

Bureau of Land Management

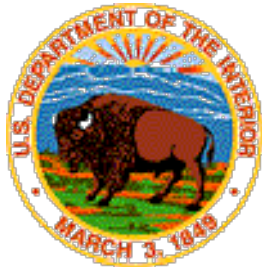
Amarillo Field Office

Helium Operations

Statistical Report

for

July - 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: October 22, 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

July - 2020

Helium Enrichment Unit Operations

Gas Processed	Month	Month	Average Percent	Gross FYTD	Net FYTD
	Gross Volume	Net Helium			
Measured Plant Feed (Mcf*)	4,828	26	0.54%	3,821,633	540,307
Helium Product (Mcf*)	(0)	(0)	00.00%	760,408	541,650
Residue Natural Gas (Mcf*)	0	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****)	0	1,654,804
NGL Sales (gallons)	0	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Total Withdrawn (Mcf*)	8,517	823	9.67%	3,839,999	542,143
Crude Injection (Mcf*)	0	0	00.00%	181,672	127,776
Crude Production (Mcf*)	1,028	725	70.48%	1,028	725

* Volumes in Mcf at 14.65 psia & 60°F

Storage Operations

In Kind Helium	Month	FYTD	CYTD	Cumulative
Sale Volumes Transferred (Mcf*)	10,759	167,836	116,367	4,017,580
Sale Volumes Outstanding (Mcf*)	30,642			

* 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*)	15,406	11,013	71.49%	121,682
Crude Disposed (Mcf*)	24,499	17,676	72.15%	465,183
Net Balance (Mcf*)	(9,093)	(6,663)		(343,501)
Balance of Stored Helium End Of Month (Mcf*)		2,254,222		

* Volumes in Mcf at 14.65 psia & 60°F

Revenue / Charges

Helium Storage Contracts (Charges Billed (\$))	Month	FYTD
Storage Fees Billed (\$)	\$785,464	\$8,487,624
Resource Management Fees Billed (\$)	\$274,090	\$2,466,823
Total Storage and RMF Collected	\$1,059,554	\$10,954,446

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

	Month	FYTD
In Kind Sales	\$0	\$13,742,753
Natural Gas & Liquid Sales	\$0	\$2,165,011

Helium Resources Evaluation

	Month	FYTD
Revenue Collected from Federal Lease Holds	\$2,129,158	\$19,021,509
Helium Sample Collection Report for month	Submitted - 0	Received - 0
		Analyzed - 8

*Rounded to nearest dollar

Table 2 - Bush Dome Reservoir Operations

July - 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		8,517	248,254,514	823	45,759,314	2,083	61,207,996	5,082	126,322,785	446	12,847,696	83	2,116,722
BIVINS A-3	Jul-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	Jul-20	834	13,479,337	587	7,658,585	224	3,319,729	18	2,207,742	0	224,102	5	69,180
BIVINS A-13	Jul-20	0	10,063,324	0	4,963,666	0	2,576,032	0	2,215,067	0	247,596	0	60,965
BIVINS A-14	Jul-20	0	11,388,029	0	5,986,890	0	2,873,065	0	2,213,921	0	240,993	0	73,160
BIVINS A-4	Jul-20	0	15,113,315	0	2,561,867	0	3,658,899	0	7,951,819	0	802,506	0	138,226
BUSH A-2	Jul-20	53	14,129,686	2	2,024,984	13	3,470,630	34	7,721,050	4	796,507	0	116,515
Injection	Jul-20	0	66,656,407	0	48,147,564	0	17,170,369	0	784,321	0	42	0	554,112
inj Bivins A-3	Jul-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	Jul-20	0	(24,592,436)	0	(17,796,161)	0	(6,535,120)	0	(147,115)	0	(80)	0	(113,960)
inj Bivins A-13	Jul-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	Jul-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	Jul-20	0	(2,527,801)	0	(1,848,815)	0	(601,353)	0	(42,016)	0	0	0	(35,617)
inj Bush A-2	Jul-20	0	(867,658)	0	(625,258)	0	(215,406)	0	(13,980)	0	0	0	(13,015)
Production	Jul-20	1,028	1,255,904	725	925,466	275	270,507	22	48,151	0	3,199	6	8,581
BIVINS A-1	Jul-20	0	2,686,608	0	48,896	0	636,995	0	1,798,415	0	175,704	0	26,597
BIVINS A-2	Jul-20	1,924	14,932,982	60	1,911,420	477	3,647,156	1,340	8,407,372	46	841,031	2	126,003
BIVINS A-5	Jul-20	0	17,275,032	0	2,269,165	0	4,246,974	0	9,636,399	0	973,735	0	148,760
BIVINS A-7	Jul-20	208	12,469,232	63	2,981,866	54	3,144,827	82	5,671,418	8	580,415	1	90,705
BIVINS A-9	Jul-20	502	11,839,238	15	236,471	127	2,924,499	319	7,776,015	36	794,734	5	107,519
BIVINS A-11	Jul-20	318	7,330,331	9	165,247	79	1,826,366	204	4,774,481	23	494,555	3	69,681
BIVINS A-15	Jul-20	887	11,385,227	14	457,329	202	2,702,618	597	7,362,115	62	741,788	12	121,377
BIVINS B-1	Jul-20	642	9,573,106	15	335,711	156	2,324,490	417	6,175,422	44	635,112	10	102,371
BIVINS B-2	Jul-20	648	8,003,323	12	150,641	162	2,006,295	416	5,190,158	45	538,692	13	117,537
BUSH A-1	Jul-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	Jul-20	0	13,494,327	0	3,308,167	0	3,343,908	0	6,103,941	0	620,865	0	117,445
BUSH A-4	Jul-20	0	9,668,211	0	1,665,368	0	2,424,314	0	4,997,568	0	512,931	0	68,030
BUSH A-5	Jul-20	0	18,592,740	0	4,316,526	0	4,674,221	0	8,592,920	0	881,409	0	127,664
BUSH A-8	Jul-20	561	5,102,540	10	93,465	138	1,239,948	364	3,359,389	39	341,726	10	68,012
BUSH A-9	Jul-20	0	3,860,915	0	105,037	0	930,915	0	2,537,187	0	253,463	0	34,312
BUSH A-11	Jul-20	498	5,229,208	11	147,478	119	1,251,401	327	3,420,836	34	347,542	7	61,951
BUSH B-1	Jul-20	1,441	3,542,074	24	66,201	332	839,628	964	2,366,532	106	234,952	15	34,761
FUQUA A-1	Jul-20	0	2,954,098	0	53,854	0	702,798	0	1,975,175	0	193,573	0	28,699
FUQUA A-2	Jul-20	0	132,119	0	2,404	0	31,322	0	88,458	0	8,637	0	1,297
FUQUA A-3	Jul-20	0	9,303,912	0	577,005	0	2,277,687	0	5,790,357	0	583,701	0	75,162
TT Fuel	Jul-20	1,526	0	26	0	351	0	1,020	0	112	0	16	0
field-wide pct's				9.67%	18.43%	24.46%	24.66%	59.67%	50.88%	5.23%	5.18%	0.97%	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 Jul-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	2.613	0.363
Injected to Date 2020	(0.182)	(0.128)
Amount of Raw Gas Available to CHEU	66.250	=====> 7.129 total helium in reservoir
Estimated Bottom Hole Pressure	244.073	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

July - 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	Jul-20	4,828	113,140,020	26	25,721,404	1,174	28,303,706	3,245	52,485,780	320	5,626,697	63	1,002,432
Calculated Feed	Jul-20	5,963	113,090,700	73	25,761,451	1,456	28,286,289	4,039	52,395,380	333	5,642,616	61	1,004,964
Feed to Box	Jul-20	5,902	112,333,368	73	25,761,629	1,456	28,286,371	4,039	52,395,426	333	5,642,611	0	247,332
Cheu Product	Jul-20	(0)	32,741,135	(0)	25,354,275	(0)	6,509,868	(0)	651,005	(0)	942	(0)	225,044
Residue	Jul-20	0	51,849,354	0	2,258	0	1,266,075	0	45,998,548	0	4,581,208	0	1,265
Cold Box Vent	Jul-20	710	18,431,485	16	92,505	179	16,328,504	461	1,948,397	55	301	0	61,778
Flare/Boot Strap	Jul-20	6,552	8,642,488	73	57,343	1,473	7,284,282	4,564	1,196,099	442	98,182	0	6,581
Fuel From Cheu	Jul-20	(651)	1,546,947	(0)	528	(17)	44,398	(525)	1,253,241	(109)	248,780	0	0
Shrinkage/Loss	Jul-20	0	610,183	0	0	0	0	0	0	0	610,183	0	0
Unaccounted*	Jul-20	(710)	4,821,591	(16)	200,196	(179)	3,255,232	(461)	1,360,914	(55)	919	(0)	4,332

*Before October 2004, the values are estimated

Storage Operations

Inventory (contained helium)

	Government	Private
Beginning inventory	2,584,577	2,250,126
net acceptances + redeliveries	0	(6,663)
In Kind Transfers	(10,759)	10,759
Conservation Crude Sales	0	0
Gain/loss	(1,965)	0
Ending Inventory	2,571,852	2,254,222
Total Helium in Reservoir	7,128,814	
Total Helium in Storage	4,826,074	
Helium in native gas	2,302,740	

Crude Helium Pipeline

	Gross	Net Helium	Percent
Beginning inventory	42,424	29,952	70.60%
Measured to Pipeline (Private Plants)	15,406	11,013	71.49%
Measured from Pipeline (Private Plant:	24,499	17,676	72.15%
HEU Production	(0)	(0)	70.67%
Injection	0	0	00.00%
Production	1,028	725	70.48%
Ending Inventory	30,683	22,048	71.86%
Gain/Loss	(3,677)	(1,965)	53.46%

Tuck Triqq 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

July - 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	0	0	0	0	0	0	0	\$0		
Total FYTD	71,815	96	0	0	0	72,931	144,841	\$13,742,753		
Total CYTD	51,520	43	0	0	0	47,998	99,562	\$9,507,843		
Cumulative	2,204,880	108,913	450	271,593	422,045	1,103,935	4,111,816	\$254,462,180		
In Kind Transfers							Month	FYTD	CYTD	Cumulative
Transferred							10,759	167,836	116,367	4,017,580
Volume outstanding							30,642			

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	0	---	0	0	\$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	---	---	0	\$0.000000	\$0
FYTD	---	---	1,875,900	\$1.031862	\$1,935,670
Cumulative	---	---	55,681,259	\$3.999233	\$221,855,789
Sandstone Purchaser - Natural Gas Liquids					
Month	---	0	0	\$0.000000	\$0
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	0	0	0	\$0.000000	\$0
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

July - 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

July - 2020

All Volumes in Mcf at 14.7 psia & 70°F

Revenue Collected From Federal Leaseholds	Month*	FYTD*
Fee Sales & Royalties	\$2,108,676	\$18,928,279
Natural Gas Royalties (1)	\$0	\$0
Natural Gas Rentals	\$0	\$0
Other	\$90,563	\$780,781
Revenue Collected from Federal Lease Holds	\$2,129,158	\$19,021,509

*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)	8	138

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

July - 2020

All Volumes in Mcf at 14.65 psia & 60°F

	Metered Gas						Transferred Gas		Stored Helium EOM	Charges Billed (\$)**	
	Gross Gas	Helium %	Helium	Helium	Helium	Helium	Month	Cumulative		Month	FYTD
	Month	Month	FYTD	CYTD	Cumulative	Month	Cumulative				
Total All Contracts*											
Crude Acquired	15,406	71.5%	11,013	121,682	98,494	27,579,435	13,432	61,512,410			
Crude Disposed	24,499	72.1%	17,676	465,183	276,435	55,273,593	2,673	26,996,887		\$785,464.36	Storage Fees
Grade-A Rdlvrd	0		0	0	0	1,478,718				<u>\$274,090.06</u>	RMF Fees
Net/Balance	(9,093)		(6,663)	(343,501)	(177,941)	(29,172,876)	10,759	34,515,523	2,254,222	\$1,059,554.42	\$10,954,446
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	2,584,577
Crude Disposed: In Kind Sales transferred for the month	(10,759)
Conservation Crude Sales/Reserve Sell Down transferred (month)	0
Gains and Losses for the month	(1,965)
Net/Balance of Purchased Helium Remaining for Sale	2,571,852

*Includes In Kind and Conservation Crude transfers from Government storage

**Rounded to nearest dollar

** New Contracts

Table 8 - Compression & CHEU (Operations)

July - 2020

Field/CHEU Compressor Operations		Month	FYTD	Cumulative
Spot gas fuel price *	\$ per/MMBTU	\$0.00		
Fuel used * (now includes field compression well head)	total MMBTU	0	74,506	2,070,521
#1 Compressor run time *	hours	24	1,647	125,191
#2 Compressor run time *	hours	0	5,482	89,228
#3 Compressor run time *	hours	2	5,115	73,970

* Field/CHEU Compressor Operations based on Jul 20 activity

Crude Helium Enrichment Unit (CHEU) CHEU Runtime	Month		FYTD		Cumulative
	Runtime Hrs	Percent	Runtime Hrs	Percent	Runtime Hrs
Processing feed gas	18	2.4%	6,196	84.6%	144,299
Producing residue gas	17	2.3%	6,120	83.6%	141,070
Producing helium product	0	0.0%	5,964	81.5%	137,077
Producing natural gas liquids	0	0.0%	6,074	83.0%	136,384

CHEU Utility Usage	Month	FYTD	Cumulative
Cheu Fuel Gas (Mcf) usage Jul 20	4,053	52,376	698,483
Cheu Pure Water Usage (gallons) Jul 20	130	2,877	328,670
Electricity Metered (Kwh) CHEU consumed Jun 20	2,226,569	25,534,986	238,730,613

Booster Compressor Operations and Usage	Month	FYTD	Cumulative
Electricity Metered (Kwh) Booster Compressor consumed Jun 20	575,832	4,610,035	4,610,035