

Bureau of Land Management

Amarillo Field Office

Helium Operations

Statistical Report

for

January - 2021



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: May 2, 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:

May 2, 2022

Table 1 - Summary of Helium Operations

January - 2021

Helium Enrichment Unit Operations

Gas Processed	Month	Month	Average Percent	Gross FYTD	Net FYTD
	Gross Volume	Net Helium			
Measured Plant Feed (Mcf*)	431,262	52,834	12.25%	1,648,710	210,087
Helium Product (Mcf*)	80,450	55,257	68.69%	308,868	215,804
Residue Natural Gas (Mcf*)	202,810	3	0.00%	754,733	3

* Volumes in Mcf at 14.65 psia & 60°F

Natural Gas & Liquids Produced

Gas Processed	Month	FYTD
Natural Gas Sales (Mcf****)	199,003	741,258
NGL Sales (gallons)	80,989	290,007

**** 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Total Withdrawn (Mcf*)	424,910	51,789	12.19%	1,627,255	206,515
Crude Injection (Mcf*)	30,371	21,024	69.22%	76,367	53,069
Crude Production (Mcf*)	0	0	00.00%	588	392

* Volumes in Mcf at 14.65 psia & 60°F

Storage Operations

In Kind Helium	Month	FYTD	CYTD	Cumulative
Sale Volumes Transferred (Mcf*)	9,039	57,450	9,039	4,124,508
Sale Volumes Outstanding (Mcf*)	(34,250)			

* 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*)	18,755	12,719	67.82%	60,016
Crude Disposed (Mcf*)	54,920	38,731	70.52%	193,159
Net Balance (Mcf*)	(36,165)	(26,012)		(133,143)
Balance of Stored Helium End Of Month (Mcf*)		2,173,120		

* Volumes in Mcf at 14.65 psia & 60°F

Revenue / Charges

Helium Storage Contracts (Charges Billed (\$))	Month	FYTD
Storage Fees Billed (\$)	\$597,475	\$2,364,899
Resource Management Fees Billed (\$)	\$263,097	\$789,302
Total Storage and RMF Collected	\$860,571	\$3,154,201

Conservation Helium - Natural Gas - Liquid Sales

(Charges Billed (\$))	Month	FYTD
In Kind Sales	\$0	\$0
Natural Gas & Liquid Sales	\$606,603	\$1,959,938

Helium Resources Evaluation

	Month	FYTD
Revenue Collected from Federal Lease Holds	\$2,128,373	\$7,880,599
Helium Sample Collection Report for month	Submitted - 0	Received - 0
		Analyzed - 13

*Rounded to nearest dollar

Table 2 - Bush Dome Reservoir Operations

January - 2021

		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		424,910	250,507,378	51,789	46,040,801	104,878	61,764,696	238,959	127,583,906	24,042	12,977,231	5,241	2,140,744
BIVINS A-3	Jan-21	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	Jan-21	30	13,500,303	21	7,673,195	8	3,325,469	1	2,208,231	0	224,103	0	69,305
BIVINS A-13	Jan-21	35,274	10,245,918	9,123	5,013,135	8,801	2,621,667	15,321	2,292,269	1,753	256,479	275	62,366
BIVINS A-14	Jan-21	39,585	11,593,305	7,611	6,025,931	9,625	2,922,867	19,743	2,316,794	2,219	252,542	387	75,171
BIVINS A-4	Jan-21	29,962	15,270,720	2,625	2,575,457	7,121	3,696,304	17,907	8,046,163	1,957	812,724	352	140,073
BUSH A-2	Jan-21	5,518	14,165,798	220	2,026,470	1,342	3,479,602	3,396	7,743,734	504	799,229	56	116,763
Injection	Jan-21	30,371	66,741,873	21,024	48,206,970	8,459	17,193,955	702	786,273	1	45	184	554,630
inj Bivins A-3	Jan-21	0	(25,652,315)	0	(18,384,452)	0	(6,554,549)	0	(332,777)	0	0	0	(380,537)
inj Bivins A-6	Jan-21	(30,233)	(24,677,764)	(20,914)	(17,855,397)	(8,443)	(6,558,759)	(691)	(149,046)	(1)	(83)	(184)	(114,478)
inj Bivins A-13	Jan-21	(138)	(6,492,477)	(36)	(4,707,189)	(35)	(1,657,415)	(60)	(122,829)	(7)	(51)	(1)	(4,993)
inj Bivins A-14	Jan-21	0	(6,501,333)	0	(4,767,421)	0	(1,602,106)	0	(126,303)	0	(7)	0	(5,497)
inj Bivins A-4	Jan-21	0	(2,527,801)	0	(1,848,815)	0	(601,353)	0	(42,016)	0	0	0	(35,617)
inj Bush A-2	Jan-21	0	(867,658)	0	(625,258)	0	(215,406)	0	(13,980)	0	0	0	(13,015)
Production	Jan-21	0	1,257,144	0	926,242	0	270,854	0	48,257	0	3,205	0	8,588
BIVINS A-1	Jan-21	0	2,686,608	0	48,896	0	636,995	0	1,798,415	0	175,704	0	26,597
BIVINS A-2	Jan-21	20,302	15,042,126	635	1,914,836	5,029	3,674,191	14,132	8,483,347	483	843,629	22	126,123
BIVINS A-5	Jan-21	23,446	17,398,392	4,284	2,291,197	5,909	4,277,925	11,710	9,698,709	1,344	980,766	198	149,795
BIVINS A-7	Jan-21	15,014	12,547,245	4,516	3,005,424	3,844	3,164,918	5,855	5,702,030	693	583,658	106	91,215
BIVINS A-9	Jan-21	27,029	11,982,613	824	240,844	6,849	2,960,830	17,193	7,867,216	1,919	804,914	243	108,809
BIVINS A-11	Jan-21	18,105	7,424,830	539	168,061	4,495	1,849,884	11,587	4,834,917	1,292	501,290	192	70,678
BIVINS A-15	Jan-21	25,375	11,526,178	413	459,628	5,798	2,734,863	17,056	7,456,795	1,779	751,677	330	123,214
BIVINS B-1	Jan-21	30,609	9,733,496	682	339,315	7,445	2,363,445	19,910	6,279,555	1,063	644,493	1,509	106,689
BIVINS B-2	Jan-21	26,746	8,146,198	486	153,242	6,674	2,042,020	17,196	5,281,947	1,864	548,625	527	120,364
BUSH A-1	Jan-21	0	5,721,962	0	104,140	0	1,356,677	0	3,830,281	0	374,216	0	56,647
BUSH A-3	Jan-21	27,319	13,619,613	8,791	3,348,484	6,956	3,375,806	10,660	6,152,828	817	624,611	96	117,884
BUSH A-4	Jan-21	23,180	9,792,114	1,398	1,673,022	5,898	2,455,882	14,139	5,073,098	1,607	521,353	138	68,759
BUSH A-5	Jan-21	40,344	18,803,095	8,826	4,363,164	10,189	4,727,376	18,899	8,690,954	2,176	892,626	253	128,976
BUSH A-8	Jan-21	15,224	5,184,259	271	94,924	3,731	1,260,015	9,884	3,412,408	1,054	347,379	284	69,534
BUSH A-9	Jan-21	0	3,860,915	0	105,037	0	930,915	0	2,537,187	0	253,463	0	34,312
BUSH A-11	Jan-21	16,514	5,317,062	358	149,384	3,957	1,272,451	10,853	3,478,573	1,130	353,552	216	63,102
BUSH B-1	Jan-21	5,333	3,570,860	90	66,687	1,227	846,269	3,564	2,385,758	396	237,082	57	35,064
FUQUA A-1	Jan-21	0	2,954,098	0	53,854	0	702,798	0	1,975,175	0	193,573	0	28,699
FUQUA A-2	Jan-21	0	132,119	0	2,404	0	31,322	0	88,458	0	8,637	0	1,297
FUQUA A-3	Jan-21	0	9,303,912	0	577,005	0	2,277,687	0	5,790,357	0	583,701	0	75,162
TT Fuel	Jan-21	137	0	0	0	136	0	1	0	0	0	0	0
field-wide pcts				12.19%	18.38%	24.68%	24.66%	56.24%	50.93%	5.66%	5.18%	1.23%	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 Jan-21 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 - 20	117.747	27.641
Injection 2003 - 20	(1.660)	(1.325)
Produced to Date 2021	0.425	0.052
Injected to Date 2021	(0.030)	(0.021)
Amount of Raw Gas Available to CHEU	64.082	=====> 6.907 total helium in reservoir
Estimated Bottom Hole Pressure	236.099	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

January - 2021

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	Jan-21	431,262	115,422,424	52,834	26,008,339	105,882	28,864,828	241,270	53,758,299	26,700	5,764,486	4,576	1,026,472
Calculated Feed	Jan-21	434,869	115,368,355	58,682	26,061,832	107,578	28,848,645	239,256	53,656,637	24,051	5,772,097	5,302	1,029,143
Feed to Box	Jan-21	430,087	114,589,495	58,682	26,062,011	107,578	28,848,727	239,256	53,656,683	24,051	5,772,091	521	249,983
Cheu Product	Jan-21	80,450	33,157,085	55,257	25,645,466	22,773	6,622,482	1,933	660,619	2	951	485	227,567
Residue	Jan-21	202,810	52,900,640	3	2,261	5,584	1,294,565	178,201	46,924,494	19,022	4,678,054	0	1,265
Cold Box Vent	Jan-21	63,919	18,758,183	131	93,427	53,371	16,604,114	10,389	1,998,458	15	334	14	61,850
Flare/Boot Strap	Jan-21	2,780	8,772,892	87	61,002	978	7,320,311	1,602	1,278,256	114	106,712	0	6,610
Fuel From Cheu	Jan-21	7,333	1,583,253	4	546	190	45,338	5,914	1,282,523	1,225	254,846	0	0
Shrinkage/Loss	Jan-21	3,688	628,211	0	0	0	0	0	0	3,688	628,211	0	0
Unaccounted*	Jan-21	69,107	5,099,043	3,199	204,785	24,683	3,363,903	41,217	1,525,110	(15)	886	23	4,359

*Before October 2004, the values are estimated

Storage Operations

Inventory (contained helium)

	Government	Private
Beginning inventory	2,444,969	2,190,093
net acceptances + redeliveries	0	0
In Kind Transfers	(9,039)	9,039
Conservation Crude Sales	0	0
Gain/loss	(8,580)	0
Ending Inventory	2,427,351	2,173,120
Total Helium in Reservoir	6,906,734	
Total Helium in Storage	4,600,471	
Helium in native gas	2,306,263	

Crude Helium Pipeline

	Gross	Net Helium	Percent
Beginning inventory	41,624	29,328	70.46%
Measured to Pipeline (Private Plants)	18,755	12,744	67.95%
Measured from Pipeline (Private Plant:	54,920	38,731	70.52%
HEU Production	80,450	55,257	68.69%
Injection	30,371	21,024	69.22%
Production	0	0	
Ending Inventory	41,868	28,994	69.25%
Gain/Loss	(13,670)	(8,580)	62.76%

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

January - 2021

NASA*	Navy*	Army*	Air Force*	DOE*	Other Fed*	Subtotal*	In Kind+	Charges Billed (\$)**
-------	-------	-------	------------	------	------------	-----------	----------	-----------------------

In Kind Helium

(billed quarterly)

Airgas Merchant Gases, Contract no.											
Month											
FYTD											
Air Liquide Helium America, Inc., Contract no. INC22-0104											
Month											
FYTD											
Air Products, L.P., Contract no. INC22-0105											
Month											
FYTD											
Messer, LLC, Contract no. INC22-0106											
Month											
FYTD											
Linde, Contract no. INC22-0112											
Month											
FYTD											
Matheson Tri-Gas, Inc., Contract no. INC22-0114											
Month											
FYTD											
Global Gases America, Contract no. INC22-0116											
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	0	0	0	0	0	0	0	0	\$0		
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								9,039	57,450	9,039	4,124,508
Volume outstanding								(34,250)			

* 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	199,003	---	218,744	1,099	\$0
FYTD	741,258	---	815,800	1,101	\$0
Cumulative	52,204,417	---	56,874,590	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	---	---	230,700	\$2.379317	\$548,909
FYTD	---	---	842,200	\$2.147816	\$1,808,891
Cumulative	---	---	56,864,059	\$3.956443	\$224,152,873
Sandstone Purchaser - Natural Gas Liquids					
Month	---	80,989	8,716	\$6.619331	\$57,694
FYTD	---	290,007	31,308	\$4.824579	\$151,048
Cumulative	---	16,499,641	1,760,473	\$9.971590	\$17,554,715
	Natural Gas (Mcf)***	NGLs (gal)	Purchased (Dth's)	\$\$ Per Unit (\$\$/Dth)	Total (\$)
Total month	199,003	80,989	239,416	\$2.533676	\$606,603
Total FYTD	741,258	290,007	873,508	\$2.243756	\$1,959,938
Total CYTD	199,003	80,989	239,416	\$2.533676	\$606,603
Cumulative	52,204,417	16,499,641	58,624,532	\$4.047212	\$236,439,349

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

**Rounded to nearest dollar

Table 5 - Conservation Crude Sales/Reserve Sell-down

January - 2021

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

January - 2021

All Volumes in Mcf at 14.7 psia & 70°F

Revenue Collected From Federal Leaseholds	Month*	FYTD*
Fee Sales & Royalties	\$2,134,897	\$7,811,080
Natural Gas Royalties (1)	\$0	\$0
Natural Gas Rentals	\$0	\$0
Other	\$69,519	\$245,761
Revenue Collected from Federal Lease Holds	\$2,128,373	\$7,880,599

*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)	13	50

U. S. Helium Production

<i>Domestic</i>	FY Volume	CY Volume
2016 Helium Sold	0	3,294,447
2017 Helium Sold		3,703,527
2018 Helium Sold	0	3,529,583
2019 Helium Sold		3,229,482
2020 Helium Sold	0	2,972,672
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

January - 2021

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	18,755	67.8%	12,719	60,016	12,719	27,674,056	12,576	61,845,709			
Crude Disposed	54,920	70.5%	38,731	193,159	38,731	55,556,244	3,537	27,136,801		\$597,474.56 Storage Fees	
Grade-A Rdlvrd	0		0	0	0	1,478,718				\$263,096.71 RMF Fees	
Net/Balance	(36,165)		(26,012)	(133,143)	(26,012)	(29,360,906)	9,039	34,708,908	2,173,120	\$860,571.27 \$3,154,201	
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											
Linde, 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	2,444,969
Crude Disposed: In Kind Sales transferred for the month	(9,039)
Conservation Crude Sales/Reserve Sell Down transferred (month)	0
Gains and Losses for the month	(8,580)
Net/Balance of Purchased Helium Remaining for Sale	2,427,351

*Includes In Kind and Conservation Crude transfers from Government storage

**Rounded to nearest dollar

** New Contracts

Table 8 - Compression & CHEU (Operations)

January - 2021

Field/CHEU Compressor Operations		Month	FYTD	Cumulative
Spot gas fuel price *	\$ per/MMBTU	\$2.38		
Fuel used * (now includes field compression well head)	total MMBTU	8,655	33,392	2,115,790
#1 Compressor run time *	hours	121	1,063	126,376
#2 Compressor run time *	hours	714	2,750	92,898
#3 Compressor run time *	hours	583	1,462	76,390

* Field/CHEU Compressor Operations based on Jan 21 activity

Crude Helium Enrichment Unit (CHEU) CHEU Runtime	Month		FYTD		Cumulative
	Runtime Hrs	Percent	Runtime Hrs	Percent	Runtime Hrs
Processing feed gas	714	95.9%	2,801	94.9%	148,225
Producing residue gas	710	95.5%	2,733	92.6%	144,899
Producing helium product	709	95.3%	2,639	89.4%	140,686
Producing natural gas liquids	702	94.4%	2,676	90.7%	140,145

CHEU Utility Usage	Month	FYTD	Cumulative
Cheu Fuel Gas (Mcf) usage Jan 21	2,984	12,586	715,813
Cheu Pure Water Usage (gallons) Jan 21	705	5,659	335,848
Electricity Metered (Kwh) CHEU consumed Dec 20	2,706,480	10,915,765	251,943,574

Booster Compressor Operations and Usage	Month	FYTD	Cumulative
Electricity Metered (Kwh) Booster Compressor consumed Dec 20	684,808	2,756,855	7,896,935