas	745	100.1%	745	100.1%	146,169
Producing residue gas	718	96.6%	718	96.6%	142,884
Producing helium product	710	95.5%	710	95.5%	138,757
Producing natural gas liquids	714	96.0%	714	96.0%	138,183

CHEU Utility Usage	Month	FYTD	Cumulative
Cheu Fuel Gas (Mcf) usage Oct 20	3,235	3,235	706,462
Cheu Pure Water Usage (gallons) Oct 20	1,283	1,283	331,472
Electricity Metered (Kwh) CHEU consumed Sep 20	2,338,668	2,338,668	243,366,477

Booster Compressor Operations and Usage	Month	FYTD	Cumulative
Electricity Metered (Kwh) Booster Compressor consumed Sep 20	590,732	590,732	5,730,812