



Railroad Commission of Texas

## Public GIS Viewer Tool

July 20, 2021

The meeting will begin shortly.





# Public GIS Viewer Tool

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July 2021



# Power Point Presentation



This presentation is available for download from the RRC website at <https://www.rrc.texas.gov/oil-and-gas/workshops-and-conferences/rrc-regulatory-webinars/regulatory-webinars-2021-schedule/>



## What We Do:

- We maintain the survey and well location GIS map layers by:
  - Editing or adding survey lines
  - Relocating or adding oil and gas wells
  - Adding or updating well API numbers

*This is done through normal day-to-day research activities or requests from the public who provide documentation to support a research request.*



## What Can you provide to support your API resolution request:

- All request for records research from the public needs to go directly to [IMS@rrc.texas.gov](mailto:IMS@rrc.texas.gov)
- Records that will help in resolving discrepancies
  - W-1 and Plats
  - W-2 / G-1
  - P-4 / P-6
  - W-3



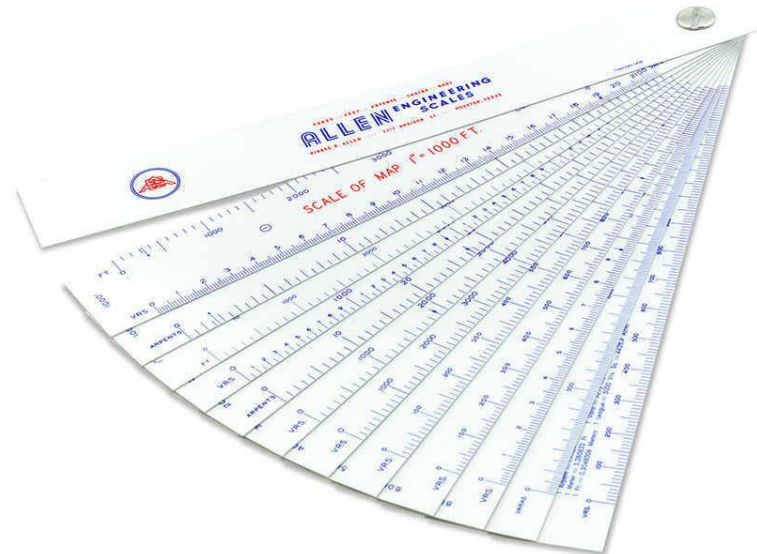
## How We Do it:

- Research historic General Land Office records for survey line placements.
- Work with Registered Land Surveyors to compare notes with on survey construction.
- Research historic Railroad Commission well records and Linen Maps to find location information and verify API numbers

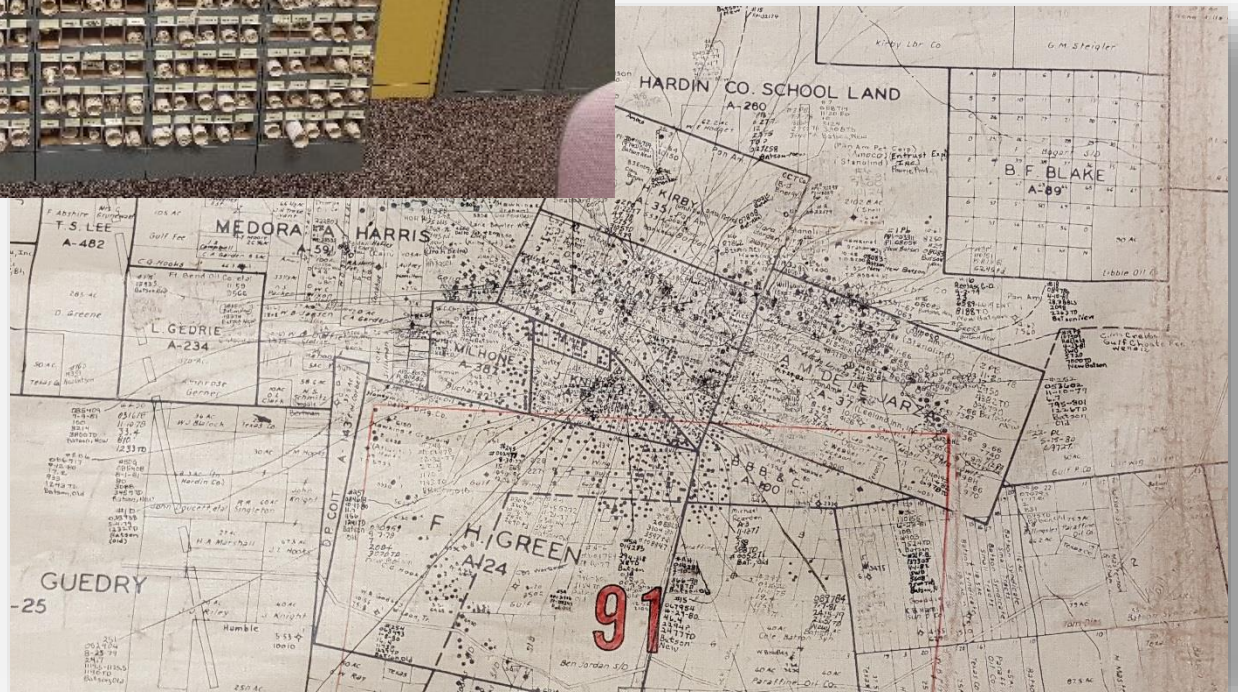
# Before GIS (1 of 2)



- Cloth or linen maps
  - One or more maps for each county plus field maps
  - Typical scales
    - 1" = 2000'
    - 1" = 4000'
  - Hand posted wells
  - Problems?



# Before GIS (2 of 2)






# Going from Linen Maps to Computerized Maps



- 10 year digitization project
  - 1984 to 1995 with all layers created by RRC staff
- Survey information digitized from GLO records
- Well information digitized from linen maps
- Staff Currently Updates daily

# Reliability Codes



<u>Reliability</u>	<u>Code</u>	<u>GIS Location Source</u>	
Lowest	10	Historic map	
	15	Commission's hardcopy map	
	16	Spotted from Reliability Code 15 wells	
	17	Location adjusted during survey maintenance	
	20	Mainframe WELLBORE distances	
	25	Hearing file - Plat and/or documentation	
	30	Operator reported location - Distances without plat or plat without distances	
	40	Operator reported location - Distances and plat	
	45	Field inspection by Commission personnel - Distances and/or plat	
	48	Spotted from Reliability Code 50 wells	
	50	U.S.G.S. 7.5-min. quadrangle or aerial photograph	
	55	Coordinates - Operator reported	
	Highest	60	Coordinates - Commission reported

# Coordinates: Datums

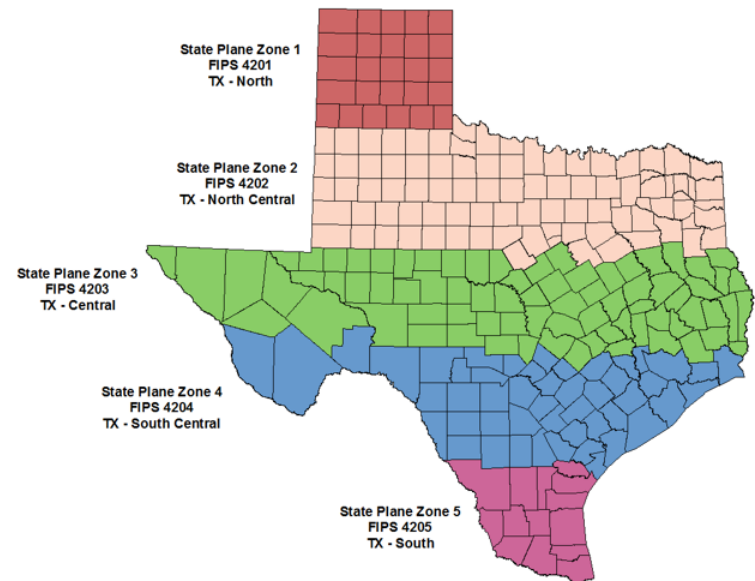


- **Datum** – A set of numbers which describe the shape, size, and position of an ellipsoid that approximates the surface of the Earth
- The datum can be Local or Global.
  - Local – Best matches the area of interest.
    - Ex. – NAD 27 and NAD 83.
  - Global – Can be used for any location.
    - Ex. – WGS 84

# Coordinates: What We Accept



- Geographic Coordinate Systems
  - NAD 27, NAD 83, WGS 84
    - Degrees Minutes Seconds
    - Decimal Degrees
- State Plane Coordinate Systems
  - NAD 27 and NAD 83
  - 5 Zones in Texas



# Accessing the Public GIS Viewer

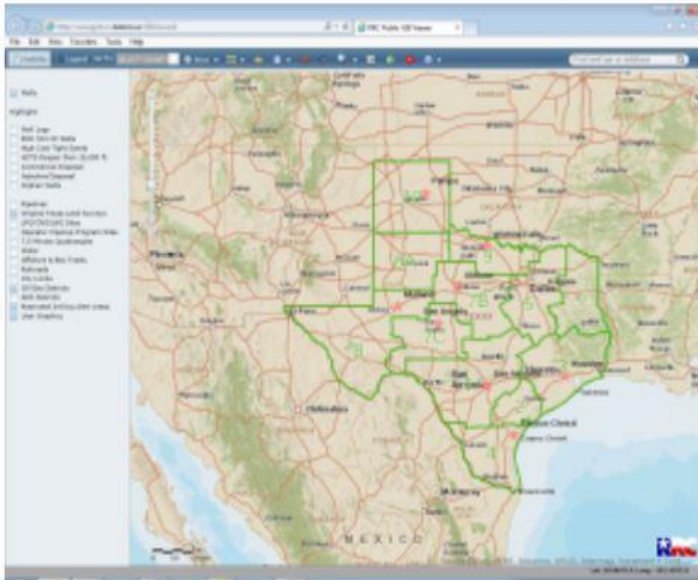


Home / Resource Center / Research

## Public GIS Viewer (Map)

The Public GIS Viewer allows users to view oil, gas and pipeline data in a map view.

Public GIS Viewer



LAUNCH PUBLIC GIS VIEWER



### User Guide

[GIS User Guide \(PDF\)](#)

### Training Videos

The following training videos provide step-by-step instruction for new features of the Public GIS Viewer. The videos will open in a separate window, allowing you to toggle between the video and viewer.

**Note: These videos do not contain audio.**

[API# or Address Search](#)

[Survey Search](#)

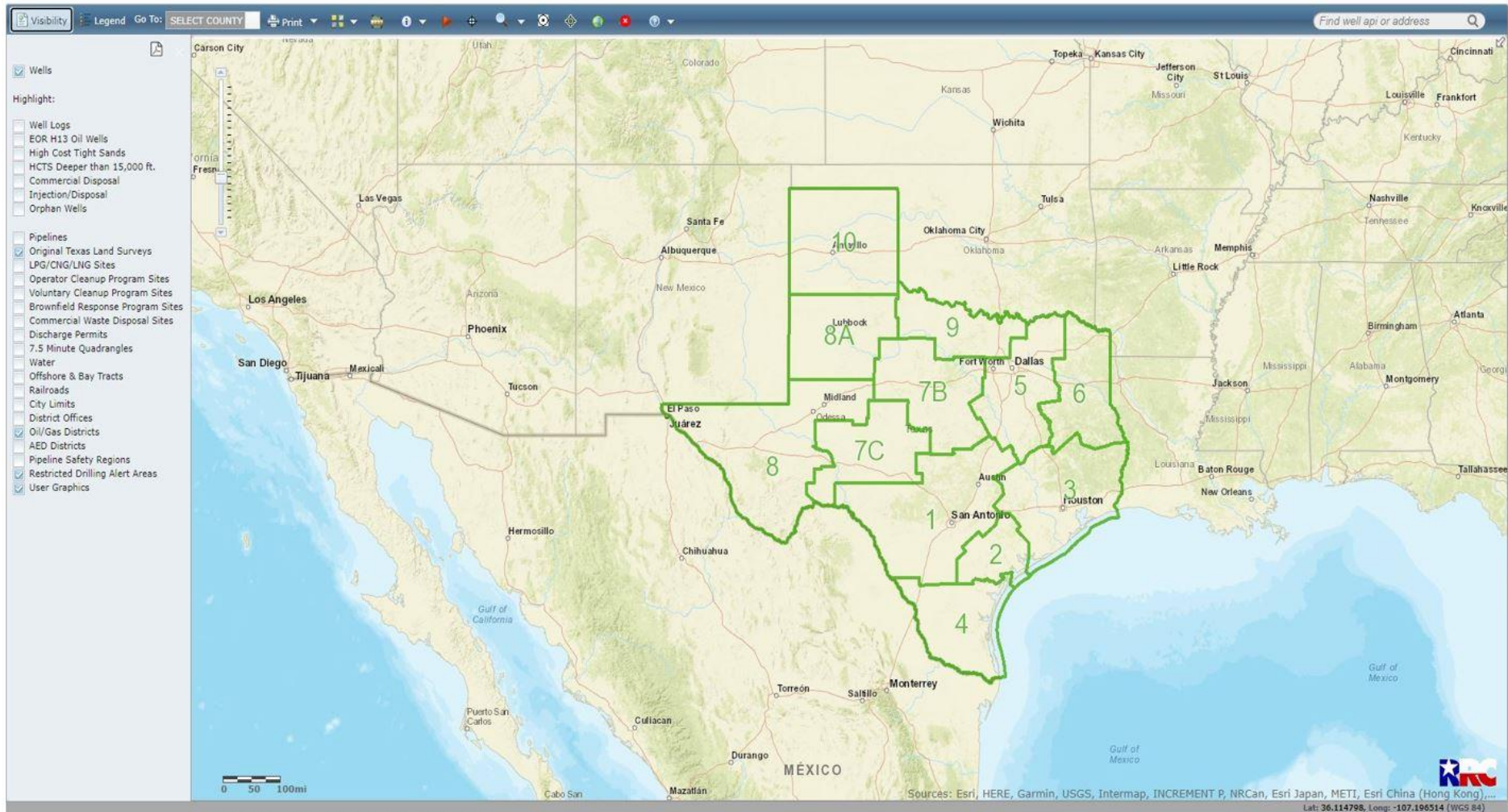
[Locating Pipelines](#)

[Viewing Coordinates](#)

# GIS Viewer Load Screen



<https://gis.rrc.texas.gov/GISViewer/>





- Live Demo
  - GIS viewer load screen components
    - Visibility
    - Legend
    - Toolbar – overview
    - Basemaps
    - Help

# Search and Navigation



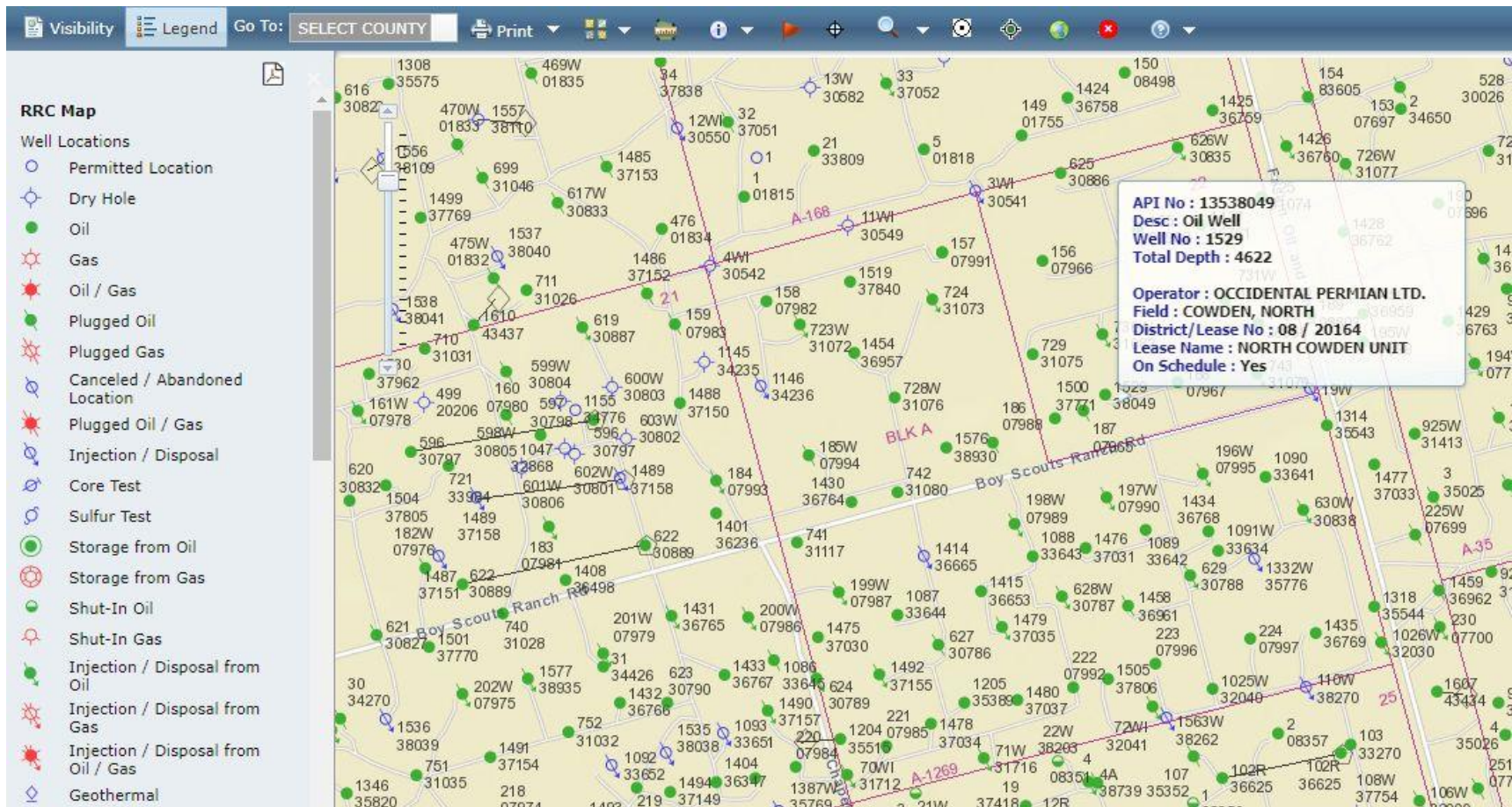
- API Number
  - Must include 8 digits, FIPS & Unique Identifier
- RRC Lease ID
  - 5 digit oil ID or 6 digit gas ID
  - Single gas well displays or all wells under oil lease ID displayed
- Survey Information
  - Not all attributes need to be entered
  - Spelling, punctuation and spaces are important and will affect results.



# Hover



- Move the cursor over any well
  - Dialogue box appears with well information



# Identify



- Click on the feature using the Identify tool
  - Additional information appears in the dialogue box window

The screenshot shows a GIS application interface. The top toolbar includes 'Visibility', 'Legend', 'Go To: SELECT COUNTY', 'Print', and an 'Identify' tool icon (a lowercase 'i' in a circle) which is highlighted with a red circle. The main map area displays a grid of well locations, each represented by a colored symbol and a numerical ID. A dialog box titled 'GIS Identify Results - Well Location Attributes' is open over the map, showing the following information:

Number of identify results: 1

Result #1		
API	13537840	
GIS WELL NUMBER	1519	
GIS SYMBOL DESCRIPTION	Oil Well	
GIS LOCATION SOURCE	Coordinates - Operator reported	
GIS LAT (NAD27)	32.050043	
GIS LONG (NAD27)	-102.504747	
GIS LAT (NAD83)	32.050159	
GIS LONG (NAD83)	-102.505174	
<a href="#">Well Logs</a>	<a href="#">Drilling Permits</a>	<a href="#">Disposal Permits</a>

Below the table, the following text is visible:

OPERATOR/WELLBORE  
WELLBORE STATUS OPEN  
LAST PERMIT ISSUED 496118  
LAST PERMIT OPERATOR NUMBER 617544  
LAST PERMIT OPERATOR OCCIDENTAL PERMIAN LTD.  
LAST PERMIT LEASE NAME

# Identify Results




- API
  - Geographic information
  - Links to Well Logs and Permits
- Operator/Wellbore
  - Information from most recent approved drilling permit
- Completion Record
  - Current *and* historical records
  - Links to production and hardcopy records

GIS Identify Results - Well Location Attributes	
Number of identify results: 1	
Result #1	
API	44133780
GIS WELL NUMBER	1
GIS SYMBOL DESCRIPTION	Oil Well
GIS LOCATION SOURCE	Operator reported location - Distances and Plat
GIS LAT (NAD27)	32.511745
GIS LONG (NAD27)	-100.041566
GIS LAT (NAD83)	32.511865
GIS LONG (NAD83)	-100.041941
<a href="#">Well Logs</a>	<a href="#">Drilling Permits</a>
	<a href="#">Disposal Permits</a>
OPERATOR/WELLBORE	
WELLBORE STATUS	OPEN
LAST PERMIT ISSUED	744958
LAST PERMIT OPERATOR NUMBER	884527
LAST PERMIT OPERATOR	VENTEX OPERATING CORP.
LAST PERMIT LEASE NAME	IRVIN UNIT
TOTAL DEPTH	4750
SURFACE LOCATION	Land
ABSTRACT	366
SURVEY	T & P RR. CO.
BLOCK	18
SECTION	23
DISTANCE 1	851
DIRECTION 1	1217
DISTANCE 2	
DIRECTION 2	7B
COMPLETION RECORD	
PRORATION SCHEDULE	OIL
DISTRICT	7B
LEASE/ID	28082
OPERATOR NUMBER	884527
OPERATOR	VENTEX OPERATING CORP.
LEASE NAME	IRVIN UNIT
FIELD	CASADY (STRAWN)
WELL NUMBER	1
TYPE WELL	HISTO RY
ON SCHEDULE	NO
<a href="#">Production Data Query(PDQ)</a>	<a href="#">Oil/Gas Imaged Records for Lease/ID: 28082</a>

# Download Wells Within a Defined Radius



- Select the icon 
- Enter the radius (up to 2.5 miles) by typing in the number

A screenshot of a web application interface for downloading wells within a defined radius. The interface includes a map of Texas with various regions highlighted in green and numbered 1 through 10. A pop-up window titled "Download Wells Within a Defined Radius" is displayed over the map, showing the number of well bottoms and surfaces in the radius area (both currently 0) and a text input field for the radius distance (set to 0.25 miles). The interface also features a search bar, a legend, and a scale bar. The NRC logo is visible in the bottom right corner.

Download wells within a defined radius

Download Wells Within a Defined Radius

Number of Well Bottoms in Radius Area (Max 1000): 0

Number of Well Surfaces in Radius Area (Max 1000): 0

Enter Radius Distance (Max 2.5 miles):

Zoom to desired area and single click on map to draw a radius area with given distance. Wait until the wells are highlighted in blue.

0 50 100mi

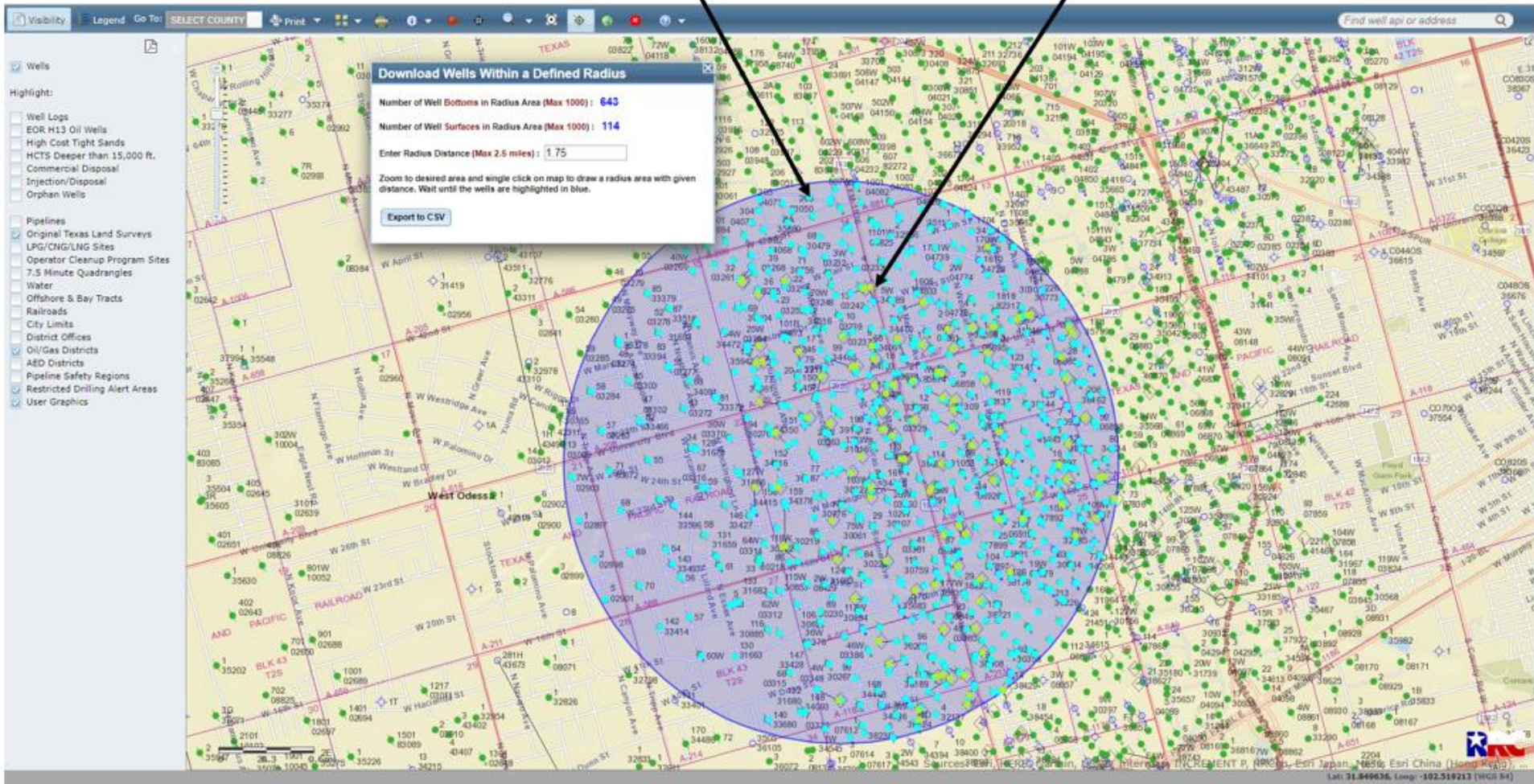
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong)  
Lat: 30.55266, Long: -107.46018 (WGS 84)



# Download Wells Results

Cyan: Well Bottom Location

Green: Well Surface Location



# More Than 1000 wells inside the Radius...



- The 'Too Many Results' dialogue box appears
  - The first 1000 wells are exported

The screenshot displays the RRC Public GIS Viewer interface. A large blue circular radius is drawn on a map of Odessa, Texas, containing a dense cluster of green well markers. A dialog box titled "Download Wells Within a Defined Radius" is open, showing options for "Number of Well Bottoms in Radius Area (Max 1000)" and "Number of Well Surfaces in Radius Area (Max 1000)", both set to 1000. The "Enter Radius Distance (Max 2.5 miles)" field is set to 2.5. A message box above the dialog states: "www.gisp.rrc.texas.gov says: There are too many results to display on the map; not all of the selected wells will be highlighted." A "Page Unresponsive" error message is also visible, stating "You can wait for it to become responsive or exit the page." and "RRC Public GIS Viewer". A large black arrow points from the dialog box to the error message. The RRC logo is in the bottom right corner.

*If this dialogue box appears, continue to wait, you will eventually receive the .csv download file*

# Exported Well Results



- Export results are .csv file
  - Lat and Long are automatically generated by the GIS when well is created
  - Well location source document determines reliability
- Use lat and long to convert to geospatial data

The screenshot shows the Microsoft Excel interface with the following data in the spreadsheet:

API	Well_Number	Symbol_Desc	Symbol	Reliab	Location_Source	Lat27	Long27	Lat83	Long83	Wellbore_Status	Last_Permit_Issued
00342277	9	Oil Well	4	40	Operator reported location - Distances and Plat	32.08853566	-102.27372872	32.08865371	-102.27415121	OPEN	705543
00346959	3502	Oil Well	4	55	Coordinates - Operator reported	32.09076111	-102.26542778	32.09090586	-102.26586841	OPEN	801167
00346960	3503	Oil Well	4	55	Coordinates - Operator reported	32.08883607	-102.26849449	32.08895418	-102.26891688	OPEN	801174
00346961	3505	Oil Well	4	55	Coordinates - Operator reported	32.08966389	-102.25695556	32.0898087	-102.25739594	OPEN	813705
00346961	3505	Oil Well	4	55	Coordinates - Operator reported	32.08966389	-102.25695556	32.0898087	-102.25739594	OPEN	813705
00346963	3506	Oil Well	4	55	Coordinates - Operator reported	32.08788885	-102.26451393	32.08800698	-102.26493616	OPEN	813712
00346963	3506	Oil Well	4	55	Coordinates - Operator reported	32.08788885	-102.26451393	32.08800698	-102.26493616	OPEN	813712
00346964	3508	Oil Well	4	55	Coordinates - Operator reported	32.08710833	-102.25982778	32.0872532	-102.26026823	OPEN	801189
00346966	3504	Oil Well	4	55	Coordinates - Operator reported	32.09061111	-102.26093056	32.09075588	-102.26137106	OPEN	801203
00347002	2H	Permitted Location	2	55	Coordinates - Operator reported	32.07336708	-102.28298241	32.07348554	-102.28340475	LOCATION	802006
00347003	3H	Permitted Location	2	55	Coordinates - Operator reported	32.07390067	-102.28069413	32.07401916	-102.2811164	LOCATION	802009
00347004	4H	Permitted Location	2	55	Coordinates - Operator reported	32.07443455	-102.27840584	32.07455297	-102.27882806	LOCATION	802010
00347005	5H	Permitted Location	2	55	Coordinates - Operator reported	32.07496815	-102.27611755	32.07508658	-102.27653971	LOCATION	802013

# Live Demo (2 of 2)



- Live Demo (Send in Questions Through Chat)
  - Search and navigation
  - Well highlights
  - Identify a well
  - Well log
  - Historic well records (Neudocs)
  - Download wells



# Digital Map Data (1 of 3)



- Data is free to download
  - Click on Resources, Resource Center and Data Sets

A screenshot of the Railroad Commission of Texas website. The top navigation bar includes links for ABOUT US, RESOURCES, FORMS, EVENTS, COMPLAINTS, ACCIDENTS, and CONTACT US. A red arrow points to the RESOURCES dropdown menu, which contains links for Resource Center, Subscription Services, Rules, and What's New. Below the navigation is a large banner for "Texas Completions Statistics" with a sub-link "View Stats for May 2021". A red arrow points from the banner to a white box on the right side of the page titled "Data Sets". This box contains a database icon and the text: "Data Sets" and "Access and download information electronically generated or stored by the Railroad Commission of Texas". Below the banner are five circular icons representing different sectors: OIL &amp; GAS, PIPELINE SAFETY, ALTERNATIVE FUELS, SURFACE MINING, and GAS SERVICES. At the bottom, there are sections for "RECENT ANNOUNCEMENT" (Attendance Policy for Alternative Fuel Safety Events) and "COVID-19 RESOURCES AND RESPONSE".

# Digital Map Data (2 of 3)



- Choose your layer
  - Click on ArcView Shape File (Updated Nightly)
- Download zipped file by county
  - Counties are listed numerically by FIPS code.
- Open in GIS Software

## Digital Map Data

Data Set Description	Download	Manual	Updated	
Pipeline Layers By County	ArcView Shape File	PDF FIPS Code	Nightly	Details
Survey Layers By County	ArcView Shape File	PDF FIPS Code	Nightly	Details
Well Layers By County	ArcView Shape File	PDF FIPS Code	Nightly	Details
Base Layers By County	ArcView Shape File	PDF FIPS Code	Nightly	Details
All Layers By County	ArcView Shape File	PDF FIPS Code	Nightly	Details
Statewide API Data	ASCII Format	PDF	Nightly	Details
Statewide API Data	dBase Format	PDF	Nightly	Details

The screenshot shows a file manager interface with a dark header containing a logo with a star and the letters "RC". Below the header, there are buttons for "Refresh" and "Media Viewer". The main area displays a list of files in a table format:

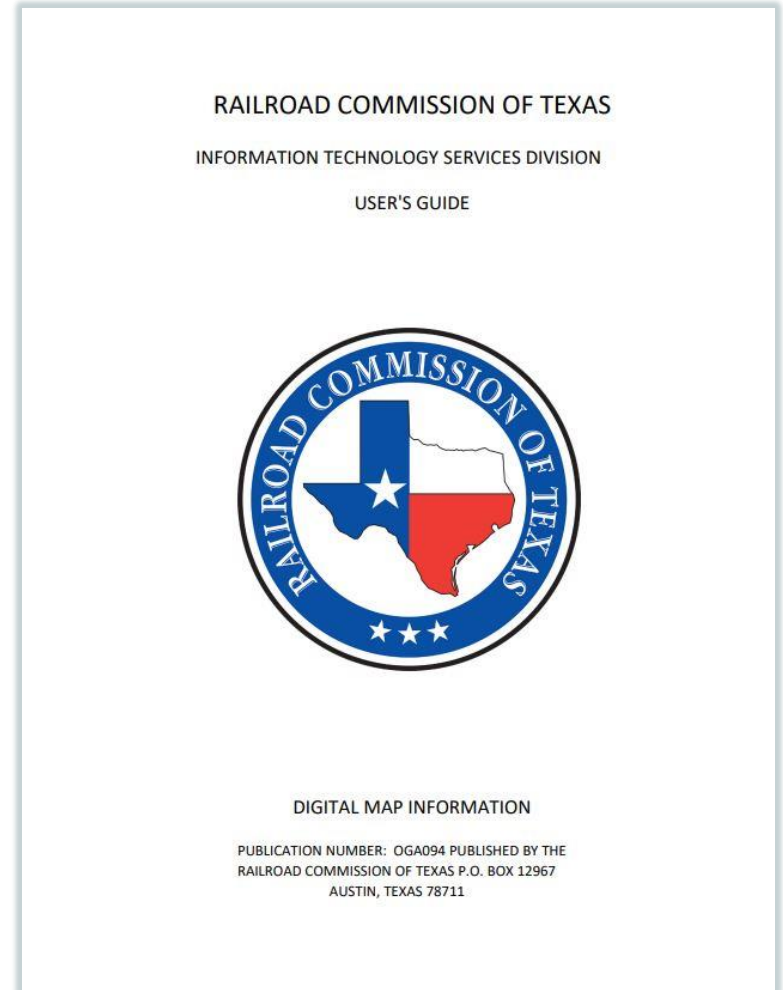
/ (Home)			
<input type="checkbox"/>	Name	Last Modified	Size
<input type="checkbox"/>	well001.zip	6/22/21 4:07:34 PM	591.09 KB
<input type="checkbox"/>	well003.zip	6/22/21 4:07:35 PM	3.21 MB
<input type="checkbox"/>	well005.zip	6/22/21 4:07:35 PM	84.85 KB
<input type="checkbox"/>	well007.zip	6/22/21 4:07:35 PM	199.01 KB
<input type="checkbox"/>	well009.zip	6/22/21 4:07:36 PM	4.07 MB

# Digital Map Data (3 of 3)



## Digital Map Information User Guide

- PDF Manual
- Projection Information
- Naming Conventions
- Attribute Descriptions
- FIPS Codes
- Reliability Codes



# Request to Change Information



- Contact us with any questions
  - 512-463-6851
  - [rrc.mapping@rrc.texas.gov](mailto:rrc.mapping@rrc.texas.gov)
- Provide as much information as possible
  - Ex. – Well records, Plats, Maps, etc.
- You will be notified of the results of the research request.



Questions?

# Points of Contact



RRC Mapping  
512-463-6851  
[RRC.Mapping@rrc.texas.gov](mailto:RRC.Mapping@rrc.texas.gov)

Matt Brown  
512-463-6844  
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Larry Elliott  
512-463-6852  
[Larry.Elliott@rrc.texas.gov](mailto:Larry.Elliott@rrc.texas.gov)

# Commissioner Contact Information



**Christi Craddick, Chairman**

**Wayne Christian, Commissioner**

**Jim Wright, Commissioner**

1701 N. Congress Ave.

P.O. Box 12967

Austin, TX

78711-2967



## Evaluation

- Please complete the evaluation available on the RRC website at <https://survey.alchemer.com/s3/6403402/2021-RRC-Regulatory-Webinars-Oil-Gas-and-Pipeline-Safety-Evaluation>

## Archive Video

- A link to the archive video of the webcast will be available on the same webpage as the presentation.