

# Bureau of Land Management

## Amarillo Field Office Helium Operations



### Statistical Report for October - 2003



#### *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  
-Natural Gas Engineering

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Amarillo, Texas

Issued: February 25, 2004

**\* Revised \***

**\*Tables include COMPANY PROPRIETARY INFORMATION (shaded) and is for internal use only.  
This information shall not be released unless express permission is authorized.**

Approved for distribution: Nelson R. Bullard

Date: 02/25/2004

Table 1 - Summary of Helium Operations

October - 2003

In Kind Sales	NASA*	Navy*	Army*	Air Force*	DOE*	Other Fed*	Subtotal*	In Kind	Charges Billed (\$)**	
Total month	0	0	0	0	0	0	0	0	\$0	
Total FYTD	0	0	0	0	0	0	0	0	\$0	
Total CYTD	93,651	5,026	58	18,099	24,903	18,070	159,807	157,334	\$8,261,416	
In Kind Transfers							Month	FYTD	CYTD	Cumulative
Transferred							90	90	152,942	1,160,028
Volume outstanding							46,472			
Open Market Sales				Award Volume	Outstanding	Sales	Charges Billed (\$)**			
Total month				675,600	0	0	\$0			
Total FYTD				675,600	675,600	0	\$0			
Total CYTD				2,315,600		1,640,000	\$86,100,000			
Open Market Transfers							Month	FYTD	CYTD	Cumulative
Transferred							0	0	1,230,000	1,230,000
Volume outstanding							410,000			
Natural Gas/Liquids Sales		Natural Gas (Mcf)		NGLs (gal)		Decatherms		\$/unit	Charges Billed (\$)**	
Total month		87,435		0		87,816		\$4.0467	\$353,251	
Total FYTD		87,435		0		87,816		\$4.0467	\$353,251	
Total CYTD		1,330,183		0		1,364,690		\$4.8198	\$6,545,330	
Purchased Helium	Month			Month	FYTD	Month	FYTD	FYTD	CYTD	Cumulative
	Helium Mixture	Helium Percent	Helium	Low Purity Helium		Below 50% Helium		Contained Helium		
Total purchased										32,176,145
Helium transferred			90					90	1,382,942	4,375,368
Purchased helium in storage										27,800,777
Private Plant Activity										
Accepted in storage system	110,592	63.2%	69,936	1,320	1,320	(242)	(242)	69,936	564,855	7,874,163
Redelivered from storage system	(236,784)	67.3%	(159,334)	0	0	5	5	(159,334)	(1,620,804)	(11,771,712)
Total apparent crude produced^	203,449	69.4%	141,255					141,255	1,307,874	7,318,496
Total apparent crude refined^	(329,641)	70.0%	(230,653)					(230,653)	(2,373,015)	(11,771,008)
Storage Contract Activity	Metered Gas					Transferred Gas		Stored Helium	Charges Billed (\$)**	
	Gross Gas	Helium	Helium	Helium	Helium	Month	Cumulative	EOM	Month	FYTD
	Month		FYTD	CYTD	Cumulative					
Crude Acquired	110,326	69,694	69,694	560,984	25,244,702	55,438	27,189,894			
Crude Disposed	236,778	159,329	159,329	1,620,571	23,597,087	55,348	25,442,279		\$23,961	Storage Fees
Grade-A Rdlvrd	0	0	0	0	1,478,718	0	0		\$66,270	RMF Fees
Net/Balance	(126,452)	(89,635)	(89,635)	(1,059,587)	168,897	90	1,747,615	1,916,512	\$90,231	\$90,231
Bush Dome Reservoir Operations		Month		Fiscal Year		Since Start of Conservation Program		Since Field Discovery		
Conservation gases from all sources		Gross	Net	Gross	Net	Gross	Net	Gross	Net	
In underground storage, beg. of period		41,328,824	29,775,145	41,328,824	29,775,145	490,620	490,620	0	0	
Net Activity		(124,303)	(89,635)	(124,303)	(89,635)	40,713,900	29,194,890	41,204,520	29,685,510	
Total in underground storage		41,204,520	29,685,510	41,204,520	29,685,510	41,204,520	29,685,510	41,204,520	29,685,510	
Native Gas										
Total in place, beg. of period		206,235,982		206,235,982		265,724,755		318,727,000		
Net Activity		(178,026)		(178,026)		(59,666,799)		(112,669,044)		
Total in place, end of month		206,057,956		206,057,956		206,057,956		206,057,956		
Native Gas plus Conservation Gases										
Total gases in place, beg. of period		247,564,806		247,564,806		266,215,375		318,727,000		
Net Activity		(302,329)		(302,329)		(18,952,898)		(71,464,523)		
Total gases in place, end of month		247,262,477		247,262,477		247,262,477		247,262,477		
Helium Resources Evaluation				Month	FYTD					
Revenue Collected from Federal Lease Holds				\$1,078,397	\$1,078,397					
Helium Sample Collection Report for month				Submitted 1	Received 6	Analyzed 102				
Helium Enrichment Unit Operations		Month			FYTD			Cumulative		
Gas Processed	Helium-Gas Mixture	Helium Percent	Helium	Helium-Gas Mixture	Helium Percent	Helium	Helium-Gas Mixture	Helium Percent	Helium	
Plant feed	189,663	7.2%	13,660	189,663	7.2%	13,660	2,951,376	12.4%	366,524	
Helium product	14,398	75.9%	10,928	14,398	75.9%	10,928	440,614	75.7%	333,449	
Residue natural gas	53,902	0.0%	0	53,902	0.0%	0	1,583,546	0.0%	10	
Vent, flare & plant losses	120,265	2.3%	2,732	120,265	2.3%	2,732	1,246,012	2.7%	33,065	
Helium recovery efficiency			80.0%			80.0%			91.0%	

\* Volumes in Mcf at 14.7 psia & 70°F; all other volumes in 14.65 psia & 60°F

\*\*Rounded to nearest dollar

^ Other sources of helium are accessed but data are not available

Table 2 - In Kind Helium Sales

October - 2003

	NASA*	Navy*	Army*	Air Force*	DOE*	Other Fed*	Subtotal*	In Kind+	Charges Billed (\$)**	
<b>In Kind Helium</b>										
<b>Aeriform, Contract no. INC98-0101</b> (billed quarterly)										
Month										
FYTD										
<b>AGA Gas, Inc., Contract no. INC98-0102</b>										
Month										
FYTD										
<b>AirGas, Inc., Contract no. INC98-0103</b>										
Month										
FYTD										
<b>Air Liquide S.A., Contract no. INC98-0104</b>										
Month										
FYTD										
<b>Air Products, L.P., Contract no. INC98-0105</b>										
Month										
FYTD										
<b>BOC Gases, Contract no. INC98-0106</b>										
Month										
FYTD										
<b>Corp Brothers, Inc., Contract no. INC98-0107</b>										
Month										
FYTD										
<b>FIBA Technologies, Inc., Contract no. INC98-0108</b>										
Month										
FYTD										
<b>General Air Service &amp; Supply Co., Contract no. INC98-0109</b>										
Month										
FYTD										
<b>Jack B. Kelley Co., Contract no. INC98-0110</b>										
Month										
FYTD										
<b>Portland Welding Supply, Contract no. INC98-0111</b>										
Month										
FYTD										
<b>Praxair, Inc., Contract no. INC98-0112</b>										
Month										
FYTD										
<b>United States Welding, Inc., Contract no. INC98-0113</b>										
Month										
FYTD										
<b>Tri-Gas, Inc., Contract no. INC98-0114</b>										
Month										
FYTD										
<b>Messer Griesheim Ind., Contract no. INC00-0115</b>										
Month										
FYTD										
<b>Total month</b>	0	0	0	0	0	0	0	0	\$0	
<b>Total FYTD</b>	0	0	0	0	0	0	0	0	\$0	
<b>Total CYTD</b>	93,651	5,026	58	18,099	24,903	18,070	159,807	157,334	\$8,261,416	
<b>Cumulative</b>	704,981	18,402	58	168,519	181,436	152,077	1,225,473	1,206,425	\$60,236,255	
<b>In Kind Transfers</b>										
Transferred							Month	FYTD	CYTD	Cumulative
Volume outstanding							90	90	152,942	1,160,028
						46,472				

\* Volumes in Mcf at 14.7 psia & 70°F  
 + Volumes in Mcf at 14.65 psia & 60°F

\*\*Rounded to nearest dollar

COMPANY PROPRIETARY INFORMATION

Table 2.1 - Open Market/Reserve Sell-down  
Helium & Natural Gas Sales

October - 2003

Award Volume*	Outstanding*	Sales*	Charges Billed (\$)**
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**Conservation Helium**

**Air Liquide S.A.**

(billed quarterly)

Month	0	0	0	\$0
FYTD	0	0	0	\$0
Cumulative	50,000		50,000	\$2,625,000

**Air Products, L.P.**

Month	0	0	0	\$0
FYTD	0	0	0	\$0
Cumulative	680,400		680,400	\$35,721,000

**BOC Gases**

Month	550,000	0	0	\$0
FYTD	550,000	550,000	0	\$0
Cumulative	1,384,000		834,000	\$43,785,000

**Keyes Helium Co.**

Month	75,600	0	0	\$0
FYTD	75,600	75,600	0	\$0
Cumulative	151,200		75,600	\$3,969,000

**AGA Gas, Inc.**

Month	50,000	0	0	\$0
FYTD	50,000	50,000	0	\$0
Cumulative	50,000		0	\$0

<b>Total month</b>	675,600	0	0	\$0
<b>Total FYTD</b>	675,600	675,600	0	\$0
<b>Total CYTD</b>	2,315,600		1,640,000	\$86,100,000
<b>Cumulative</b>	2,315,600		1,640,000	\$86,100,000

**Open Market Transfers**

	Month	FYTD	CYTD	Cumulative
Transferred	0	0	1,230,000	1,230,000
Volume outstanding	410,000			

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

Natural Gas (Mcf)**	NGLs (gal)	Decatherms	\$/unit	Charges Billed (\$)**
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**Natural Gas/Liquids Sales**

**El Paso Natural Gas**

Provides Firm/Interruptible natural gas transportation services

(billed monthly)

Month	51,867		57,744	(\$0.4755)	(\$27,460)
FYTD	51,867		57,744	(\$0.4755)	(\$27,460)
Cumulative	1,243,288		1,380,092	(\$0.1393)	(\$192,221)

**Minerals Management Service**

Provides natural gas marketing services under a Cooperative Agreement

Month				\$0.0000	\$0
FYTD				\$0.0000	\$0
Cumulative				(\$0.0100)	(\$12,448)

**Cenergy Marketing**

Month	86,960	0	87,816	\$4.359430	\$380,711
FYTD	86,960	0	87,816	\$4.359430	\$380,711
Cumulative	1,322,959	0	1,364,690	\$4.969737	\$6,749,998

<b>Total month</b>	86,960	0	87,816	\$4.046729	\$353,251
<b>Total FYTD</b>	86,960	0	87,816	\$4.046729	\$353,251
<b>Total CYTD</b>	1,322,959	0	1,364,690	\$4.819763	\$6,545,330
<b>Cumulative</b>	1,322,959	0	1,364,690	\$4.819763	\$6,545,330

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

\*\*Rounded to nearest dollar

### Table 3 - Helium Resources Evaluation

October - 2003

All Volumes in Mcf at 14.7 psia & 70°F

	Month*	FYTD*
<b>Revenue Collected From Federal Leaseholds</b>		
Fee Sales & Royalties	\$1,068,482	\$1,068,482
Natural Gas Royalties (1)	\$3,533	\$3,533
Natural Gas Rentals	\$0	\$0
Other	\$6,382	\$6,382
Revenue Collected from Federal Lease Holds	\$1,078,397	\$1,078,397

\*Totals do not sum

	Month	FYTD
<b>Helium Analysis and Evaluation</b>		
Number of Sample Request Letters Sent	1	1
Number of Samples Received	6	6
Number of Samples Analyzed	12	12
Total Number of Samples Analyzed For Resources Division	19	19
Total Number of Samples Analyzed (2)	102	102

### U. S. Helium Production

CYTD

*Domestic*

1997 Helium Sold	3,853,991
1998 Helium Sold	4,029,755
1999 Helium Sold	4,203,019
2000 Helium Sold	4,564,589
2001 Helium Sold	4,756,719
2002 Helium Sold	4,584,904
2003 Helium Sold (projected)	4,700,000
<b>Estimated Helium Resources (as of 01/01/2001)</b>	<b>323,000,000</b>

	Month	FYTD	CYTD
<b>U.S. Helium Exports</b> (3)	105,996	1,457,623	1,115,047

(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 statistics as of: September 2003

Table 4 - Federal Acquisition & Storage Operations

October - 2003

All Volumes in Mcf at 14.65 psia & 60°F

	Month		Month	FYTD	Month	FYTD	FYTD	CYTD	Cumulative
	Helium-Gas Mixture	Helium Percent	Helium	Low Purity Helium	Below 50% Helium	Contained Helium			
<b>Purchased</b>									
Cities Service Helex - Jayhawk		---							6,403,147
National Helium Corp. - Liberal		---							11,561,830
Nothern Helex Co. - Bushton		---							4,475,921
Phillips Petroleum - Dumas		---							5,111,036
Phillips Petroleum - Sherman		---							4,624,211
<i>Total purchased</i>									<b>32,176,145</b>

Purchased helium produced/transferred	90				90	1,382,942			4,375,368
Balance of purchased helium in storage									<b>27,800,777</b>

**Bureau Plants**

Delivery/Handling Credit	0	---	0				0		13,205,259
Withdrawal	0	---	0				0		7,540,255

**Private Plants**

Helium accepted under terminated contracts (pre-FY96)									16,453,073
Helium redelivered under terminated contracts (pre-FY96)									13,007,062

Pioneer - Fain*									
GPM - Dumas*									
Crescendo - Sunray*									
Air Products - Guymon*									
GPM - Sherhan*									
GPM to APG+									
<i>Total GPM - Sherhan</i>									
Keyes Helium - Sturgis* ^									
Keyes Helium - Sturgis* ^									
<i>Total Keyes Helium - Sturgis* ^</i>									
Pioneer - Satanta*									
Williams - Baker*									
National Helium - Liberal*									
National to APL+									
<i>Total National Helium - Liberal</i>									
Air Products - Liberal*									
Praxair - Jayhawk* ^									
Praxair - Jayhawk* ^									
<i>Total Praxair - Jayhawk* ^</i>									
Amoco to Praxair+									
CIG - Lakin*									
BOC Gases - Otis* ^									
KN Processing - Bushton*									
KNP to Praxair+									
<i>Total KN Processing - Bushton</i>									
Praxair - Bushton*									

**Plant Inactive**

Accepted in storage system	110,592	63.2%	69,936	1,320	1,320	(242)	(242)	69,936	564,855	7,874,163
Redelivered from storage system	(236,784)	67.3%	(159,334)			5	5	(159,334)	(1,620,804)	(11,771,712)
Total apparent crude produced^	203,449	69.4%	141,255					141,255	1,307,874	7,318,496
Total apparent crude refined^	(329,641)	70.0%	(230,653)					(230,653)	(2,373,015)	(11,771,008)

\* Denotes CUSTODY TRANSFER activity in to or out of the crude helium pipeline system

+ Denotes activity between private plants that does not enter the crude helium pipeline system

^ Other sources of helium are accessed by helium refiners, but data are not available to BLM

**Acquisition & Storage Summary - Contained Helium**

	Month	FYTD	Cumulative
Total acquisition	69,936	69,936	69,708,640
Total disposition	159,334	159,334	41,249,101
Total stored in conservation system	(89,398)	(89,398)	28,459,539

Helium in pipeline system plus apparent losses			(1,225,971)
Helium in underground storage			29,685,510

COMPANY PROPRIETARY INFORMATION

Table 4.1 - Helium Storage Contract Activity

October - 2003

All Volumes in Mcf at 14.65 psia & 60°F

	Metered Gas						Transferred Gas Helium		Stored Helium EOM	Charges Billed (\$)**	
	Gross Gas	Helium %	Helium	Helium			Month	Cumulative		Month	FYTD
	Month		FYTD	CYTD	Cumulative						
<b>Total All Contracts*</b>											
Crude Acquired	110,326	63.2%	69,694	69,694	560,984	25,244,702	55,438	27,189,894			
Crude Disposed	236,778	67.3%	159,329	159,329	1,620,571	23,597,087	55,348	25,442,279		\$23,961	Storage Fees
Grade-A Rdlvrd	0		0	0	0	1,478,718				\$66,270	RMF Fees
Net/Balance	(126,452)		(89,635)	(89,635)	(1,059,587)	168,897	90	1,747,615	1,916,512	\$90,231	\$90,231
<b>Total Prior Contracts (TERMINATED)</b>											
Crude Acquired				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		
<b>BOC Gases, Contract no. 1995-3249</b>											
Crude Acquired											
Crude Disposed											
Net/Balance											
<b>Praxair, Inc., Contract no. 1995-3251</b> months - projected depletion											
Crude Acquired											
Crude Disposed											
Net/Balance											
<b>Air Products, L.P., Contract no. 1995-3256</b>											
Crude Acquired											
Crude Disposed											
Net/Balance											
<b>Oneok Field Services, Contract no. 1995-3258</b>											
Crude Acquired											
Crude Disposed											
Net/Balance											
<b>ExxonMobil Gas Marketing Co., Contract no. 1995-3280</b>											
Crude Acquired											
Crude Disposed											
Net/Balance											
<b>Pioneer, Contract no. 1995-3286</b>											
Crude Acquired											
Crude Disposed											
Net/Balance											
<b>Keys Helium Co., Contract no. 1995-3287</b>											
Crude Acquired											
Crude Disposed											
Net/Balance											
<b>Messer Griesheim Ind., Contract no. 1998-3283</b> months - projected depletion											
Crude Acquired											
Crude Disposed											
Net/Balance											
<b>Linde Gas AG, Contract no. 2001-3282</b>											
Crude Acquired											
Crude Disposed											
Net/Balance											
<b>Mitsui &amp; Co. (U.S.A.), Inc., Contract no. 2002-3289</b> months - projected depletion											
Crude Acquired											
Crude Disposed											
Net/Balance											
<b>Air Liquide S.A., Contract no. 2003-3284</b>											
Crude Acquired											
Crude Disposed											
Net/Balance											
<b>Government Helium</b>											
Crude Acquired							0	32,176,145			
Crude Disposed: In Kind Sales							90				
Open Market/Reserve Sell down							0	4,375,368			
Net/Balance									27,800,777		

\*Includes In Kind and Open Market transfers from Government storage

\*\*Rounded to nearest dollar

COMPANY PROPRIETARY INFORMATION



## Table 6 - Helium Enrichment Unit Operations

October - 2003

All Volumes in Mcf at 14.65 psia & 60°F (\*except where noted)

Gas Processed	Month			FYTD			Cumulative		
	Helium-Gas Mixture	Helium Percent	Helium	Helium-Gas Mixture	Helium Percent	Helium	Helium-Gas Mixture	Helium Percent	Helium
	Plant feed	189,663	7.2%	13,660	189,663	7.2%	13,660	2,951,376	12.4%
Helium product	14,398	75.9%	10,928	14,398	75.9%	10,928	440,614	75.7%	333,449
Residue natural gas	53,902	0.0%	0	53,902	0.0%	0	1,583,546	0.0%	10
Vent, flare & plant losses	120,265	2.3%	2,732	120,265	2.3%	2,732	1,246,012	2.7%	33,065
Helium recovery efficiency			80.0%			80.0%			91.0%

Utility Usage	Month			FYTD			Cumulative		
	Volume*	KWh	Runtime	Volume*	KWh	Runtime	Volume*	KWh	Runtime
	Natural gas liquids (*gallons)	0			0			0	
K100 compressor		284,617	353		284,617	353		5,241,177	4,341
K600 compressor		586,797	256		586,797	256		8,265,276	3,764
K610 compressor			131			131			3,067
Other electrical usage		213,411	744		213,411	744		2,509,096	5,584
Fuel gas (*Mcf)	95			95			20,802		
Water (*gallons)	3,000			3,000			17,290		

### HEU Runtime & Charges

#### Enrichment Unit Runtime

	Month		FYTD		Cumulative	
	Runtime	Percent	Runtime	Percent	Runtime	Percent
Processing feed gas	353	47.4%	353	47.4%	4,341	77.7%
Producing helium product	131	17.6%	131	17.6%	3,067	54.9%
Producing residue gas	256	34.4%	256	34.4%	3,764	67.4%

#### Enrichment Unit Charges

	Charges Billed (\$)*		
	Month	FYTD	Cumulative
Reservoir Management Fees (RMF)	\$66,270	\$66,270	\$638,439
Total operating costs	(\$900,781)	(\$900,781)	(\$5,892,878)
Labor	\$56,084	\$56,084	\$506,073
Compressor fuel	\$18,617	\$18,617	\$45,206
HEU fuel	\$11,860	\$11,860	\$69,267
Electric power	\$121,729	\$121,729	\$436,411
Flare, vent & plant losses	\$216,115	\$216,115	\$1,557,280
Other	\$17,250	\$17,250	\$120,750
<b>Sub Total - Items provided by BLM</b>	<b>\$441,654</b>	<b>\$441,654</b>	<b>\$2,734,987</b>
<b>Total - Cliffside Refiners, LP, GDA030001</b>	<b>(\$459,127)</b>	<b>(\$459,127)</b>	<b>(\$3,157,891)</b>

\*Rounded to nearest dollar