

Railroad Commission of Texas

Spills – Reporting and Cleanup

Peter G. Pope
Site Remediation Section

RRC Cleanup Programs

Topics Covered

- Regulatory Authority
- Cleanup Rules
- Site Remediation Section
 - State Managed Cleanup Program
 - Operator Cleanup Program
 - Voluntary Cleanup Program
 - Brownfields Response Program

Railroad Commission of Texas



History

- 1891 – Railroad Commission of Texas Created
- 1917 – Regulation of Pipelines; Conservation laws relating to oil and natural gas production

RRC Jurisdiction

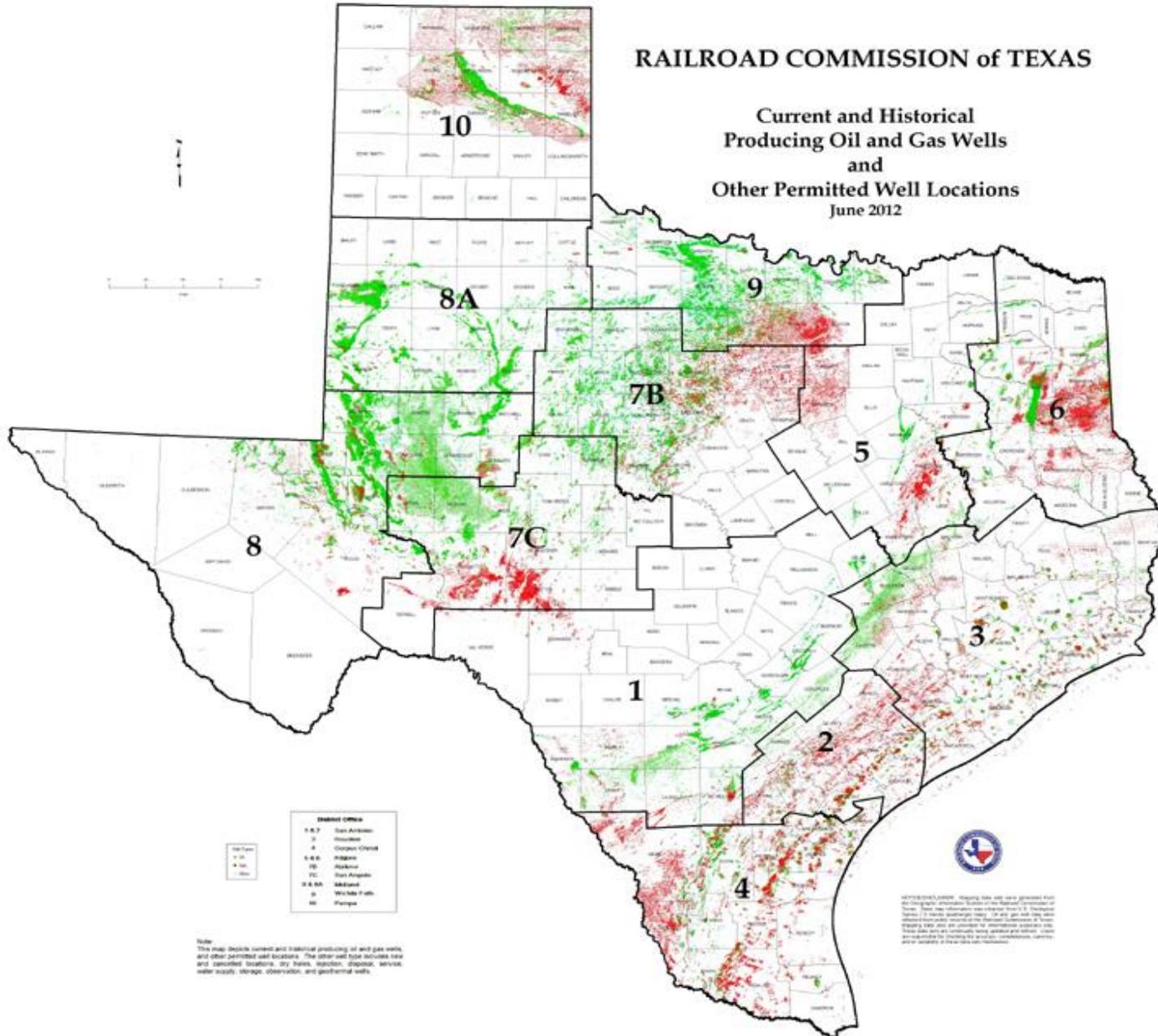


Regulation of:

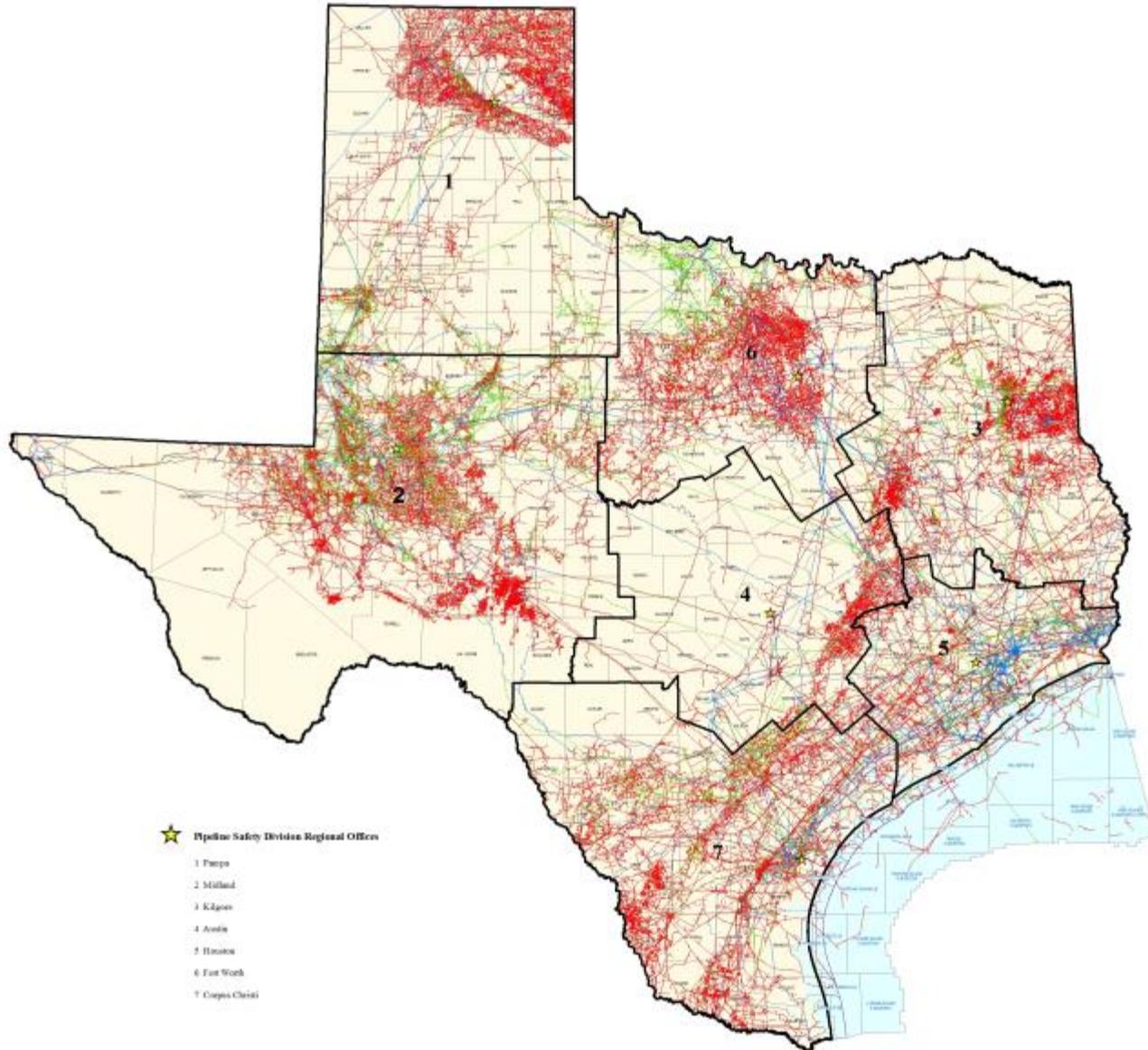
- Oil and natural gas primary production
- Pipelines
- Natural gas processing and natural gas utilities
- Salt dome cavern storage
- Bulk storage of crude oil
- RRC commercial disposal facilities
- Liquid propane gas (LPG), compressed natural gas (CNG), and liquid natural gas (LNG)

RAILROAD COMMISSION of TEXAS

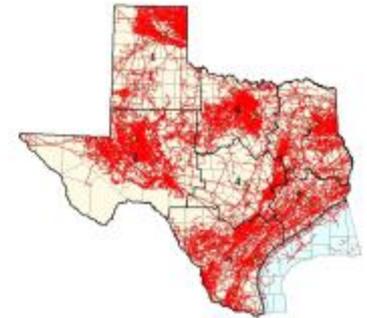
Current and Historical
Producing Oil and Gas Wells
and
Other Permitted Well Locations
June 2012



Texas Pipelines May 2014



- ★ Pipeline Safety Division Regional Offices
- 1 Pampa
 - 2 Midland
 - 3 El Paso
 - 4 Austin
 - 5 Houston
 - 6 Fort Worth
 - 7 Corpus Christi



Natural Gas Pipelines



Crude Oil Pipelines



RRC Cleanup Authority

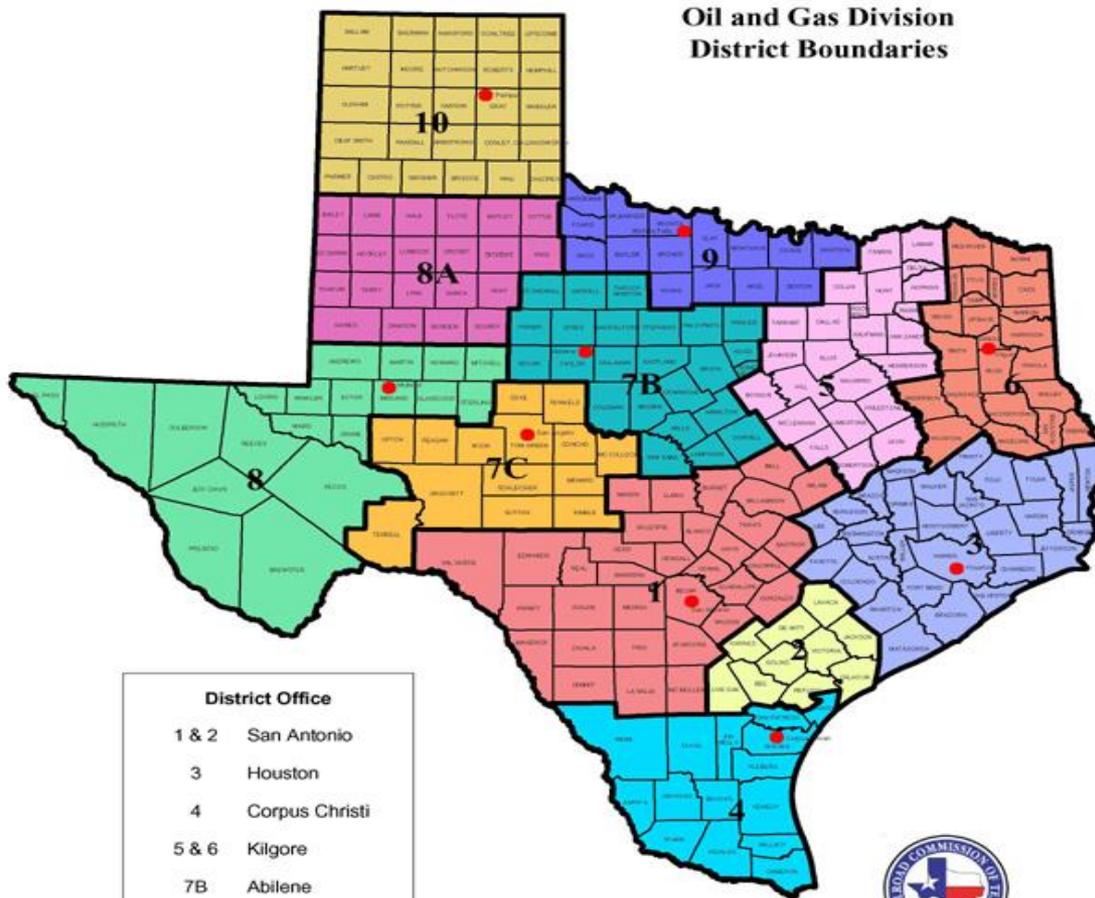


Broad Statutory Authority Regarding the Control of
Pollution Resulting from Oil and Gas Waste

Natural Resources Code 91.101, adopted in
1977

Texas Water Code Section 26.131, adopted in
1977

Oil and Gas Division Districts



**Nine District
Offices for 12
Geographical
Districts**

District Office	
1 & 2	San Antonio
3	Houston
4	Corpus Christi
5 & 6	Kilgore
7B	Abilene
7C	San Angelo
8 & 8A	Midland
9	Wichita Falls
10	Pampa



RAILROAD COMMISSION of TEXAS
Oil and Gas Division

RRC Cleanup Rules



- §3.8 – Water Protection Rule
- §3.20 – Notification Requirements
- §3.91 – Cleanup of Soil Contaminated by a Crude Oil Spill
- §3.98 – Standards for Management of Hazardous Oil & Gas Waste
- §4 D – Voluntary Cleanup Program
- §4 F – Disposal of NORM Waste
- *Note: Does not include well plugging and other safety rules.

<http://www.rrc.state.tx.us/rules/rule.php>

RRC Cleanup Rules



Statewide Rule 8 - Water Protection

SWR 8(b): *“No pollution. No person conducting activities subject to regulation by the commission may cause or allow pollution of surface or subsurface water in the state.”*



RRC Cleanup Rules



Statewide Rule 20 - Release Notification Rule

Operators shall give immediate notice of a fire, leak, spill, or break to the appropriate commission district office.

Notice shall be followed by a letter with full description of the event, volume of crude oil, gas, geothermal resources, other well liquids, or associated products lost.

RRC Cleanup Rules



Statewide Rule 30 – Waste Jurisdiction

Memorandum of Understanding between RRC and Texas Commission on Environmental Quality (TCEQ)

“Railroad Commission of Texas solely responsible for the control and disposition of waste and the abatement and prevention of pollution of surface and subsurface water in the state from activities associated with the exploration, development, and production of oil and gas.”

RRC Cleanup Rules



Statewide Rule 98 – Hazardous Waste

SWR 98 establishes standards for management of hazardous oil and gas waste. This includes any oil and gas waste that is:

- (1) Non-exempt, and
- (2) Identified as hazardous, per SWR 98(e)

Must Characterize Non-Exempt Waste

Rule 98 is intended to prevent pollution of surface and subsurface waters of the state and to prevent injury to life or property that may be caused by mismanagement of hazardous oil and gas waste.

RRC Cleanup Rules



Exempt waste:

wastes uniquely associated with primary field operations, such as exploration, development, and production of oil and gas.

Non-Exempt waste:

wastes that are not uniquely associated with oil and gas activities and all wastes that are not associated with primary field operations.

RRC Cleanup Rules



Exempt waste: Produced water; Drilling fluids; Rigwash; Well completion, treatment, stimulation fluids; Workover wastes, Produced sand, Hydrocarbon-bearing soil, Pigging wastes from gathering lines.

Non-Exempt waste: Unused fracturing fluids or acids; Gas plant cooling tower cleaning wastes, Waste solvents; Oil and gas service company wastes (e.g., empty drums, rinsate, spent solvents); Wastes in transportation pipeline related pits.

For more information – Crude Oil and Natural Gas Exploration and Production Wastes, Exemption from RCRA Subtitle C Regulation, EPA 530-K-95-003

RRC Cleanup Rules



Statewide Rule 91 – Crude Oil Spills in non-sensitive areas

Crude oil in non-sensitive areas to be cleaned up to 1% total petroleum hydrocarbons (TPH)

Does not apply to condensate, crude oil spilled in sensitive areas or crude oil spills that occurred prior to November 1, 1993.

RRC Cleanup Rules



Statewide Rule 91 – Summary

- *Removal of free oil*
- *Horizontal & vertical delineation*
- *Excavate and dispose or if handling onsite:*
- *Prevent stormwater contamination*
- *Cleanup to less than 1% TPH as soon as technically feasible but no later than one year.*

Cleanup of spills in sensitive areas are evaluated on a case-by-case basis.

RRC Cleanup Rules



Sensitive – defined in Rule 91:

*Proximity to surface water, wildlife refuges, commercial or residential areas. The definition applies to sites where there is shallow groundwater or possible pathways for communication with deeper groundwater or discharges to surface waters.

*Proximity is not defined.

Cleanup Guidance



For condensate and crude spills in sensitive areas

Compound	Residential Limits (mg/kg)
TPH	10,000
Benzene	0.026
Toluene	8.2
Ethylbenzene	7.6
Xylenes	120

- <http://www.rrc.state.tx.us/environmental/spills/spillcleanup.php>

RRC Cleanup Rules



Statewide Rule 4 Subchapter F

Naturally Occurring Radioactive Materials (NORM)

- Regulates disposal of NORM associated with oil and gas E&P activities
- Requires identification of NORM contaminated equipment

RRC Cleanup Programs



Site Remediation Section

- State Managed Cleanup Program (SMCU)
- Operator Cleanup Program (OCP)
- Voluntary Cleanup Program (VCP)
- Brownfields Response Program (BRP)

State Managed Cleanup Program



***State Funds for cleanup:**

- When responsible operator fails or refuses to take action, or
- Responsible operator is unknown or cannot be found.

*Oil and Gas Regulation and Cleanup Fund (OGRC)



But today's focus is:

- Operator (responsible party) Cleanups
- Voluntary (non-responsible party) Cleanups, and:
- Brownfield Response Program (also non-responsible party)

Operator Cleanup Program



- Oversight of Operator-led cleanups to ensure compliance with RRC rules.
- District Office - Oversight of non-sensitive area cleanups.
- Site Remediation Section in Austin - Oversight of sensitive area/complex site cleanups.
- Complexity involves special assessment needs, risk-based cleanup, case-by-case

Operator Cleanup Program



Case-by-Case generally means:

- Risk-based site assessment
- Risk-based cleanup
- TRRP process is acceptable*

* Texas Commission on Environmental Quality – Texas Risk Reduction Program (TRRP) rule

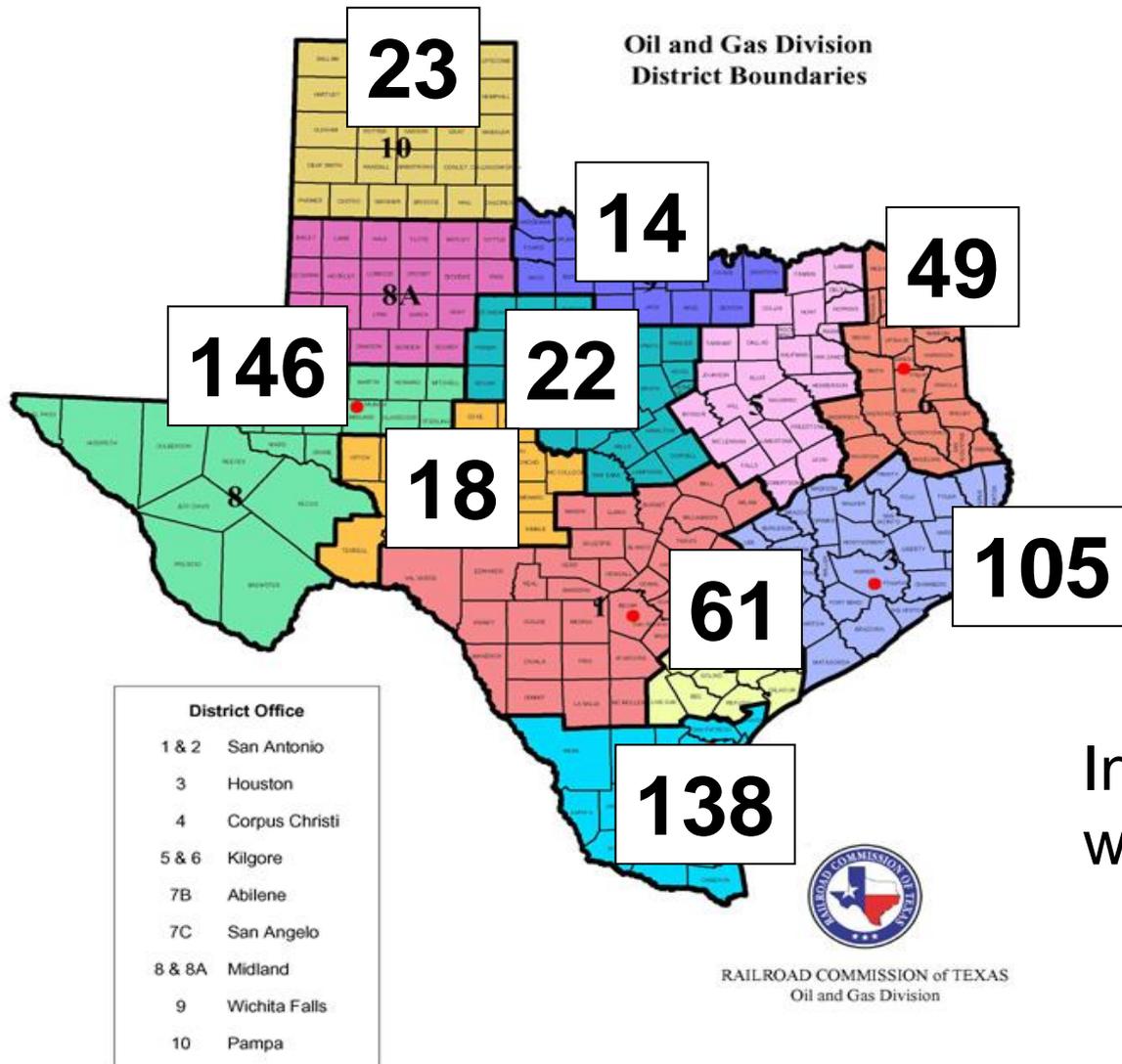
Operator Cleanup Program



District Assignments for Technical Coordinators

Technical Coordinator	Districts	Phone Number
Aimee Beveridge -Team Leader	Statewide	(512) 463-7995
Robert Musick	1,2, & 4	(512) 463-5983
Chris Moore	4, 5 & 6	(512) 463-3384
Monty Newton	7B, 7C, 9, 10	(512) 936-1783
TBD	8, 8A	(512) 463-6812
Amanda Kindt, Toxicologist	3, Statewide	(512) 475-0730

Active Operator Cleanups by District



**576 Operator
Cleanup Program
Projects
As of 7 April 2015**

In FY14 27 OCP Sites
were closed

Public GIS Viewer



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](#)

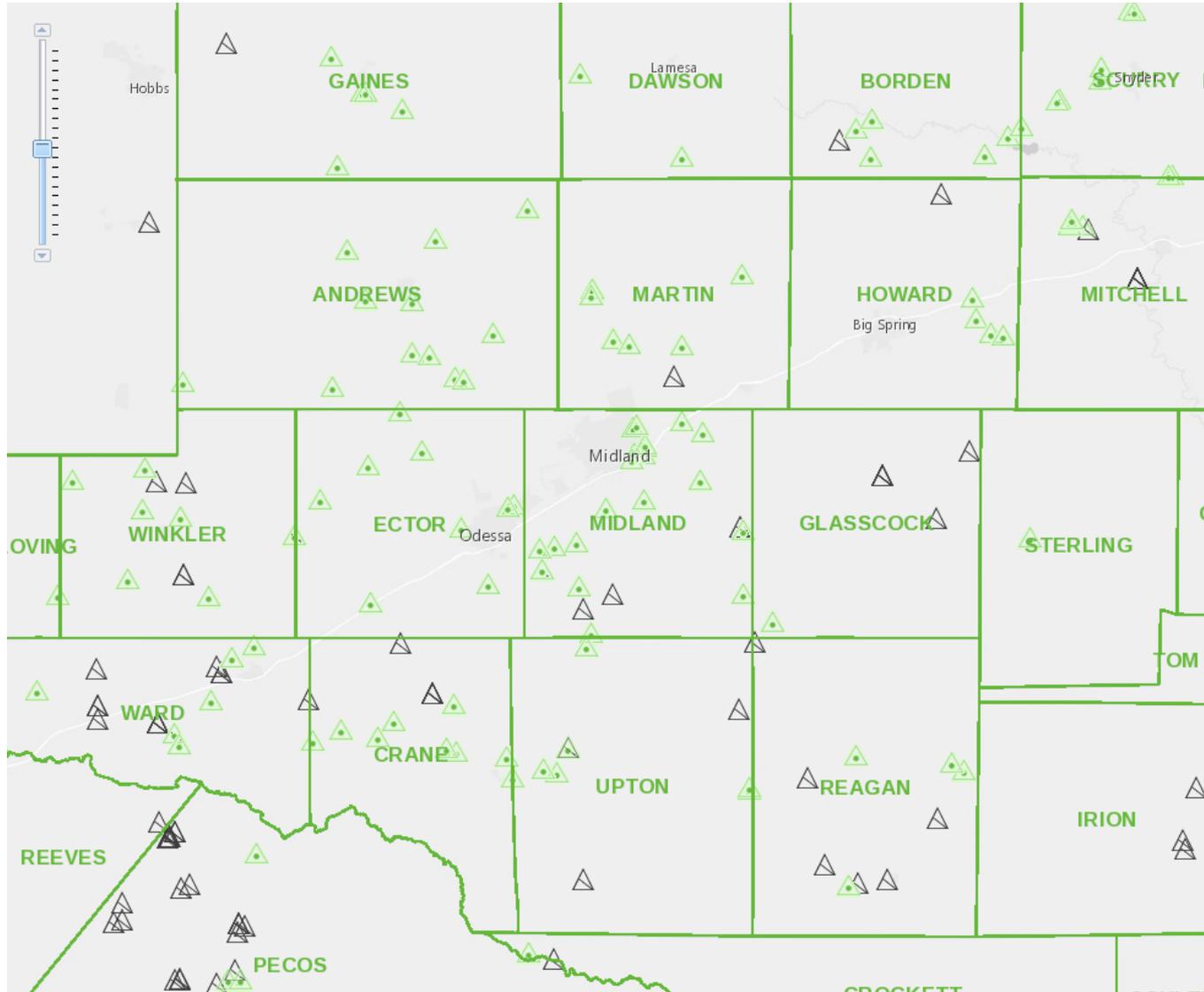
Launch Public GIS Viewer

The Public GIS Viewer contains the combined functionality of the Legacy GIS Viewer and the newer appearance of the Enhanced GIS Viewer. In addition, the viewer has been improved with the addition of the following features and is updated nightly.

<http://www.rrc.state.tx.us/about-us/resource-center/research/gis-viewers/>



Active Operator Cleanup Program Sites Permian Basin



Operator Cleanup Program



OCP Project Development

Release and/or cleanup activity reported to Site Remediation Section's OCP

- District Office Handoff
- Voluntary Reporting and Cleanup
- Landowner/Water Well Owner Complaint
- Property/Asset Transfers (good RRC-VCP candidate)
- Land Developer Cleanup (good RRC-VCP candidate)
- Enforcement Action by the Commission
- A Special Order as a Result of a RRC Hearing

Operator Cleanup Program



Evolution of OCP project (*Cont.*)

- Project assigned OCP number and Technical Coordinator
- Initial correspondence establishing points of contact, expectations.
- Exchange of workplans, correspondence, meetings as necessary

Operator Cleanup Program



Evolution of OCP project (*Cont.*)

- Environmental Investigation, Reporting
- Remediation Plan/Closure Plan, Reporting
- Final Remediation Report

OCP Project Endpoint

No Further Action (NFA) Letter

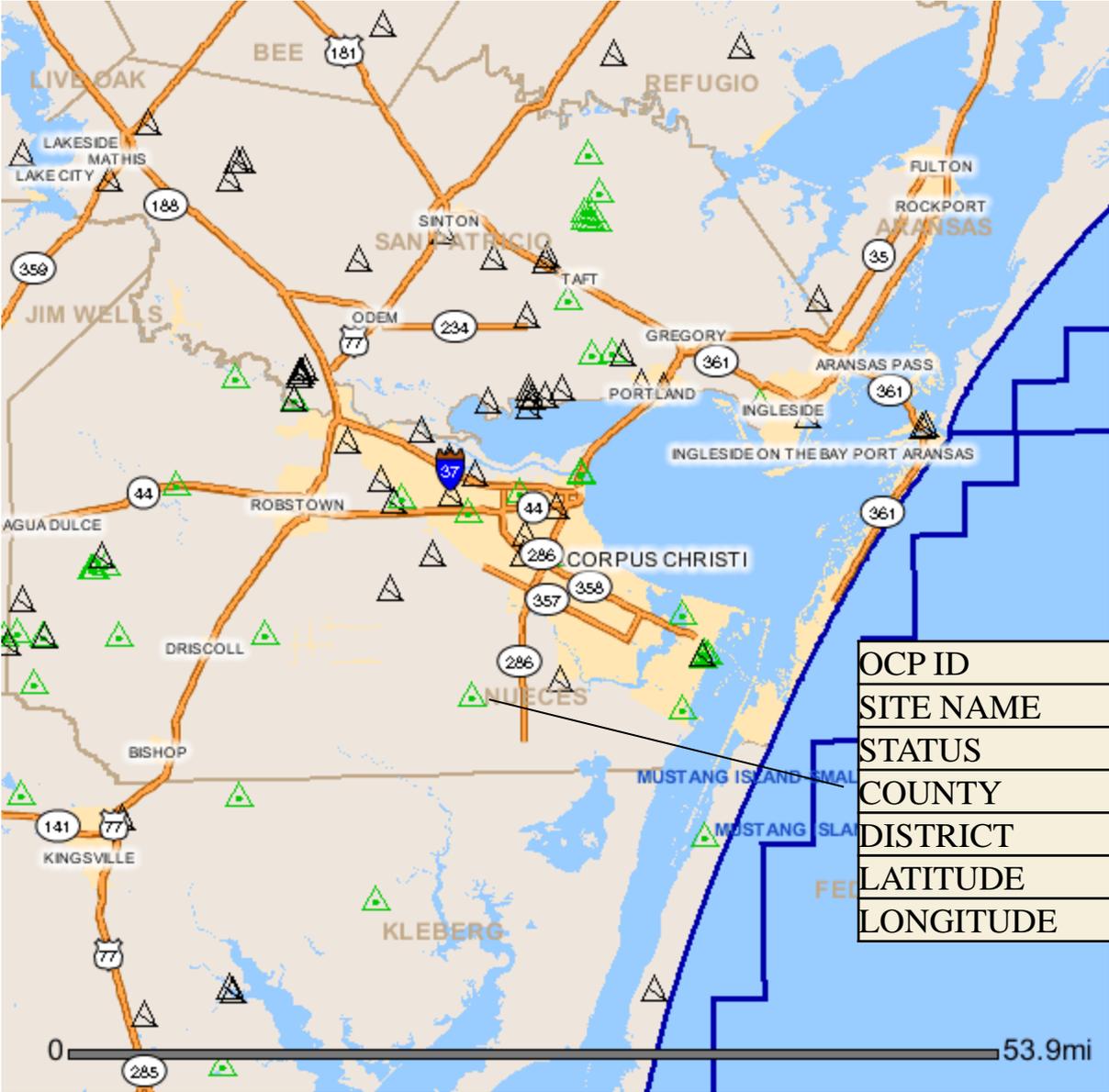
Operator Cleanup Program



Public GIS Map Viewer for Oil, Gas and Pipeline Data

- Map View of Operator Cleanup Program sites
- Select “Identify Operator Cleanup Site” under Map Tools, and click on a green (active) or black triangle (closed).
- Pop-up box with Site identification.
- <http://www.rrc.state.tx.us/data/online/gis/index.php#>

Public GIS Map Viewer



OCP ID	1774
SITE NAME	Chapman Ranch
STATUS	Active
COUNTY	Nueces
DISTRICT	04
LATITUDE	27.6275
LONGITUDE	-97.50194

Operator Cleanup Program



Examples of COCs

- Crude Oil (BTEX, PAHs, TPH)
- Condensate (BTEX, PAHs, TPH)
- Drilling Mud (water-based) (TPH, Metals, pH, Chloride, Sodium, Electrical Conductivity)
- Produced Water/Brine (BTEX, Chloride, Metals)
- Tank Bottoms (BTEX, PAHs, Metals, pH, TPH)
- Mercury Meters (Mercury, pH)

BTEX = Benzene, toluene, ethylbenzene, and xylenes

PAHs = Polycyclic aromatic hydrocarbons

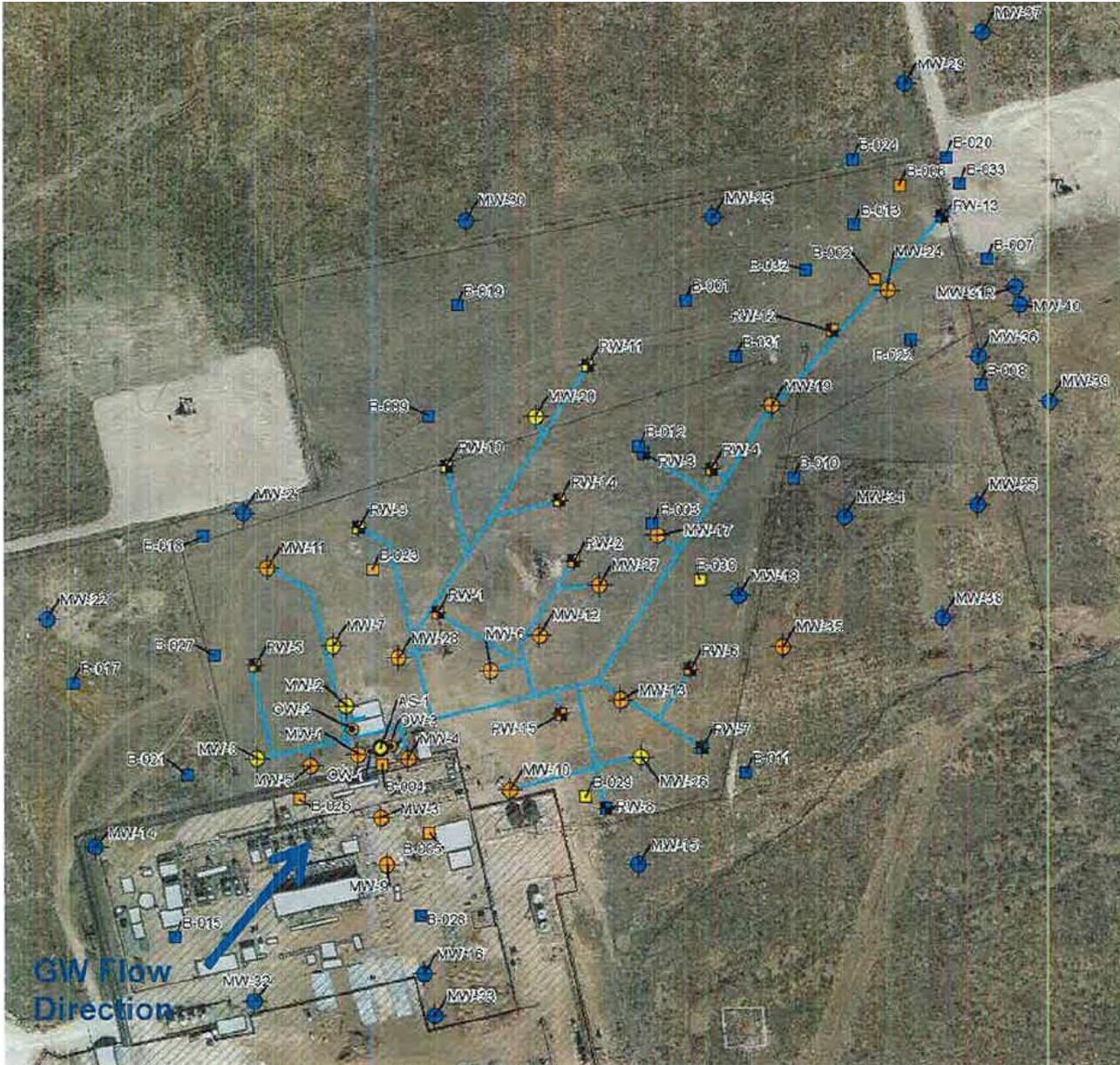
Operator Cleanup Program



CASE STUDY 1 Former Gas Plant

- Former gas plant now used as booster station
- Sole source aquifer impacted.
- 13-acre condensate and LNAPL* plume.
- Operator wants to close site with restrictive covenant.
- Site characterization modeling was performed.

LNAPL- Light non-aqueous phase hydrocarbon



- LNAPL delineated horizontally and vertically, extends away from facility to the northeast
- Mobility analyses indicate LNAPL not migrating beyond existing footprint

LEGEND:

- ⊕ MONITORING WELL
- ⊙ OBSERVATION WELL
- ⊕ REMEDIATION WELL
- AIR SPARGE WELL
- SOIL BORING LOCATION

MONITORING WELL

- LIGHT NONAQUEOUS PHASE LIQUID (LNAPL) NOT MEASURED IN MONITORING WELL
- LNAPL HISTORICALLY MEASURED IN MONITORING WELL
- LNAPL MEASURED IN MONITORING WELL IN 2013

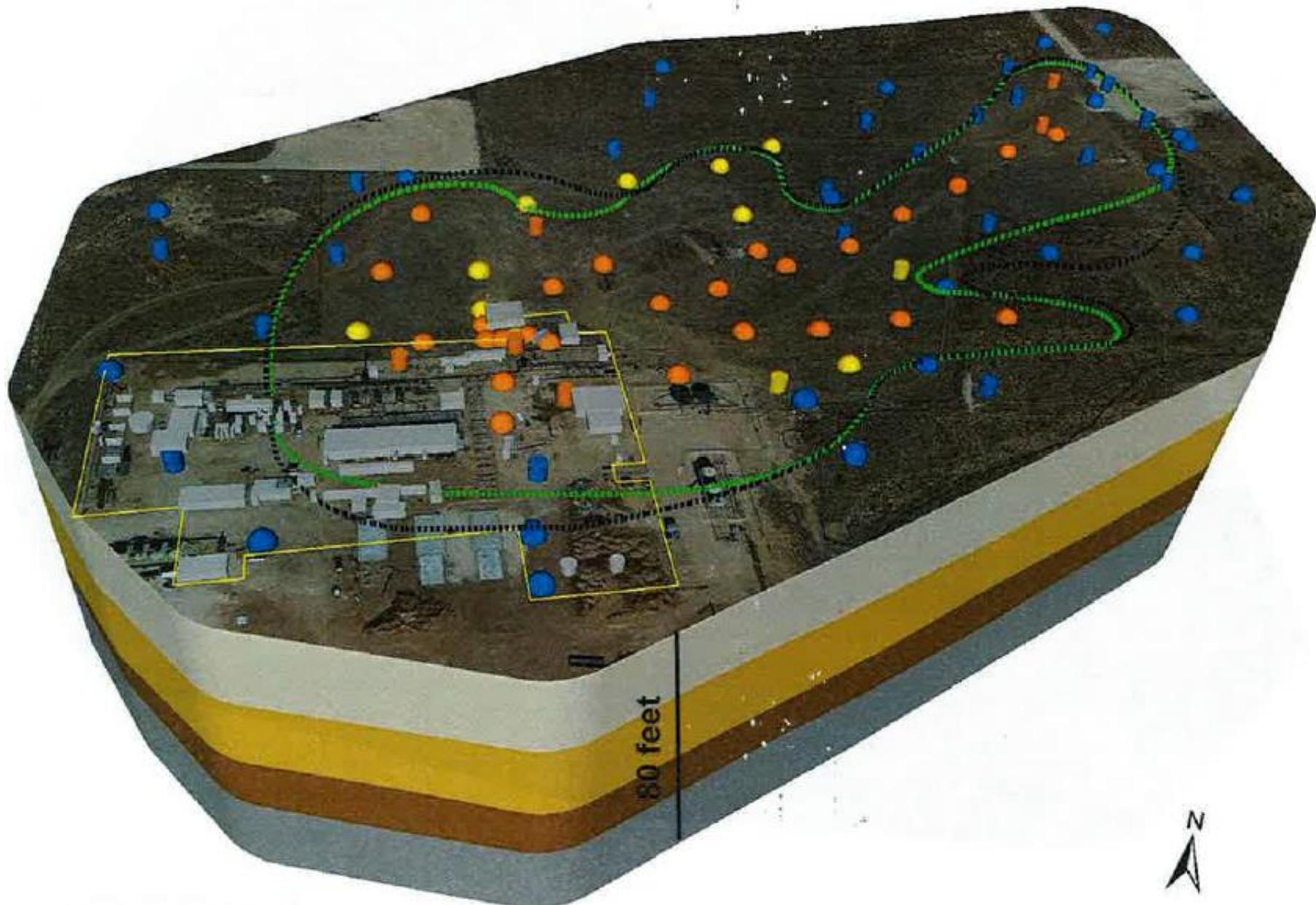
SOIL BORING

- MINOR RESPONSE
- NO RESPONSE
- POSITIVE RESPONSE

— ABOVE GRADE SOIL VAPOR EXTRACTION PIPE

▭ EXISTING STRUCTURES

Booster Station LNAPL Remediation System with ~40 MWs

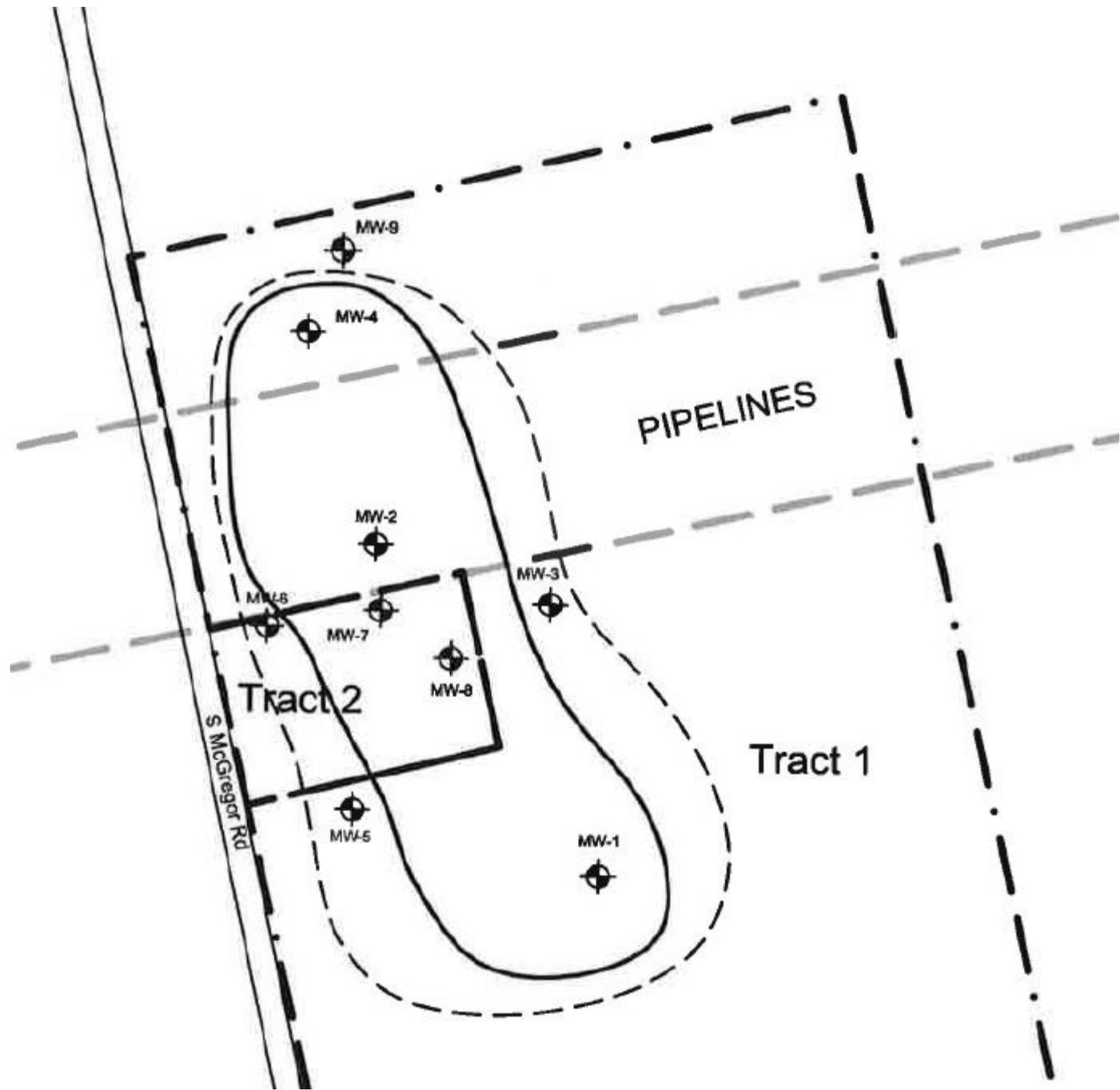


Benzene and PSH Plumes overlap

Case Study 2 Legacy Site

- Bulk Crude Storage and pumping station on a transportation pipeline.
- TPH/BTEX impacted soil
- Monitor wells installed in 2003.
- The Site languished several years until RRC requested an update in 2012.
- Drought caused lower water levels in wells and increased PSH content.
- Operator may need to reinstall wells due to drought.

Lesson: Site could have closed with an IC but delays can lead to increased cost and increased liability.

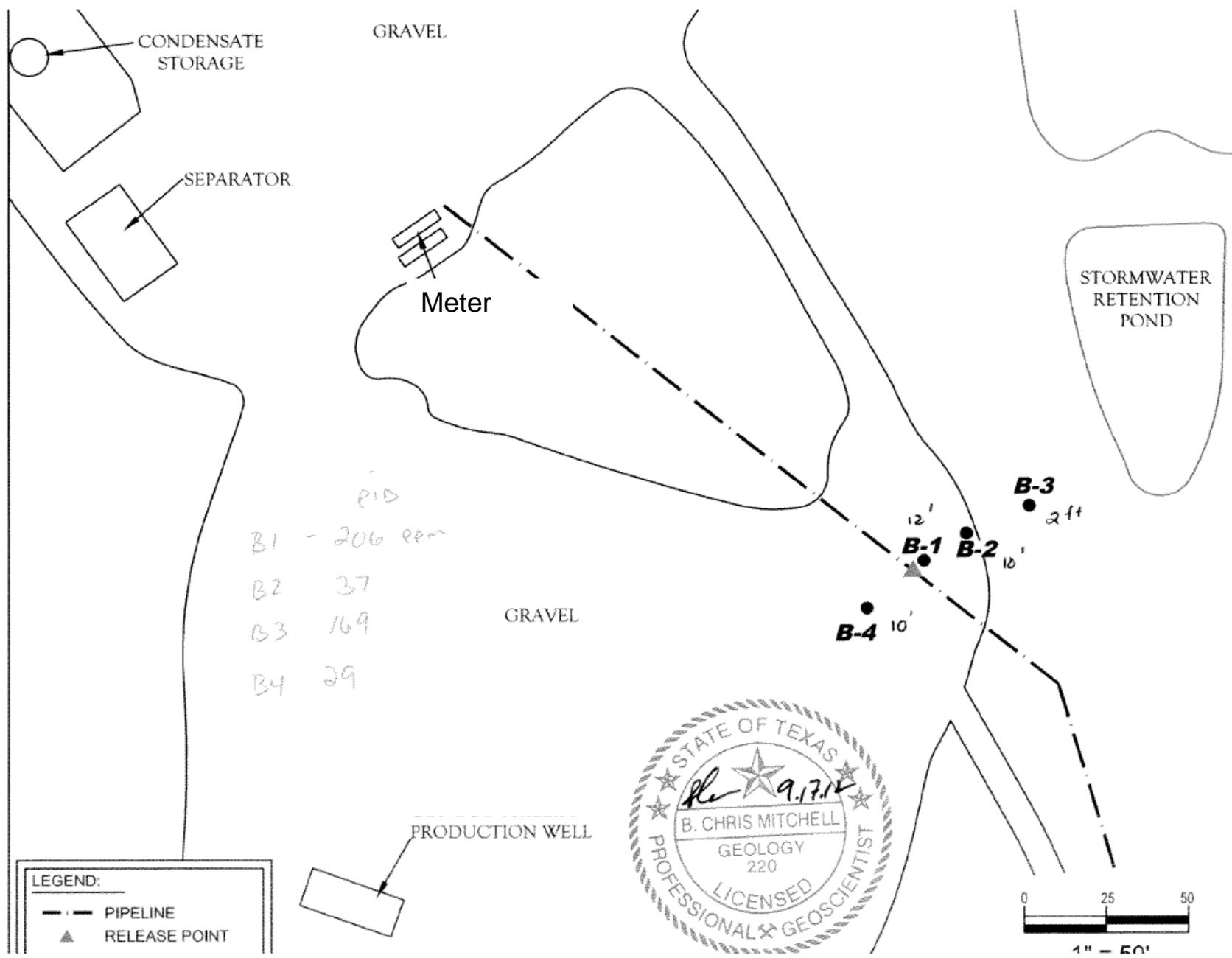


Operator Cleanup Program

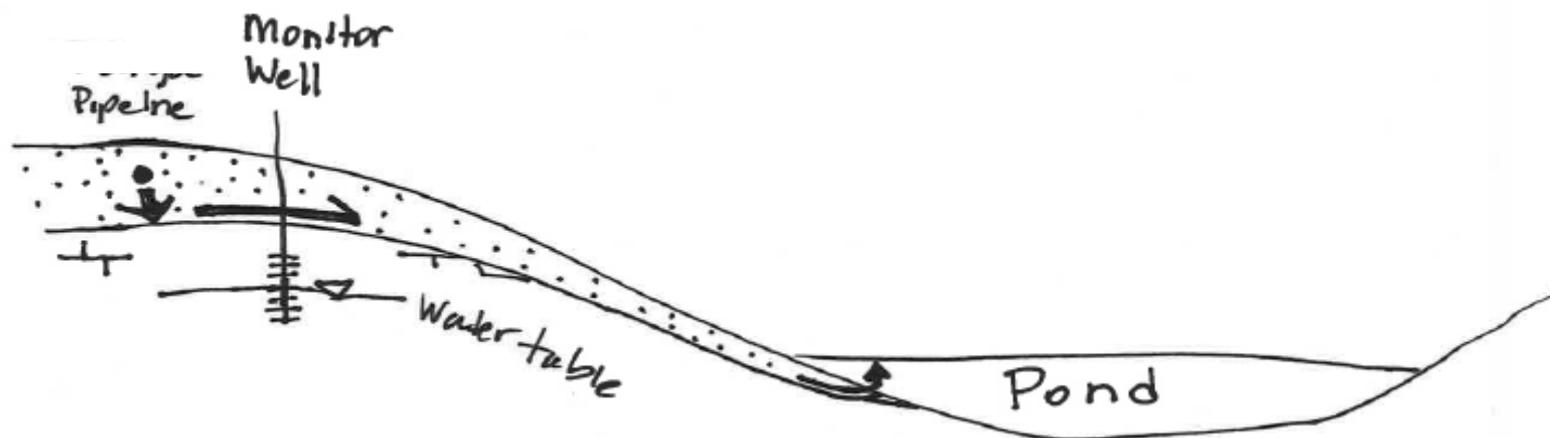
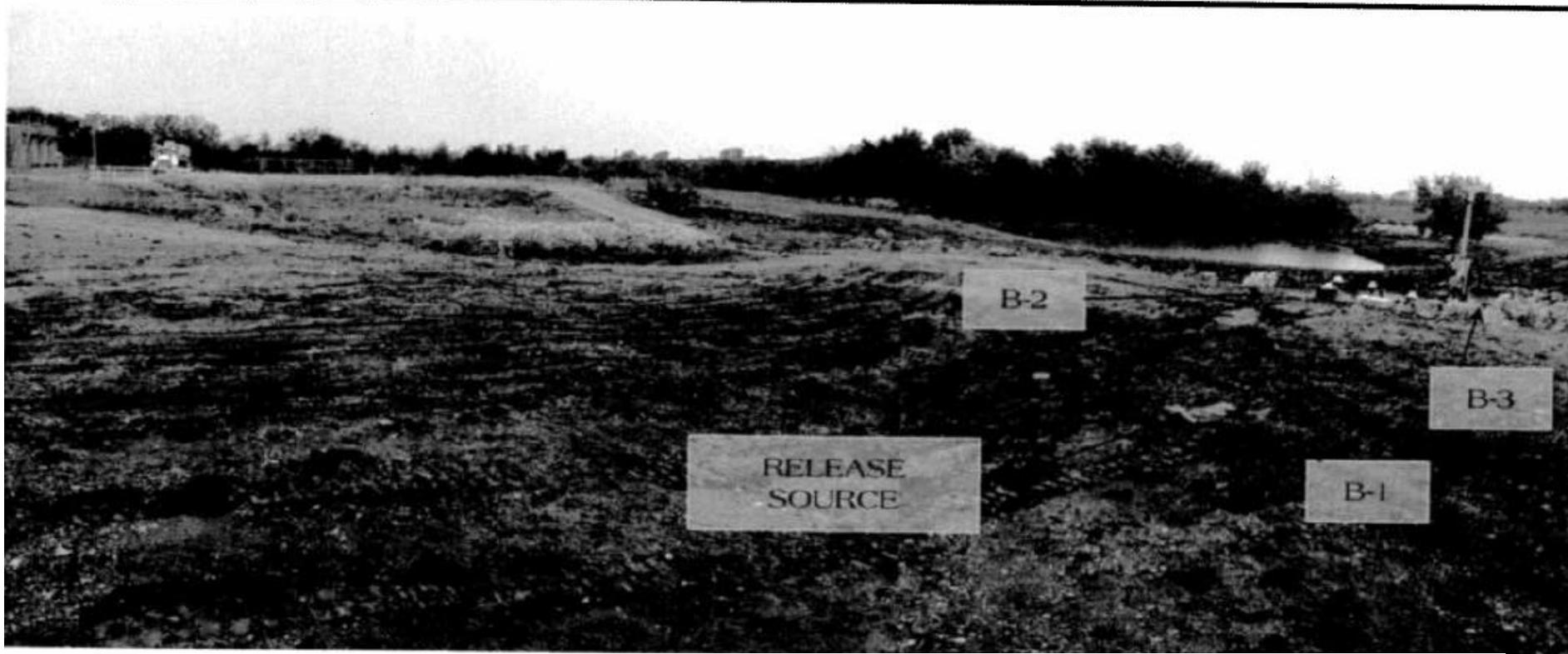


CASE STUDY 3 Enforcement Referral

- Hydrocarbons seeping into pond
- GW investigation did not show significant impacts
- RRC requested soil investigation along pipeline ROW
- Pipeline company refused
- RRC dug a trench and found condensate seepage
- Fingerprint analysis shows source to match Tank Battery
- RRC referral to enforcement
- Coordinated effort with General Counsel, State-Funded and OCP staff.



Condensate Pipeline Site view to the northeast



Operator Cleanup Program



Enforcement referral language:

- Based on the state funded assessment RRC staff is prepared to move forward with a referral to enforcement requiring X company to remediate the site, reimburse all state expenses, and pay an appropriate penalty.

Operator Cleanup Program

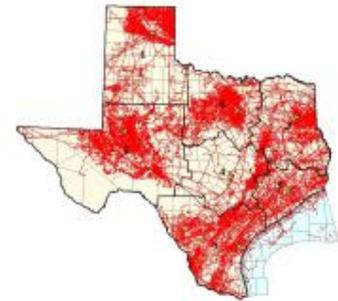
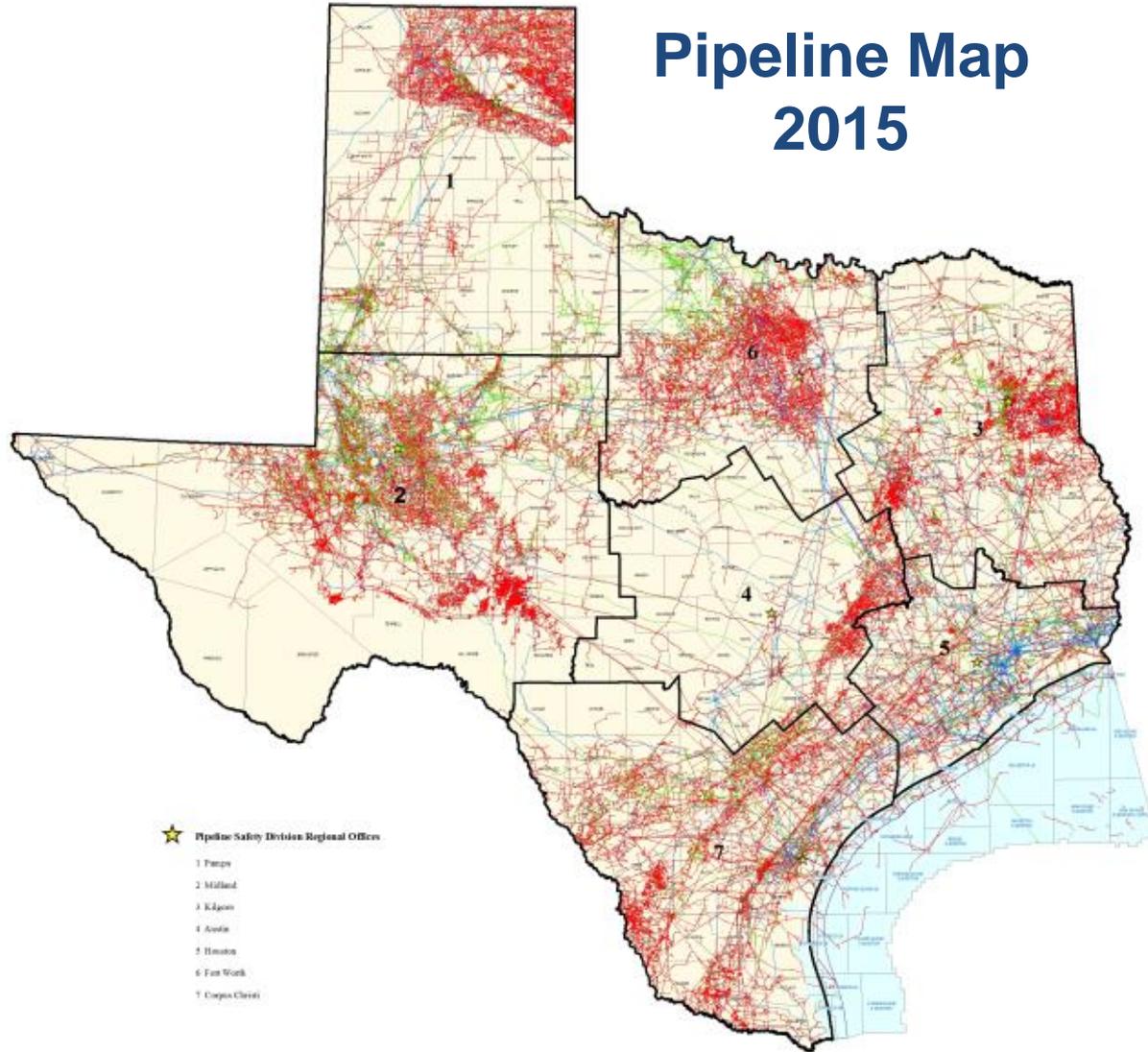


CASE STUDY 3

Bad Pipe in the Eagle Ford

- New steel flowlines - early 2013
- 30 September 2013 710 BBL Condensate Release
- 29 October 2013 67 BBL Condensate Release
- 19 Jan 2014 223 BBL Condensate Release
- Rapid Internal corrosion as a result of sulfate-reducing bacteria
- Gathering system shut in Feb 2014. Biocide added at wellhead

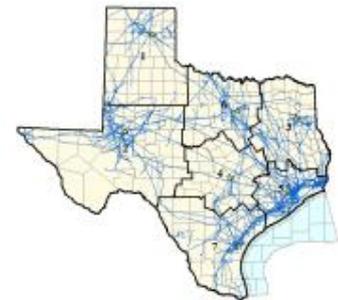
Pipeline Map 2015



Natural Gas Pipelines



Crude Oil Pipelines



Hazardous Liquids Pipelines

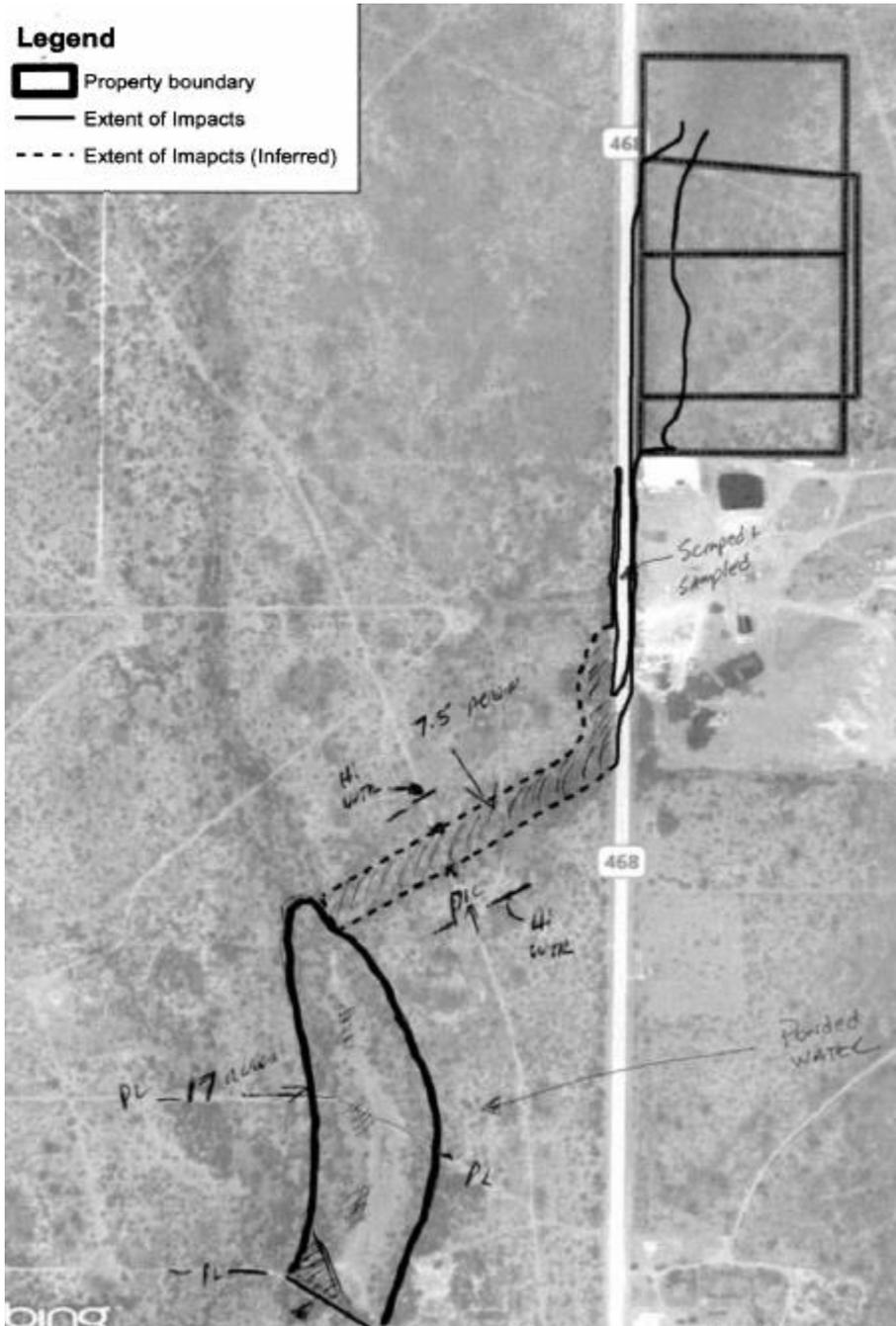
172 Active Pipeline Related Releases in OCP as of 4-21-2015

Unpermitted Disposal Facility



Legend

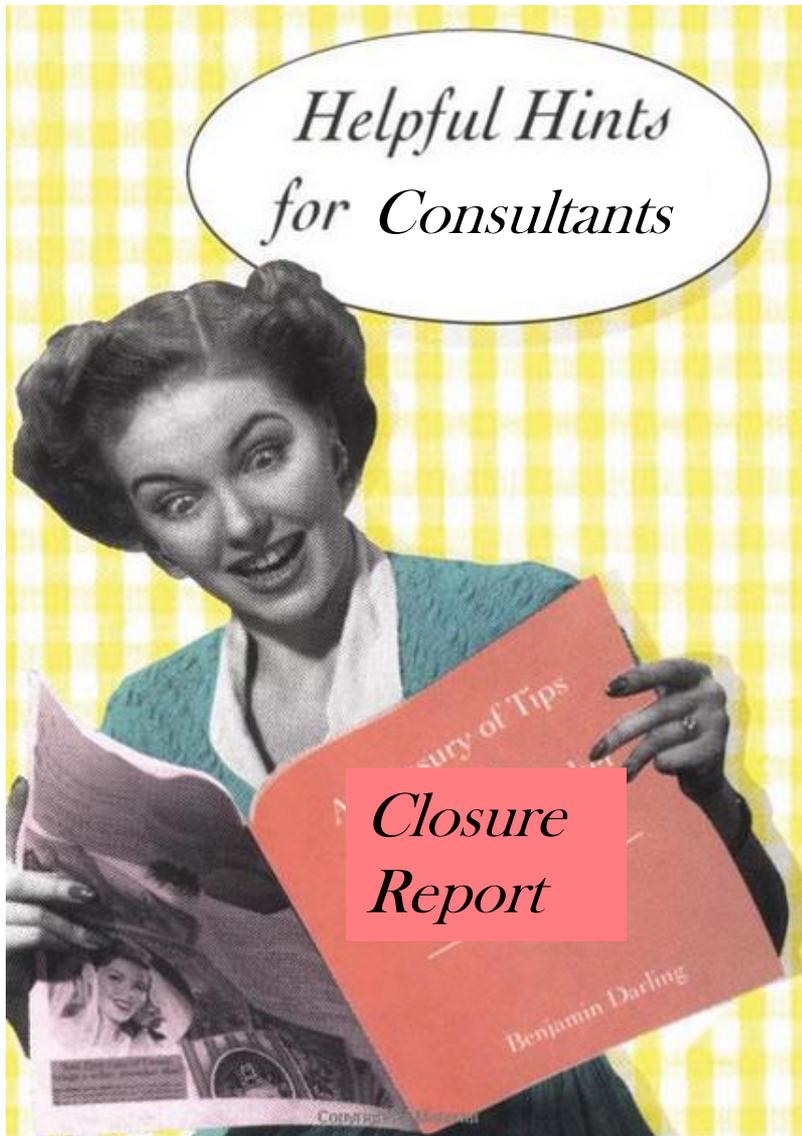
- Property boundary
- Extent of Impacts
- Extent of Impacts (Inferred)



Spill of skim oil and produced water flowed downstream along ditch then overland to a creek and stock pond over a mile away.



Helpful Hints for Consultants



- Data summary tables should list sample quantitation limit for each analysis.
- Classify Groundwater using TRRP 8 Guidance.
- Use of published information on groundwater quality can assist with determining classification.
- Evaluate all pathways.
- One paper and one electronic copy to Site Remediation.
- Always include the OCP number on correspondence and email.

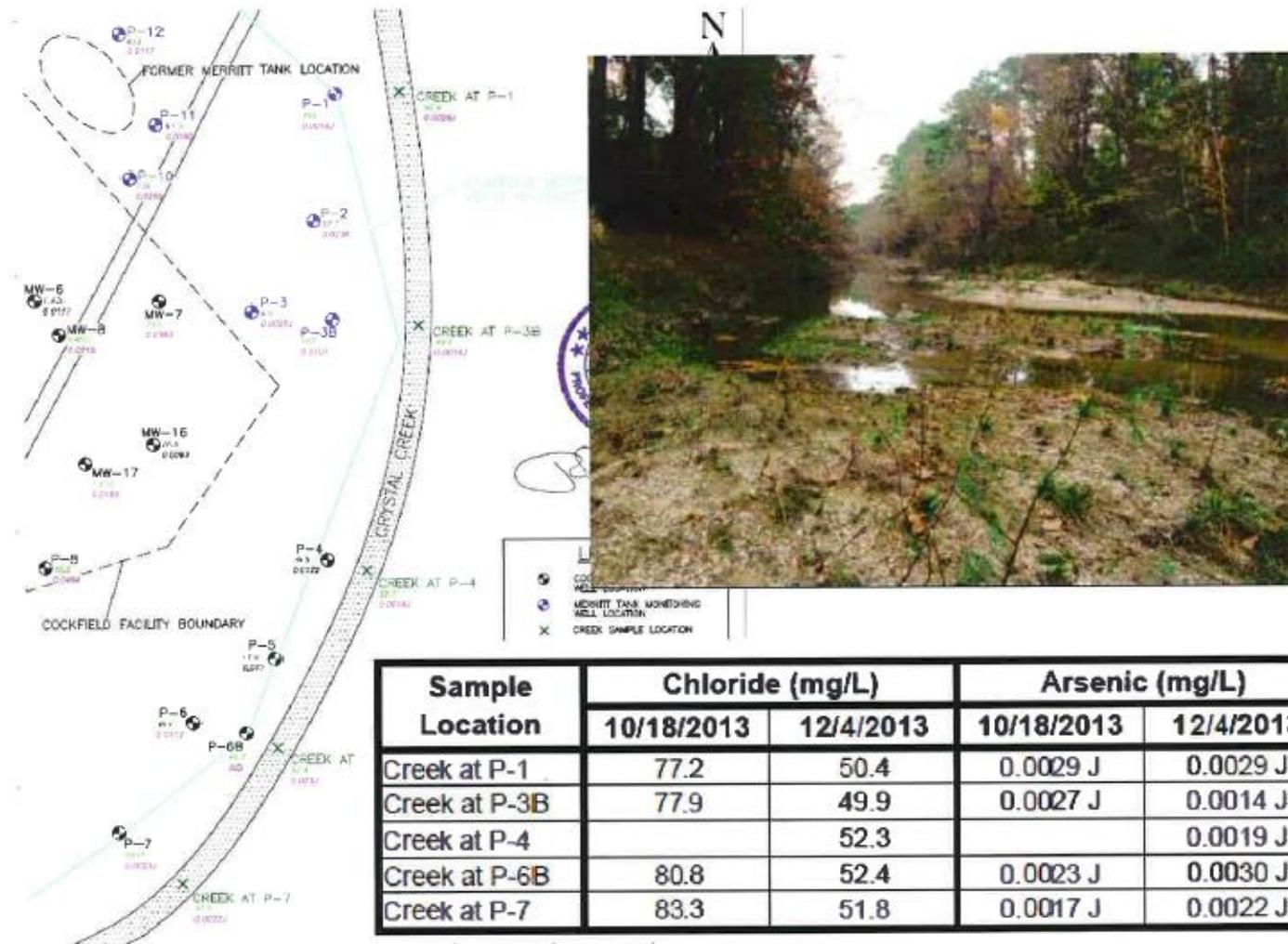
Reference published data to support conclusions

Figure 3

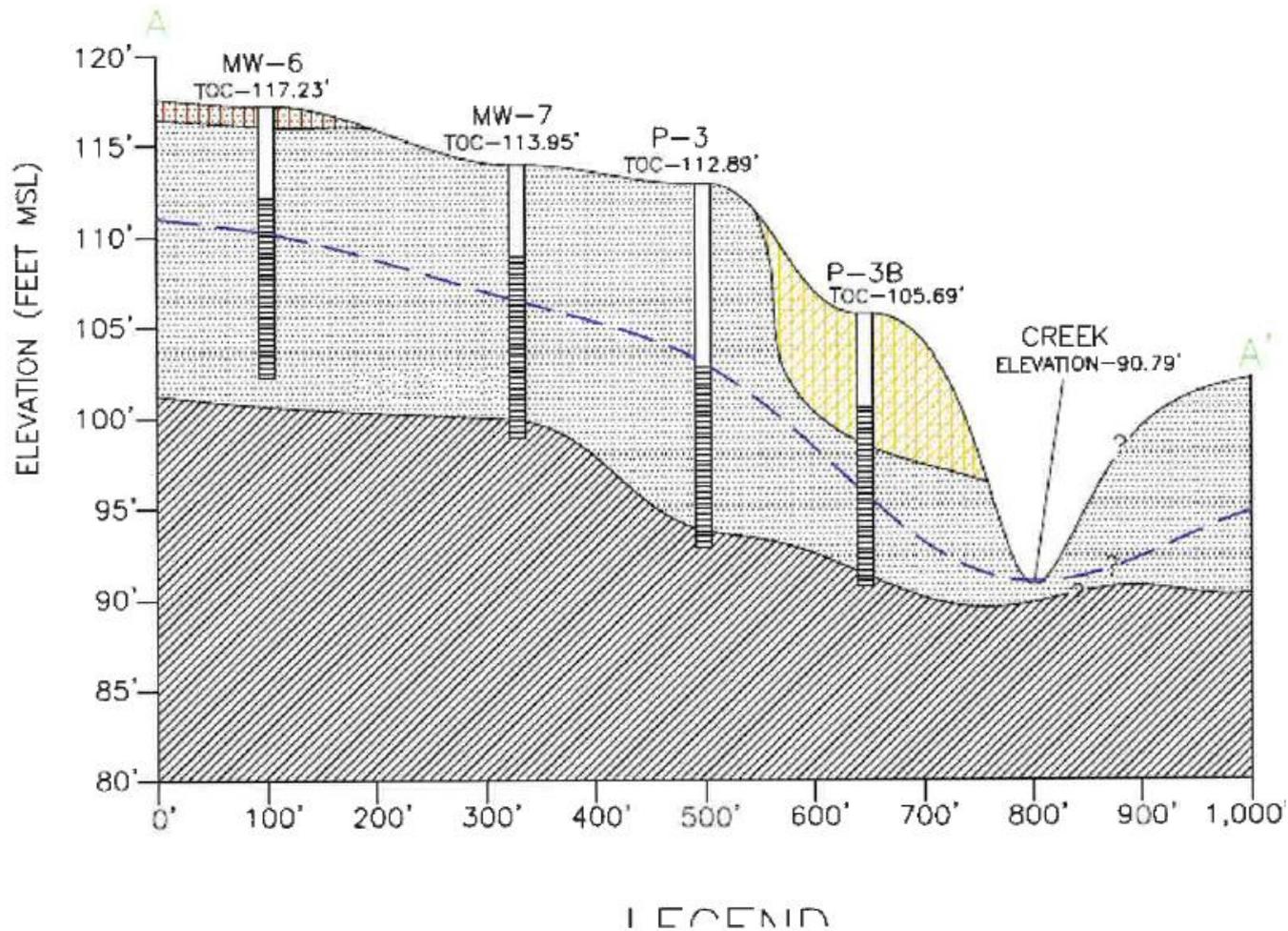


Chloride content of ground water in counties bordering the Rio Grande

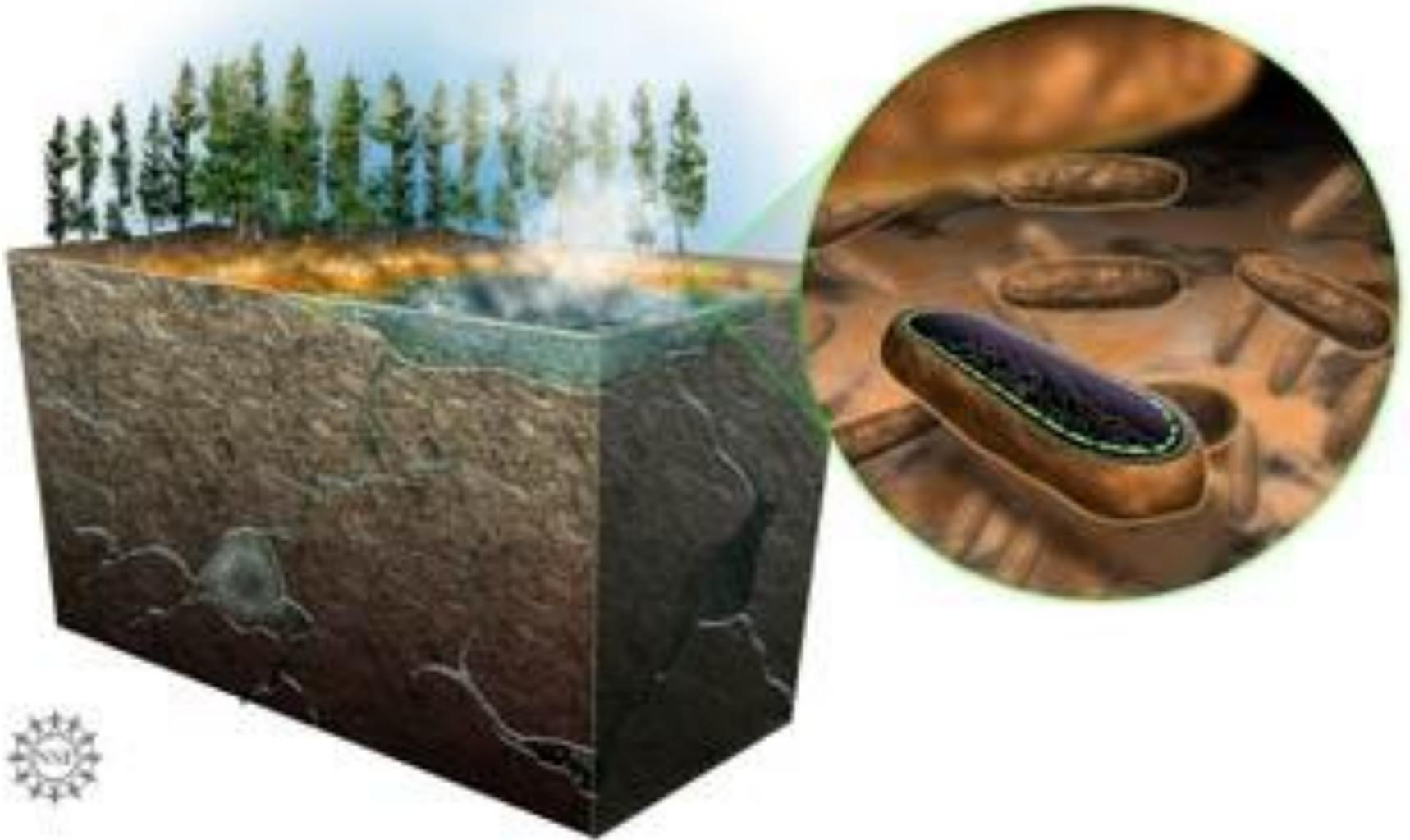
Evaluate impacts to surface water



Groundwater Characterization



The Power of Microbes in Bioremediation



Voluntary Cleanup Program



- **Provides incentive to lenders, developers, owners, and operators who did not cause or contribute contamination.**
- **Applies to waste cleanups under Railroad Commission jurisdiction.**
- **Offers the applicant a release of liability to the state.**

Voluntary Cleanup Program Structure



- **Application Fee \$1,000**
- **Surcharge Fee \$1,500**
- **Agreement – terms and conditions, pay oversight, set cleanup standards, set schedule**
- **Cost of review \$80/hr**
- **Conduct investigation and remediation**
- **Certificate of Completion**



Voluntary Cleanup Program



- Applicants **cannot** be responsible parties
- Must address all impacted media and all COCs, provide a Phase I ESA.
- All completed VCP sites are listed on RRC website with location information.

Voluntary Cleanup Program

The Voluntary Cleanup Program (RRC-VCP) provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination. Applicants to the program receive a release of liability to the state in exchange for a successful cleanup.

The RRC-VCP utilizes an application process with an initial \$1,000 application fee which is applied to the costs associated with staff oversight of the cleanup. Due to changes in state law, a surcharge of \$1,500 will be added to all applications effective 1 May 2012. [For more information regarding the surcharges, click here.](#)

When cleanup is completed, the RRC will issue a Certificate of Completion which embodies the release of liability to the state for a participant (and subsequent owners) who did not cause or contribute to the contamination and acquire the certificate by fraud, misrepresentation, or knowing failure to disclose material information.

The RRC encourages all parties interested in the RRC-VCP to consider applying. Questions about the RRC-VCP should be directed to the Site Remediation Section of the Oil and Gas Division (512) 463-6765.

Contacts:

[Kelly Wilson](#) (512) 475-0730

[Aimee Beveridge](#) (512) 463-7995

Forms:

Application Form [VCP.1](#) ("Fill in" pdf format, v. 4.0, 15KB)

Agreement Form [VCP.2](#) ("Fill in" pdf format, v. 4.0, 15KB)

Note: Fill-in forms allow you to enter information while the form is displayed on-line using Adobe Acrobat 5.0 or higher products. After completing the form, please print and mail to the address designated.

Current VCP & Brownfields Sites:

[Map of VCP and Brownfield Sites](#) 

[List of VCP and Brownfield Sites](#)

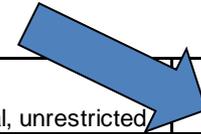
Guidance:

[How to Evaluate RRC-VCP Sites for Presence of Historical Oil & Gas Wells](#) (pdf format, ver 4.0)

View Certificates of Completion and Institutional Control Documents online!

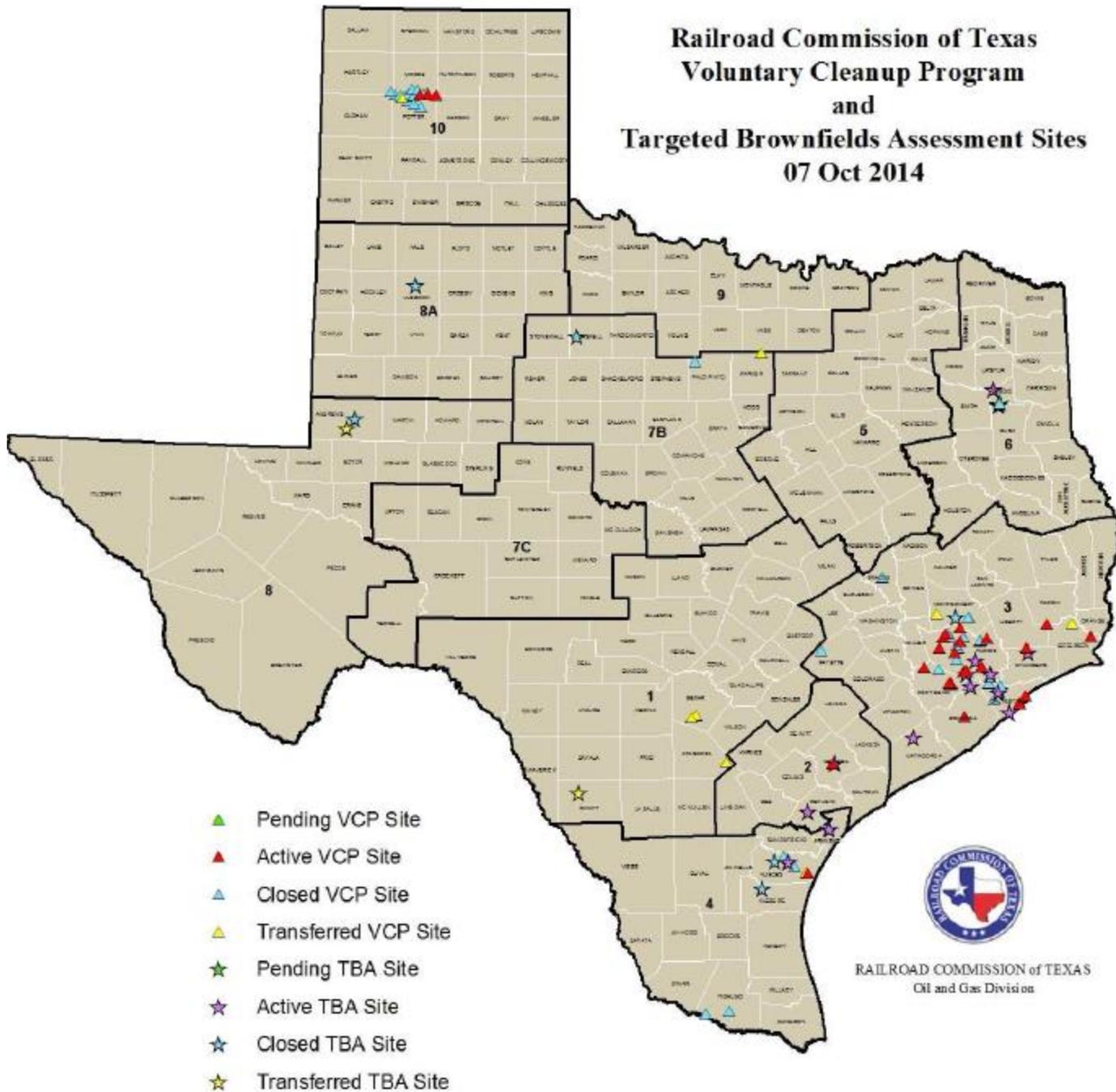


To view IC click the date



30003	VCP	Harris	5.624 acre tract off of Boudreaux Rd, Tomball	6	30.059	95.598	Closed	Residential, unrestricted	15-Dec-03
30004	VCP	Harris	Intersection Fannin St & Holmes Rd/610 Business Park, Houston	25	29.665	95.4044	Closed	Commercial-Industrial, restricted GW	02-May-05
30005	VCP	Fort Bend	Harlem Road & FM 1093 (Westheimer Road), Houston	557	29.7027	95.7194	Closed	Residential, restricted GW	28-Sep-06
30006	VCP	Potter	no street address, Masterson, Texas	1.43	35.5602	101.9712	Closed	Residential, unrestricted	03-Oct-05
30007	VCP	Potter	no street address, Masterson	0.92	35.6183	102.0145	Closed	Residential, unrestricted	03-Oct-05
30008	VCP	Harris	Atascacita & Will Clayton Blvd, Humble	2.7	29.9797	95.2185	Accepted	Commercial-Industrial, restricted GW	12-Jan-07
30009	VCP	Moore	no street address, Masterson	0.92	35.632	102.1262	Closed	Residential, unrestricted	22-Mar-06
30010	VCP	Potter	no street address, Masterson	5.09	35.619	102.0596	Closed	Residential, unrestricted	19-Sep-06
30011	VCP	Potter	no street address	0.51	35.619	101.9926	Accepted	Residential, unrestricted	20-Mar-07
30012	VCP	Hartley	no street address, Masterson	5.74	35.654	102.1773	Accepted	Residential, unrestricted	14-Dec-06

Railroad Commission of Texas Voluntary Cleanup Program and Targeted Brownfields Assessment Sites 07 Oct 2014



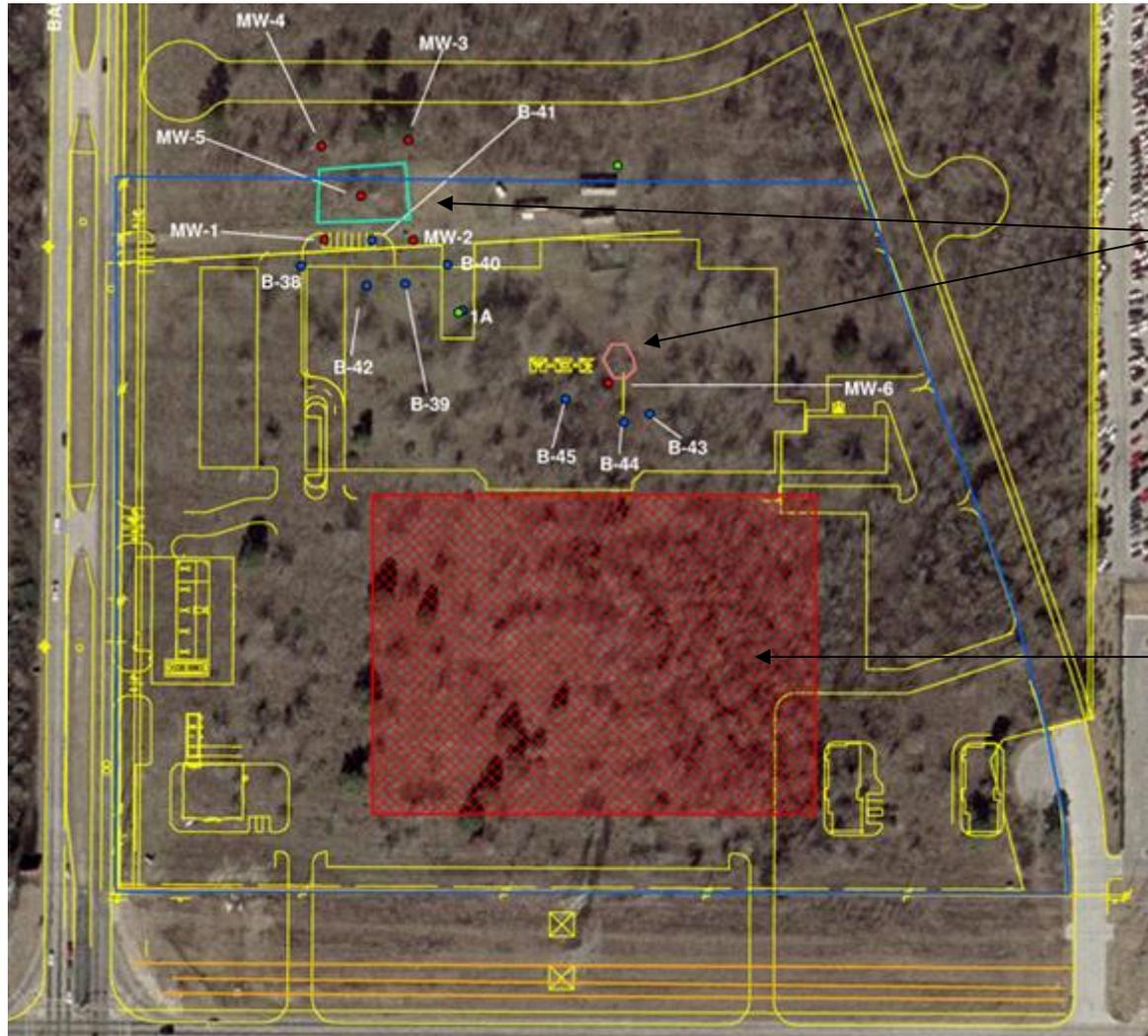
Pioneer Energy Soil Shredder Remediation Technology



Pioneer Energy- Soil removal from around compressor pad



HEB Bammel Site, Houston



Excavated areas

**Land-spread
area**

Voluntary Cleanup Program HEB Bammel, Houston



- Soil and Groundwater impacts delineated
- Used onsite remediation techniques
- Groundwater treated on-site
- Certificate of completion that limits use of groundwater on a portion of the site

Green Remediation!

RRC Brownfields Redevelopment Program

<http://www.rrc.state.tx.us/divisions/og/brownfield/index.htm>



Brownfields Response Program

Funded through a grant from the U.S. EPA to offer technical assistance, environmental assessment and cleanup of brownfields sites for local governments, non-profits and tribes.





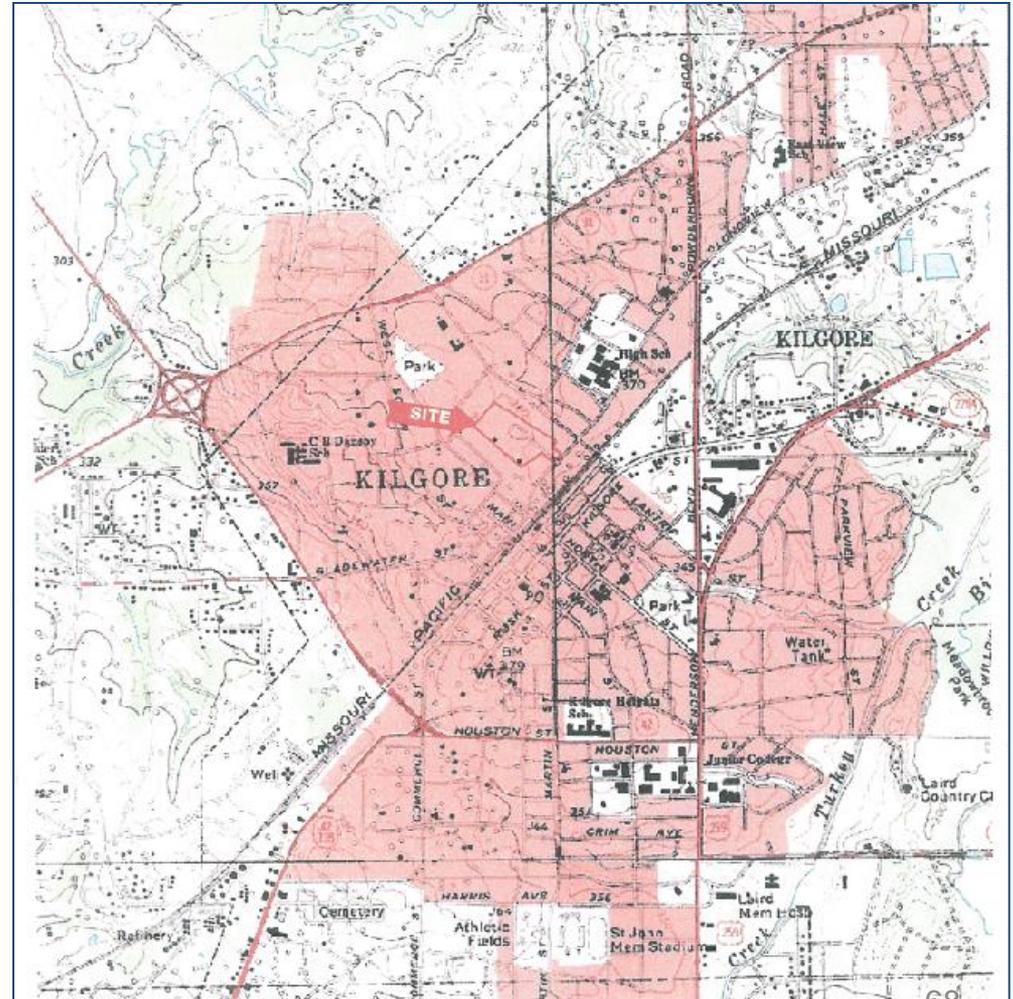
RRC Brownfields Program

- U.S. Environmental Protection Agency State Brownfields Program
- Offer free Assessments and Cleanup to local governments, non-profits, schools, churches
- Brownfields Certificate of Completion

Helping local communities!

Northview Apartments, Kilgore

Affordable Housing

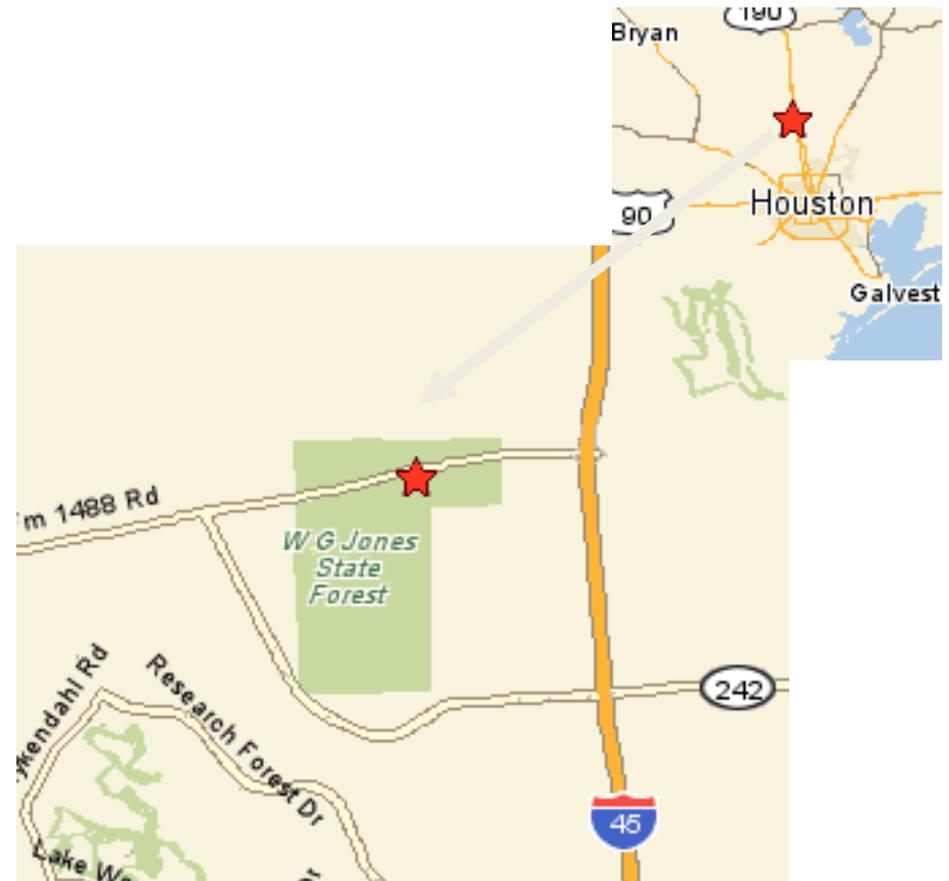


Northview Apartments



- Application received November 2008
- Phase II ESA performed by RRC
- No impacts identified
- Cost savings \$21K
- Site closed March 2009
- 25 construction jobs and two permanent positions created
- Leveraging with \$2M loan with TDHCA

Jones Forest Site, Montgomery County



Red Cockaded Woodpecker

Jones Texas Forest Site Benefits

- Habitat for endangered Red-Cockaded Woodpecker
- Brownfields assessment showed impacts to soil
- State funds used to plug two oil wells and perform cleanup
- Assessment and cleanup cost \$246,789

Refugio Blowout Crater



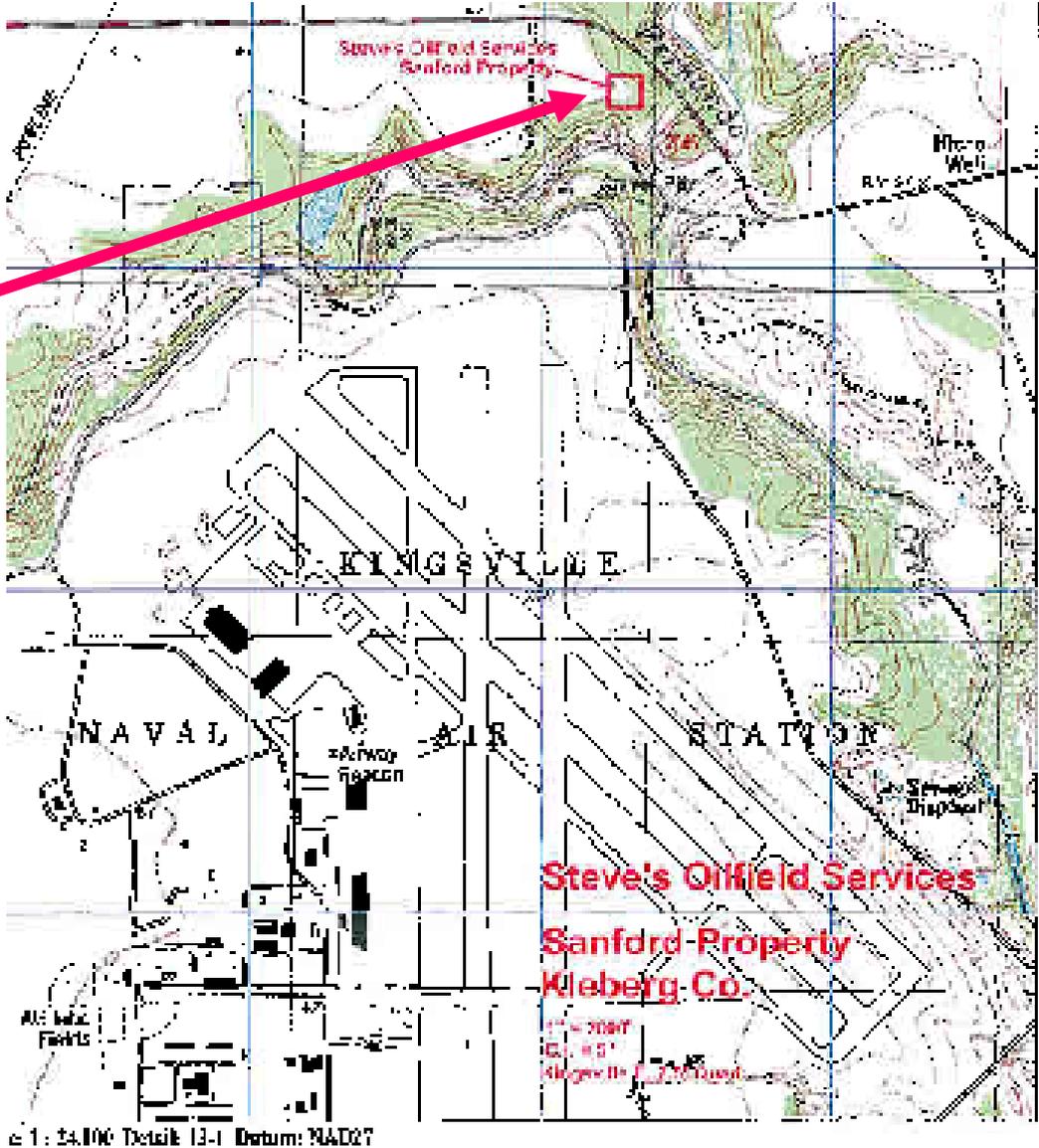
Historic aerial photograph from 1956

Refugio Blowout Crater

- City of Refugio owned the property
- Mayor asked for assistance in developing the site for a farmers market/swap meet
- Brownfields Phase II and GW assessment completed
- Hydrocarbons were identified in soil, chloride in groundwater
- Additional investigation is needed to determine remedial options

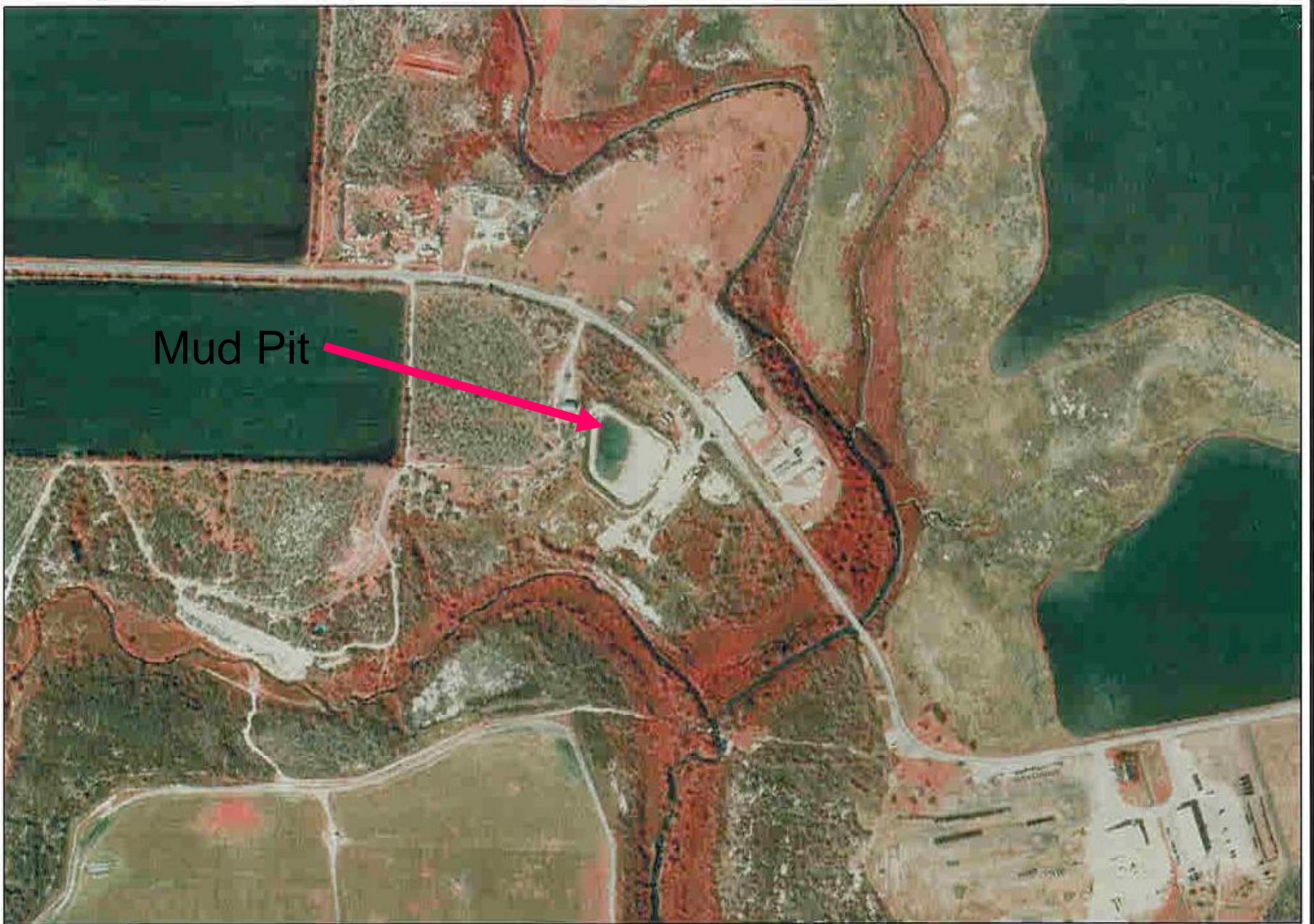
Steve's Oilfield Service Site Kingsville, Texas

Located
near the
Kingsville
Naval
Air Station



Steve's Oilfield Service Site

- 30-acre site containing a 2 acre mud storage pit and associated frac tanks containing oilfield waste
- Owner/operator bankrupt
- No property taxes had been paid since 1990
- Kleberg County condemned the property
- Sold at auction to the Kingsville Area Industrial Development Foundation
- Total cost \$86K brownfields, \$571K state funds
- Brownfields certificate granted June 2013



Mud Pit



12 January 1996 Kleberg County
as derived from Texas Strategic Mapping Digital
Orthophoto Quarter Quadrangle.

Aerial Photo Kleberg County 1996



Steve's Oilfield Service Site



Mud Disposal Pit

Steve's Oilfield Service Site



Steve's Oilfield Service Site



Engineered Cap in
place

Turtle Bayou Site, Chambers County



522-Acre Site slated to be used for water quality protection and a nature preserve managed by the Galveston Bay Foundation

Actions

- 18 abandoned oil and gas wells being plugged with state funds
- Delineating hydrocarbons and chloride impacts

Benefits

- Green space, wildlife habitat, water quality.

Turtle Bayou Site, Chambers County





Any Questions?



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