



**NATIONAL ENERGY TECHNOLOGY LABORATORY**



## **Knowledge Management Database (KMD) Demonstration**

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# KMD Demonstration

## Overview

- **The Federal Advisory Committee Recommended That ORD Develop A Knowledge Management Database That Would Be Used As A Repository for Research and Development Results Related to the Section 999 R&D Program Including:**
  - Program Status
    - **A list of projects goals, objectives, status, accomplishments, reports and key personnel contact information**
  - The RPSEA Consortium R&D Program
    - **57 project summaries currently available on the NETL Internet**
  - NETL Complimentary R&D Program
    - **Drilling under extreme conditions**
    - **Environmental impacts of oil and natural gas development**
    - **Enhanced and unconventional oil recovery**
    - **Resource assessment**
  - Ongoing DOE Oil And Gas Programs
  - Other Related Research Products Generated by the Traditional Oil and Gas Research Program At The NETL SCNGO (e.g. Gas Shale Research)

# KMD Demonstration

## Design

- **The KMD includes a simple entry URL: [www.netl.doe.gov/KMD](http://www.netl.doe.gov/KMD)**
- **A branding logo is included to identify key KMD pages**
- **An entry portal to the site identifies four options for searching documents and data on oil and gas research**
  1. **Document Database**
    - **Provides SQL database search of content using document title and abstract**
    - **Includes content from the CD/DVD Database, NETL Web site, NETL ProMIS, NETL Morgantown Library, Tulsa Project Office, and OSTI (will include Laramie Project Office [LPO] content in near future)**
    - **Currently provides links to more than 9,000 files**
  2. **CD/DVD Database**
    - **Provides “Google” search of content for indexed files**
    - **Includes links to all CD/DVDs related to oil and gas research at NETL and content from the NETL site (i.e SCNGO , Section 999, etc.)**
    - **Currently provides links to more than 5,000 files**
  3. **Section 999 Database - Includes links to EPAAct 2005 project summaries**
  4. **Section 999 Tech Transfer Index - Includes index with links to Technology Transfer products (reports, publications, presentations, etc.)**

# KMD Demonstration

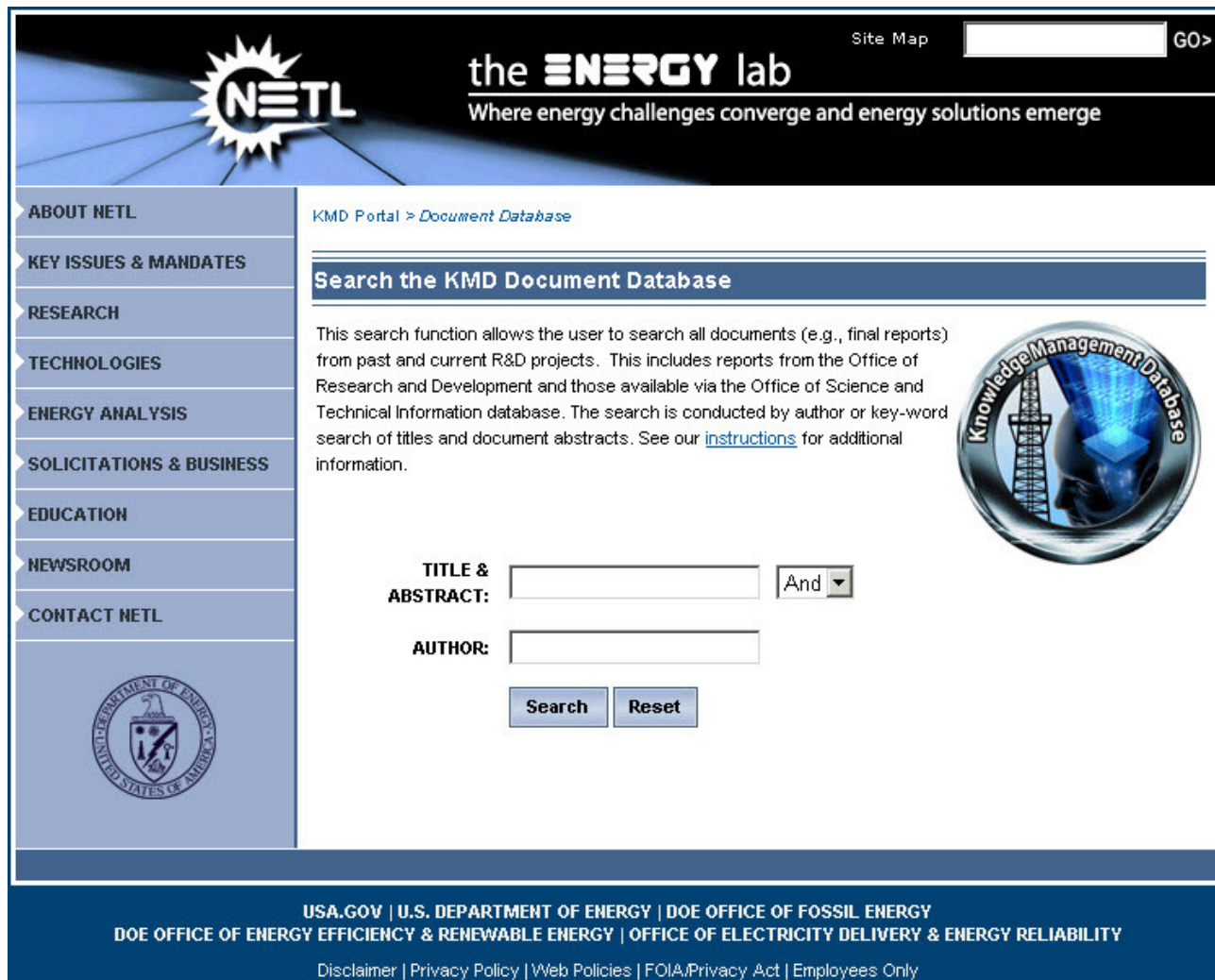
## KMD Portal Page



The screenshot shows the KMD Portal page. At the top left is the NETL logo, a stylized sunburst with the letters 'NETL' inside. To its right is the text 'the ENERGY lab' and the tagline 'Where energy challenges converge and energy solutions emerge'. In the top right corner, there is a 'Site Map' link and a search box with a 'GO>' button. A vertical navigation menu on the left lists: ABOUT NETL, KEY ISSUES & MANDATES, RESEARCH, TECHNOLOGIES, ENERGY ANALYSIS, SOLICITATIONS & BUSINESS, EDUCATION, NEWSROOM, and CONTACT NETL. Below the menu is the U.S. Department of Energy logo. The main content area is titled 'Knowledge Management Database (KMD) Portal' and features a circular graphic with a globe and the text 'Knowledge Management Database'. The text describes the portal's search options and lists four databases: Document Database, CD/DVD Database, Section 999 Database, and Section 999 Tech Transfer Index. It also includes a section for GIS and Data Visualization. At the bottom, there is a footer with the following text: USA.GOV | U.S. DEPARTMENT OF ENERGY | DOE OFFICE OF FOSSIL ENERGY | DOE OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY | OFFICE OF ELECTRICITY DELIVERY & ENERGY RELIABILITY | Disclaimer | Privacy Policy | Web Policies | FOIA/Privacy Act | Employees Only.

# KMD Demonstration

## KMD Document DB Search Page



The screenshot shows the KMD Document DB Search Page. At the top, there is a navigation bar with the NETL logo, the text "the ENERGY lab", and the tagline "Where energy challenges converge and energy solutions emerge". A "Site Map" link and a "GO" button are also present. On the left, a vertical menu lists various categories: ABOUT NETL, KEY ISSUES & MANDATES, RESEARCH, TECHNOLOGIES, ENERGY ANALYSIS, SOLICITATIONS & BUSINESS, EDUCATION, NEWSROOM, and CONTACT NETL. The main content area features a search form titled "Search the KMD Document Database". The form includes a text input field for "TITLE & ABSTRACT:", a dropdown menu set to "And", and another text input field for "AUTHOR:". Below these fields are "Search" and "Reset" buttons. A circular graphic on the right side of the search area is labeled "Knowledge Management Database" and depicts a globe with data points. At the bottom of the page, there is a footer with the text "USA.GOV | U.S. DEPARTMENT OF ENERGY | DOE OFFICE OF FOSSIL ENERGY | DOE OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY | OFFICE OF ELECTRICITY DELIVERY & ENERGY RELIABILITY" and a "Disclaimer | Privacy Policy | Web Policies | FOIA/Privacy Act | Employees Only" link.

# KMD Demonstration

## KMD Document DB Search Results



the **ENERGY** lab  
Where energy challenges converge and energy solutions emerge

Site Map  GO>

ABOUT NETL  
KEY ISSUES & MANDATES  
RESEARCH  
TECHNOLOGIES  
ENERGY ANALYSIS  
SOLICITATIONS & BUSINESS  
EDUCATION  
NEWSROOM  
CONTACT NETL



KMD Portal > Document Database

### Search the KMD Document Database

This search function allows the user to search all documents (e.g., final reports) from past and current R&D projects. This includes reports from the Office of Research and Development and those available via the Office of Science and Technical Information database. The search is conducted by author or key-word search of titles and document abstracts. See our [instructions](#) for additional information.



**TITLE & ABSTRACT:**

**AUTHOR:**

[Next >>](#) Showing Items 1 to 10 of 29


**Title:** [Review of Hydraulic Fracture Mapping Using Advanced Accelerometer-Based Receiver Systems](#)(68962 bytes)

**Author (Publisher):** Norman R. Warpinski, James E. Uhlir, Bruce P. Engler

**Abstract:** Hydraulic fracturing is an important tool for natural gas and oil exploitation, but its optimization has been impeded by an inability to observe how the fracture propagates and what its overall dimensions are. The few experiments in which fractures have been exposed through coring<sup>1-3</sup> or mineback<sup>4,5</sup> have shown that hydraulic fractures are complicated multi-stranded structures that

# KMD Demonstration

## CD/DVD Database Search Page



the **ENERGY** lab  
Where energy challenges converge and energy solutions emerge

Site Map  GO>


- ▶ ABOUT NETL
- ▶ KEY ISSUES & MANDATES
- ▶ RESEARCH
- ▶ TECHNOLOGIES
- ▶ ENERGY ANALYSIS
- ▶ SOLICITATIONS & BUSINESS
- ▶ EDUCATION
- ▶ NEWSROOM
- ▶ CONTACT NETL



KMD Portal > CD DVD Database

### Search the KMD CD/DVD Database

This search function allows the user to search all of the CDs and DVDs of research reports compiled from past R&D programs and currently available from the NETL Library. The user can download individual reports or order an entire CD or DVD. See our [instructions](#) for additional information.



**TITLE:** [3-D Seismic Exploration Project, Ute Indian Tribe, Uintah & Ouray Reservation, Uintah County, Utah](#) [ZIP-543MB]  
[RIGHT CLICK TO DOWNLOAD]

**INFO:** Four Disk Set

**DATE:** May 2005

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**TITLE:** [A Geologic Playbook for Trenton-Black River Appalachian Basin Exploration](#) [PDF-112MB]  
[RIGHT CLICK TO DOWNLOAD]

**INFO:** A playbook containing maps, integrated, multi-faceted, resource assessment model was developed for the origin of the Trenton-Black River reservoirs in New York, Ohio, Pennsylvania and West Virginia. This effort defined potential reservoir fairways for conducting detailed studies which could potentially lead to further exploration and discovery of gas fields.

**DATE:** July 1, 2006

# KMD Demonstration

## CD/DVD Database Search Results



the **ENERGY** lab  
Where energy challenges converge and energy solutions emerge

Site Map  GO>

Marcellus shale drilling (site:ne Search [Advanced Search](#)  
[Search Tips](#)

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**Search** Results 1 - 10 of about 81 for **Marcellus shale drilling (site:netl.doe.gov)**. Search took 10.04 seconds.  
[Next>](#) [Sort by date](#) / Sort by relevance

[PDF] [Technically Recoverable Devonian Shale Gas in Ohio, West Virginia ...](#)  
... This study represents the spacing; and, the **drilling** of a series of ... organically rich, deep **Marcellus shale**, which has had very little development to date. ...  
[www.netl.doe.gov/kmd/cds/disk7/disk1/EGS%5CTechnically%20Recoverable%20Devonian%20Shale%20Gas%20in%20...](http://www.netl.doe.gov/kmd/cds/disk7/disk1/EGS%5CTechnically%20Recoverable%20Devonian%20Shale%20Gas%20in%20...) - 2005-01-10 - [Text Version](#)

[PDF] [UGR\\_C220 - "Black Shale and Sandstone Facies of the Devonian" ...](#)  
... long life spans. **Drilling** in the area continued throughout the 1800's and into ... of the **Marcellus shale** facies exhibits the pattern of southeastward thicken- ...  
[www.netl.doe.gov/kmd/cds/disk7/disk1/EGS%5CBlack%20Shale%20and%20Sandstone%20Facies%20of%20the%20Dev...](http://www.netl.doe.gov/kmd/cds/disk7/disk1/EGS%5CBlack%20Shale%20and%20Sandstone%20Facies%20of%20the%20Dev...) - 2002-04-01 - [Text Version](#)

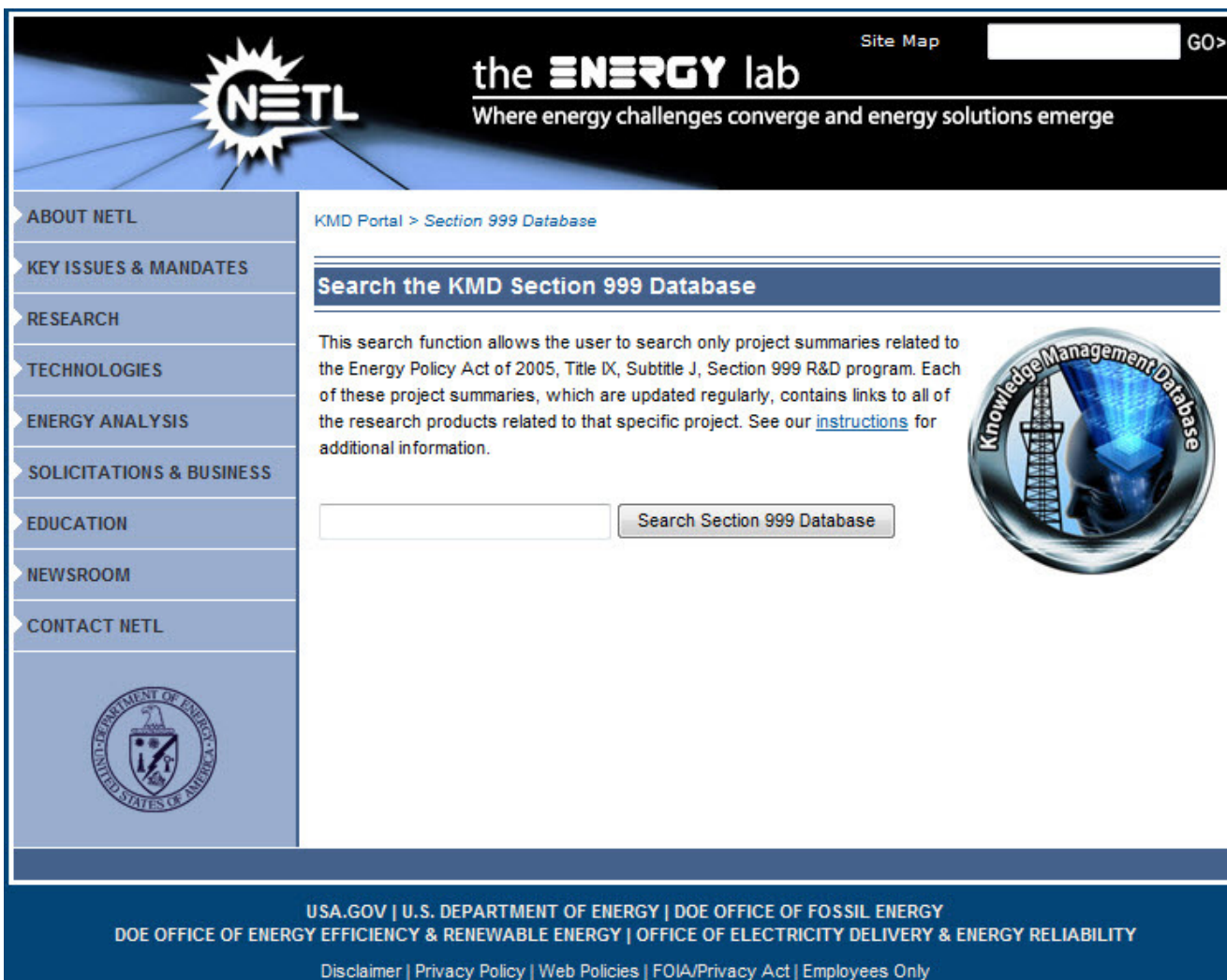
[PDF] [UGR\\_022 - "Subsurface Stratigraphy and Gas Production of the ...](#)  
... be equivalent to parts of the **Marcellus**, Harrell, and ... of mapping areas of thick Brown **shale** and identifying ... primary **drilling** areas, the outline of Brown **shale** ...  
[www.netl.doe.gov/.../Subsurface%20Stratigraphy%20and%20Gas%20Production%20of%20the%20Devonian%20S.pdf](http://www.netl.doe.gov/.../Subsurface%20Stratigraphy%20and%20Gas%20Production%20of%20the%20Devonian%20S.pdf) - 2002-01-26 - [Text Version](#)

[PDF] [UGR\\_061 - "Stratigraphic and Geographic Distribution of Core in ...](#)  
... 14 Reel **Drilling** Co ... 1482 DF; TD 12343 (**Marcellus**- Onondaaa) 27 California Company 4056-4066 Kipps ... 1 (Efillboro **Shale**) 1190 ll of 37%, Huntersville 3209 W of 80 ...  
[www.netl.doe.gov/.../D%20-%20Shales/Stratigraphic%20and%20Geographic%20Distribution%20of%20Core.pdf](http://www.netl.doe.gov/.../D%20-%20Shales/Stratigraphic%20and%20Geographic%20Distribution%20of%20Core.pdf) - 2002-02-04 - [Text Version](#)



# KMD Demonstration

## Section 999 Database Search Page



The screenshot shows the 'the ENERGY lab' website interface. At the top left is the NETL logo, and at the top right is a 'Site Map' link and a 'GO>' button. The main header features the text 'the ENERGY lab' and the tagline 'Where energy challenges converge and energy solutions emerge'. A left-hand navigation menu lists categories such as 'ABOUT NETL', 'KEY ISSUES & MANDATES', 'RESEARCH', 'TECHNOLOGIES', 'ENERGY ANALYSIS', 'SOLICITATIONS & BUSINESS', 'EDUCATION', 'NEWSROOM', and 'CONTACT NETL'. Below this menu is the U.S. Department of Energy logo. The main content area is titled 'KMD Portal > Section 999 Database' and contains a search box with the text 'Search the KMD Section 999 Database'. Below the search box is a paragraph explaining the search function: 'This search function allows the user to search only project summaries related to the Energy Policy Act of 2005, Title IX, Subtitle J, Section 999 R&D program. Each of these project summaries, which are updated regularly, contains links to all of the research products related to that specific project. See our [instructions](#) for additional information.' To the right of the text is a circular graphic labeled 'Knowledge Management Database' showing a globe and a computer monitor. Below the text is a search input field and a 'Search Section 999 Database' button. The footer contains the text: 'USA.GOV | U.S. DEPARTMENT OF ENERGY | DOE OFFICE OF FOSSIL ENERGY | DOE OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY | OFFICE OF ELECTRICITY DELIVERY & ENERGY RELIABILITY' and a link to 'Disclaimer | Privacy Policy | Web Policies | FOIA/Privacy Act | Employees Only'.

# KMD Demonstration

## Section 999 Database Search Results



Site Map  GO>

the **ENERGY** lab  
Where energy challenges converge and energy solutions emerge

treatment of produced water (si)  Search [Advanced Search](#)  
[Search Tips](#)

**Search** Results 1 - 10 of about 15 for **treatment of produced water (site:netl.doe.gov)**. Search took 1.21 seconds.

[Next>](#) [Sort by date](#) / Sort by relevance

[NETL: EPAct Projects: Cost-Effective Treatment Of Produced Water ...](#)  
... Project Information Cost-Effective **Treatment Of Produced Water** Using  
Co-Produced Energy Sources For Small Producers 07123-05. Goal ...  
[www.netl.doe.gov/technologies/oil-gas/EPAct2005/Projects/SPR/0712305-NewMexicoTech.html](http://www.netl.doe.gov/technologies/oil-gas/EPAct2005/Projects/SPR/0712305-NewMexicoTech.html) - 36k - 2009-09-01 - [Cached](#)

[NETL: EPAct Projects: An Integrated Framework for the Treatment ...](#)  
... Goal This project seeks to develop an integrated decision framework that can be  
utilized in the management and **treatment of produced water**, resulting in a ...  
[www.netl.doe.gov/technologies/oil-gas/EPAct2005/Projects/UNC/0712212-CSM.html](http://www.netl.doe.gov/technologies/oil-gas/EPAct2005/Projects/UNC/0712212-CSM.html) - 44k - 2009-09-01 - [Cached](#)

[PDF] [2008 Plan for the NETL Complementary Research and Development ...](#)  
... Identifying and exploiting opportunities to use passive **treatment** technologies as  
pretreatments for the membrane **treatment of produced water** or as a low ...  
[www.netl.doe.gov/technologies/oil-gas/EPAct2005/2008\\_Draft\\_NETL\\_Complementary\\_Plan.pdf](http://www.netl.doe.gov/technologies/oil-gas/EPAct2005/2008_Draft_NETL_Complementary_Plan.pdf) - 2009-07-25 - [Text Version](#)

[NETL: EPAct2005 - NETL Complementary Research](#)  
... may include fundamental studies related to domestic enhanced oil recovery (EOR),  
unconventional oil, **treatment** and beneficial use of **produced water**, and basic ...  
[www.netl.doe.gov/technologies/oil-gas/EPAct2005/CompResearch.html](http://www.netl.doe.gov/technologies/oil-gas/EPAct2005/CompResearch.html) - 22k - 2009-08-13 - [Cached](#)

[KMD](#)

# KMD Demonstration

## Design

- **The site will include GIS and Data Visualization (e.g. Xcelsius) in the near future**
  - Currently working through NETL IT Security Policy Analysis for deployment
  - Utilize readily available GIS shapefiles from USGS, MMS, EIA, EPCA Phase III study and others
  - Three web map services are complete or will be complete in the near future:
    1. Gulf of Mexico Deepwater
    2. KMD – Oil and Gas Resources of the United States
    3. Allegheny National Forest
- **Future emphasis will focus on development of value-added products and incorporate commercial data from Ventyx (Velocity Suite), ARI (Big Oil Field Database), Nehring Associates (Significant Oil and Gas Fields of the United States Database), and others**
  - Continue to add documents and links to the Document Database (5,000+ additional NETL Library hard-copy reports, ~5,000 LPO microfiche, etc.)
  - Additional Web map services and Xcelsius dashboards
  - Potential incorporation of MS Silverlight

# KMD Demonstration

## Content Search Tools

- **CD/DVD Database** online containing previous oil and gas research at **NETL**
  - Compiles historical research
  - Converts the NETL publications page to a dynamic library for retrieving documents
  - Maintains the CD/DVD tree structure for searching
  - Contains 45 CDs and DVDs with 9,000+ PDFs, 186 Word DOCs, 61 spreadsheets, and 217 databases
- **Document Database** to allow searching of historical oil and gas research that will contain
  - ProMIS technical/topical reports
  - Key publications from the CD/DVD library
  - Key publications from the OSTI database
  - Key publications from the Tulsa Office (LPO documents in near future)
  - Additional documents from the NETL Morgantown library: 397 final reports in PDF format and references to 5,000+ additional hard-copy reports

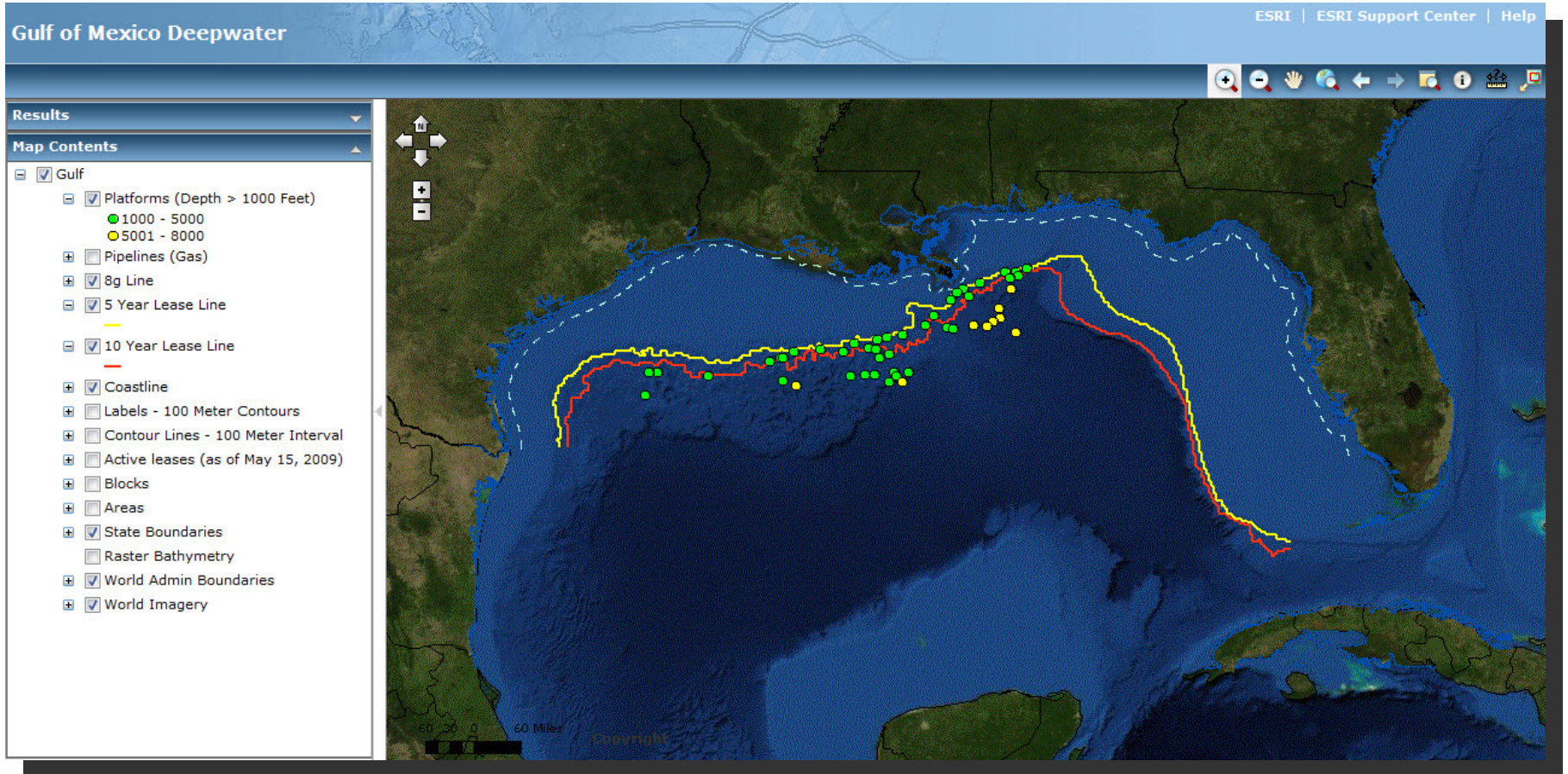
# KMD Demonstration

## Web Map Services

- **ArcGIS Web Map Services to allow visualization of data related to oil and gas research**
  - Gulf of Mexico (GOM) Deepwater
    - **Data from the Minerals Management Service related to leases (i.e. 5- and 10-year lease lines, active leases, 8g line, coastline, state boundaries, and leases by water depth greater than 1,000 ft)**
    - **Infrastructure including platforms in water depth greater than 1,000 ft and gas pipelines**
    - **Location (area and block) and detailed bathymetry data for the GOM**
  - Oil and Gas Resources of the United States
    - **Data from the Energy Policy and Conservation Act (EPCA) Phase III assessment for onshore oil and gas resources and restrictions/impediments to their development**
      - Study area boundaries, land status, and land access categorization
      - Total oil density and total gas density per study area
      - Boundary data including Federal Lands, county/state boundaries, lakes/rivers, highways, railroads, and major cities
    - **Data from the Energy Information Administration**
      - Boundary data for U.S. oil and gas field maps
      - Coalbed methane cumulative production, reserves and resources, and gassy coal mines
      - Shale gas basins and plays

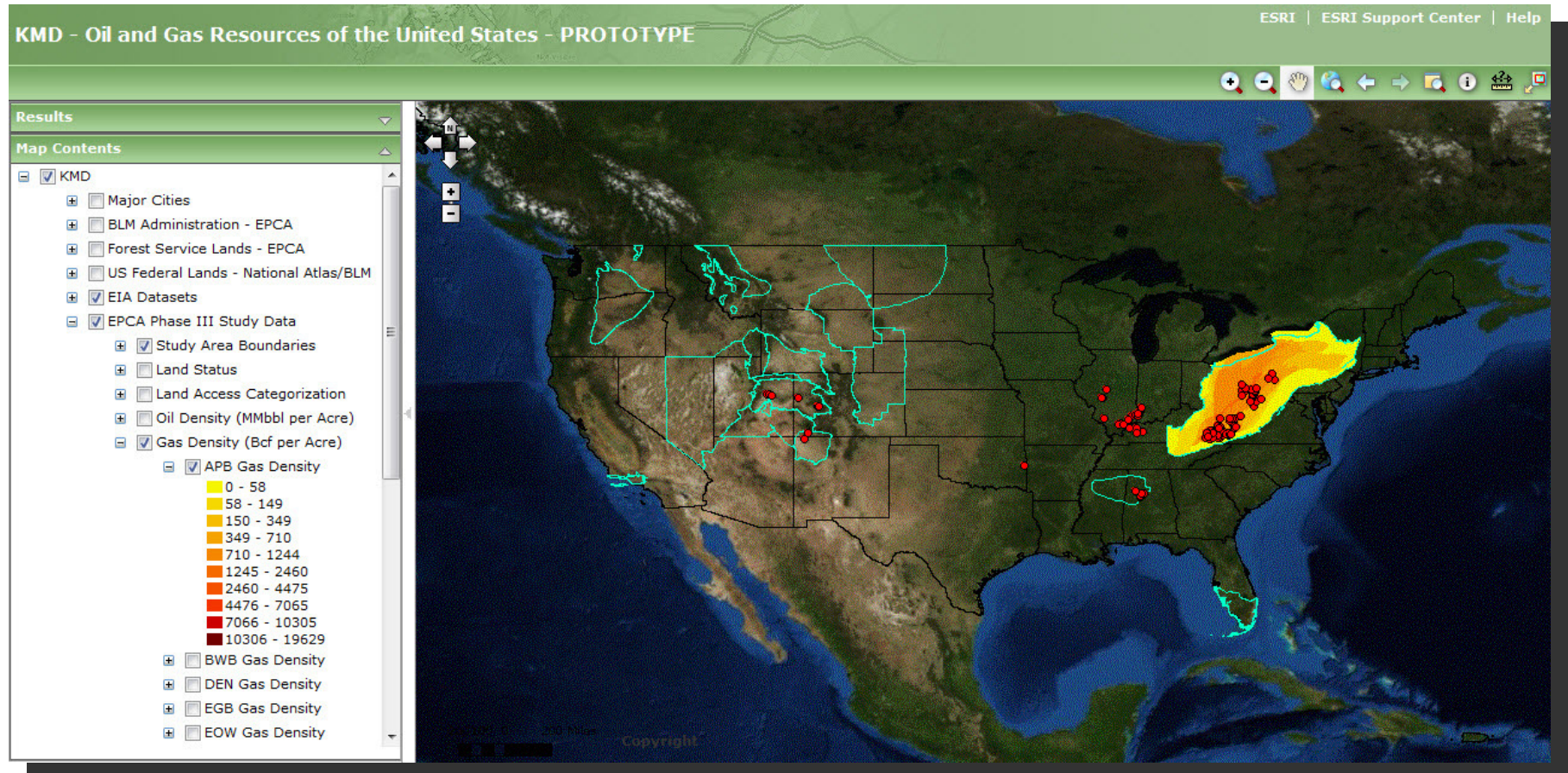
# KMD Demonstration

## *Gulf of Mexico Deepwater Prototype*



# KMD Demonstration

## *Oil and Gas Resources of the United States Prototype*



# KMD Demonstration

## Other Visualizations

- **Xcelsius Models** to provide a dashboard visualization of detailed oil and gas, and environmental data
  - Outer Continental Shelf (OCS) Model
    - Details information for the OCS Regions and Planning Areas
    - Provides undiscovered technically recoverable resources (UTRR) for gas and oil
    - Allows user control to select region or planning area display of resources
    - Indicates resources by water depth
  - Allegheny National Forest Model
    - Display environmental data related to drilling in the Allegheny National Forest including well density and watershed boundaries
    - Future enhancements may include relationship of data to the Marcellus Shale, along with trends of data for roads and chemical analysis within the National Forest