

EORI



EORI Interactive Data Platform (IDP)

Nick Jones

Enhanced Oil Recovery Institute (EORI)

&

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Wyoming Geographic Information Science Center (WyGISC)

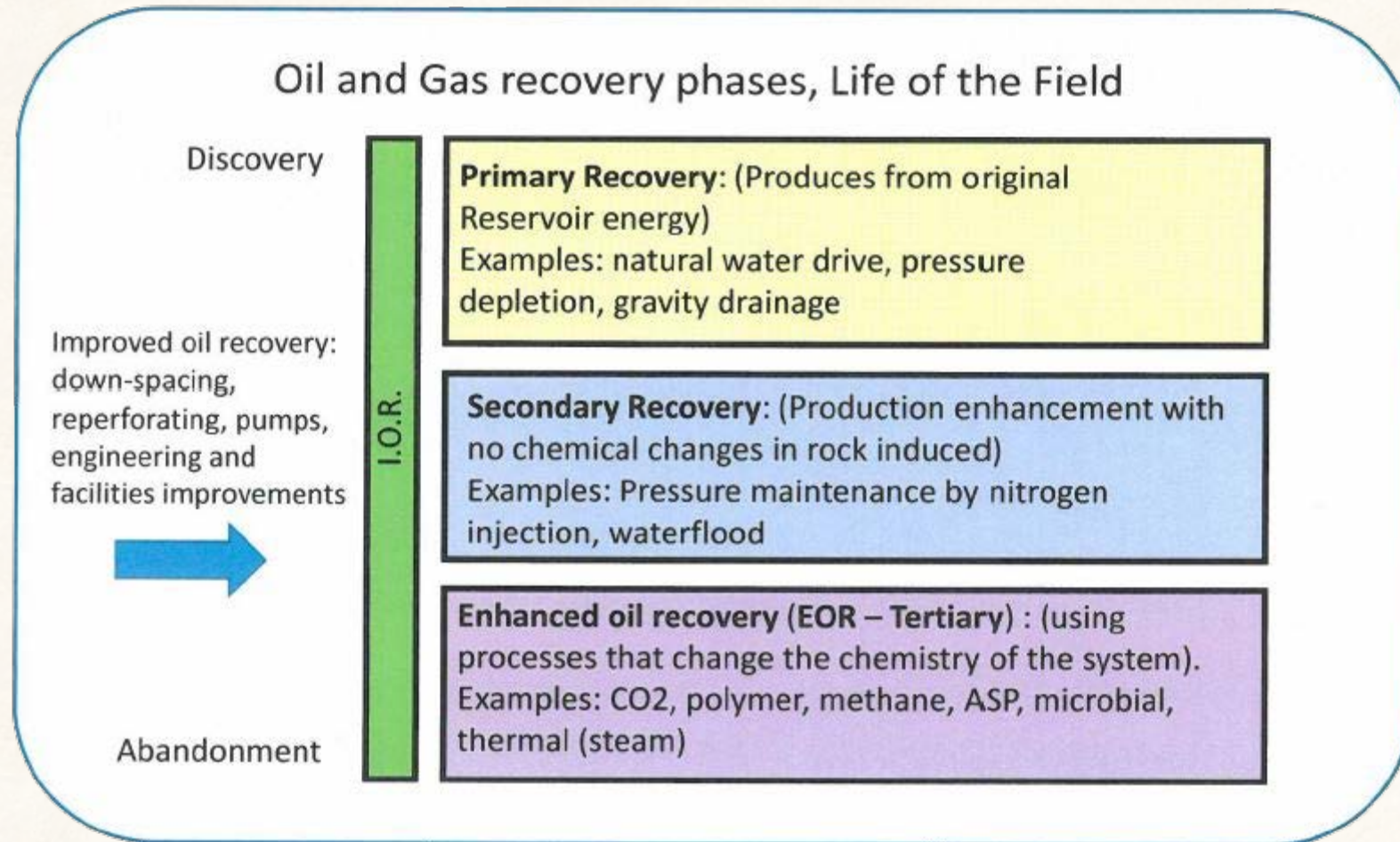
2016 ESRI Petroleum GIS Conference

April 27

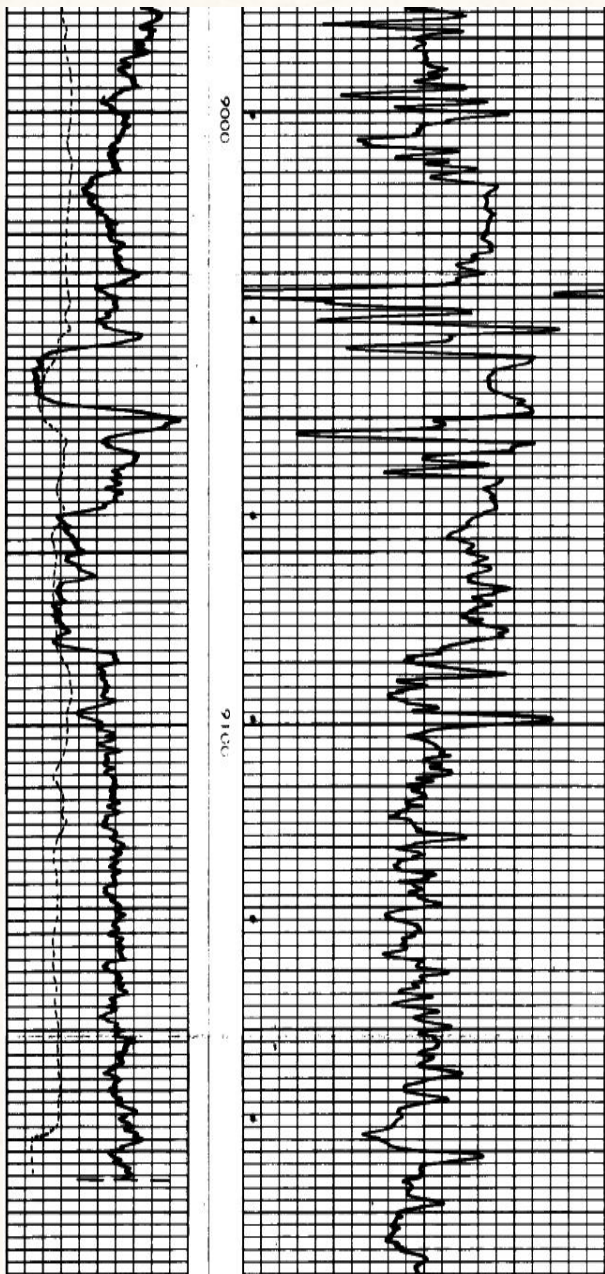
Houston, Texas

The mission of EORI is to facilitate a meaningful and measureable increase in recoverable reserves and production of oil and natural gas in Wyoming that may otherwise not be realized. Key to this is the effective and efficient transfer of relevant technology, information, and knowledge to Wyoming producers. EORI believes that its mission is being met when the producers consider EORI as a vital source of relevant technology, information, expertise, and knowledge for Wyoming fields.

Overview

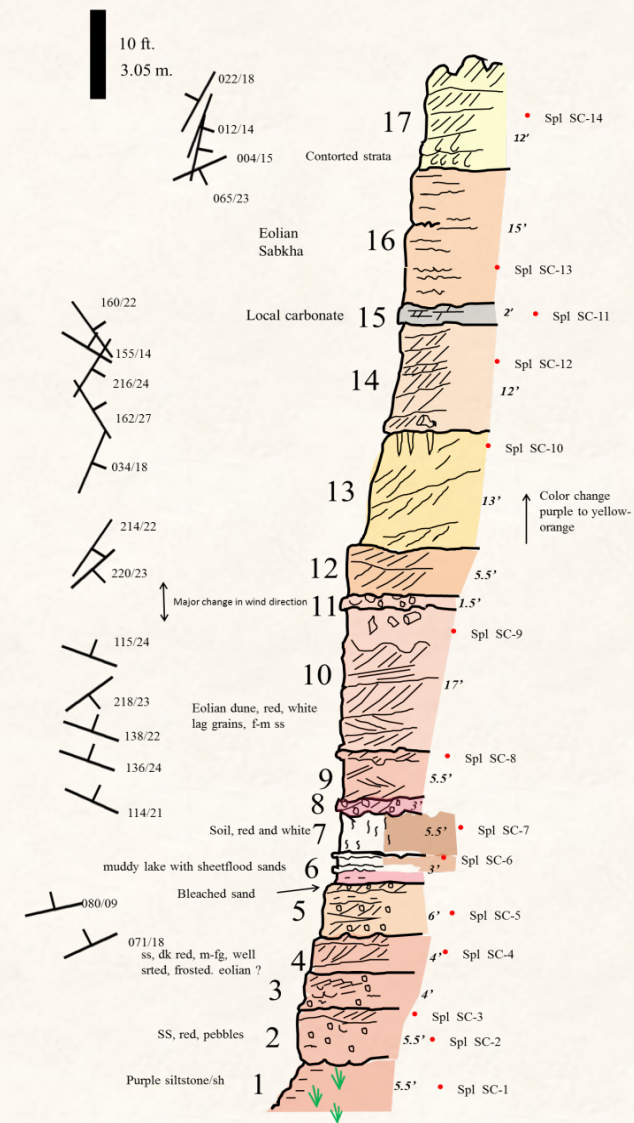


Background



- Wyoming Oil & Gas Reservoir Information
 - Database development
 - Using relational database design
 - Geospatial perspective
 - Data sharing and collaboration
- Reservoir Screening
- Data Dissemination
- Web Application
 - Interactive Data Platform (IDP)

Measured section: Tensleep (Casper) Formation
Sand Creek, Albany County Wyoming
Fryberger, Jones, Johnson
 Section complete except for upper 30 feet of Tensleep



Collaboration is Key

Enhanced Oil Recovery Institute (EORI)

Wyoming Geographic Information Science Center (WyGISC)

***Wyoming Oil & Gas Conservation Commission (WOGCC)







***Wyoming Geological Association (WGA)

Wyoming Pipeline Authority (WPA)

***Seismic Exchange (SE)


EORI Interactive Data Platform (EORI IDP)


Welcome to the Enhanced Oil Recovery Institute's (EORI) Interactive Data Platform (IDP). This interactive web application focuses on the development and production of oil and gas resources in Wyoming. The available information in this service is a compilation of both internal and external data. For additional information or to provide comments regarding the EORI IDP please contact EORI at uweori@uwyo.edu

DISCLAIMER

Tips: **If the popup blocker is enabled on any web browser some functionality of the Wyoming Water and Climate web application may not be available.*

 *** Detailed instructions may be viewed at any time by clicking the **Help** icon on the top right of the application.*

 2 Forward

[Continue to application](#)

***Key data providers

The IDP Web Application

The screenshot shows the EORI IDP web application interface. The browser address bar displays eori.wygisc.org/#. The application title is "EORI Interactive Data Platform (EORI IDP)". The interface includes a "Legend and Zoom Tools" panel on the left with tabs for "Legend", "Zoom Tools", "Select/Extract", and "Search Results". The legend lists several data layers: Enhanced Oil Recovery Institute, Oil and Gas Conservation Commission, Pipeline Authority, Seismic Exchange, and Base Layers. The main map area displays a map of Wyoming with various geographical features and labels. A large orange curved arrow points from the text "Geologic Information" to the map. Another large orange curved arrow points from the text "Field Information" to the map. A third large orange curved arrow points from the text "Reservoir Information" to the map. A fourth large orange curved arrow points from the text "Well Information" to the map. A "Disclaimer" popup is visible on the right side of the map, containing the following text:

EORI Interactive Data Platform (EORI IDP)
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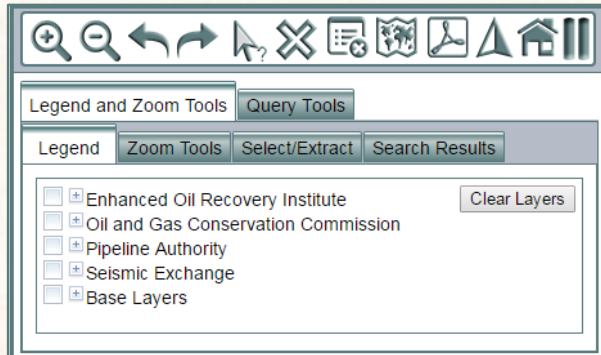
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Continue to application

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<http://eori.wygisc.org>

Enhanced Search and Query Tools



Expandable legend

Wells Fields/EOR Projects Reservoir Screening

Select Reservoir Criteria:

☐ Minimum to Maximum Depth(ft)

☐ Minimum to Maximum Thickness(ft)

☐ Minimum to Maximum API Gravity(ø)

☐ Minimum to Maximum Temperature(F°)

☐ Minimum to Maximum Cumulative Oil(bbls)

☐ Minimum to Maximum Cumulative Gas(MCF)

Select Reservoir (Formation) :

Reservoir

Or Select without Reservoir:

Reservoir Screening tools

Legend Zoom Tools Select/Extract Search Results

Drawing Tools

1 Size 597B7D Color

Extract Data Tools

1. Select Layers to extract data from

- ☐ Gas EOR Targets
- ☐ Cored Wells
- ☐ Well Deviations
- ☐ CO2 Projects and Targets
- ☐ Field Locations

2. Select area of interest using the Freehand Polygon tool

3. Specify download format

Shapefile - SHP - .shp

Text for the Map

Enter Text 10pt Font Size

020500 Text Color

Measure Tools

Extractable layers

Legend Zoom Tools Select/Extract Search Results

Township/Range/Section:

Prime Meridian 06

Township N

Range W

Section

City or County:

City County

Zoom XY:

Enter coordinates in decimal degrees below (within North America):

-105.580911 Longitude (X)

41.313453 Latitude (Y)

Search by Address

Enter an address then click the locate button to use an address to return the location for street addresses in the United States.

1000 E. University Ave. Iaramie

Search tools

Wells Fields/EOR Projects Reservoir Screening

Select Field Name:

Field

Select Project Type:

EOR Project

Field and EOR search tool

Wells Fields/EOR Projects Reservoir Screening

Query WOGCC wells using a buffer. Click on the map to get the wells inside the buffer.

5 Enter Buffer Value

Miles Enter Buffer Units

☐ Select Tool (use to select wells in an area)

or Select wells using Reservoir (Formation) :

Reservoir

Extract wells tool

Available Thematic Data Sets

EORI/WGA

- ☐ ☐ Enhanced Oil Recovery Institute
 - ☐ ☐ ☐ Case Studies
 - ☐ ☐ ☐ Gas EOR Targets
 - ☐ ☐ ☐ Cored Wells
 - ☐ ☐ ☐ Drill Stem Tests
 - ☐ ☐ ☐ Well Perforations
 - ☐ ☐ ☐ Well Deviations
 - ☐ ☐ ☐ Well Locations
 - ☐ ☐ ☐ Core Analysis
 - ☐ ☐ ☐ CO2 Projects and Targets
 - ☐ ☐ ☐ OGCC Reported Production
 - ☐ ☐ ☐ Field Locations
 - ☐ ☐ ☐ Field Areas

SE

- ☐ ☐ Seismic Exchange
 - ☐ ☐ 2D Seismic
 - ☐ ☐ 3D Seismic

WOGCC

- ☐ ☐ Oil and Gas Conservation Commission
 - ☐ ☐ ☐ Permits
 - ☐ ☐ ☐ Conventional
 - ☐ ☐ ☐ CoalBed
 - ☐ ☐ ☐ InjectionWells
 - ☐ ☐ ☐ DisposalWells
 - ☐ ☐ ☐ Units
 - ☐ ☐ ☐ Horizontal
 - ☐ ☐ ☐ Water Analysis
 - ☐ ☐ ☐ Stimulation

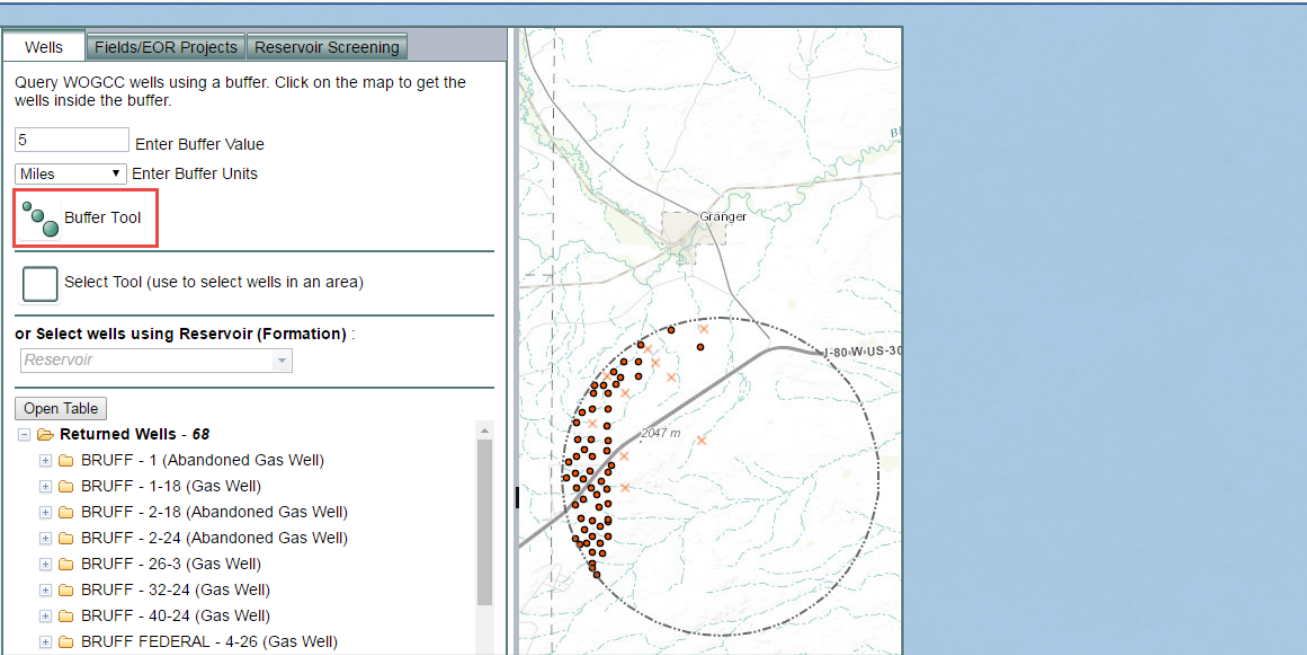
WPA

- ☐ ☐ Pipeline Authority
 - ☐ ☐ ☐ Carbon Dioxide
 - ☐ ☐ ☐ Condensate
 - ☐ ☐ ☐ Product
 - ☐ ☐ ☐ Natural Gas Liquid
 - ☐ ☐ ☐ Crude
 - ☐ ☐ ☐ Natural Gas

WyGIS



- ☐ ☐ Base Layers
 - ☐ ☐ ☐ City & Town Boundaries
 - ☐ ☐ ☐ State Parks
 - ☐ ☐ ☐ Wind River Reservation
 - ☐ ☐ ☐ National Parks and Monuments
 - ☐ ☐ ☐ National Recreation Areas
 - ☐ ☐ ☐ National Wildlife Refuges
 - ☐ ☐ ☐ National Forests
 - ☐ ☐ ☐ Wilderness Areas
 - ☐ ☐ ☐ Wilderness Study Areas
 - ☐ ☐ ☐ Areas of Critical Environmental Concern
 - ☐ ☐ ☐ County Boundaries
 - ☐ ☐ ☐ Township/Range
 - ☐ ☐ ☐ Section
 - ☐ ☐ ☐ Quarter Sections
 - ☐ ☐ ☐ Surface Land Management
 - ☐ ☐ ☐ Federal Mineral Estate
 - ☐ ☐ ☐ Bedrock Geology
 - ☐ ☐ ☐ Elevation

Data Analysis Tools and Output



Buffer/Select Wells

WOGCC Wells Table

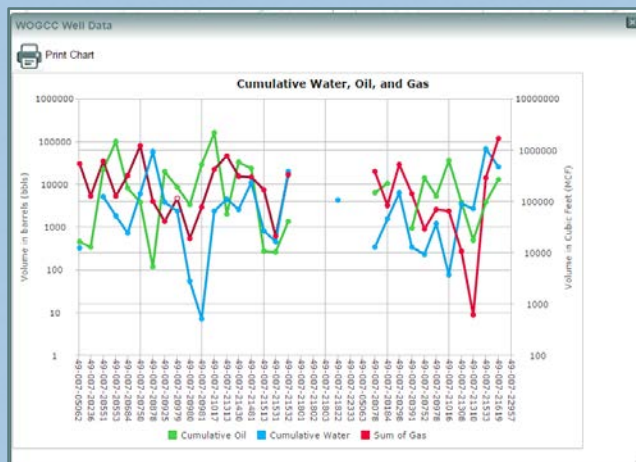
 Export to Excel  Chart the Data

API Number Q

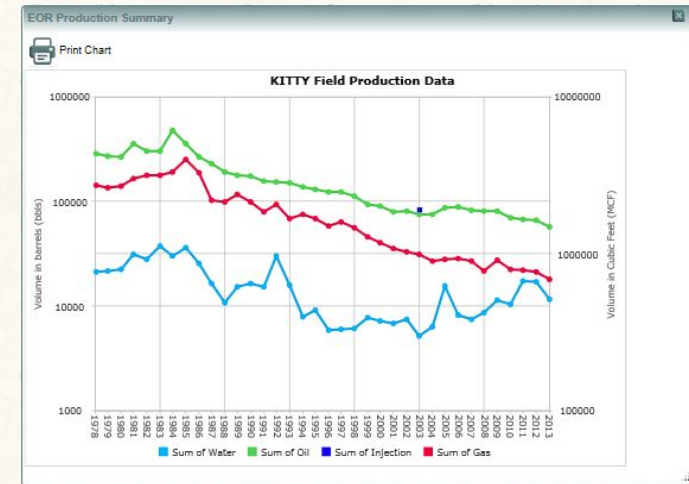
Oil	Cumulative Gas	Cumulative Water	Production Year	Hyperlink
2459986	12349	2015	http://wogcc.state.wy.us/wellapi...wsdl=2&napino=3723009	
5732871	24731	2015	http://wogcc.state.wy.us/wellapi...wsdl=2&napino=3705324	
106248	116	2015	http://wogcc.state.wy.us/wellapi...wsdl=2&napino=3721750	
3302150	8339	2015	http://wogcc.state.wy.us/wellapi...wsdl=2&napino=3721788	
2760884	6353	2015	http://wogcc.state.wy.us/wellapi...wsdl=2&napino=3721949	
3114144	7183	2015	http://wogcc.state.wy.us/wellapi...wsdl=2&napino=3721959	
1850077	9392	2015	http://wogcc.state.wy.us/wellapi...wsdl=2&napino=3721964	
1755910	25072	2015	http://wogcc.state.wy.us/wellapi...wsdl=2&napino=3722132	

Go to page: 1 Show rows: 20 1-68 of 68

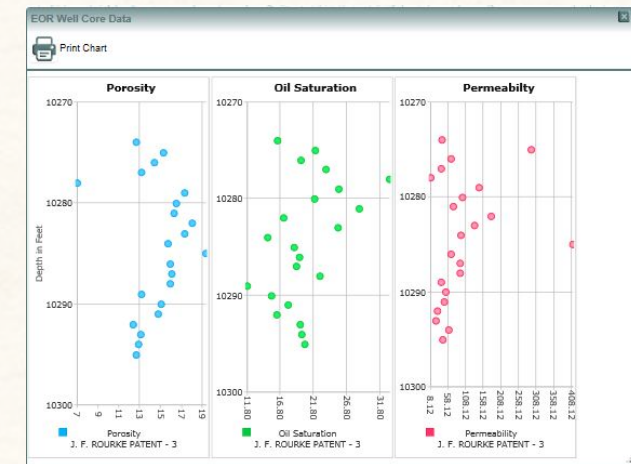
Tables



Cumulative production graphs



Annual Production graphs



Core analysis charts (in press)

Search and Query by Geologic Formation

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Legend and Zoom Tools **Query Tools**

Wells **Fields/EOR Projects** **Reservoir Screening**

☐ Minimum to Maximum Temperature(F°)

☐ Minimum to Maximum Cumulative Oil(bbls)

☐ Minimum to Maximum Cumulative Gas(MCF)

Select Reservoir (Formation) :
MUDDY

Or Select without Reservoir:

- FLORIDA
- FLY DRAW
- FORGEY
- FROG CREEK
- GAS DRAW
- GAS DRAW EAST
- GEORGE RANCH
- GRASSHOPPER BUTTE
- GRIEVE**
 - FieldNameB - GRIEVE
 - DiscoveryYear - 1954
 - WellCount - 16
 - ProducingWell_count - 1
 - IdleWellCount - 15
 - InjectionWell_count - 9
 - StatusofFieldB - Injecting CO2 - no production - li

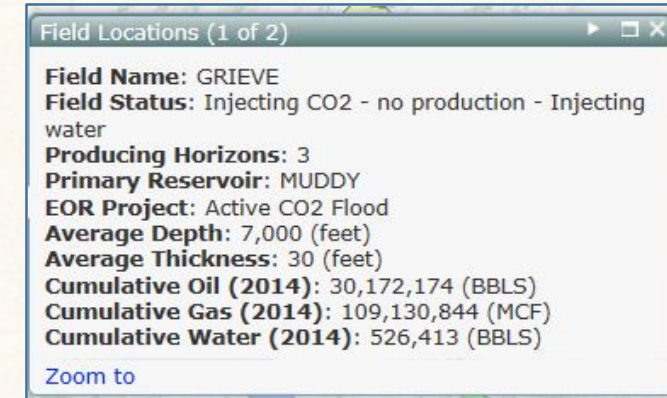
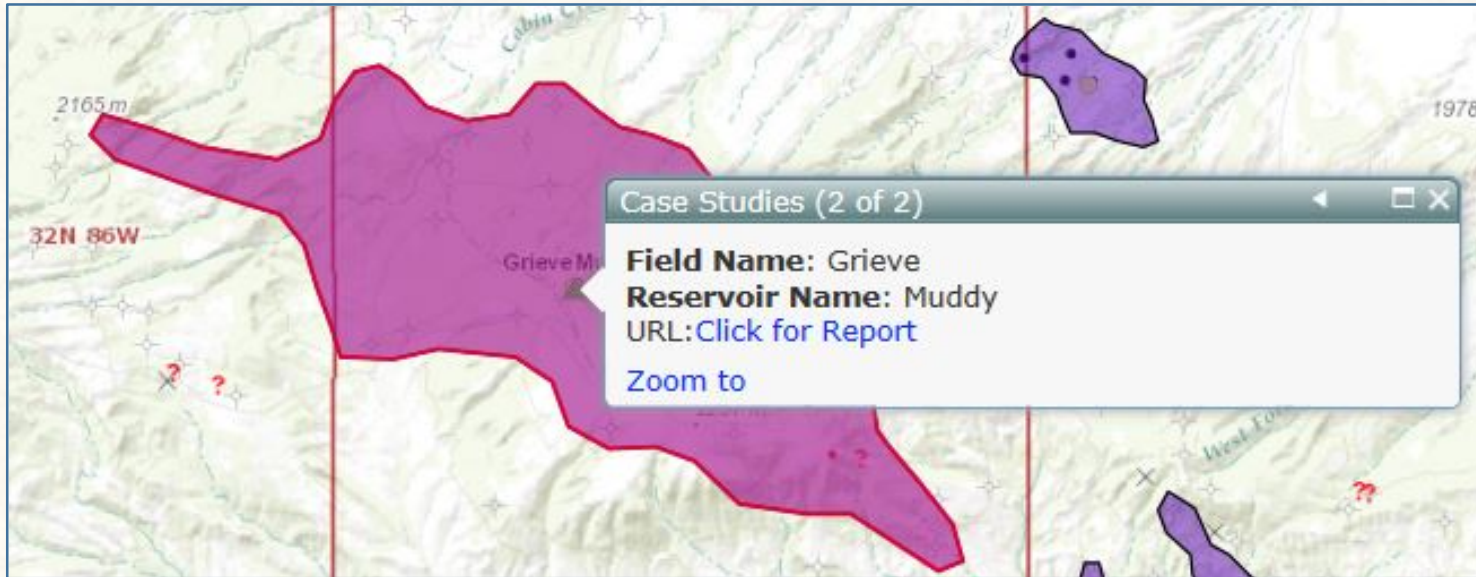
Map of Wyoming

The map displays the state of Wyoming with various geographical features, including the Yellowstone National Park, Teton National Forest, and Wind River Range. A red arrow points to the Grieve Field, which is highlighted in purple. The map includes a scale bar (100km/60mi) and a legend.

Esri, HERE, DeLorme, FAO, NOAA, USGS, EPA, NPS

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Search and Query by Field Name



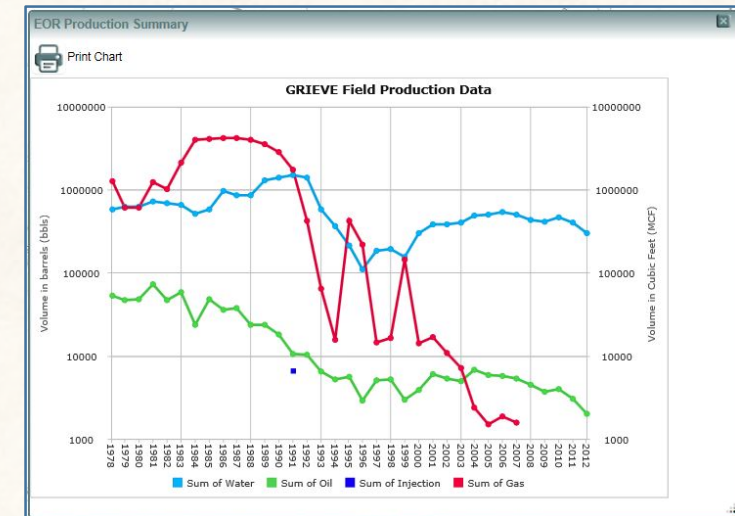
General field information

Elk Petroleum, Inc.

Grieve Field, Natrona County, WY

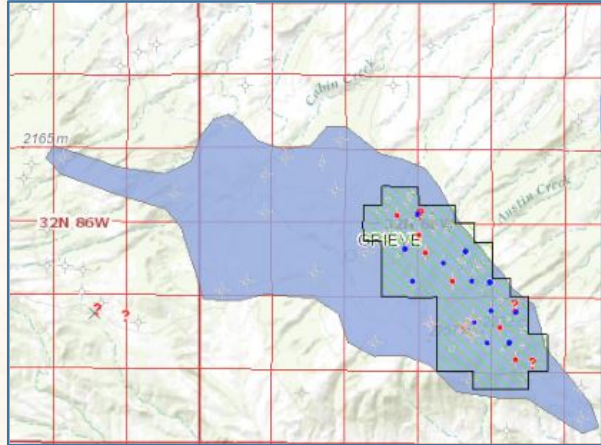
CO₂ Potential

Case studies and technical reports

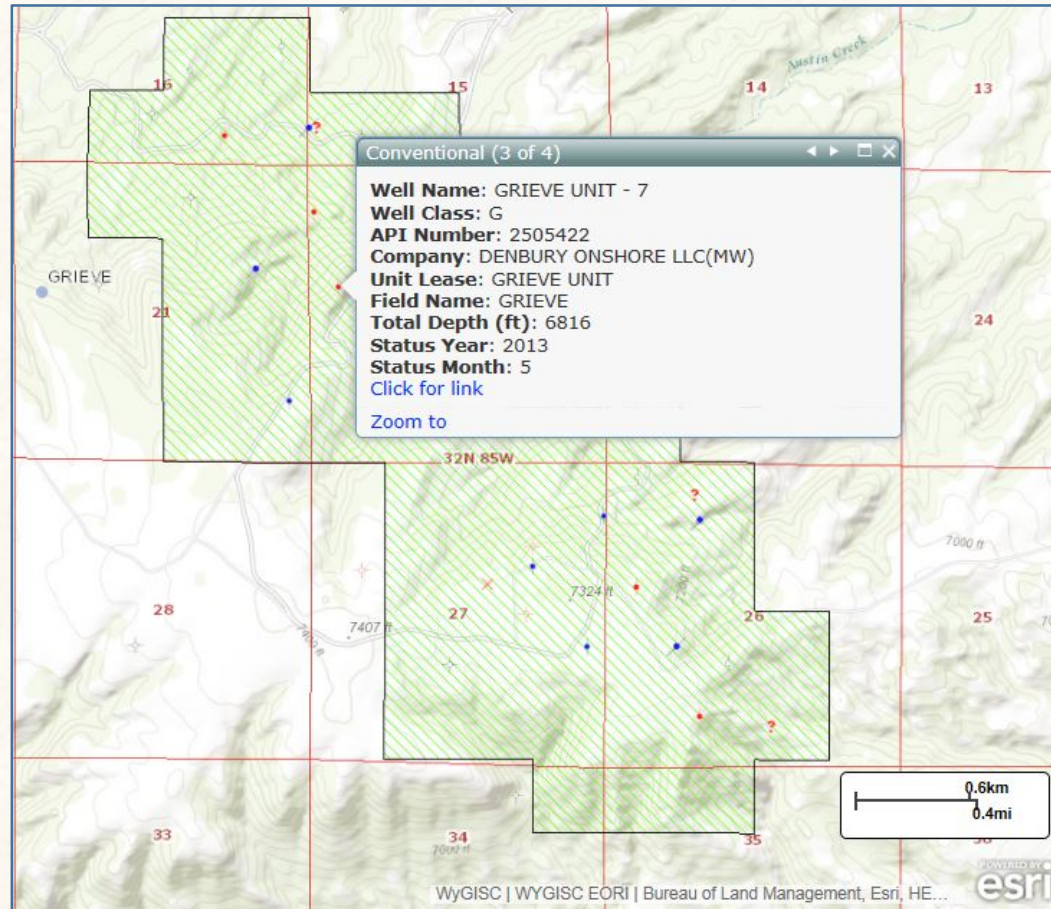


Annual Production graphs

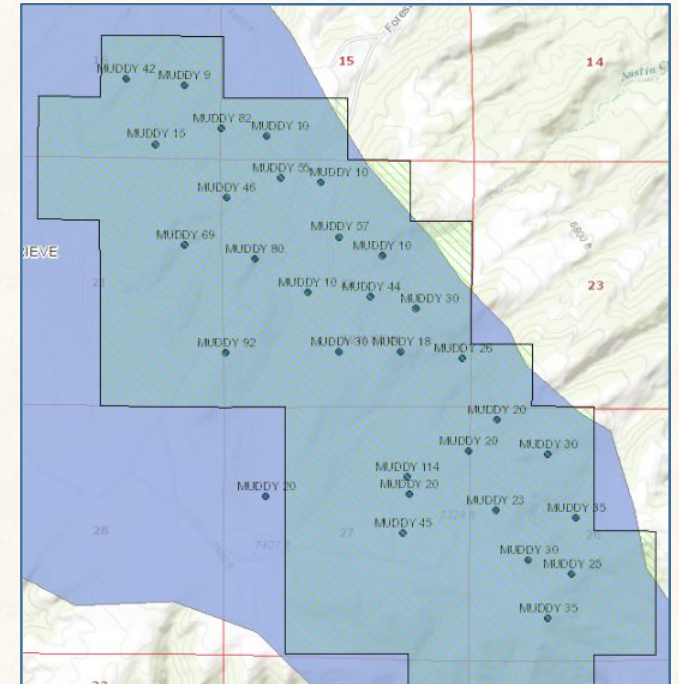
Search and Query Available Well Data



Units and well distribution

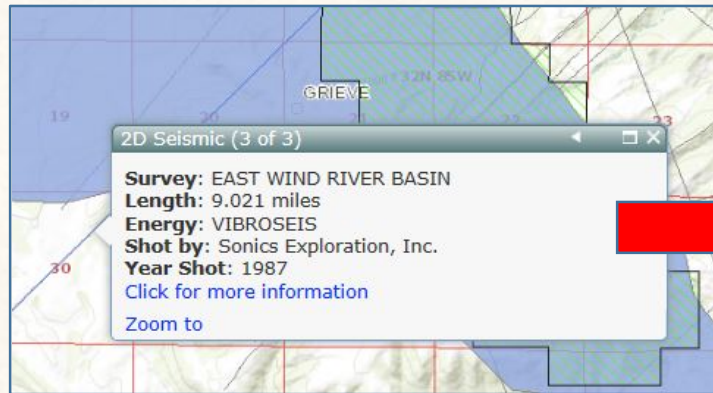


Well attributes and link to WOGCC



Reservoir and perforation thickness

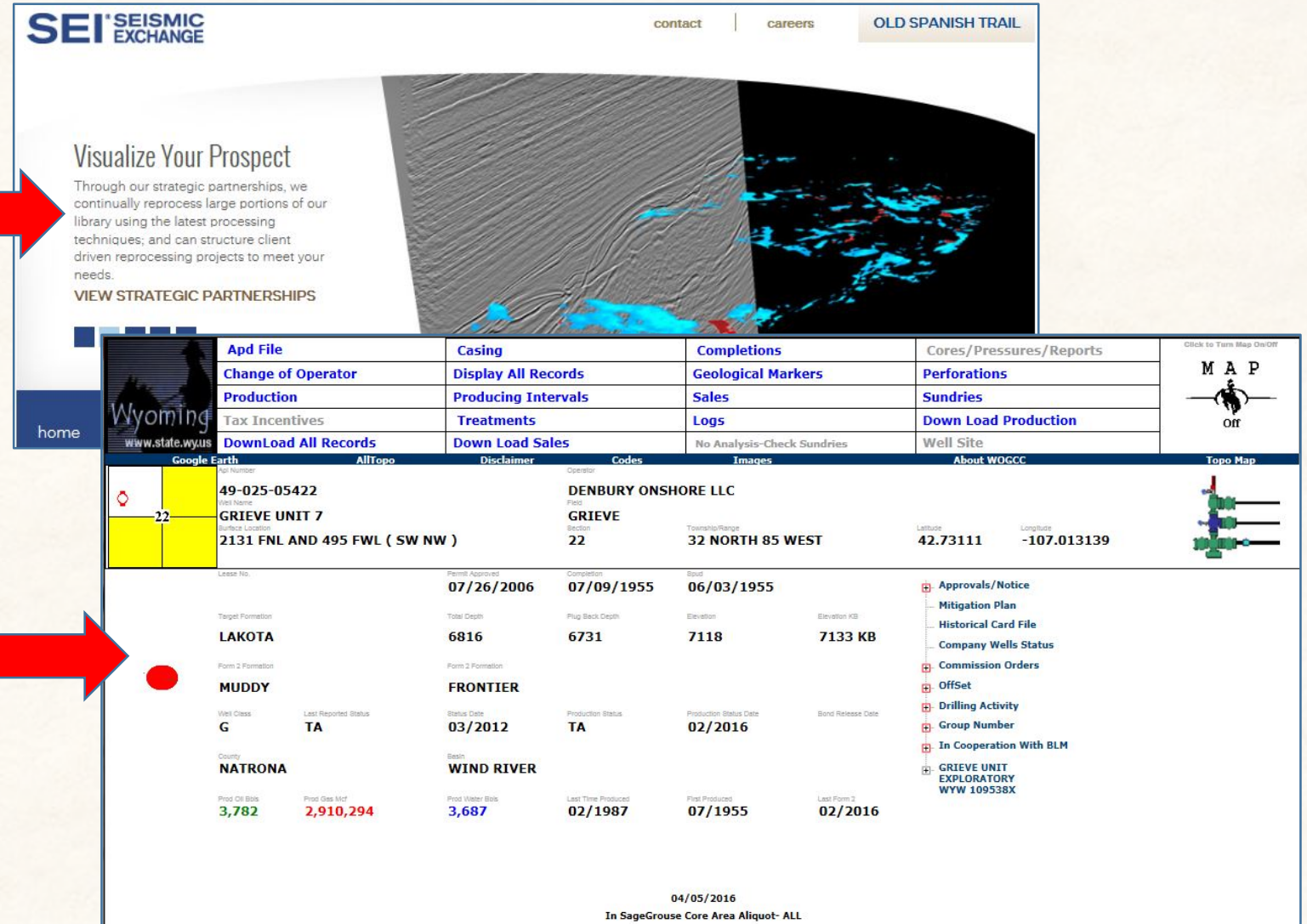
Links to External Data Providers



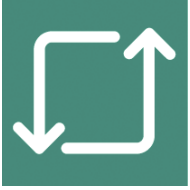
Seismic attributes and links to SEI



Well attributes and links to WOGCC



Acknowledgements and Credits



- Enhanced Oil Recovery Commission
- Wyoming Geographic Information Science Center
- Wyoming Oil & Gas Conservation Commission
- Wyoming Geological Association
- Wyoming Pipeline Authority
- Seismic Exchange
- University of Wyoming School of Energy Resources
- End users and beta testers



Special thanks and credit to:

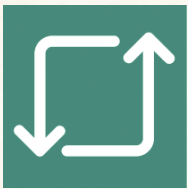
Robert Meyer – WOGCC Data and Website

Robert Kirkwood – WyGISC Application Developer

Paddington Hodza – WyGISC Assistant Director



School of
Energy Resources



Questions?

<http://eori.wygisc.org>

Thank you!

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