

Update on U.S. Federal Helium Program

November 15, 2018
Amarillo, Texas

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Amarillo Field Office Organization

~50 Field Office Employees (Helium Operations)

- Downtown Amarillo Office
- Cliffside Helium Plant – 12 miles NW of Amarillo, TX
- Satanta Field Station – Satanta, KS

~15 New Mexico State Office Employees (Helium Resources)

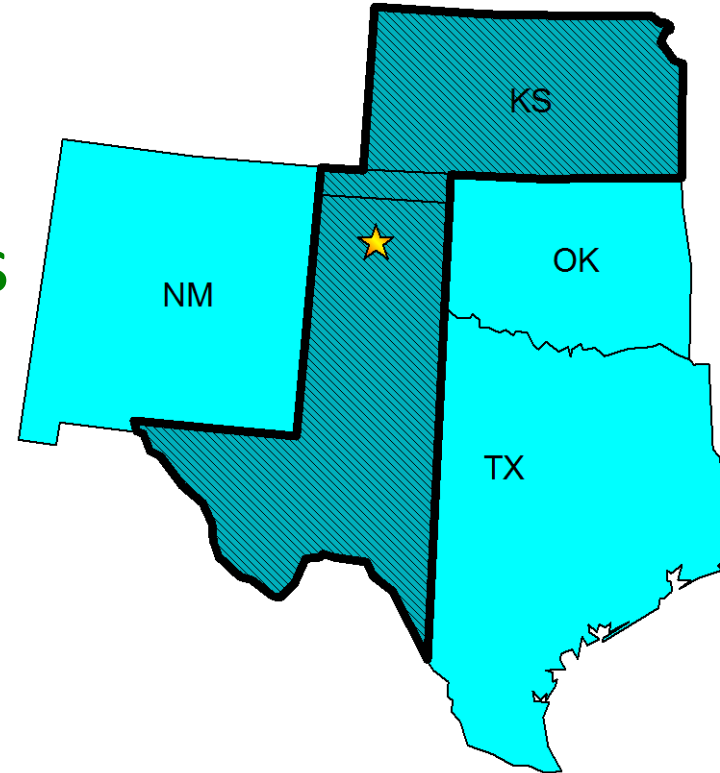
- Manages helium royalties associated with natural gas extraction on Federal lands
- Co-located in the Amarillo Office



BLM – Amarillo Field Office

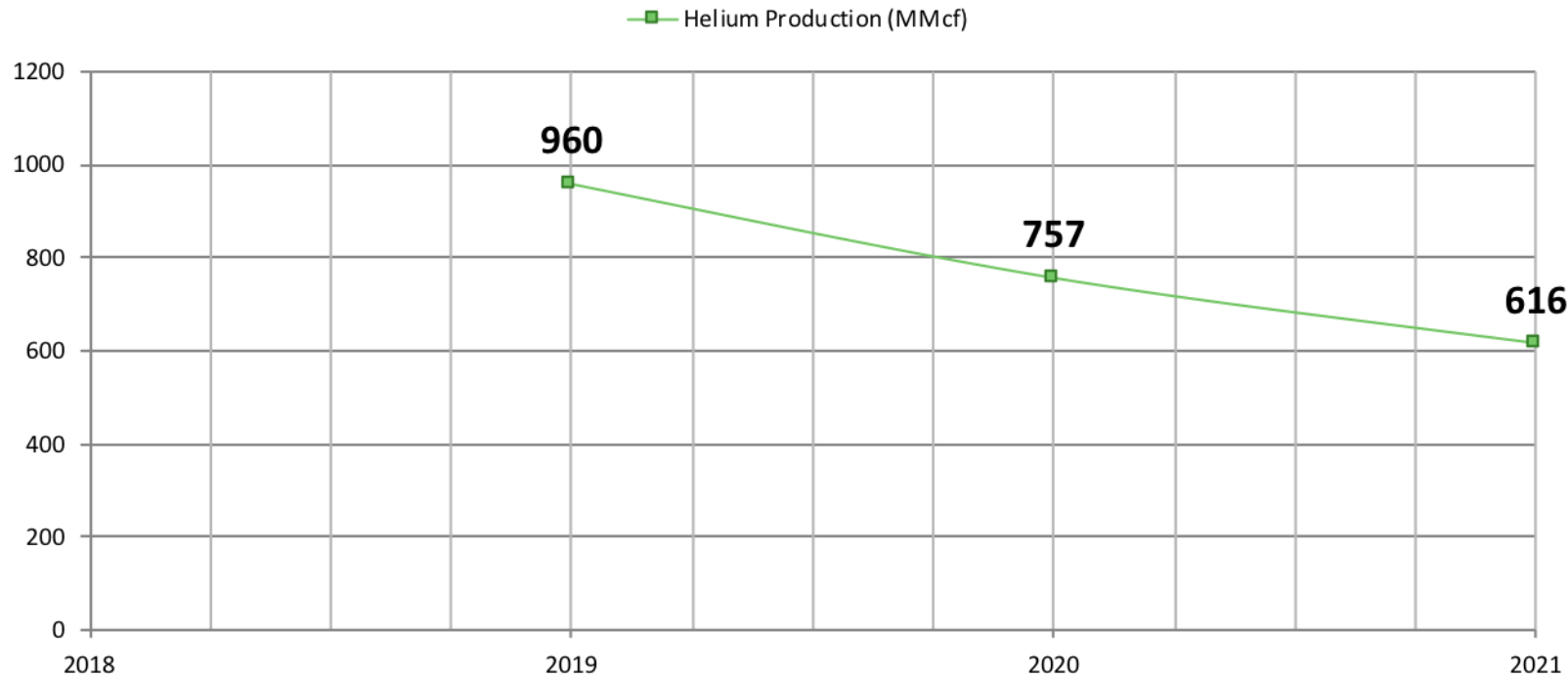
4 Main Helium Functions

- **Storage & Transmission**
(Through September 30, 2021)
- **Resource Evaluation & Gas Analysis**
- **Helium Royalties from Federal Lands**
- **Crude Helium Sales** (Ended October 1, 2018)



Production Capacity

Production capacity in FY2019 and beyond is dependent on field pressure



Helium Production with
Centralized Compression

Fiscal Year	MMcf
2019	960
2020	757
2021	616

As of October 1, 2018, after the August 2018 Auction & Sale:

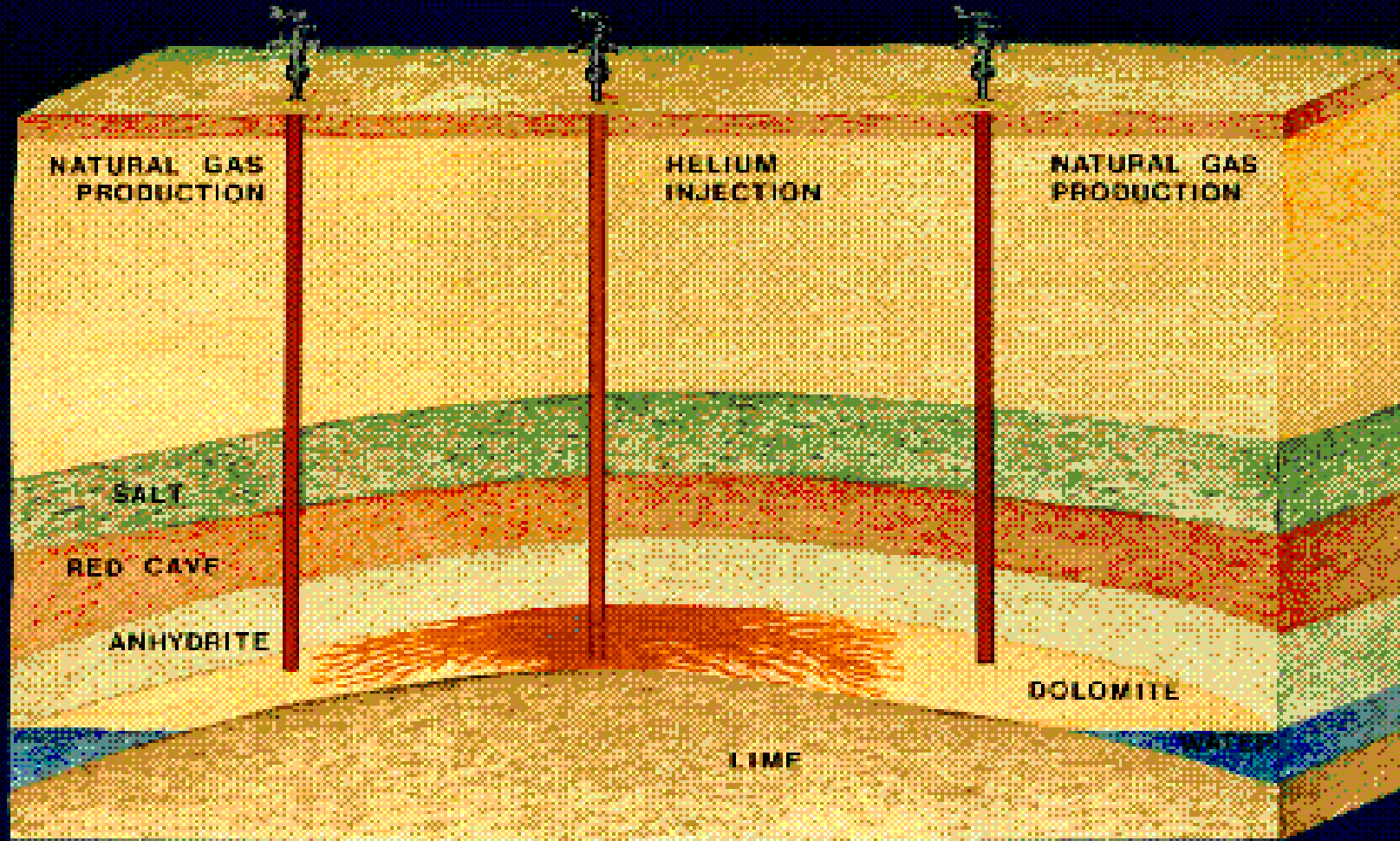
- Private storage balance is 3.1 Bcf.
- Government reserve balance reached 3.0 Bcf, triggering the start of Phase C of the Helium Stewardship Act of 2013.

Total Crude Helium Delivery Capability
through 2021 with centralized compression **2,570** MMcf



HELIUM STORAGE RESERVOIR

BUSH DOME — CLIFFSIDE FIELD



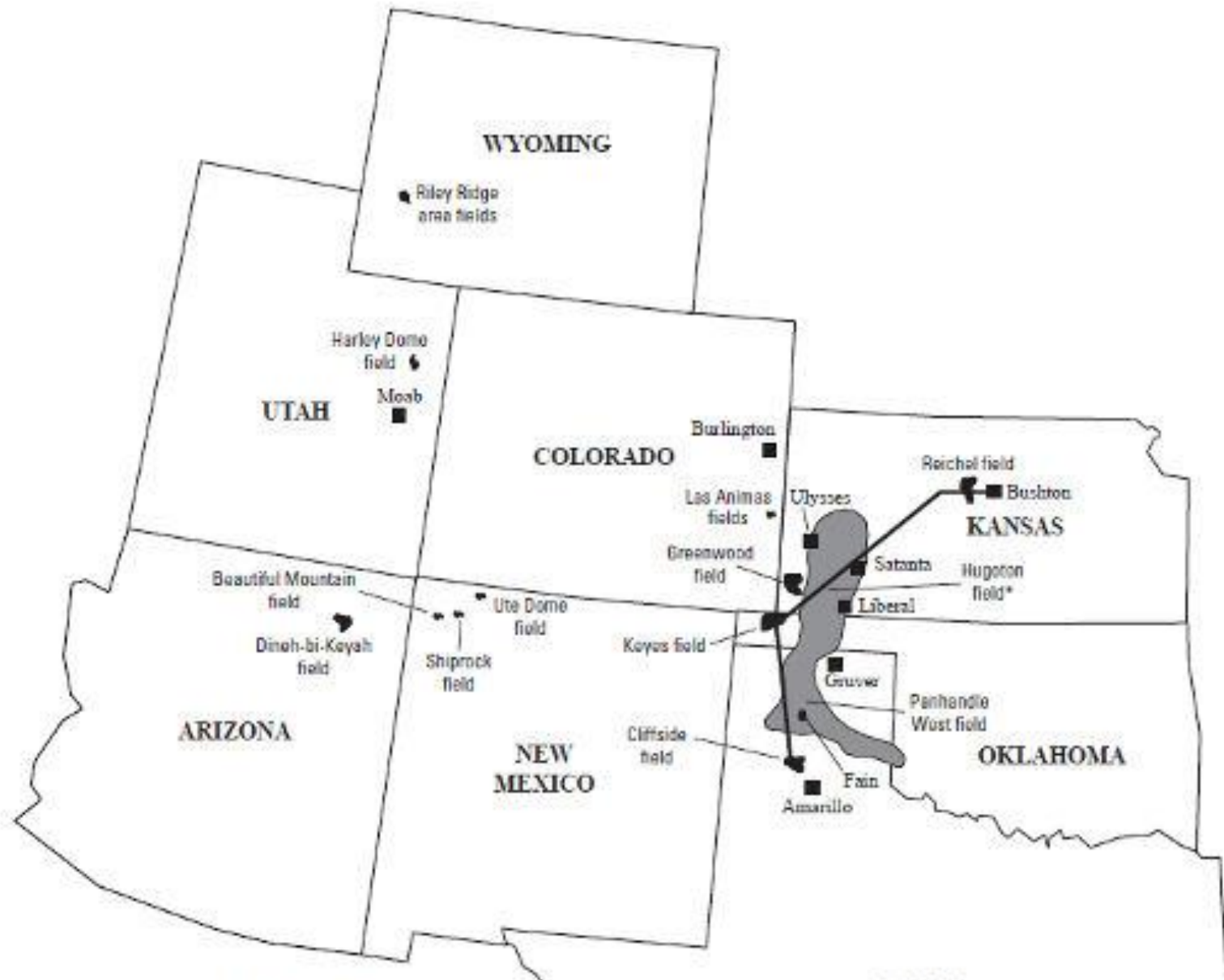
Helium Enrichment Unit Cliffside Field



Crude Helium Booster Compressor



Pipeline Locations



Crude Helium Sales

Phase C (Current Phase)

- Federal helium has reached 3 billion cubic left (on Oct 1 2018).
- Remaining helium left for Federal users only

□ Phase D – Disposal of Assets Transfer to Private Management (Future Phase)

- Not later than 9/30/2021
- All assets sold
 - Presumably remaining helium sold with facilities
 - Transfer obligation to redeliver



FY 2019 Crude Helium Auction & Conservation Sale

- 210 MMCF sold in the auction for the average price of \$280/MCF
- All 12 lots purchased by Air Products
- Total revenue generated - \$58.8M
- 90 MMCF sold in the Conservation Sale
 - 81 MMCF sold in Allocated Sale
 - 9 MMCF sold in Non-Allocated Sale
- Conservation Sale price was set at \$175/MCF
- Total Revenue for Sale \$15.8M (Combined TOTAL=\$74.6M)



Helium Global Contract Index Issue

- The auction price helped determine the final sales price used internally for the final allocated and non-allocated sales. On October 1 the public was notified that the BLM was not posting a price as the BLM was no longer offering crude helium for sale.
- Global contracting will need to determine a different index for their helium contracts.



Federal Helium Assets to be Sold

- Mineral rights to Bush Dome Reservoir
 - Cliffside Plant Facility, Gas Wells, and Pipelines
 - Central Compression
 - Natural Gas Chiller Skid & NGL Storage
 - Crude Helium Pipeline, Meters, and Cathodic Protection
 - Satanta Maintenance Station
-

Does not include CRLP compression and refining equipment



Future Operations

- Helium Stewardship Act requires Federal Government to dispose of the Federal Helium System by September 30, 2021.
- BLM intends to transfer responsibility to deliver previously purchased helium to the buyer(s) as a condition of sale.
- The Helium Royalty mission and the Helium Fund would continue beyond September 30, 2021.



Helium Production on Federal Lands

- Determine Helium Ownership Rights
- Collect & Audit Fee Sales & Royalties
 - Implemented via 'Helium Sales Contract'
 - Generated \$17.4 million in FY-15
 - Generated \$17.2 million in FY-16
 - Generated \$18.5 million in FY-17
 - Generated \$19.5 million in FY-18 Update



Helium Resources of United States

- Estimated 723 BCF as of Dec 2016
- 471 BCF in natural gas
- 252 BCF from currently producing areas

- Estimated 732 BCF in Dec 2006
- Worldwide Helium Usage 6.2 BCF/yr



Helium Projects in the World (Estimated production)

- Qatar 2.5+ BCF
- Algeria 0.5 BCF
- United States 2.5 BCF
- Poland & Australia 0.4 BCF
- Russia 2.0/3 BCF 2025/2027
- Other potential locations(South Africa & Tanzania)



Questions

Point of Contact for detailed questions pertaining to the
Federal Helium Program:

Website:

http://www.blm.gov/nm/st/en/fo/Amarillo_Field_Office.html

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