

FINAL Environmental Assessment for the Rands Butte Gas Development Project

Volume 3 Appendices

May 2010



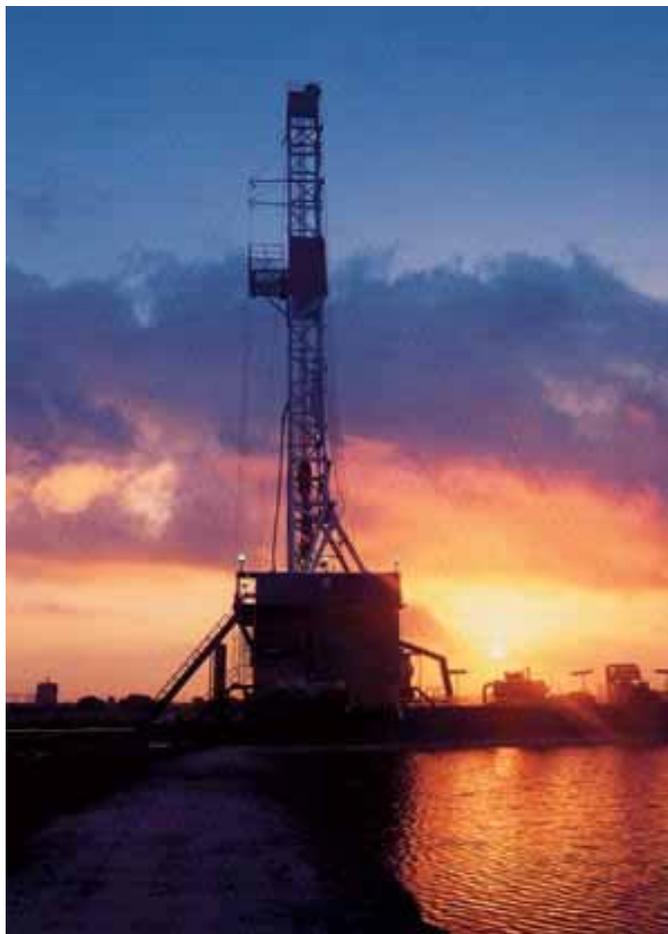
The BLM manages more land – 253 million acres – than any other Federal agency. This land, known as the National System of Public Lands, is primarily located in 12 Western States, including Alaska. The Bureau, with a budget of about \$1 billion, also administers 700 million acres of sub-surface mineral estate throughout the nation. The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

BLM/WY/PL-10/018+1310

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Appendix A
Helium Resource Report

**Helium Resource Significance Overview Points: Cimarex, Inc.,
Rands Butte Project EA, Riley Ridge Area, Wyoming**



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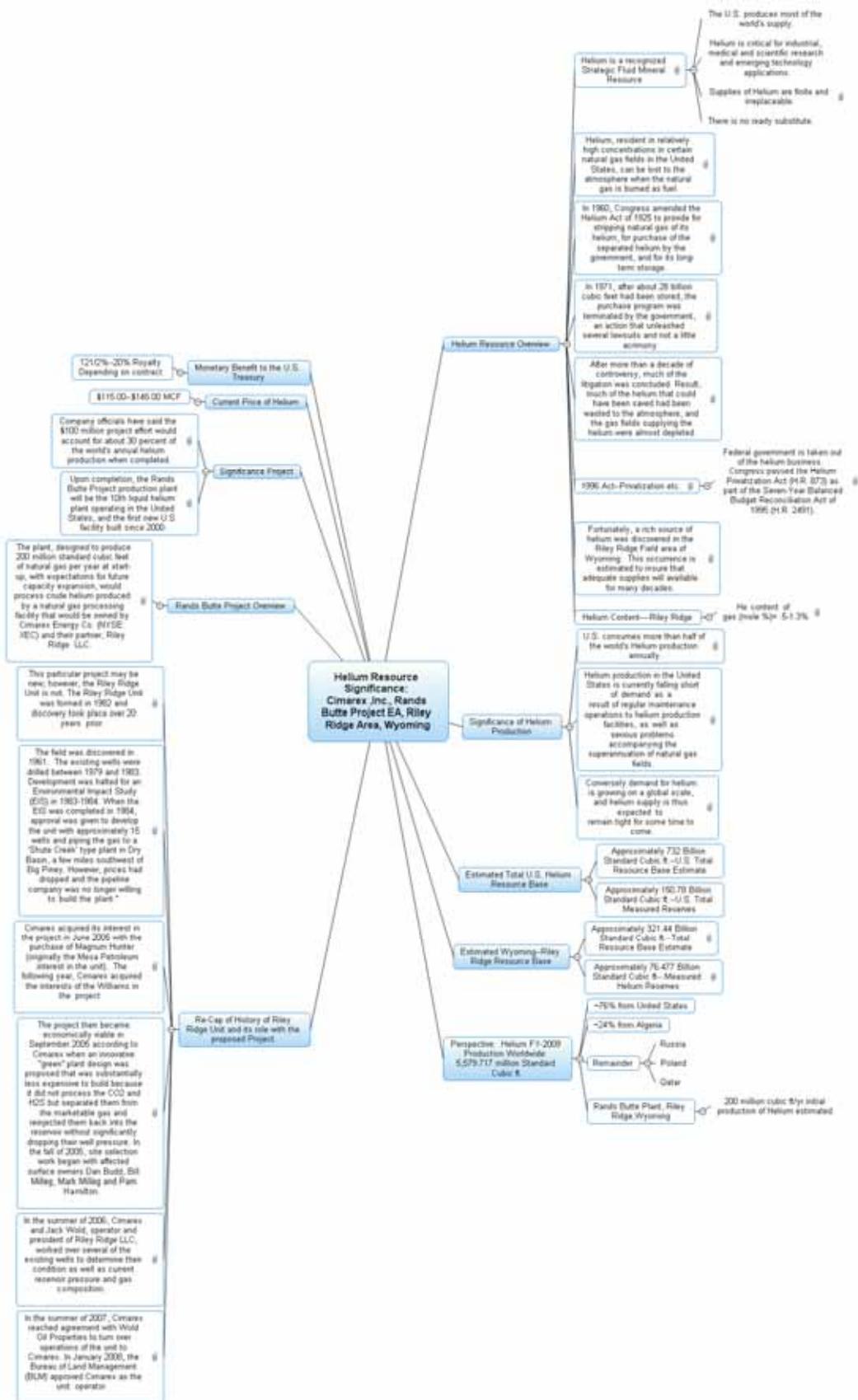


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- B. CRS Report to Congress on Helium Divestment. October 9, 1996.: Abstracted Portion

1.0 HELIUM RESOURCE OVERVIEW POINTS

1.1 HELIUM IS A RECOGNIZED STRATEGIC FLUID MINERAL RESOURCE

RE: <http://minerals.usgs.gov/minerals/pubs/commodity/helium/myb1-2008-heliu.pdf>, October 2009. Accessed: 04/08/10

- A. The U.S. produces most of the world's supply.
- B. Helium is critical for industrial, medical and scientific research and emerging technology applications.
- C. Supplies of Helium are finite and irreplaceable.

See information resource at end of paper: “Background Paper in Support of the American Physical Society's Statement on Conservation of Helium”, Gordon Dunn, University of Colorado; Edward Gerjuoy, University of Pittsburgh; Robert L. Park, University of Maryland

RE: <http://www.aps.org/policy/reports/popa-reports/helium.cfm>, 2010, Accessed: 04/08/10

- D. There is no ready substitute.

1.2 HELIUM, RESIDENT IN RELATIVELY HIGH CONCENTRATIONS IN CERTAIN NATURAL GAS FIELDS IN THE UNITED STATES, CAN BE LOST TO THE ATMOSPHERE WHEN THE NATURAL GAS IS BURNED AS FUEL.

RE: <http://scienceonline.org/cgi/content/abstract/223/4638/789>, Science, 24 February 1984, Accessed: 04/08/10

1.3 IN 1960, CONGRESS AMENDED THE HELIUM ACT OF 1925 TO PROVIDE FOR STRIPPING NATURAL GAS OF ITS HELIUM, FOR PURCHASE OF THE SEPARATED HELIUM BY THE GOVERNMENT, AND FOR ITS LONG-TERM STORAGE.

RE: <http://scienceonline.org/cgi/content/abstract/223/4638/789>, Science, 24 February 1984, Accessed: 04/08/10

1.4 IN 1971, AFTER ABOUT 28 BILLION CUBIC FEET HAD BEEN STORED, THE PURCHASE PROGRAM WAS TERMINATED BY THE GOVERNMENT, AN ACTION THAT UNLEASHED SEVERAL LAWSUITS AND NOT A LITTLE ACRIMONY

RE: <http://scienceonline.org/cgi/content/abstract/223/4638/789>, Science, 24 February 1984, Accessed: 04/08/10

1.5 AFTER MORE THAN A DECADE OF CONTROVERSY, MUCH OF THE LITIGATION WAS CONCLUDED. RESULT, MUCH OF THE HELIUM THAT COULD HAVE BEEN SAVED HAD BEEN WASTED TO THE ATMOSPHERE, AND THE GAS FIELDS SUPPLYING THE HELIUM WERE ALMOST DEPLETED.

RE: <http://scienceonline.org/cgi/content/abstract/223/4638/789>, Science, 24 February 1984, Accessed: 04/08/10

1.6 1996 ACT--PRIVATIZATION ETC.

RE: <http://scienceonline.org/cgi/content/abstract/223/4638/789>, Science, 24 February 1984, Accessed: 04/08/10

- A. Federal government is taken out of the helium business. Congress passed the Helium Privatization Act (H.R. 873) as part of the Seven-Year Balanced Budget Reconciliation Act of 1995 (H.R. 2491).

RE: <http://ncseonline.org/NLE/CRSreports/Natural/nrgen-11.cfm?&CFID=8020441&CFTOKEN=57798360>, 9 October 1996, Accessed: 04/08/10

See information resource at end of paper: CRS Report on Helium, 9 October 1996.

1.7 FORTUNATELY, A RICH SOURCE OF HELIUM WAS DISCOVERED IN THE RILEY RIDGE FIELD AREA OF WYOMING. THIS OCCURRENCE IS ESTIMATED TO INSURE THAT ADEQUATE SUPPLIES WILL AVAILABLE FOR MANY DECADES.

RE: <http://scienceonline.org/cgi/content/abstract/223/4638/789>, Science, 24 February 1984, Accessed: 04/08/10

1.8 HELIUM CONTENT----RILEY RIDGE

- A. He content of gas (mole %)= .5-1.3%

RE: <http://www.searchanddiscovery.net/documents/2006/06121broadhead/images/broadhead.pdf>, Accessed: 04/08/10

2.0 SIGNIFICANCE OF HELIUM PRODUCTION

2.1 U.S. CONSUMES MORE THAN HALF OF THE WORLD'S HELIUM PRODUCTION ANNUALLY.

RE: <http://www.airproducts.com/NR/rdonlyres/F9D0CAA5-2A67-413B-A71F-54C72CD46E67/0/IHHeRecoveryArticlefinal.pdf>, September 2004, Accessed 8 April 2010.

2.2 HELIUM PRODUCTION IN THE UNITED STATES IS CURRENTLY FALLING SHORT OF DEMAND AS A RESULT OF REGULAR MAINTENANCE OPERATIONS TO HELIUM PRODUCTION FACILITIES, AS WELL AS SERIOUS PROBLEMS ACCOMPANYING THE SUPERANNUATION OF NATURAL GAS FIELDS.

RE: <http://www.tn-sanso.co.jp/en/ir/pdf/e20071018release-2.pdf>, 18 October 2007, Accessed: 04/0810

2.3 CONVERSELY DEMAND FOR HELIUM IS GROWING ON A GLOBAL SCALE, AND HELIUM SUPPLY IS THUS EXPECTED TO REMAIN TIGHT FOR SOME TIME TO COME.

RE: <http://www.tn-sanso.co.jp/en/ir/pdf/e20071018release-2.pdf>, 18 October 2007, Accessed: 04/0810

3.0 ESTIMATED TOTAL U.S. HELIUM RESOURCE BASE

- 3.1 APPROXIMATELY 732 BILLION STANDARD CUBIC FT.--U.S.
TOTAL RESOURCE BASE ESTIMATE**

- 3.2 APPROXIMATELY 150.78 BILLION STANDARD CUBIC FT.--U.S.
TOTAL MEASURED RESERVES**

4.0 ESTIMATED WYOMING--RILEY RIDGE RESOURCE BASE

4.1 APPROXIMATELY 321.44 BILLION STANDARD CUBIC FT.-- TOTAL RESOURCE BASE ESTIMATE

RE:

http://www.blm.gov/pgdata/etc/medialib/blm/nm/programs/0/helium_docs.Par.56459.File.dat/HeliumTN429_3-09.pdf, 2008. Accessed: 04/08/10

4.2 APPROXIMATELY 76.477 BILLION STANDARD CUBIC FT.-- .MEASURED HELIUM RESERVES

RE:

http://www.blm.gov/pgdata/etc/medialib/blm/nm/programs/0/helium_docs.Par.56459.File.dat/HeliumTN429_3-09.pdf, 2008. Accessed: 04/08/10

**5.0 PERSPECTIVE: HELIUM FY-2009 PRODUCTION
WORLDWIDE: 5,579.717 MILLION STANDARD CUBIC FT.**

5.1 ~76% FROM UNITED STATES

5.2 ~24% FROM ALGERIA

5.3 REMAINDER

A. Russia

B. Poland

C. Qatar

5.4 RANDBUTTE PLANT, RILEY RIDGE, WYOMING

A. 200 million cubic ft/yr. initial production of Helium estimated.

6.0 RE-CAP OF HISTORY OF RILEY RIDGE UNIT AND ITS ROLE WITH THE PROPOSED PROJECT.

6.1 THIS PARTICULAR PROJECT MAY BE NEW; HOWEVER, THE RILEY RIDGE UNIT IS NOT. THE RILEY RIDGE UNIT WAS FORMED IN 1982 AND DISCOVERY TOOK PLACE OVER 20 YEARS PRIOR.

RE: <http://www.mathesontrigas.com/newsevents/releases/article.aspx?articleID=97>, 22 Oct 2009,
Accessed: 04/08/10

6.2 THE FIELD WAS DISCOVERED IN 1961. THE EXISTING WELLS WERE DRILLED BETWEEN 1979 AND 1983. DEVELOPMENT WAS HALTED FOR AN ENVIRONMENTAL IMPACT STUDY (EIS) IN 1983-1984. WHEN THE EIS WAS COMPLETED IN 1984, APPROVAL WAS GIVEN TO DEVELOP THE UNIT WITH APPROXIMATELY 15 WELLS AND PIPING THE GAS TO A 'SHUTE CREEK' TYPE PLANT IN DRY BASIN, A FEW MILES SOUTHWEST OF BIG PINEY. HOWEVER, PRICES HAD DROPPED AND THE PIPELINE COMPANY WAS NO LONGER WILLING TO BUILD THE PLANT."

RE: <http://www.mathesontrigas.com/newsevents/releases/article.aspx?articleID=97>, 22 Oct 2009,
Accessed: 04/08/10

6.3 CIMAREX ACQUIRED ITS INTEREST IN THE PROJECT IN JUNE 2005 WITH THE PURCHASE OF MAGNUM HUNTER (ORIGINALLY THE MESA PETROLEUM INTEREST IN THE UNIT). THE FOLLOWING YEAR, CIMAREX ACQUIRED THE INTERESTS OF THE WILLIAMS IN THE PROJECT.

RE: <http://www.mathesontrigas.com/newsevents/releases/article.aspx?articleID=97>, 22 Oct 2009,
Accessed: 04/08/10

6.4 THE PROJECT THEN BECAME ECONOMICALLY VIABLE IN SEPTEMBER 2005 ACCORDING TO CIMAREX WHEN AN INNOVATIVE "GREEN" PLANT DESIGN WAS PROPOSED THAT WAS SUBSTANTIALLY LESS EXPENSIVE TO BUILD BECAUSE IT DID NOT PROCESS THE CO₂ AND H₂S BUT SEPARATED THEM FROM THE MARKETABLE GAS AND REINJECTED THEM BACK INTO THE RESERVOIR WITHOUT SIGNIFICANTLY DROPPING THEIR WELL PRESSURE. IN THE FALL OF 2005, SITE SELECTION WORK BEGAN WITH AFFECTED SURFACE OWNERS DAN BUDD, BILL MILLEG, MARK MILLEG AND PAM HAMILTON.

RE: <http://www.mathesontrigas.com/newsevents/releases/article.aspx?articleID=97>, 22 Oct 2009,
Accessed: 04/08/10

6.5 IN THE SUMMER OF 2006, CIMAREX AND JACK WOLD, OPERATOR AND PRESIDENT OF RILEY RIDGE LLC, WORKED OVER SEVERAL OF THE EXISTING WELLS TO DETERMINE THEIR CONDITION AS WELL AS CURRENT RESERVOIR PRESSURE AND GAS COMPOSITION.

RE: <http://www.mathesontrigas.com/newsevents/releases/article.aspx?articleID=97>, 22 Oct 2009,
Accessed: 04/08/10

6.6 IN THE SUMMER OF 2007, CIMAREX REACHED AGREEMENT WITH WOLD OIL PROPERTIES TO TURN OVER OPERATIONS OF THE UNIT TO CIMAREX. IN JANUARY 2008, THE BUREAU OF LAND MANAGEMENT (BLM) APPROVED CIMAREX AS THE UNIT OPERATOR.

RE: <http://www.mathesontrigas.com/newsevents/releases/article.aspx?articleID=97>, 22 Oct 2009,
Accessed: 04/08/10

7.0 RANDBUTTE PROJECT OVERVIEW

- 7.1 THE PLANT, DESIGNED TO PRODUCE 200 MILLION STANDARD CUBIC FEET OF NATURAL GAS PER YEAR AT START-UP, WITH EXPECTATIONS FOR FUTURE CAPACITY EXPANSION, WOULD PROCESS CRUDE HELIUM PRODUCED BY A NATURAL GAS PROCESSING FACILITY THAT WOULD BE OWNED BY CIMAREX ENERGY CO. (NYSE: XEC) AND THEIR PARTNER, RILEY RIDGE LLC.**

RE: <http://www.mathesontrigas.com/newsevents/releases/article.aspx?articleID=97>, 22 Oct 2009,
Accessed: 04/08/10

8.0 SIGNIFICANCE PROJECT

8.1 COMPANY OFFICIALS HAVE SAID THE \$100 MILLION PROJECT EFFORT WOULD ACCOUNT FOR ABOUT 30 PERCENT OF THE WORLD'S ANNUAL HELIUM PRODUCTION WHEN COMPLETED.

RE: <http://www.warws.com/documents/OfficialslookatcontestedRileyRidgesiteforgasplant.pdf>,
Casper Star Tribune, , Accessed: 04/08/10

8.2 UPON COMPLETION, THE RANDBUTTE PROJECT PRODUCTION PLANT WILL BE THE 10TH LIQUID HELIUM PLANT OPERATING IN THE UNITED STATES, AND THE FIRST NEW U.S. FACILITY BUILT SINCE 2000.

RE: <http://www.eetimes.com/news/semi/showArticle.jhtml?articleID=202403994>, 17 October
2007. Accessed: 04/08/10

9.0 CURRENT PRICE OF HELIUM

9.1 \$115.00--\$145.00 MCF

10.0 MONETARY BENEFIT TO THE U.S. TREASURY

10.1 12 1/2%--20% ROYALTY DEPENDING ON CONTRACT.