



Dynamic Mapping of Kansas Oil and Gas Data

Jeremy D. Bartley & Timothy R. Carr
Kansas Geological Survey
KU Energy Research Center





Kansas Oil & Gas Overview

1860 first oil wells drilled in Kansas along Wea Creek.

1873 first commercial gas well near Iola .

1892 first commercial oil well near Neodeha.

1915 El Dorado Field in Butler County was Discovered.

● **6,083 Oil and Gas Fields**

● **2,228 Oil Operators and 989 Gas Operators**

● **14,804 Active Oil Leases
16,056 Active Gas Leases**

● **41,713 Active Oil Wells
17,647 Active Gas Wells**

● **391,852 Wells**

● **1,741,049 Geologic Tops**

● **Current Production**

★ **35 Million Barrels Oil**

★ **533 Billion Cubic Feet Gas**



Kansas Challenge

Monthly Changes to Well
Database from Kansas
Corporation Commission

3000 Additions

2500 Changes

300 Deletes

Monthly Changes to
Lease Database from
Kansas Department of
Revenue

- 🔥 **Multiple Overlapping Scales of Data**
- 🔥 **Incomplete Data**
- 🔥 **Inaccurate Data**
- 🔥 **Constantly Changing Data**
- 🔥 **Multiple Data Sources**



Kansas Goals

December 1995, 4,238 individual “hits” recorded to oil and gas data on the Internet.

December 2002, 191,116 individual access sessions recorded to oil and gas data on the Internet.

💧 **Data Access**

💧 **Data Analysis**

💧 **Data Display**

💧 **Data Maintenance**

✳ **New Data**

✳ **Quality Control**

💧 **Data Enhancement**

💧 **Data Integration**

Data Access

Kansas Image Viewer - Netscape
File Edit View Go Communicator Help

Oil and Gas
State of Kansas Geographic Information Systems Policy Board, Data Access and Support Center, and the Kansas Geological Survey.
Please email questions and comments on the field viewer to [Jeremy Bartley](#)

Kansas Oil and Gas Field Viewer [help](#)

Overview Map

Zoom Level: ☐ Zoom In ☐ Zoom Out ☐ Pan
☐ Identify Field ☒ Identify Well ☐ Full Field Extent

Table of Contents ?
Visible
☒ Current Oil & Gas Wells (JEFFERSON-SYCAMORE)
[Download Wells](#)
☐ Current Field (JEFFERSON-SYCAMORE)
☐ Other Fields in Same Formation(s)
☐ All Fields in Area
☒ All Wells in Area
☒ PLSS
☒ Highways
☒ Roads
☐ Rivers and Streams
☐ Major Streams
☐ Water Bodies
☐ City Boundary
☒ County Boundary
☒ View Aerials
☐ View Topo

JEFFERSON-SYCAMORE
ARBUCKLE & BARTLESVILLE
SANDSTONE & BEVIER &
MARMATON GROUP &
RIVERTON COAL & WEIR-PITT
COAL
Produces Oil
Produces Gas
Active
[Legal Field Definition](#)

Legend ?
☒ PLSS
☒ Highways
☒ Interstate
☒ US Highway
☒ KS Highway
☒ Roads
☒ County Boundary

Map
Wilson
Montgomery
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0 0.1 mi

update map

Data Access



KGS--Oil and Gas Wells--Spe

Database View

KGS Oil and Gas Well Databases Oil & Gas

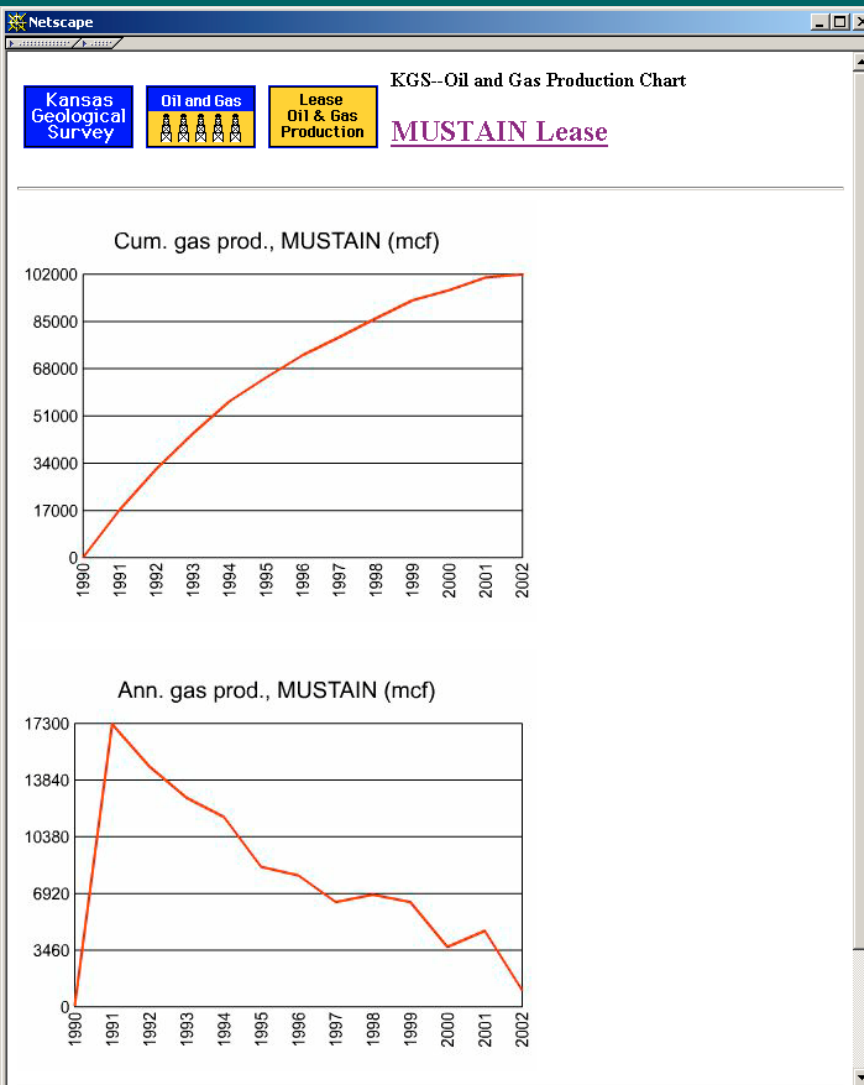
API: 15-205-24868-0001
 Operator: GREAT EAST
 ENRGY&DEV
 Field: Neodesha
 Lease: MUSTAIN 'A'
 Well 1

[Kansas Geological Survey](http://www.kgs.ku.edu)
Comments to webadmin@kgs.ku.edu
URL=<http://www.kgs.ku.edu>
Well Display Programs Up

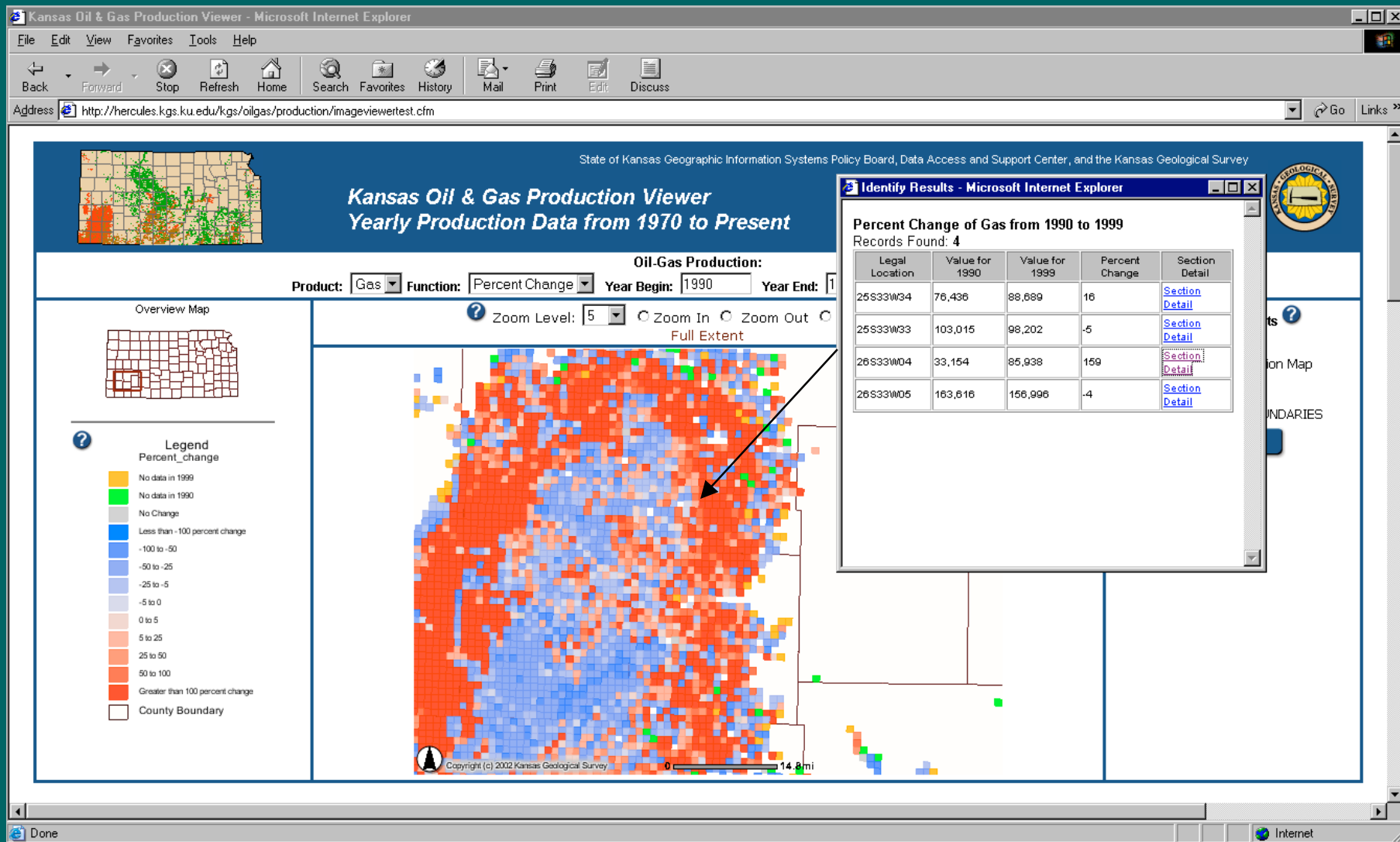
Annual Gas Production, (mc

Year	Production	Wells	Cumulative
View Charts			
1990	99	1	99
1991	17,255	1	17,354
1992	14,673	1	32,027
1993	12,765	1	44,792
1994	11,598	1	56,390
1995	8,550	1	64,940
1996	8,019	3	72,959
1997	6,397	3	79,356
1998	6,856	3	86,212
1999	6,409	3	92,621
2000	3,660	3	96,281
2001	4,653	3	100,934
2002	1,020	3	101,954

*2002 data incomplete at this time.
2000-2001 data may still change.



Data Access



Data Analysis

Kansas Image Viewer - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss

Address http://mapster.kgs.ukans.edu/kgs/oilgas/imageviewer/imageviewer_d1.cfm?field_kid=1000148164&fieldmap=yes&wells=no&otherformations=no&allfields=yes Go Links »

Oil and Gas

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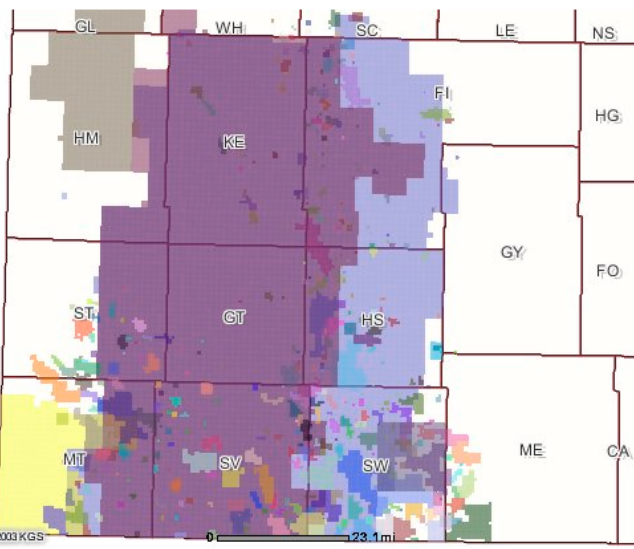
Overview Map



HUGOTON GAS AREA
CHASE GROUP
Produces Oil
Produces Gas
Active
[Legal Field Definition](#)

Legend
County Boundary

Zoom Level: 1.5 [Zoom In](#) [Zoom Out](#) [Pan](#)
[Identify Field](#) [Identify Well](#) [Full Field Extent](#)



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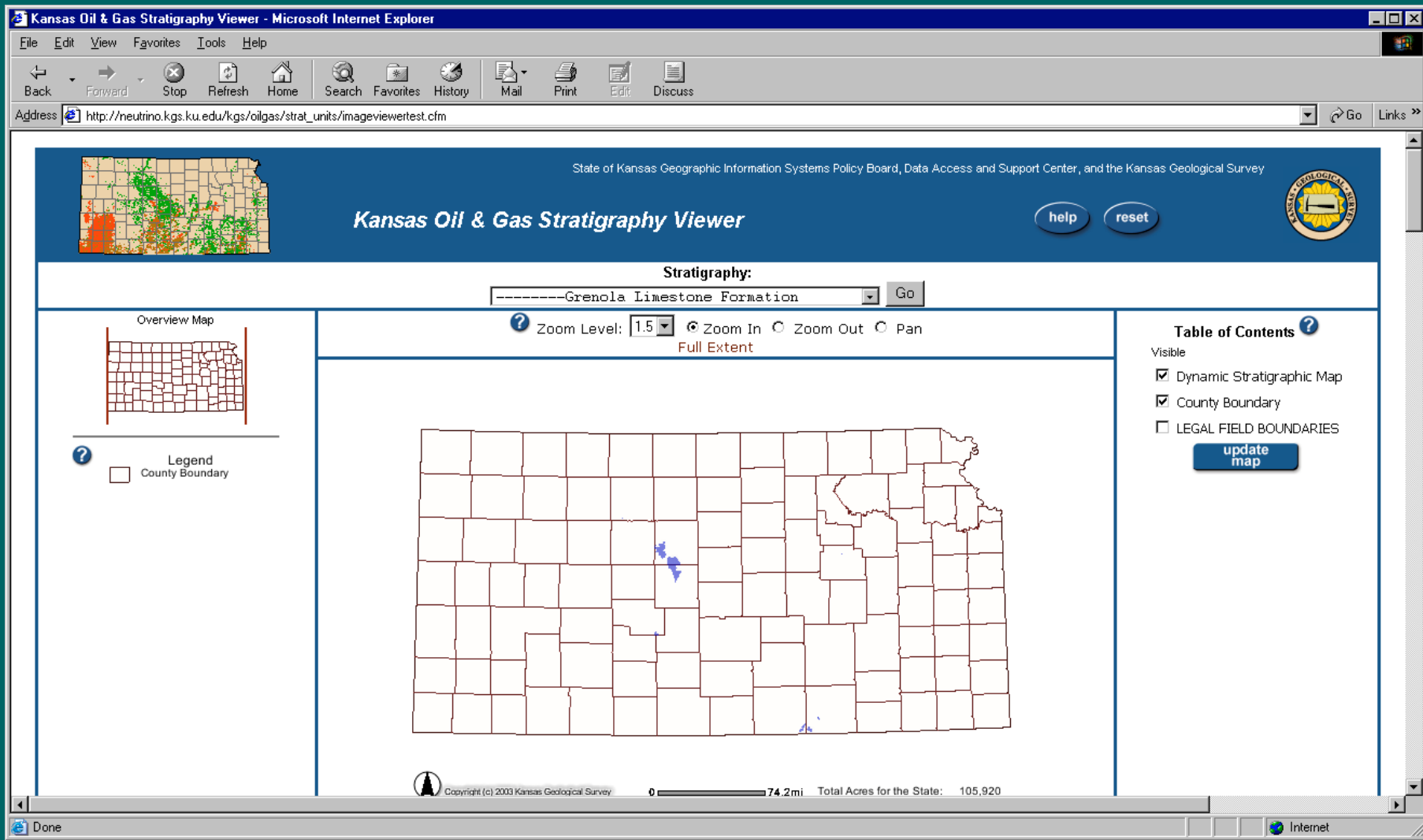
- ☐ Current Oil & Gas Wells (HUGOTON GAS AREA)
[Download Wells](#)
- ☒ Current Field (HUGOTON GAS AREA)
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Zoom In [Rivers and Streams]
☐ Major Streams
Zoom In [Water Bodies]
☐ City Boundary
☒ County Boundary
Zoom In [View Aerials]
Zoom In [View Topo]

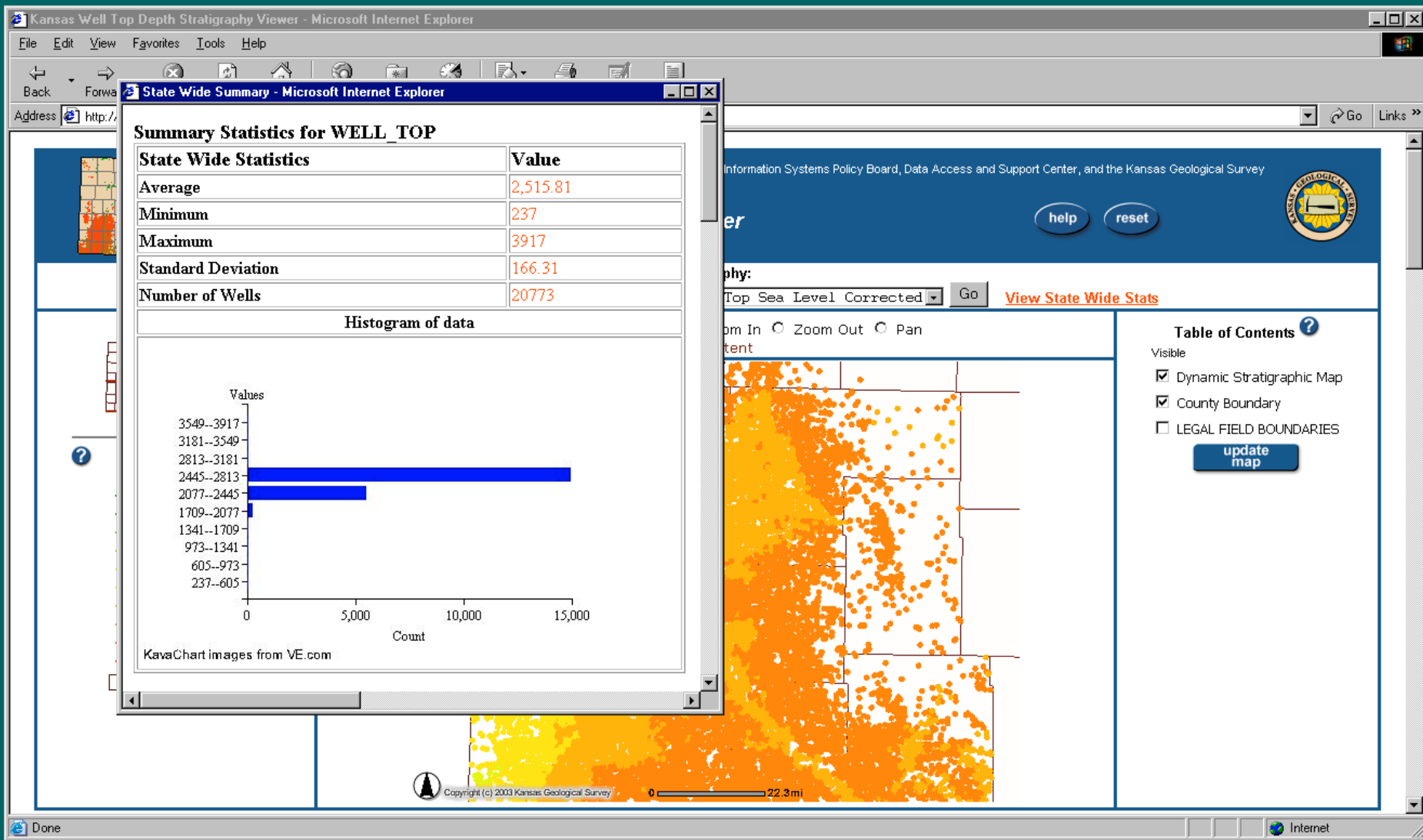
[update map](#)

Done Internet

Data Display



Data Display



Data Maintenance

Kansas Image Viewer - Microsoft Internet Explorer

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Address http://mapster.kgs.ukans.edu/kgs/oilgas/imageviewer/imageviewer_d1.cfm Go Links

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Overview Map

ARROYO SOUTHEAST
MORROWAN
Produces Oil
Produces Gas
Active
[Legal Field Definition](#)

Legend

- PLSS
- County Boundary

Zoom Level: 1.5 Zoom In Zoom Out Pan
Identify Field Identify Well Full Field Extent

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[update map](#)

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Data Enhancement

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http://mapster.kgs.ukans.edu/kgs/oilgas/imageviewer/imageviewer_d1.cfm

Mail Shop Bookmarks KGS Server Cont... KGS ArcIMS 3.1 ... KGS ArcIMS 4 C... MAPSTER IMS WEBMAPS IMS DEUTERON IMS

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Kansas Oil and Gas Field Viewer [help](#)

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update map

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Netscape

http://mapster.kgs.ukans.edu/kgs/oil

http://mapster.kgs.ukans.edu/kgs/oil

Legal Field Definition for ARROYO

Section-Township-Range	Quarter Calls
08-29S-41W	SE
09-29S-41W	ALL
10-29S-41W	S2
11-29S-41W	SW
14-29S-41W	ALL
15-29S-41W	ALL
16-29S-41W	ALL
21-29S-41W	ALL
22-29S-41W	ALL
23-29S-41W	ALL
24-29S-41W	NW
26-29S-41W	NW
27-29S-41W	N2 & SW
28-29S-41W	NW & S2
34-29S-41W	NW

Data Enhancement

http://hercules.kgs.ku.edu/website/sdmanager/more_info.cfm?object_n...

Table Comments:
Main table for field nomenclature. Do not use Discovery info from this table
Definition information for FIELDS

Column Name	Null?	Column Type	Column Comments
ACRES		NUMBER(7)	
CUM THRU 1965		NUMBER(12)	
DATA_SOURCE		VARCHAR2(40)	
FIELD CODE BEENE		NUMBER(4)	
FIELD CODE DOR		NUMBER(5)	
FIELD_NAME		VARCHAR2(40)	
KID	Not Null	NUMBER(10)	
PRODUCES_GAS		VARCHAR2(3)	
PRODUCES_OIL		VARCHAR2(3)	
STATUS		VARCHAR2(20)	
UPDATE_DATE		DATE	
UPDATE_INITIALS		VARCHAR2(7)	

http://hercules.kgs.ku.edu/website/sdmanager/more_info.cfm?object_name=...

Table Comments:
Describes T-R-S locations of field. Can be ALL of a section or just parts.
Definition information for FIELDS_SECTIONS

Column Name	Null?	Column Type	Column Comments
FIELD_KID		NUMBER(10)	
KID	Not Null	NUMBER(10)	
LOTS_LEO		VARCHAR2(40)	
MAPPING_COMPLETED		VARCHAR2(1)	
QUARTER_CALLS		VARCHAR2(80)	
QUARTER_CALLS_LEO		VARCHAR2(40)	
RANGE		NUMBER(2)	
RANGE_DIRECTION		VARCHAR2(1)	
SECTION		NUMBER(2)	
TOWNSHIP		NUMBER(2)	
TOWNSHIP_DIRECTION		VARCHAR2(1)	
UPDATE_DATE		DATE	
UPDATE_INITIALS		VARCHAR2(7)	

Data Enhancement

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QUARTER_CALLS_LEO		VARCHAR2(40)	
RANGE		NUMBER(2)	
RANGE_DIRECTION		VARCHAR2(1)	
SECTION		NUMBER(2)	
TOWNSHIP		NUMBER(2)	
TOWNSHIP_DIRECTION		VARCHAR2(1)	
UPDATE_DATE		DATE	
UPDATE_INITIALS		VARCHAR2(7)	

SDE LAYER

Definition information for ACRES_640_GEOGRAPHIC
SIZE (in bytes) = 2,703,360
Number of Rows = 81803

Column Name	Null?	Column Type	Column Comments
OBJECTID * C	Not Null	NUMBER	Add Comments
RECNMBR * P	Not Null	NUMBER(11)	Add Comments
SHAPE * R		NUMBER	Add Comments
TRS *		VARCHAR2(10)	Add Comments

Table Comments:
Mapping of SEC-TWP-RAN to SDE layer OBJECTID.
Coordinates are unprojected. Latitude-
Longitude.

Add/Alter Comment

Data Enhancement

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http://mapster.kgs.ukans.edu/kgs/oilgas/imageviewer/imageviewer_d1.cfm

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update map

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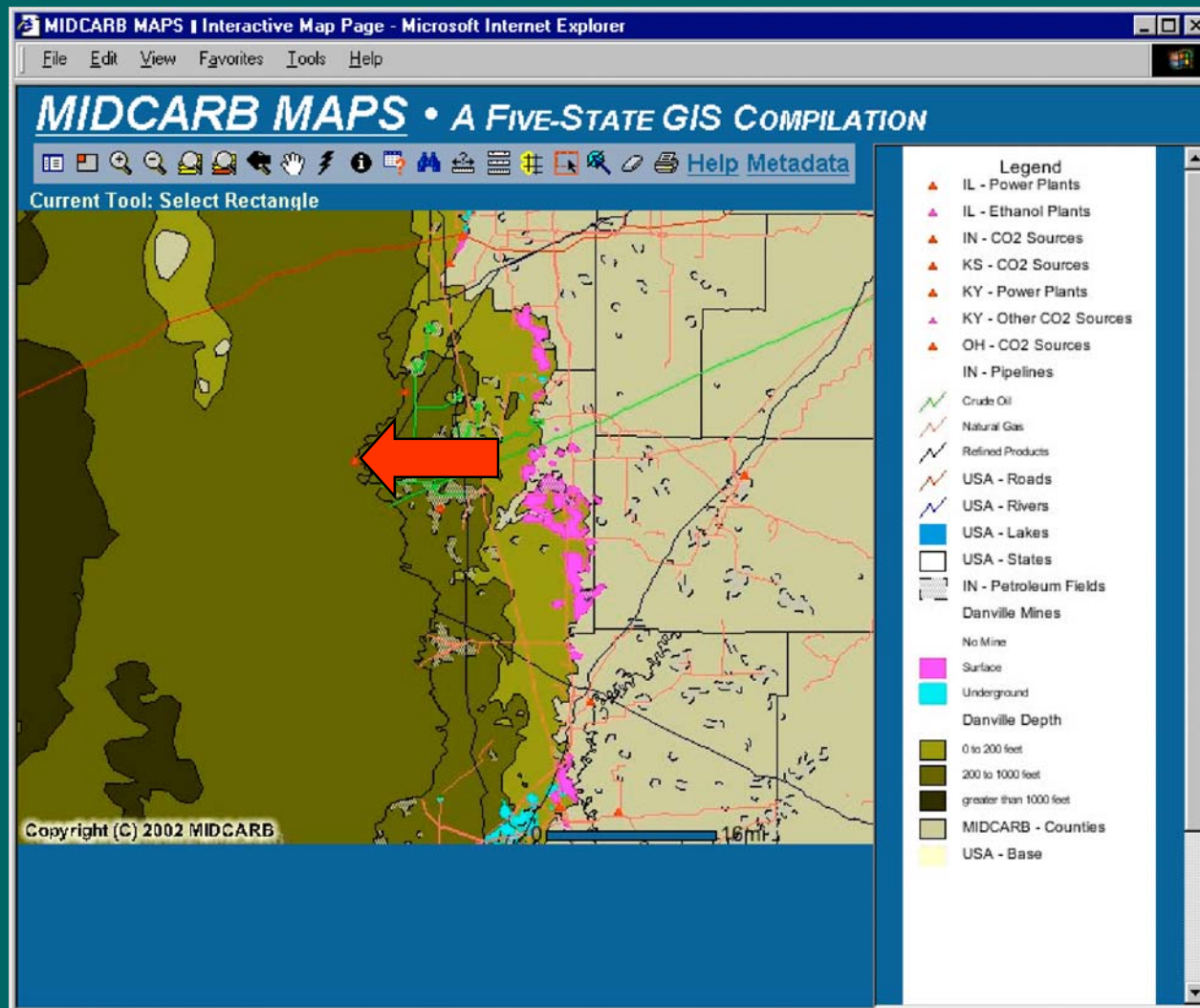
http://mapster.kgs.ku.edu/kgs/oil

http://mapster.k...d_kid=1000152060

Legal Field Definition for ARROYO

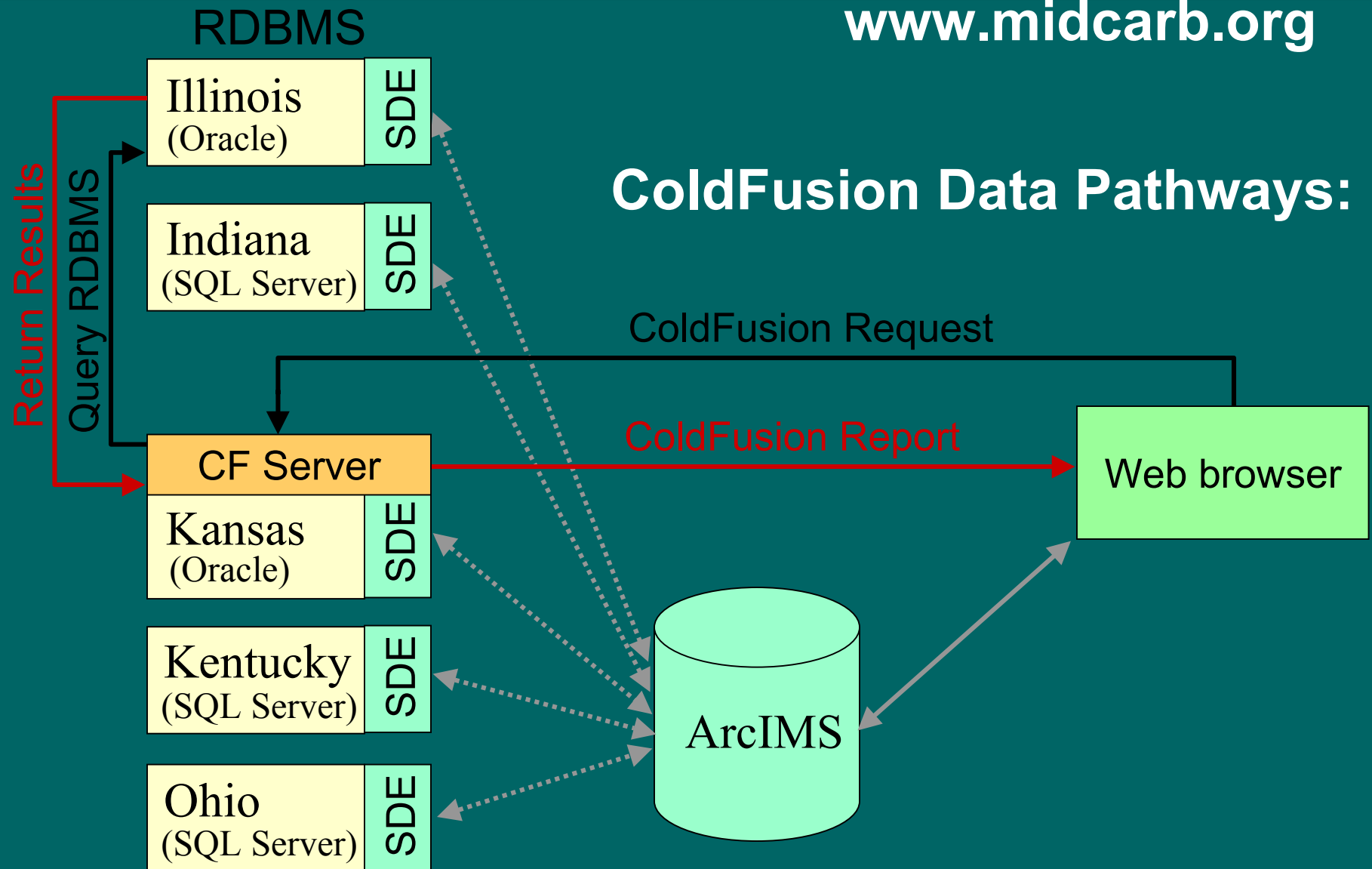
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08-29S-41W	SE
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10-29S-41W	S2
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14-29S-41W	ALL
15-29S-41W	ALL
16-29S-41W	ALL
21-29S-41W	ALL
22-29S-41W	ALL
23-29S-41W	ALL
24-29S-41W	NW
26-29S-41W	NW
27-29S-41W	N2 & SW
28-29S-41W	NW & S2
34-29S-41W	NW

Data Integration

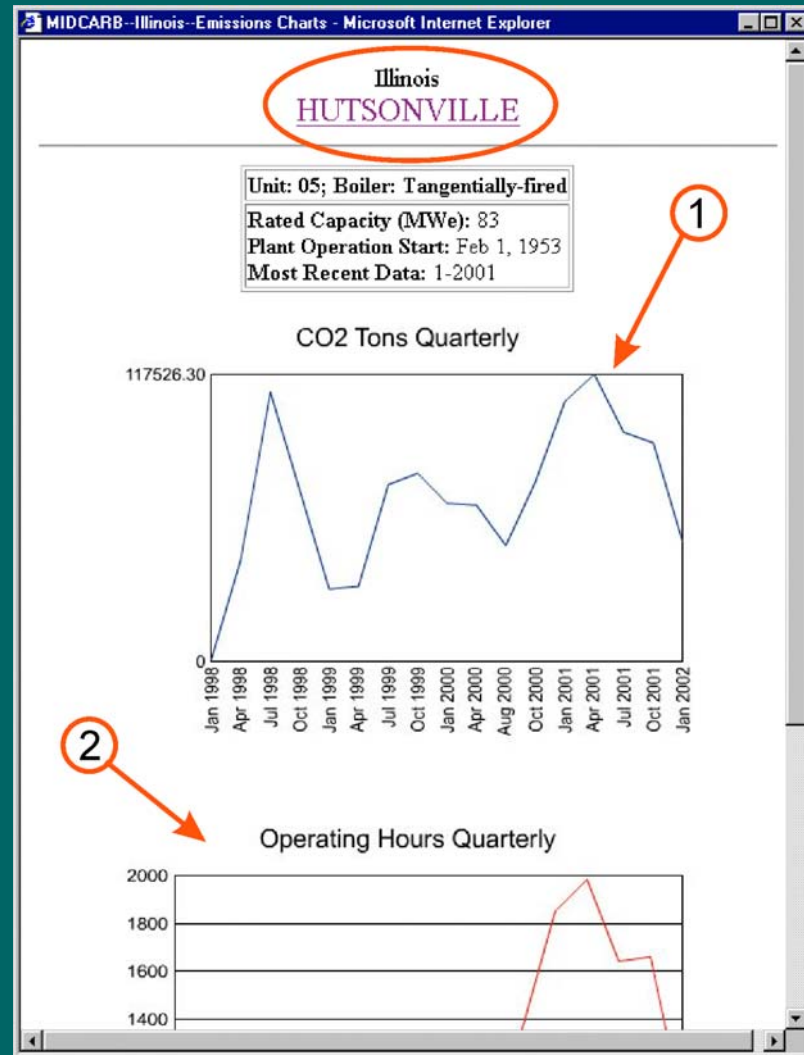
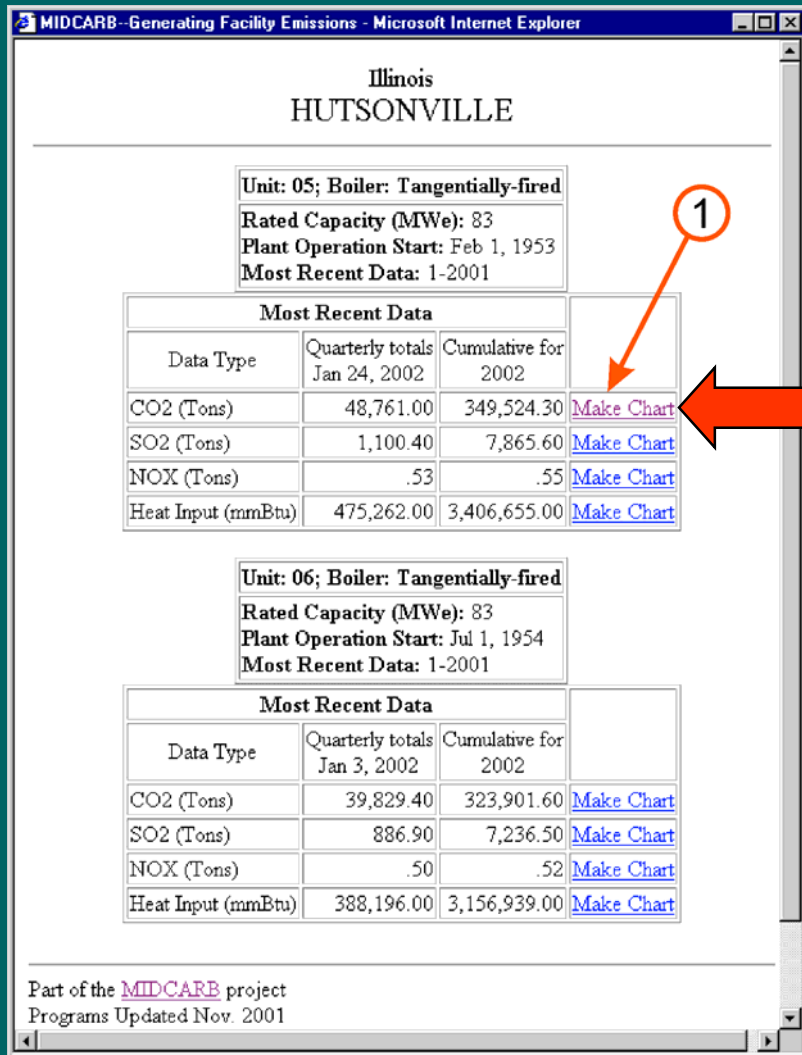


Data Integration

www.midcarb.org



Data Integration





Kansas Goals

🔹 **Data Access**

🔹 **Data Analysis**

🔹 **Data Display**

🔹 **Data Maintenance**

✳ **New Data**

✳ **Quality Control**

🔹 **Data Enhancement**

🔹 **Data Integration**



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