

Bureau of Land Management

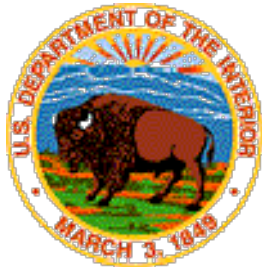
Amarillo Field Office

Helium Operations

Statistical Report

for

May - 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

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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

May - 2020

Helium Enrichment Unit Operations

Gas Processed	Month	Month	Average Percent	Gross FYTD	Net FYTD
	Gross Volume	Net Helium			
Measured Plant Feed (Mcf*)	450,449	56,531	12.55%	3,469,410	496,065
Helium Product (Mcf*)	80,190	56,334	70.25%	696,365	496,476
Residue Natural Gas (Mcf*)	228,782	5	0.00%	1,574,781	86

* Volumes in Mcf at 14.65 psia & 60°F

Natural Gas & Liquids Produced

Gas Processed	Month	FYTD
Natural Gas Sales (Mcf****)	226,069	1,557,069
NGL Sales (gallons)	83,211	587,333

*** 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Total Withdrawn (Mcf*)	445,278	55,832	12.54%	3,483,447	497,069
Crude Injection (Mcf*)	73,885	52,005	70.39%	138,177	96,987
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*)	31,042	151,097	99,628	4,000,841
Sale Volumes Outstanding (Mcf*)	(1,815)			

* 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*)	27,580	19,996	72.50%	96,702
Crude Disposed (Mcf*)	9,060	7,029	77.58%	433,717
Net Balance (Mcf*)	18,520	12,967		(337,015)
Balance of Stored Helium End Of Month (Mcf*)		2,243,969		

* Volumes in Mcf at 14.65 psia & 60°F

Revenue / Charges

Helium Storage Contracts (Charges Billed (\$))	Month	FYTD
Storage Fees Billed (\$)	\$788,354	\$6,911,527
Resource Management Fees Billed (\$)	\$274,090	\$1,918,642
Total Storage and RMF Collected	\$1,062,444	\$8,830,169

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

	Month	FYTD
In Kind Sales	\$0	\$8,970,741
Natural Gas & Liquid Sales	\$443,971	\$1,960,704

Helium Resources Evaluation

	Month	FYTD
Revenue Collected from Federal Lease Holds	\$2,111,374	\$14,906,060
Helium Sample Collection Report for month	Submitted - 0	Received - 0
		Analyzed - 17

*Rounded to nearest dollar

Table 2 - Bush Dome Reservoir Operations

May - 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		445,278	247,897,962	55,832	45,714,240	109,722	61,119,993	248,028	126,123,566	26,855	12,826,977	4,841	2,113,186
BIVINS A-3	May-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	May-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	May-20	36,065	10,034,347	10,319	4,955,484	9,029	2,568,782	14,729	2,203,132	1,710	246,208	278	60,742
BIVINS A-14	May-20	40,374	11,355,295	8,384	5,980,296	9,840	2,865,102	19,554	2,197,873	2,204	239,183	392	72,842
BIVINS A-4	May-20	31,457	15,088,556	2,790	2,559,676	7,476	3,653,012	18,761	7,937,038	2,057	800,897	372	137,933
BUSH A-2	May-20	5,348	14,126,323	224	2,024,844	1,332	3,469,792	3,363	7,718,932	394	796,261	34	116,494
Injection	May-20	73,885	66,612,913	52,005	48,116,775	19,789	17,158,842	1,356	783,442	3	42	733	553,812
inj Bivins A-3	May-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	May-20	(73,885)	(24,548,942)	(51,946)	(17,765,508)	(19,903)	(6,523,462)	(1,578)	(146,202)	(2)	(79)	(457)	(113,691)
inj Bivins A-13	May-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	May-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	May-20	0	(2,527,801)	0	(1,848,815)	0	(601,353)	0	(42,016)	0	0	0	(35,617)
inj Bush A-2	May-20	0	(867,658)	0	(625,258)	0	(215,406)	0	(13,980)	0	0	0	(13,015)
Production	May-20	0	1,254,876	0	924,742	0	270,231	0	48,129	0	3,199	0	8,575
BIVINS A-1	May-20	0	2,686,608	0	48,896	0	636,995	0	1,798,415	0	175,704	0	26,597
BIVINS A-2	May-20	18,925	14,916,476	573	1,910,903	4,530	3,643,068	12,726	8,395,882	975	840,638	121	125,985
BIVINS A-5	May-20	25,409	17,254,867	4,435	2,265,652	6,406	4,241,888	12,874	9,626,168	1,479	972,570	214	148,590
BIVINS A-7	May-20	15,845	12,456,443	4,774	2,978,000	4,075	3,141,525	6,211	5,666,385	678	579,909	106	90,625
BIVINS A-9	May-20	28,270	11,816,950	862	235,791	7,164	2,918,851	17,982	7,761,837	2,007	793,152	254	107,318
BIVINS A-11	May-20	19,404	7,314,907	575	164,790	4,834	1,822,527	12,413	4,764,610	1,378	493,460	204	69,519
BIVINS A-15	May-20	28,004	11,362,729	460	456,961	6,421	2,697,467	18,799	7,347,004	1,961	740,214	363	121,085
BIVINS B-1	May-20	32,034	9,547,534	727	335,133	7,802	2,318,271	20,851	6,158,800	2,202	633,355	453	101,975
BIVINS B-2	May-20	28,638	7,980,566	522	150,226	7,164	2,000,607	18,408	5,175,524	1,987	537,114	556	117,094
BUSH A-1	May-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	May-20	28,479	13,471,693	9,043	3,300,883	7,168	3,338,146	10,997	6,095,110	1,083	620,188	189	117,366
BUSH A-4	May-20	24,680	9,648,909	1,679	1,664,072	6,277	2,419,403	14,881	4,985,908	1,696	511,612	148	67,914
BUSH A-5	May-20	42,445	18,558,945	9,633	4,308,878	10,718	4,665,679	19,564	8,577,314	2,263	879,619	267	127,454
BUSH A-8	May-20	16,463	5,089,240	295	93,227	4,042	1,236,685	10,686	3,350,753	1,135	340,809	304	67,766
BUSH A-9	May-20	0	3,860,915	0	105,037	0	930,915	0	2,537,187	0	253,463	0	34,312
BUSH A-11	May-20	17,309	5,215,320	375	147,177	4,141	1,248,073	11,358	3,411,709	1,192	346,592	243	61,769
BUSH B-1	May-20	6,128	3,537,107	104	66,117	1,415	838,484	4,093	2,363,210	452	234,587	65	34,708
FUQUA A-1	May-20	0	2,954,098	0	53,854	0	702,798	0	1,975,175	0	193,573	0	28,699
FUQUA A-2	May-20	0	132,119	0	2,404	0	31,322	0	88,458	0	8,637	0	1,297
FUQUA A-3	May-20	0	9,303,912	0	577,005	0	2,277,687	0	5,790,357	0	583,701	0	75,162
TT Fuel	May-20	94	0	2	0	22	0	63	0	7	0	1	0
field-wide pcts				12.54%	18.44%	24.64%	24.66%	55.70%	50.88%	6.03%	5.17%	1.09%	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 May-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	2.257	0.318
Injected to Date 2020	(0.138)	(0.097)
Amount of Raw Gas Available to CHEU	66.563	=====> 7.143 total helium in reservoir
Estimated Bottom Hole Pressure	245.224	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

May - 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	May-20	450,449	112,787,796	56,531	25,677,163	110,914	28,216,978	250,429	52,289,987	27,829	5,604,965	4,746	998,704
Calculated Feed	May-20	468,243	112,723,422	72,002	25,707,538	115,989	28,195,248	248,609	52,197,204	26,848	5,622,042	4,794	1,001,389
Feed to Box	May-20	464,178	111,969,177	72,002	25,707,716	115,989	28,195,330	248,609	52,197,250	26,848	5,622,037	729	246,843
Cheu Product	May-20	80,190	32,677,092	56,334	25,309,100	21,639	6,492,738	1,721	649,666	1	940	495	224,647
Residue	May-20	228,782	51,748,887	5	2,258	5,899	1,263,335	201,920	45,909,996	20,958	4,572,034	0	1,265
Cold Box Vent	May-20	66,218	18,378,925	108	92,463	56,812	16,283,330	9,284	1,941,119	0	246	14	61,767
Flare/Boot Strap	May-20	15,068	8,632,782	1,161	57,116	4,144	7,282,112	8,825	1,189,440	925	97,533	14	6,580
Fuel From Cheu	May-20	7,492	1,541,784	4	526	194	44,264	6,042	1,249,077	1,252	247,917	0	0
Shrinkage/Loss	May-20	3,713	600,297	0	0	0	0	0	0	3,713	600,297	0	0
Unaccounted*	May-20	62,716	4,699,223	14,392	191,729	27,301	3,231,539	20,817	1,270,730	(0)	974	206	4,251

*Before October 2004, the values are estimated

Storage Operations

Inventory (contained helium)

	Government	Private
Beginning inventory	2,653,827	2,199,960
net acceptances +	0	0
redeliveries	0	12,967
In Kind Transfers	(31,042)	31,042
Conservation Crude Sales	0	0
Gain/loss	(19,951)	0
Ending Inventory	2,602,834	2,243,969
Total Helium in Reservoir	7,143,099	
Total Helium in Storage	4,846,803	
Helium in native gas	2,296,296	

Crude Helium Pipeline

	Gross	Net Helium	Percent
Beginning inventory	41,950	30,318	72.27%
Measured to Pipeline (Private Plants)	27,580	20,014	72.57%
Measured from Pipeline (Private Plant)	9,060	7,029	77.58%
HEU Production	80,190	56,334	70.25%
Injection	73,885	52,005	70.39%
Production	0	0	
Ending Inventory	38,787	27,681	71.37%
Gain/Loss	(27,988)	(19,951)	71.29%

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

May - 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 1 \$0										
Total FYTD 41,623 96 0 0 0 53,152 94,870 93,403 \$8,970,741										
Total CYTD 21,328 43 0 0 0 28,219 49,591 48,825 \$4,735,831										
Cumulative 2,174,688 108,913 450 271,593 422,045 1,084,156 4,061,845 3,998,951 \$249,690,168										
In Kind Transfers							Month	FYTD	CYTD	Cumulative
Transferred							31,042	151,097	99,628	4,000,841
Volume outstanding							(1,815)			

* 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	226,069	---	249,072	1,102	\$0
FYTD	1,557,069	---	1,714,496	1,101	\$0
Cumulative	51,073,107	---	55,629,265	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	---	---	256,700	\$1.717477	\$440,876
FYTD	---	---	1,754,100	\$0.999596	\$1,753,392
Cumulative	---	---	55,559,459	\$4.004720	\$221,673,512
Sandstone Purchaser - Natural Gas Liquids					
Month	---	83,211	9,037	\$0.342433	\$3,095
FYTD	---	587,333	63,528	\$3.263310	\$207,312
Cumulative	---	16,035,154	1,710,170	\$10.142209	\$17,344,901
Total					
	Natural Gas (Mcf)***	NGLs (gal)	Purchased (Dth's)	\$\$ Per Unit (\$\$/Dth)	Total (\$\$)
Total month	226,069	83,211	265,737	\$1.670716	\$443,971
Total FYTD	1,557,069	587,333	1,817,628	\$1.078716	\$1,960,704
Total CYTD	1,104,699	386,050	1,288,734	\$0.905250	\$1,166,627
Cumulative	51,073,107	16,035,154	57,269,629	\$4.096006	\$233,750,175

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

**Rounded to nearest dollar

Table 5 - Conservation Crude Sales/Reserve Sell-down

May - 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

May - 2020

All Volumes in Mcf at 14.7 psia & 70°F

Revenue Collected From Federal Leaseholds	Month*	FYTD*
Fee Sales & Royalties	\$2,164,498	\$14,803,773
Natural Gas Royalties (1)	\$0	\$0
Natural Gas Rentals	\$0	\$0
Other	\$99,620	\$620,137
Revenue Collected from Federal Lease Holds	\$2,111,374	\$14,906,060

*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)	17	119

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

May - 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	27,580	72.5%	19,996	96,702	73,514	27,554,455	36,612	61,487,359			
Crude Disposed	9,060	77.6%	7,029	433,717	244,969	55,242,127	5,570	26,989,152		\$788,353.61	Storage Fees
Grade-A Rdlvrd	0		0	0	0	1,478,718				<u>\$274,090.06</u>	RMF Fees
Net/Balance	18,520		12,967	(337,015)	(171,455)	(29,166,390)	31,042	34,498,207	2,243,969	\$1,062,443.66	\$8,830,169
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	2,653,827
Crude Disposed: In Kind Sales transferred for the month	(31,042)
Conservation Crude Sales/Reserve Sell Down transferred (month)	0
Gains and Losses for the month	(19,951)
Net/Balance of Purchased Helium Remaining for Sale	2,602,834

*Includes In Kind and Conservation Crude transfers from Government storage

**Rounded to nearest dollar

** New Contracts

Table 8 - Compression & CHEU (Operations)

May - 2020

Field/CHEU Compressor Operations		Month	FYTD	Cumulative
Spot gas fuel price *	\$ per/MMBTU	\$1.72		
Fuel used * (now includes field compression well head)	total MMBTU	8,769	67,101	2,063,116
#1 Compressor run time *	hours	346	1,622	125,166
#2 Compressor run time *	hours	480	4,903	88,649
#3 Compressor run time *	hours	617	4,532	73,387

* Field/CHEU Compressor Operations based on May 20 activity

Crude Helium Enrichment Unit (CHEU) CHEU Runtime	Month		FYTD		Cumulative
	Runtime Hrs	Percent	Runtime Hrs	Percent	Runtime Hrs
Processing feed gas	735	98.8%	5,598	95.6%	143,701
Producing residue gas	732	98.4%	5,522	94.3%	140,472
Producing helium product	718	96.5%	5,383	91.9%	136,497
Producing natural gas liquids	728	97.9%	5,493	93.8%	135,803

CHEU Utility Usage	Month	FYTD	Cumulative
CheU Fuel Gas (Mcf) usage May 20	3,068	45,376	691,483
CheU Pure Water Usage (gallons) May 20	48	2,550	328,343
Electricity Metered (Kwh) CHEU consumed Apr 20	2,870,316	20,438,101	233,633,728

Booster Compressor Operations and Usage	Month	FYTD	Cumulative
Electricity Metered (Kwh) Booster Compressor consumed Apr 20	616,524	3,417,679	3,417,679