

# Bureau of Land Management

Amarillo Field Office

Helium Operations

Statistical Report

for

January - 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: January 29, 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: January 29, 2021

## Table 1 - Summary of Helium Operations

## January - 2020

### Helium Enrichment Unit Operations

Gas Processed	Month	Month	Average Percent	Gross FYTD	Net FYTD
	Gross Volume	Net Helium			
Measured Plant Feed (Mcf*)	485,409	72,292	14.89%	1,696,782	249,525
Helium Product (Mcf*)	101,582	72,623	71.49%	350,273	250,564
Residue Natural Gas (Mcf*)	229,240	0	00.00%	686,800	54

\* Volumes in Mcf at 14.65 psia & 60°F

### Natural Gas & Liquids Produced

Gas Processed	Month	FYTD
Natural Gas Sales (Mcf****)	226,536	678,906
NGL Sales (gallons)	74,037	275,320

\*\*\*\* 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Total Withdrawn (Mcf*)	486,978	72,483	14.88%	1,713,683	251,474
Crude Injection (Mcf*)	0	0	00.00%	0	0
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*)	0	51,469	0	3,901,213
Sale Volumes Outstanding (Mcf*)	48,988			

\* Volumes in Mcf at 14.65 psia & 60°F

### Private Company Helium Storage Contracts

Contact Activity	Month	Month	Average Percent	Annual Helium FYTD
	Gross Volume	Net Helium		
Crude Acquired (Mcf*)	17,630	12,817	72.70%	36005
Crude Disposed (Mcf*)	121,382	86,830	71.53%	275578
Net Balance (Mcf*)	(103,752)	(74,013)		(239,573)
Balance of Stored Helium End Of Month (Mcf*)		2,241,783		

\* Volumes in Mcf at 14.65 psia & 60°F

### Revenue / Charges

Helium Storage Contracts (Charges Billed (\$))	Month	FYTD
Storage Fees Billed (\$)	\$999,731	\$3,425,788
Resource Management Fees Billed (\$)	\$274,090	\$822,282
Total Storage and RMF Collected	\$1,273,822	\$4,248,071

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

	Month	FYTD
In Kind Sales	\$0	\$4,234,910
Natural Gas & Liquid Sales	\$254,256	\$1,048,333

### Helium Resources Evaluation

	Month	FYTD
Revenue Collected from Federal Lease Holds	\$1,740,911	\$6,515,144
Helium Sample Collection Report for month	Submitted - 0	Received - 0
		Analyzed - 15

\*Rounded to nearest dollar

Table 2 - Bush Dome Reservoir Operations

January - 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
<b>TOTAL</b>		<b>486,978</b>	<b>246,128,199</b>	<b>72,483</b>	<b>45,468,644</b>	<b>121,592</b>	<b>60,680,538</b>	<b>264,724</b>	<b>125,152,601</b>	<b>23,483</b>	<b>12,731,989</b>	<b>4,695</b>	<b>2,094,426</b>
BIVINS A-3	Jan-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	Jan-20	45,722	13,392,588	15,997	7,628,216	11,381	3,298,118	16,154	2,177,123	1,822	220,645	368	68,487
BIVINS A-13	Jan-20	34,266	9,908,936	9,909	4,917,814	8,578	2,537,231	13,901	2,153,642	1,614	240,465	263	59,783
BIVINS A-14	Jan-20	39,238	11,202,258	8,617	5,947,510	9,604	2,827,720	18,543	2,124,740	2,098	230,925	376	71,364
BIVINS A-4	Jan-20	31,515	14,965,263	2,921	2,548,428	7,634	3,623,232	19,086	7,862,446	1,503	794,675	371	136,483
BUSH A-2	Jan-20	7,415	14,104,832	319	2,023,921	1,883	3,464,331	4,755	7,705,144	411	795,079	48	116,356
Injection	Jan-20	0	66,474,735	0	48,019,788	0	17,121,580	0	780,676	0	37	0	552,655
inj Bivins A-3	Jan-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	Jan-20	0	(24,412,686)	0	(17,669,978)	0	(6,486,588)	0	(143,192)	0	(72)	0	(112,856)
inj Bivins A-13	Jan-20	0	(6,490,417)	0	(4,706,191)	0	(1,656,853)	0	(122,391)	0	(2)	0	(4,980)
inj Bivins A-14	Jan-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	Jan-20	0	(2,527,801)	0	(1,848,815)	0	(601,353)	0	(42,016)	0	0	0	(35,617)
inj Bush A-2	Jan-20	0	(867,658)	0	(625,258)	0	(215,406)	0	(13,980)	0	0	0	(13,015)
Production	Jan-20	0	1,254,876	0	924,742	0	270,231	0	48,129	0	3,199	0	8,575
BIVINS A-1	Jan-20	0	2,686,608	0	48,896	0	636,995	0	1,798,415	0	175,704	0	26,597
BIVINS A-2	Jan-20	18,798	14,842,786	576	1,908,660	4,444	3,625,481	12,488	8,346,467	1,099	836,873	191	125,305
BIVINS A-5	Jan-20	25,697	17,155,376	4,570	2,248,014	6,616	4,216,432	13,306	9,575,018	989	968,158	215	147,755
BIVINS A-7	Jan-20	15,798	12,394,976	4,805	2,959,324	4,129	3,125,560	6,303	5,642,057	449	577,838	112	90,197
BIVINS A-9	Jan-20	27,853	11,714,906	833	232,710	7,069	2,893,129	17,898	7,697,193	1,769	785,522	284	106,351
BIVINS A-11	Jan-20	18,888	7,241,445	570	162,616	4,796	1,804,222	12,300	4,717,844	1,043	488,045	179	68,718
BIVINS A-15	Jan-20	28,121	11,259,712	469	455,268	6,543	2,673,839	19,132	7,278,151	1,681	732,746	296	119,708
BIVINS B-1	Jan-20	31,341	9,425,948	729	332,323	7,753	2,288,202	20,724	6,078,430	1,714	626,678	420	100,315
BIVINS B-2	Jan-20	27,659	7,877,374	514	148,345	7,044	1,974,801	18,097	5,109,434	1,622	529,741	382	115,052
BUSH A-1	Jan-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	Jan-20	28,522	13,362,946	9,103	3,266,293	7,252	3,310,628	11,152	6,052,810	762	616,746	253	116,469
BUSH A-4	Jan-20	23,881	9,554,419	1,741	1,657,419	6,194	2,395,020	14,620	4,928,206	1,183	506,418	143	67,355
BUSH A-5	Jan-20	42,586	18,394,006	10,028	4,270,641	10,975	4,623,461	19,869	8,500,543	1,445	872,941	268	126,420
BUSH A-8	Jan-20	16,329	5,025,439	297	92,086	4,077	1,221,034	10,778	3,309,529	972	336,232	205	66,557
BUSH A-9	Jan-20	0	3,860,915	0	105,037	0	930,915	0	2,537,187	0	253,463	0	34,312
BUSH A-11	Jan-20	17,542	5,148,380	384	145,703	4,259	1,231,831	11,689	3,367,134	947	342,930	263	60,782
BUSH B-1	Jan-20	5,807	3,513,356	100	65,715	1,361	832,996	3,928	2,347,414	362	232,781	57	34,450
FUQUA A-1	Jan-20	0	2,954,098	0	53,854	0	702,798	0	1,975,175	0	193,573	0	28,699
FUQUA A-2	Jan-20	0	132,119	0	2,404	0	31,322	0	88,458	0	8,637	0	1,297
FUQUA A-3	Jan-20	0	9,303,912	0	577,005	0	2,277,687	0	5,790,357	0	583,701	0	75,162
TT Fuel	Jan-20	183	0	3	0	41	0	122	0	14	0	2	0
field-wide pcts				14.88%	18.47%	24.97%	24.65%	54.36%	50.85%	4.82%	5.17%	0.96%	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-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	0.487	0.072
Injected to Date 2020	0.000	0.000
Amount of Raw Gas Available to CHEU	68.195	=====> 7.292 total helium in reservoir
Estimated Bottom Hole Pressure	251.227	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 - 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	Jan-20	485,409	111,015,169	72,292	25,430,622	121,209	27,776,904	263,843	51,318,422	23,386	5,509,112	4,679	980,109
Calculated Feed	Jan-20	486,795	110,905,845	72,480	25,428,457	121,551	27,742,818	264,602	51,224,974	23,470	5,527,045	4,693	982,551
Feed to Box	Jan-20	482,772	110,167,809	72,480	25,428,636	121,551	27,742,901	264,602	51,225,020	23,470	5,527,039	670	244,214
Cheu Product	Jan-20	101,582	32,331,000	72,623	25,063,188	25,941	6,402,541	2,368	641,873	4	930	646	222,467
Residue	Jan-20	229,240	50,860,907	0	2,226	6,242	1,240,242	201,953	45,126,308	21,044	4,490,866	0	1,265
Cold Box Vent	Jan-20	70,755	18,118,893	155	92,017	60,438	16,061,319	10,146	1,903,597	0	246	15	61,714
Flare/Boot Strap	Jan-20	10,141	8,574,528	483	53,124	3,427	7,259,311	5,684	1,161,305	541	94,251	5	6,537
Fuel From Cheu	Jan-20	7,573	1,512,550	4	511	196	43,507	6,108	1,225,500	1,265	243,032	0	0
Shrinkage/Loss	Jan-20	616	594,644	0	0	0	0	0	0	616	594,644	0	0
Unaccounted*	Jan-20	62,865	4,485,101	(786)	163,045	25,305	3,137,968	38,343	1,179,214	(0)	974	3	3,900

\*Before October 2004, the values are estimated

#### Storage Operations

##### Inventory (contained helium)

	Government	Private
Beginning inventory	2,750,922	2,315,796
net acceptances + redeliveries	0	0
In Kind Transfers	0	(74,013)
Conservation Crude Sales	0	0
Gain/loss	(3,552)	
Ending Inventory	2,747,371	2,241,783
Total Helium in Reservoir	7,291,708	
Total Helium in Storage	4,989,154	
Helium in native gas	2,302,554	

##### Crude Helium Pipeline

	Gross	Net Helium	Percent
Beginning inventory	36,301	26,060	71.79%
Measured to Pipeline (Private Plants)	17,630	12,817	72.70%
Measured from Pipeline (Private Plant:	121,382	86,858	71.56%
HEU Production	101,582	72,623	71.49%
Injection	0	0	00.00%
Production	0	0	
Ending Inventory	29,451	21,091	71.61%
Gain/Loss	(4,680)	(3,552)	

#### 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 - 2020

NASA*	Navy*	Army*	Air Force*	DOE*	Other Fed*	Subtotal*	In Kind+	Charges Billed (\$)**		
<b>In Kind Helium</b>								(billed quarterly)		
<b>Airgas Merchant Gases, Contract no. INC18-0102</b>										
Month										
FYTD										
<b>Air Liquide Helium America, Inc., Contract no. INC18-0104</b>										
Month										
FYTD										
<b>Air Products, L.P., Contract no. INC18-0105</b>										
Month										
FYTD										
<b>Messer, LLC, Contract no. INC18-0106</b>										
Month										
FYTD										
<b>Praxair, Inc., Contract no. INC18-0112</b>										
Month										
FYTD										
<b>Matheson Tri-Gas, Inc., Contract no. INC18-0114</b>										
Month										
FYTD										
<b>Global Gases America, Contract no. INC18-0116</b>										
Month										
FYTD										
Month	0	0	0	0	0	0	0	\$0		
FYTD	0	0	0	0	0	0	0	\$0		
<b>Total month</b>	0	0	0	0	0	0	0	\$0		
<b>Total FYTD</b>	20,294	52	0	0	0	24,933	45,279	44,578	\$4,234,910	
<b>Total CYTD</b>	0	0	0	0	0	0	0	0	\$0	
<b>Cumulative</b>	2,153,360	108,870	450	271,593	422,045	1,055,937	4,012,254	3,950,126	\$244,954,337	
<b>In Kind Transfers</b>							Month	FYTD	CYTD	Cumulative
Transferred							0	51,469	0	3,901,213
Volume outstanding							48,988			

**Natural Gas / Natural Gas Liquid Sales**

	Natural Gas (Mcf)***	NGLs (gal)	Decatherms	Avg Btu Value	Charges Billed (\$)**
<b>El Paso Natural Gas</b>					
Provides Measured Firm/Interruptible Transportation Services (billed monthly)					
Month	226,536	---	249,193	1,100	\$0
FYTD	678,906	---	747,432	1,101	\$0
Cumulative	50,194,944	---	54,662,201	1,089	(\$5,088,325)
<b>Minerals Management Service</b>					
No Longer Provides Natural Gas Marketing Services					
Cumulative	---	---	---	---	(\$179,913)
<b>ETC Marketing Ltd</b>					
Purchaser - Natural Gas					
Month	---	---	247,700	\$0.845464	\$209,422
FYTD	---	---	754,800	\$1.166011	\$880,105
Cumulative	---	---	54,560,159	\$4.062062	\$220,800,224
<b>Sandstone</b>					
Purchaser - Natural Gas Liquids					
Month	---	74,037	7,994	\$5.608516	\$44,834
FYTD	---	275,320	29,788	\$5.647510	\$168,228
Cumulative	---	15,723,141	1,676,430	\$10.323019	\$17,305,818
<b>Total</b>					
	Natural Gas (Mcf)***	NGLs (gal)	Purchased (Dth's)	\$\$ Per Unit (\$\$/Dth)	Total (\$\$)
<b>Total month</b>	226,536	74,037	255,694	\$0.994376	<b>\$254,256</b>
<b>Total FYTD</b>	678,906	275,320	784,588	\$1.336157	<b>\$1,048,333</b>
<b>Total CYTD</b>	226,536	74,037	255,694	\$0.994376	<b>\$254,256</b>
<b>Cumulative</b>	50,194,944	15,723,141	56,236,589	\$4.155024	<b>\$232,837,804</b>

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

\*\*Rounded to nearest dollar

## Table 5 - Conservation Crude Sales/Reserve Sell-down

January - 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

January - 2020

All Volumes in Mcf at 14.7 psia & 70°F

<b>Revenue Collected From Federal Leaseholds</b>	Month*	FYTD*
Fee Sales & Royalties	\$1,765,231	\$6,472,914
Natural Gas Royalties (1)	\$0	\$0
Natural Gas Rentals	\$0	\$0
Other	\$42,230	\$230,972
Revenue Collected from Federal Lease Holds	\$1,740,911	\$6,515,144

\*Totals do not sum

<b>Helium Analysis and Evaluation</b>	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	48

### U. S. Helium Production

<i>Domestic</i>	FY Volume	CY Volume
#VALUE!	4,725,187	4,623,130
#VALUE!	4,279,765	4,166,708
#VALUE!	3,815,746	3,463,698
#VALUE!	3,282,185	3,466,014
#VALUE!	4,559,100	4,644,278
#VALUE!		723,000,000

	FY-2017	CY-2017
<b>U.S. Helium Exports</b> (3)	2,520,645	2,451,207
<b>US Helium Imports</b>	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 - 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	Month		Cumulative	Month
<b>Total All Contracts*</b>										
Crude Acquired	17,630	72.7%	12,817	36,005	12,817	27,493,758	10,919	61,349,185		
Crude Disposed	121,382	71.5%	86,830	275,578	86,830	55,083,988	10,919	26,962,335	\$999,731.48	Storage Fees
Grade-A Rdlvrd	0		0	0	0	1,478,718			<u>\$274,090.06</u>	RMF Fees
Net/Balance	(103,752)		(74,013)	(239,573)	(74,013)	(29,068,948)	0	34,386,850	2,241,783	\$1,273,821.54 \$4,248,071
<b>Total Prior Contracts (TERMINATED)</b>										
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	
<b>Messer, LLC, Contract no. 3249</b>										
Crude Acquired										
Crude Disposed										
Net/Balance										
<b>Praxair, Inc., Contract no. 3251</b>										
Crude Acquired										
Crude Disposed										
Net/Balance										
<b>Air Products, L.P., Contract no. 3256</b>										
Crude Acquired										
Crude Disposed										
Net/Balance										
<b>Air Liquide Helium America, Inc., Contract no. 3284</b>										
Crude Acquired										
Crude Disposed										
Net/Balance										
<b>Keyes Helium Co., LLC, Contract no. 3287</b>										
Crude Acquired										
Crude Disposed										
Net/Balance										
<b>Matheson Tri-Gas, Inc., Contract no. 3288</b>										
Crude Acquired										
Crude Disposed										
Net/Balance										
<b>Airgas Merchant Gases, Contract no. 3290</b>										
Crude Acquired										
Crude Disposed										
Net/Balance										
<b>Global Gases America, Contract no. 3293</b>										
Crude Acquired										
Crude Disposed										
Net/Balance										
<b>Scout Energy Partners, Contract no. 3294</b>										
Crude Acquired										
Crude Disposed										
Net/Balance										
<b>IACX Energy, Contract no. 3297</b>										
Crude Acquired										
Crude Disposed										
Net/Balance										
<b>Uniper Global Commodities North America LLC, Contract no. 3298</b>										
Crude Acquired										
Crude Disposed										
Net/Balance										

<b>Government Helium</b>	
Remaining Crude Acquired beginning of the month	2,750,922
Crude Disposed: In Kind Sales transferred for the month	0
Conservation Crude Sales/Reserve Sell Down transferred (month)	0
Gains and Losses for the month	(3,552)
Net/Balance of Purchased Helium Remaining for Sale	2,747,371

\*Includes In Kind and Conservation Crude transfers from Government storage

\*\*Rounded to nearest dollar

\*\* New Contracts



## Table 8 - Compression & CHEU (Operations)

January - 2020

<b>Field/CHEU Compressor Operations</b>		Month	FYTD	Cumulative
Spot gas fuel price *	\$ per/MMBTU	\$0.85		
Fuel used * (now includes field compression well head)	total MMBTU	8,966	32,504	2,028,519
#1 Compressor run time *	hours	0	1,070	124,614
#2 Compressor run time *	hours	728	2,372	86,118
#3 Compressor run time *	hours	728	1,996	70,851

\* Field/CHEU Compressor Operations based on Jan 20 activity

<b>Crude Helium Enrichment Unit (CHEU) CHEU Runtime</b>	Month		FYTD		Cumulative
	Runtime Hrs	Percent	Runtime Hrs	Percent	Runtime Hrs
Processing feed gas	736	98.9%	2,729	92.4%	140,832
Producing residue gas	721	96.9%	2,665	90.3%	137,615
Producing helium product	714	95.9%	2,581	87.4%	133,695
Producing natural gas liquids	720	96.7%	2,648	89.7%	132,958

<b>CHEU Utility Usage</b>	Month	FYTD	Cumulative
Cheu Fuel Gas (Mcf) usage Jan 20	3,636	33,099	679,206
Cheu Pure Water Usage (gallons) Jan 20	220	1,665	327,458
Electricity Metered (Kwh) CHEU consumed Dec 19	2,920,225	9,557,002	222,752,629

<b>Booster Compressor operations and Usage</b>	Month	FYTD	Cumulative
Electricity Metered (Kwh) Booster Compressor consumed Dec 19	477,615	600,753	600,753