# **Bureau of Land Management**



Amarillo Field Office Helium Operations Statistical Report for

NATIONAL SYSTEM OF PUBLIC LANDS

May - 2018

#### 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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Compi Amarillo, Texas

Issued: November 8, 2018 **REVISED** 

"Please Note: Data in this report is accurate as of print date; however all data is subject to change."

Approved for Distribution: Joseph B. Peterson (Acting FM)

Date: November 7, 2018

### Table 1 - Summary of Helium Operations

### May - 2018

Helium Enrichment Unit Operations Gas Processed	Month Gross Volume	Month Net Helium	Average Percent	Gross FYTD	Net FYTD
Measured Plant Feed (Mcf*)	564,374	89,712	15.90%	4,229,578	680,069
Helium Product (Mcf*)	123,289	91,938	74.57%	916,939	681,100
Residue Natural Gas (Mcf*)	309,422	0	00.00%	2,262,549	40
* Volumes in Mcf at 14.65 psia & 60°F Natural Gas & Liquids Produced					
Gas Processed				Month	FYTD
Natural Gas Sales (Mcf***)				307,084	2,273,575
NGL Sales (gallons)				120,155	808,198
*** Volumes in Mcf at 14.73 psia & 60°F					

#### **Bush Dome Reservoir Operations**

Bush Dome Reservoir Operations	Month	Month			
Conservation gases from all sources	Gross Volume	Net Helium	Average Percent	Gross FYTD	Net FYTD
_Total Withdrawn (Mcf*)	569,734	90,564	15.90%	4,226,952	679,635
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**

Conservation Helium	Volume Outstanding	Month	FYTD	CYTD	Cumulative
Conservation Crude Sale Volume Sold/Paid (Mcf*)		0	15,000	0	22,779,063
Conservation Crude Sale Volume Transferred (Mcf*)	0	0	15,000	0	903,477
Conservation Helium in Storage (EOM) (Mcf*)		3,352,779			
* 1/ 1					

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

In Kind Helium	Month	FYTD	CYTD	Cumulative
Sale Volumes Transferred (Mcf*)	39,591	104,414	73,176	3,629,577
Sale Volumes Outstanding (Mcf*)	7,092			
* Volumes in Mcf at 14.65 psia & 60°F				

Private Company Helium Storage Contracts	Month	Month		Annual
Contact Activity	Gross Volume	Net Helium	Average Percent	Helium FYTD
Crude Acquired (Mcf*)	19,750	12,779	64.70%	87079
Crude Disposed (Mcf*)	142,416	104,020	73.04%	773395
Net Balance (Mcf*)	(122,666)	(91,241)		(686,316)
Balance of Stored Helium End Of Month (Mcf*)		3,074,843		
* Volumes in Mcf at 14.65 psia & 60°F				

#### Revenue / Charges

Helium Storage Contracts (Charges Billed (\$)	Month	FYTD
Storage Fees Billed (\$)	\$622,668	\$4,825,180
Reservoir Management Fees Billed (\$)	\$221,617	\$1,274,885

Conservation Helium - Natural Gas - Liquid Sales	(Charges Billed (\$)	Month	FYTD
Conservation Crude Helium Sales		\$0	\$1,815,000
In Kind Sales		\$0	\$6,192,496
Natural Gas & Liquid Sales		\$693,284	\$6,245,600
			I

Helium Resources Evaluation			Month	FYTD
Revenue Collected from Federal Lease Holds			\$1,815,308	\$13,777,371
Helium Sample Collection Report for month	Submitted - 0	Received - 0	Analyzed - 20	

\*Rounded to nearest dollar

#### Table 2 - Bush Dome Reservoir Operations

#### May - 2018

	I	Gross V	Vithdrawal	Net Heliun	n Withdrawal	Nitr	ogen	Methane	Methane	Ethar	ne plus	Other (CO2, Ar, H2)	
		Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative
TOTAL		569,734	236,647,211	90,564	44,013,216	<u>140,976</u>	58,336,253	298,241	120,113,185	34,127	12,185,078	5,825	1,999,480
<b>BIVINS A-3</b>	May-17	0	10,961,112	0	3,548,629	0	2,772,147	0	4,159,384	0	407,301	0	73,653
<b>BIVINS A-6</b>	May-17	51,772	12,500,058	21,683	7,287,634	12,935	3,075,217	15,128	1,887,001	1,627	188,763	399	61,443
<b>BIVINS A-13</b>	May-17	38,396	9,265,145	12,337	4,718,639	9,599	2,375,870	14,515	1,903,947	1,653	211,834	292	54,855
<b>BIVINS A-14</b>	May-17	43,580	10,468,725	11,902	5,766,695	10,737	2,647,158	18,508	1,795,872	2,036	194,513	398	64,487
<b>BIVINS A-4</b>	May-17	39,371	14,353,111	4,091	2,488,226	9,441	3,476,879	22,733	7,501,935	2,638	756,604	469	129,468
BUSH A-2	May-17	9,757	13,958,952	484	2,017,511	2,434	3,427,902	6,025	7,613,399	743	784,740	70	115,400
Injection	May-17	0	66,474,735	0	48,019,788	0	17,121,580	0	780,676	0	37	0	552,655
inj Bivins A-3	May-17	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-17	0	(24,412,686)	0	(17,669,978)	0	(6,486,588)	0	(143,192)	0	(72)	0	(112,856)
inj Bivins A-13	May-17	0	(6,490,417)	0	(4,706,191)	0	(1,656,853)	0	(122,391)	0	(2)	0	(4,980)
inj Bivins A-14	May-17	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-17	0	(2,527,801)	0	(1,848,815)	0	(601,353)	0	(42,016)	0	0	0	(35,617)
inj Bush A-2	May-17	0	(867,658)	0	(625,258)	0	(215,406)	0	(13,980)	0	0	0	(13,015)
Production	May-17	0	1,254,876	0	924,742	0	270,231	0	48,129	0	3,199	0	8,575
<b>BIVINS A-1</b>	May-17	0	2,686,608	0	48,896	0	636,995	0	1,798,415	0	175,704	0	26,597
<b>BIVINS A-2</b>	May-17	24,248	14,464,855	800	1,896,587	5,625	3,537,599	15,686	8,099,832	1,870	809,417	267	121,420
<b>BIVINS A-5</b>	May-17	30,606	16,664,203	5,512	2,160,902	7,820	4,091,873	15,196	9,326,427	1,824	941,290	254	143,711
<b>BIVINS A-7</b>	May-17	17,654	12,099,481	5,047	2,871,624	4,606	3,049,233	7,030	5,525,417	847	565,018	124	88,188
<b>BIVINS A-9</b>	May-17	33,709	11,154,420	894	216,806	8,509	2,751,213	21,612	7,339,329	2,398	745,739	297	101,334
<b>BIVINS A-11</b>	May-17	22,996	6,870,104	672	151,545	5,758	1,711,009	14,707	4,480,650	1,624	462,003	235	64,897
<b>BIVINS A-15</b>	May-17	37,476	10,618,090	635	444,441	8,643	2,525,551	25,083	6,848,728	2,636	687,858	479	111,512
BIVINS B-1	May-17	36,880	8,806,835	837	317,907	8,995	2,137,075	23,784	5,675,344	2,770	584,268	494	92,240
<b>BIVINS B-2</b>	May-17	32,847	7,334,388	607	138,196	8,231	1,839,558	21,115	4,759,294	2,283	491,607	611	105,733
BUSH A-1	May-17	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-17	31,969	12,809,641	10,009	3,092,971	8,101	3,171,788	12,113	5,839,852	1,464	593,399	281	111,631
BUSH A-4	May-17	25,821	9,105,611	2,192	1,621,475	6,553	2,280,286	15,025	4,661,061	1,903	477,997	147	64,792
BUSH A-5	May-17	48,409	17,585,260	11,976	4,075,528	12,330	4,418,249	21,169	8,137,306	2,624	832,787	310	121,390
BUSH A-8	May-17	18,703	4,704,972	338	86,266	4,589	1,142,062	12,148	3,101,599	1,295	314,159	332	60,886
BUSH A-9	May-17	0	3,860,915	0	105,037	0	930,915	0	2,537,187	0	253,463	0	34,312
BUSH A-11	May-17	20,758	4,816,939	463	138,472	4,961	1,152,465	13,474	3,149,662	1,542	320,288	318	56,052
BUSH B-1	May-17	4,780	3,423,172	82	64,152	1,108	811,998	3,189	2,287,254	351	226,247	49	33,521
FUQUA A-1	May-17	0	2,954,098	0	53,854	0	702,798	0	1,975,175	0	193,573	0	28,699
FUQUA A-2	May-17	0	132,119	0	2,404	0	31,322	0	88,458	0	8,637	0	1,297
FUQUA A-3	May-17	0	9,303,912	0	577,005	0	2,277,687	0	5,790,357	0	583,701	0	75,162
TT Fuel	May-17	0	0	0	0	0	0	0	0	0	0	0	0
field-	wide pcts			15.90%	18.60%	24.74%	24.65%	52.35%	50.76%	5.99%	5.15%	1.02%	0.84%

Latest estimates of reserves and feed to HEU

Based on NITEC's 2003 reserves study from NITEC's interim report

				TOM NITEC	s interim report	
As of EOM	May-17	Volumes in BCF				
Initial Gas In F	Place		330.040			
Produced 192	4 to 1961		48.830			
Injected 1924	to 1961		0.450			
Remaining Ga	s In Place 1961		281.660			
Left Behind Pi	pe, 1961		82.060	====>	1.500	BCF of contained helium
Remaining in I	Place, 1961		199.600			
Gas In Place 1	961		199.600			
Produced 196	1 to July 2002		82.450			
Injected 1961	to July 2002		64.510		Net Helium	
Remaining Ga	s In Place July 20	02	181.660		33.997	
Produced July	2002 through De	2002	1.096		0.743	
Production 20	03 - 17		101.638		25.237	
Injection 2003	- 17		(1.423)		(1.159)	
Produced to D	ate 2018		2.673		0.429	
Injected to Dat	te 2018		0.000		0.000	
Amount of Ray	w Gas Available to	CHEU	77.675	====>	8.747	total helium in reservoir
Estimated Bot	tom Hole Pressure	e	286.106			

\* All volumes on Table 2 are reported in Mcf at 14.65 psia & 60°F

est z-factor 0.980

### Table 3 - Gas Volumes & Inventory

#### Crude Helium Enrichment Unit Operations

		Gross V	Vithdrawal	Net Helium	n Withdrawal	Nitrogen		Met	Methane		Ethane plus		D2, Ar, H2)
		Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative	Month	Cumulative
Measured Feed	May-17	564,374	101,575,882	89,712	23,980,827	139,650	25,442,865	295,436	46,301,839	33,806	4,964,721	5,770	885,630
Calculated Feed	May-17	569,734	101,428,464	90,564	23,973,092	140,976	25,399,377	298,241	46,187,952	34,127	4,980,398	5,825	887,645
Feed to Box	May-17	564,709	100,771,938	90,564	23,973,270	140,976	25,399,460	298,241	46,187,998	34,127	4,980,394	800	230,815
Cheu Product	May-17	123,289	30,342,846	91,938	23,612,532	28,073	5,920,456	2,458	599,408	1	866	819	209,584
Residue	May-17	309,422	46,165,782	0	2,171	7,097	1,130,835	274,648	40,966,203	27,677	4,065,310	0	1,263
Cold Box Vent	May-17	85,221	16,701,485	59	89,879	77,213	14,818,693	7,930	1,731,402	1	121	17	61,390
Flare/Boot Strap	May-17	85,221	7,217,733	59	50,658	77,213	6,073,695	7,930	993,571	1	93,586	17	6,223
Fuel From Cheu	May-17	6,749	1,381,724	3	446	175	40,118	5,443	1,119,989	1,128	221,171	0	0
Shrinkage/Loss	May-17	5,322	507,900	0	0	0	0	0	0	5,322	507,900	0	0
Unaccounted*	May-17	34,706	3,593,012	(1,436)	169,674	28,418	2,682,774	7,762	735,685	(1)	1,099	(36)	3,779

\*Before October 2004, the values are estimated

#### Storage Operations

Inventory (contained helium)		
	Government	Private
Beginning inventory	3,392,486	3,126,493
net acceptances +	0	0
redeliveries	0	(91,241)
In Kind Transfers	(39,591)	39,591
Conservation Crude Sales	0	0
Gain/loss	(116)	
Ending Inventory	3,352,779	3,074,843
Total Helium in Reservoir	8,747,136	
Total Helium in Storage	6,427,622	
Helium in native gas	2,319,515	

#### Crude Helium Pipeline

	Gross	Net Helium	Percent
Beginning inventory	27,014	19,730	73.04%
Measured to Pipeline (Private Plants)	19,750	12,779	64.70%
Measured from Pipeline (Private Plant	142,416	104,020	73.04%
HEU Production	123,289	91,938	74.57%
Injection	0	0	00.00%
Production	0	0	
Ending Inventory	27,775	20,310	73.12%
Gain/Loss	138	(116)	

#### Tuck Trigg Reservoir Operations

Sin				
Native Gas (Gross)	Month	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

#### May - 2018

### Table 4 - In Kind Helium Sales

May - 2018

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

In Kind Helium										
Airgas Merchant C Month FYTD	Gases, Contrac	ct no. INC18-	0102							
Air Liquide Helium Month FYTD	n America, Inc.	., Contract ne	o. INC18-01	04						
Air Products, L.P., Contract no. INC18-0105 Month FYTD										
Linde Gas North A Month FYTD	America, LLC,	Contract no.								
<b>Praxair, Inc., Cont</b> Month FYTD	ract no. INC18	-0112								
Matheson Tri-Gas Month FYTD	, Inc., Contrac	t no. INC18-0	)114							
Global Gases Ame Month FYTD	erica, Contract	no. INC18-0	116							
Total month	0	0	0	0	0	0	0	0		\$0
Total FYTD	35,540	1	0	0	0	38,851	74,392	73,242		\$6,192,496
Total CYTD	20,169	0	0	0	0	20,110	40,279	39,657		\$3,404,941
Cumulative	1,986,331	108,685	450	271,593	422,045	901,154	3,690,257	3,633,119		\$216,123,710
In Kind Trans	fers						Month	FYTD	CYTD	Cumulative
Transferred Volume outstanding							39,591 7,092	104,414	73,176	3,629,577

\* 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	Decatherms Avg Btu Value		Billed (\$)**
El Paso Natural Gas		Provides Measure	ed Firm/Interruptible Trar	nsportation Services		(billed monthly)
Month	307,084		337,908	1,100	\$0	
FYTD	2,273,575		2,439,775	1,073	(\$167,982)	
Cumulative	45,724,451		49,737,391	1,088	(\$5,088,325)	
Minerals Manageme	nt Service	No Longer Provides Nat	ural Gas Marketing Serv	ices		
Cumulative					(\$179,913)	
<u>Tenaska</u>		Purchaser - Natural Gas		\$\$/Unit		
Month			342,054	\$1.732274	\$592,531	
FYTD			2,480,754	\$2.319134	\$5,753,200	
Cumulative			49,595,641	\$4.333052	\$214,073,956	
Sandstone		Purchaser - Natural Gas	Liquids			
Month		120,155	12,830	\$7.852899	\$100,753	
FYTD		808,198	87,213	\$7.572058	\$660,382	
Cumulative		14,036,435	1,494,312	\$10.905608	\$16,296,381	
	Natural Gas (Mcf)***	NGLs (gal)	Purchased (Dth's)	\$\$ Per Unit (\$\$/Dth)		Total (\$\$)
Total month	307,084	120,155	354,884	\$1.953550		\$693,284
Total FYTD	2,273,575	808,198	2,567,967	\$2.432119		\$6,245,600
Total CYTD	1,470,432	528,760	1,653,149	\$2.321345		\$3,837,529
Cumulative	45,724,451	14,036,435	51,089,953	\$4.422174		\$225,102,099

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

\*\*Rounded to nearest dollar

# Table 5 - Conservation Crude Sales/Reserve Sell-down Helium & Natural Gas Sales

Conservation Helium         (billed quarterly)           Air Liquide Helium America, Inc.          (billed quarterly)           Month         0         0         \$0           FYTD         0         0         \$0           Cumulative         335,217         335,217         \$25,454,815           Air Products, L.P.          335,217         \$25,454,815           Month         0         0         \$0           FYTD         0         0         \$0           Cumulative         8,962,845         \$671,868,990         \$0           Linde Gas North America, LLC         8,962,845         \$671,868,990         \$0           Linde Gas North America, LLC          \$0         \$0         \$0           Keves Helium Co., LLC          \$433,603,032         \$433,603,032           Keves Helium Co., LLC          \$0         \$0         \$0           Month         0         0         \$0         \$0           FYTD         0,013,471         \$70,080,272         \$1,013,471         \$70,080,272           Month         0         0         \$0         \$0         \$0		Charges Dilled (¢)**				
Air Laguaide Helium America, Inc.         Non-			Sales*	Charges Billed (\$)**		
Manin Normality00000Consulative Consulative AL Products, LP.335,217252,648,81.5		Conservatio	n Helium			(billed quarterly)
PrD00339.277359.275<	Air Liquide Helium America, Inc.					
Camuatanon335,217S25,454,815Month0080PTD0080Comulative8,962,8458,962,845S871,888,990Inde Gas North America, LLC0080Month00080PTD00080Camulative6,289,2285433,003,02Straine00080PTD00080Camulative1,013,477570,080,27Month00080PTD0,01080Straine1,013,477570,080,27Matheson Tri-Gas, Inc.0080Straine0080PTD0080Straine0080Straine0080Straine0080Straine0080Straine0080Straine0080Straine0080Straine0080Straine0080Straine0080Straine0080Straine0080Straine0080Straine0080Straine0080Straine0080Straine0080<	Month	0	0	0	\$0	
Air Productis.L.P. Month0000PTD00000PTD00000Manth00000PTD00000Camulative6.289.2840000Camulative6.289.2840000Camulative6.289.2840000Camulative6.289.2840000Camulative6.289.2840000Camulative1,013.471STO,080.27Camulative1,013.471STO,080.27Camulative1,013.471STO,080.27Camulative1,013.471STO,080.27Camulative1,013.471STO,080.27Camulative380.03400SICamulative380.0340SICamulative380.0340SICamulative380.0340SICamulative380.034SISICamulative5.550.116SISISICamulative3.667SISISICamulative3.667SISISICamulative3.667SISISICamulativeSISISISICamulativeSISISISI<	FYTD	0	0	0	\$0	
Month         0 <td>Cumulative</td> <td>335,217</td> <td></td> <td>335,217</td> <td>\$25,454,815</td> <td></td>	Cumulative	335,217		335,217	\$25,454,815	
PrTD000000Linde Sas North America, LLC Moth000000PTTD0000000Canualatio6,289,226-6,289,226-000Canualatio6,289,226-6,289,226-00	Air Products, L.P.					
Conclusive8,982,9459871,988,990Month0050PTD006,289,224Conclusive6,289,2246,289,224Keves Helium Co., LLC000Solution000Solution1,013,4711,013,471Conclusive1,013,4711,013,471Solution360,0341,013,471Matheson Tri-Gas, Inc.000Solution360,034353,165,148Conclusive360,034353,165,148Praxair, Inc.000Solutive5,560,1185,550,118Pratair, Inc.000Solutive5,560,1185,550,118Conclusive36,62735,550,668Proto000Conclusive36,62735,550,668Conclusive36,62735,550,668Conclusive36,62735,550,668Solutive36,62735,550,668Conclusive36,62735,550,668Conclusive36,62736,227Solutive36,62736,227Solutive36,62736,227Solutive36,62736,227Solutive36,62731,488,365Conclusive36,62731,488,365Conclusive36,62731,488,365Conclusive36,62731,488,365Conclusive36,62731,488,365Conclusive36,62731,488,365Conclusive <td>Month</td> <td>0</td> <td>0</td> <td>0</td> <td>\$0</td> <td></td>	Month	0	0	0	\$0	
Linde Gas North America, LLC North0000FYTD006.289.2265.289.226\$43.3603.032Canulative6.289.2266.289.226\$43.3603.032	FYTD	0	0	0	\$0	
Mann         0         0         0         0         50           Cumulativo         6.289,228         6.289,228         5433.603.032            Keyes Hellum Co., LLC         0	Cumulative	8,962,845		8,962,845	\$671,868,990	
PYTD         0         0         8.0         5.0           Keves Halum Co, LLC         0         0         6.289.226         5433.600.032           Month         0         0         0         50           Currulative         1.013.471         1.013.471         570.800.27         ·           Month         0         0         0         50         ·           Matheson Tri-Gas, Inc.	Linde Gas North America, LLC					
Cumulative6.289.2266.289.226\$433.603.032Kaves Helium Co., LLC Worth0000Kaves Helium Co., LLC Worth00000Worth000000FYTD0000000Matheson Tri-Cas, Inc. Month0000000FYTD000000000Camulative360.03400 <td>Month</td> <td>0</td> <td>0</td> <td>0</td> <td>\$0</td> <td></td>	Month	0	0	0	\$0	
Kayas Halium Co., LLC         0	FYTD	0	0	0	\$0	
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Matheson Tri-Gas, Inc.         Month         0         0         0         0         0         S0           Month         0         0         0         300.034         \$381.551.46            Carnulative         360.024         300.034         \$381.551.46             Month         0         0         0         0         \$381.551.46            Month         0         0         0         \$381.551.46             Month         0         0         0         \$39             Global Gases America         0         0         \$35.550.116         \$421.704.984            Month         0         0         0         \$30         >            Cumulative         36.267         33.535.66 <td>FYTD</td> <td>0</td> <td>0</td> <td>0</td> <td>\$0</td> <td></td>	FYTD	0	0	0	\$0	
Matheson Tri-Gas, Inc. Month         Image: Constraint of the symbol of the symbo	Cumulative	1,013,471		1,013,471	\$70,080,272	
Menth         0 <td>Matheson Tri-Gas, Inc.</td> <td></td> <td></td> <td></td> <td>. ,</td> <td></td>	Matheson Tri-Gas, Inc.				. ,	
FYTD         0         0         360,034         S38,155,146           Praxiar, Inc.         0         0         538,155,146            Month         0         0         0         S38,155,146            Month         0         0         0         S38,155,146             Global Cases America         0         0         0         S35,355,665             Month         0         0         0         0         S35,355,665             Alrgas Merchant Cases         0         0         0         S35,355,665 <td>Month</td> <td>0</td> <td>0</td> <td>0</td> <td>\$0</td> <td></td>	Month	0	0	0	\$0	
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Cumulative         5,550,116         S421,704,984           Global Cases America Month         0         00         S           FYTD         0         0         0         S           Atrgas Merchant Gases         36,267         S3,535,667         S           Month         0         0         0         S           Month         0         0         0         S           Month         0         0         0         S           Cumulative         15,667         S1,488,385         S           IACX Energy         0         0         S         S           Month         0         0         0         S         S           Uniper Global Commodities North America LLC         0         0         S         S           Month         0         0         0         S         S           Cumulative         41,34         S5,038,74         S         S           Weil Group Resources LLC         0         0         S         S           Month         0         0         S         S         S           Veil Group Resources LLC         S         S         S         S						
Global Gases America Month         0<		-	-	-		
Month         0         0         0         \$0           FYTD         0         0         0         \$0           Airgas Merchant Gases         36,267         36,267         \$3,535,665           Month         0         0         \$0         \$\$1,535,665           Cumulative         0         0         \$\$1,567         \$\$1,488,355           IACX Energy         0         0         \$\$0         \$\$1,488,355           Month         0         0         \$\$0         \$\$1,488,355           IACX Energy         0         0         \$\$0         \$\$1,720,180           Month         0         0         \$\$0         \$\$1,720,180           Uniper Clobal Commodities North America LLC         \$\$1,720,180         \$\$1,720,180           Uniper Clobal Commodities North America LLC         \$\$1,815,000         \$\$1,815,000           Cumulative         41,334         \$\$1,348,74         \$\$1,815,000           Cumulative         21,000         \$\$0         \$\$1,815,000           Veli Group Resources LLC         \$\$1,348,74         \$\$1,348,74           Month         0         \$\$1,348,74         \$\$1,348,74           Veli Uniquive         21,000         \$\$0         \$\$1,815,000		0,000,110		0,000,110	¢ := :,: 0 :,00 :	
FYTD         0         0         30         30           Cumulative         36,267         36,287         \$3,53,665           Airgas Merchant Gases         0         0         0         \$0           Month         0         0         0         \$0         \$0           FYTD         0         0         0         \$0         \$0           Cumulative         15,667         \$1,488,365         \$1,488,365         \$1,488,365           Month         0         0         \$0		0	0	0	\$0	
Cumulative         36,267 $33,235,665$ Airgas Merchant Cases Month         0         0 $50$ Month         0         0 $50$ FYTD         0         0 $50$ Cumulative         15,667         \$1,488,365 $50$ IACX Energy         0         0 $$0$ $$0$ Month         0         0 $$0$ $$0$ $$0$ FYTD         0         0 $$0$ $$0$ $$0$ $$0$ Cumulative         16,220 $$1,720,18$ $$0$ $$0$ $$0$ Cumulative         16,220 $$1,720,10$ $$0$ $$0$ $$0$ Viniper Global Commodities North America LLC         0         0         0 $$0$ Month         0         0         0 $$0$ $$0$ Value altrive         41,334         41,334 $$5,038,74$ Month         0         0         50 $$5,038,74$ Month         0         0         50 $$5,038,74$ Month <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Airgas Merchant Gases Month         0         0         0         0         50           Month         0         0         0         0         50           FYTD         0         0         0         50         50           IACX Energy         15,667         \$14,88,355         50         51,488,355           IACX Energy         0         0         \$0         \$0         \$0           Month         0         0         \$0         \$0         \$0           FYTD         0         0         \$0         \$0         \$0           Cumulative         16,22         \$1,720,180         \$1,920,180         \$1,920,180           Uniper Global Commodities North America LLC         0         0         \$0         \$0         \$0           Cumulative         41,334         \$1,334         \$1,334         \$1,348,746         \$1,815,000           Cumulative         21,000         21,000         \$1,816,000         \$1,815,000         \$1,815,000           Cumulative         21,000         21,000         \$2,529,000         \$1,815,000         \$1,81,91,910           Cumulative         11,334         \$1,348,746         \$1,348,746         \$1,348,746         \$1,348,746			Ű			
Month         0         0         0         50           FYTD         0.0         0.0         50           IACX Energy         15,667         \$1,488,365		00,201		00,201	\$0,000,000	
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Cumulative         15,667         \$1,488,365           IACX Energy Month         0         0         0         \$0           SYTD         000         00         \$0         \$0           Cumulative         16,220         \$1,720,180 $-$ Uniper Global Commodities North America LLC         0         0         \$0         \$0           Month         0         0         0         \$0         \$0           Cumulative         41,334         \$5,038,74 $-$ Month         0         0         \$0         \$0           Cumulative         41,334         \$5,038,74 $-$ Weil Group Resources LLC $  -$ Month         0         0         \$0         \$0           Cumulative         21,000         \$1,815,000         \$1,815,000           Cumulative         21,033 $ -$ Month         0         0         \$0         \$0           NH USA Helum Marketing, Inc $   -$ Month         0         0         \$0         \$0 $-$ Cu						
LACX Energy Month         O         O         S           Month         0         0         0         \$           FYTD         0         0         0         \$           Cumulative         16,220         16,220         \$1,720,180            Uniper Global Commodities North America LLC         16,220         \$1,720,180            Month         0         0         \$\$         \$           Month         0         0         \$\$         \$           Month         0         0         \$\$         \$           Veill Group Resources LLC         Veil Group Resources LLC         \$\$         \$           Month         0         0         \$\$         \$           Month         0         0         \$\$         \$           Month         0         0         \$         \$           Yeil Group Resources LLC         Yeil Group Resources LLC         Yeil Group Resources LLC         \$         \$		-	Ŭ	-		
Month         0         0         0         \$0           FYTD         0         0         \$0         \$0           Cumulative         16,220         \$1,720,180            Uniper Global Commodities North Ameri-LLC         0         0         \$0         \$0           Month         0         0         \$0         \$0         \$0           FYTD         0         0         \$0         \$0         \$0           Cumulative         41,334         \$5,038,746          \$0           Month         0         0         \$0		10,007		10,007	φ1,400,000	
FYTD         0         0         \$0         \$0           Cumulative         16,220         \$1,720,180            Uniper Global Commodities North America LLC         0         0         \$0         \$0           Month         0         0         \$0		0	0	0	\$0	
Cumulative         16,220         \$1,720,180           Uniper Global Commodities North Ameri>LLC         American Stress         American Stress           Month         0         0         \$0           FYTD         0         0         \$0           Cumulative         41,334         \$5,038,746						
$\begin{array}{ c c c c } \begin{tabular}{ c c c } \hline Uniper Global Commodities North America LLC \\ \hline Month & 0 & 0 & 0 & $0 & $0 & $0 & $0 & $0 &$			Ű			
Month $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ FYTD $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ Cumulative $411,334$ $\bigcirc$ $\bigcirc$ $\bigcirc$ Weil Group Resources LLC $411,334$ $\bigcirc$ $\bigcirc$ Month $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ Month $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ Month $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ Cumulative         21,000 $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ NAH USA Helum Marketing, Inc $\bigcirc$ <td></td> <td></td> <td></td> <td>10,220</td> <td>ψ1,720,100</td> <td></td>				10,220	ψ1,720,100	
FYTD         0         0         \$0           Cumulative         41,334         41,334         \$5,038,746           Weil Group Resources LLC         41,334         41,334         \$5,038,746           Month         0         0         \$0         \$0           FYTD         0         0         \$0         \$0           FYTD         0         0         \$15,000         \$1,815,000           Cumulative         21,000         \$2,529,000         \$2,529,000           Nonth         0         0         \$0         \$2,529,000           Nonth         0         0         \$0         \$0           Month         0         0         \$0         \$0           FYTD         0         0         \$0         \$0           Cumulative         11,334         \$1,348,74         \$1           Cumulative         11,334         \$1,348,74         \$0           Total month         0         0         \$0         \$0           Total CYTD         0         0         \$1,815,000         \$1,815,000           Total CYTD         22,779,063         22,779,063         \$1,678,646,449           Conservation Crude Transfers			0	0	\$0	
Cumulative41,334\$\$,038,746Weil Group Resources LLC MonthAAAMonth00\$0FYTD00\$1,815,000Cumulative21,00022,1000\$2,529,000NAH USA Helum Marketing, Inc Month00\$0North00\$0FYTD00\$0Cumulative11,33411,334\$1,348,746Cumulative11,33411,334\$1,348,746Cumulative11,33411,334\$1,348,746Total month00\$0Total FYTD00\$0Cumulative22,779,06315,000\$1,815,000Total CYTD00\$0\$0Conservation Crude Transfers TransferredMonthFYTDCYTDCumulativeTransferred0015,000\$0Volume outstanding000\$03,477						
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Month $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ $\bigcirc$ FYTD $\bigcirc$		41,004		-1,004	ψ <del>0,000,740</del>	
$\begin{array}{c c c c c c } FYTD & 0 & 0 & 15,000 & \$1,815,000 & \\ Cumulative & 21,000 & 21,000 & \$2,529,000 & \\ \hline NAH USA Helum Marketing, Inc & & & & & & \\ Month & 0 & 0 & 0 & \$2,529,000 & \\ Month & 0 & 0 & 0 & \$30 & & & & \\ FYTD & 0 & 0 & 0 & \$30 & & & & & & \\ Cumulative & 11,334 & & & 11,334 & \$1,348,74 & & & & & & & & & \\ \hline Cumulative & 11,334 & & & & & & & & & & & & & & & & & & $		0	0	0	\$0	
Cumulative21,00021,000\$2,529,000NAH USA Helum Marketing, Inc Month000\$0Month00\$0\$0FYTD0000\$0\$0Cumulative11,334\$1,348,746Cumulative11,334\$1,348,746Total month0000Total FYTD000Total CYTD00\$1,815,000Cumulative22,779,06322,779,063\$1,678,646,449Conservation Crude TransfersMonthFYTDCYTDCumulativeTransferredMonthFYTDCYTD0Volume outstandingMonthFYTDCYTDCumulative						
NAH USA Helum Marketing, Inc         0         0         0         \$0           Month         0         0         0         \$0         \$0           FYTD         0         0         0         \$1,348,746         \$1348,746         \$1348,746         \$10         \$1348,746         \$10         \$1348,746         \$10         \$1348,746         \$10			0			
Month         0         0         \$0           FYTD         0         0         0         \$0           Cumulative         11,334         \$1,348,746         11,334         \$1,348,746           Total month         0         0         0         0         0           Total month         0         0         0         \$1,348,746         0           Total FYTD         0		21,000		21,000	ψ2,020,000	
$\begin{array}{c c c c c c } FYTD & 0 & 0 & 0 & \$0 \\ Cumulative & 11,334 & 11,334 & 11,334 & \$1,348,746 \\ \hline Cumulative & 11,334 & 11,334 & 11,334 & \$1,348,746 \\ \hline Conservation Crude Transfers \\ Transferred & 22,779,063 & 0 & 15,000 \\ \hline Column & 22,779,063 & 122,779,063 & 131,678,646,449 \\ \hline Conservation Crude Transfers & Month & FYTD & CYTD & Cumulative \\ \hline Transferred & 100 & 15,000 & 15,000 & 903,477 \\ \hline Volume outstanding & 0 & 0 & 0 & 0 \\ \hline \end{array}$		0	0	0	۹۵	
Cumulative11,33411,334 $\$1,348,746$ Total monthImage: Conservation Crude TransfersImage: Conservation Crude Transfers <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Total month         0         0         0         0         0         0           Total FYTD         0         0         15,000         \$1,815,000         \$0         \$0         \$0         \$0         \$0         \$0         \$1,815,000         \$03,477         \$0         \$00         \$03,477         \$0         \$0         \$0         \$03,477         \$0         \$0         \$0         \$03,477         \$0         \$0         \$03,477         \$0         \$0         \$0         \$03,477         \$0         \$0         \$0         \$0         \$0         \$0<		-	0	-		
Total FYTD Total CYTD CumulativeImage: Conservation Crude TransfersImage: Conservation Crude TransfersI	Cantalativo	11,334		11,534	ψ1,0+0,7+0	
Total FYTD Total CYTD CumulativeImage: Conservation Crude TransfersImage: Conservation Crude TransfersI	Total month	0	0	0		0
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Transferred     0     15,000     903,477       Volume outstanding     0     0     903,477		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Month		CVTD	
Volume outstanding 0						
				15,000	0	903,477
	Volume outstanding	+ 17 / 1	•	0005		

### Table 6 - Helium Resources Evaluation

All Volumes in Mcf at 14.7 psia & 70°F

Revenue Collected From Federal Leaseholds	Month*	FYTD*
Fee Sales & Royalties	\$1,812,396	\$13,733,647
Natural Gas Royalties (1)	\$0	\$0
Natural Gas Rentals	\$0	\$0
Other	<u>\$43,724</u>	<u>\$332,012</u>
Revenue Collected from Federal Lease Holds	\$1,815,308	\$13,777,371

\*Totals do not sum

Helium Analysis and Evaulation	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)	20	122

### **U.S. Helium Production**

Domestic	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 - 2018

All Volumes in Mcf at 14.65 psia & 60°F											
	Metered Gas						Transferred Gas		Stored	Charges Billed	
	Gross Gas	Helium %	Helium	FYTD	Helium CYTD	Cumulative	Heliu Month	m Cumulative	Helium EOM	(\$ Month	)** FYTD
Total All Contra	acts*	WORLD			UTD	Unulative	IVIOLITI	Sumulative	LOW	WOTILT	
Crude Acquired	19,750	64.7%	12,779	87,079	51,036	32,204,445	66,102	60,231,850			
Crude Disposed	142,416	73.0%	104,020	773,395	488,309	53,490,779	26,511	26,600,467		\$622,668	Storage Fees
Grade-A Rdlvrd	0	. 2.07.5	0	0	0	1,478,718	20,011	.,,		<u>\$221,616.64</u>	RMF Fees
Net/Balance	(122,666)		(91,241)	(686,316)	(437,273)		39,591	33,631,383	3,074,843	\$844,284	\$6,100,065
Total Prior Con	1	MINATED)			,						
Crude Acquired	<b>,</b>	,		0	0	17,406,129	0	18,196,898			
Crude Disposed				0	0	11,830,863	0	19,148,768			
Grade-A Rdlvrd				0	0	1,478,718					
Number of trailers				0	0	9,834			0		
Linde Gas Nort	th America, I	LC, Contra	act no. 324	9							
Crude Acquired											
Crude Disposed											
Net/Balance											
Praxair, Inc., Co	ontract no. 3	251									
Crude Acquired											
Crude Disposed											
Net/Balance	_										
Air Products, L	.P., Contrac	t no. 3256									
Crude Acquired											
Crude Disposed											
Net/Balance	ium Amorica	Inc. Com	ract no. 30	994							
Air Liquide Hel Crude Acquired	IUIII AMERICa	, mc., con	iract 110. 32	.04							
Crude Acquired Crude Disposed											
Net/Balance											
Pioneer Natura	Resources	USA Inc. (	Contract no	3286							
Crude Acquired		56A, 116, C	- sind a st fill								
Crude Disposed											
Net/Balance											
Keyes Helium (	Co., LLC. Co	ntract no. 3	3287								
Crude Acquired	,, <b></b>		-								
Crude Disposed											
Net/Balance											
Matheson Tri-G	Bas, Inc., Co	ntract no. 3	288								
Crude Acquired											
Crude Disposed											
Net/Balance											
Airgas Mercha	nt Gases, Co	ntract no.	3290								
Crude Acquired											
Crude Disposed											
Net/Balance	······										
Global Gases A Crude Acquired	America, Cor	ntract no. 3	293								
Crude Acquired Crude Disposed											
Net/Balance											
Linn Operating	, Inc., Contra	act no. 329	6								
Crude Acquired											
Crude Disposed											
Net/Balance											
IACX Energy, C	Contract no.	3297									
Crude Acquired											
Crude Disposed											
Net/Balance											
Uniper Global	Commodities	s North Am	erica LLC,	Contract n	o. 3298						
Crude Acquired											
Crude Disposed Net/Balance											
Weil Group Res	sources LLC	Contract	no 3299								
Crude Acquired	Sources LLC	, contract	10. 5235								
Crude Disposed											
Net/Balance											
NAH USA Helu	m Marketing	, Inc, Contr	act no. 330	00							
Crude Acquired											
Crude Disposed											
Net/Balance											
Government He	elium										

Government Helium						
Remaining Crude Acquired beginning of the month 3,392,486						
Crude Disposed: In Kind Sales transferred for the month (39,591)						
Conservation Crude Sales/Reserve Sell Down transferred (m	0					
Gains and Loses for the month	<u>(116)</u>					
Net/Balance of Purchased Helium Remaining for Sale	3,352,779					

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

\*\* New Contracts

## Table 8 - Compression & CHEU (Operations)

### May - 2018

Field/CHEU Compressor Operations	Month	FYTD	Cumulative	
Spot gas fuel price *	\$ per/MMBTU	\$1.73	\$2.33	\$4.68
Fuel used * (now includes field compression well head)	total MMBTU	7,802	65,746	1,876,447
Rental compressor(s) helium in fuel (Mcf)	Mcf	0	0	3645
#1 Compressor run time *	hours	736	4,847	114,406
#2 Compressor run time *	hours	722	5,274	77,397
#3 Compressor run time *	hours	25	702	62,710

\* Field/CHEU Compressor Operations based on May 18 activity

Crude Helium Enrichment Unit (CHEU)	Month		FYTD		Cumulative
CHEU Runtime	Runtime Hrs	Percent	Runtime Hrs	Percent	Runtime Hrs
Processing feed gas	744	100.0%	5,584	95.7%	126,709
Producing residue gas	744	100.0%	5,449	93.4%	123,733
Producing helium product	744	100.0%	5,412	92.8%	120,066
Producing natural gas liquids	744	100.0%	5,438	93.3%	119,139

CHEU Utility Usage	Month	FYTD	Cumulative
Cheu Fuel Gas (Mcf) usage May 18	3,154	25,085	599,326
Cheu Pure Water Usage (gallons) May 18	1,182	5,452	314,691
Electricity Metered (Kwh) consumed Apr 18	2,804,423	20,023,553	167,302,179