Procedures for Groundwater Notifications Under Texas Water Code 26.408 and 5.236

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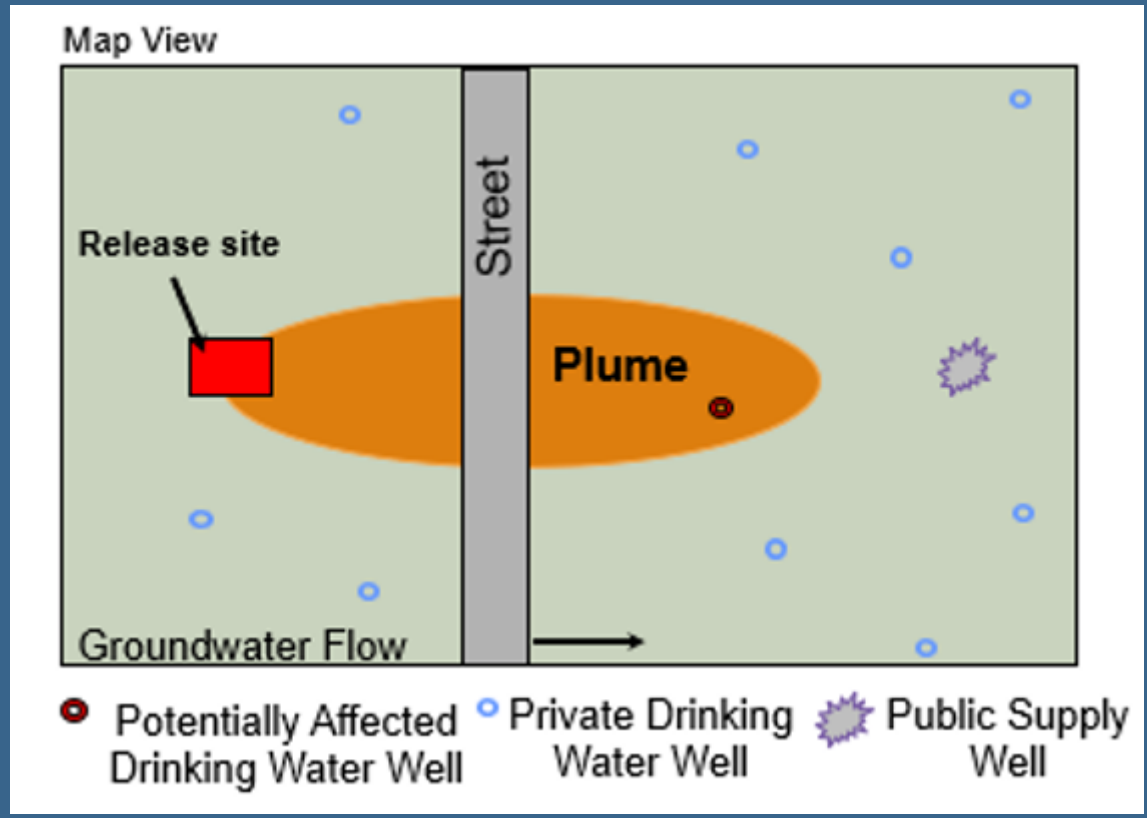
Overview

- Introduction
- Definition of key terms
- Implementation of TWC 26.408
- What triggers TWC 26.408/5.236
- Criteria for notifications
- Notification process
- Completing the Drinking Water Survey
- Reporting the Drinking Water Survey results

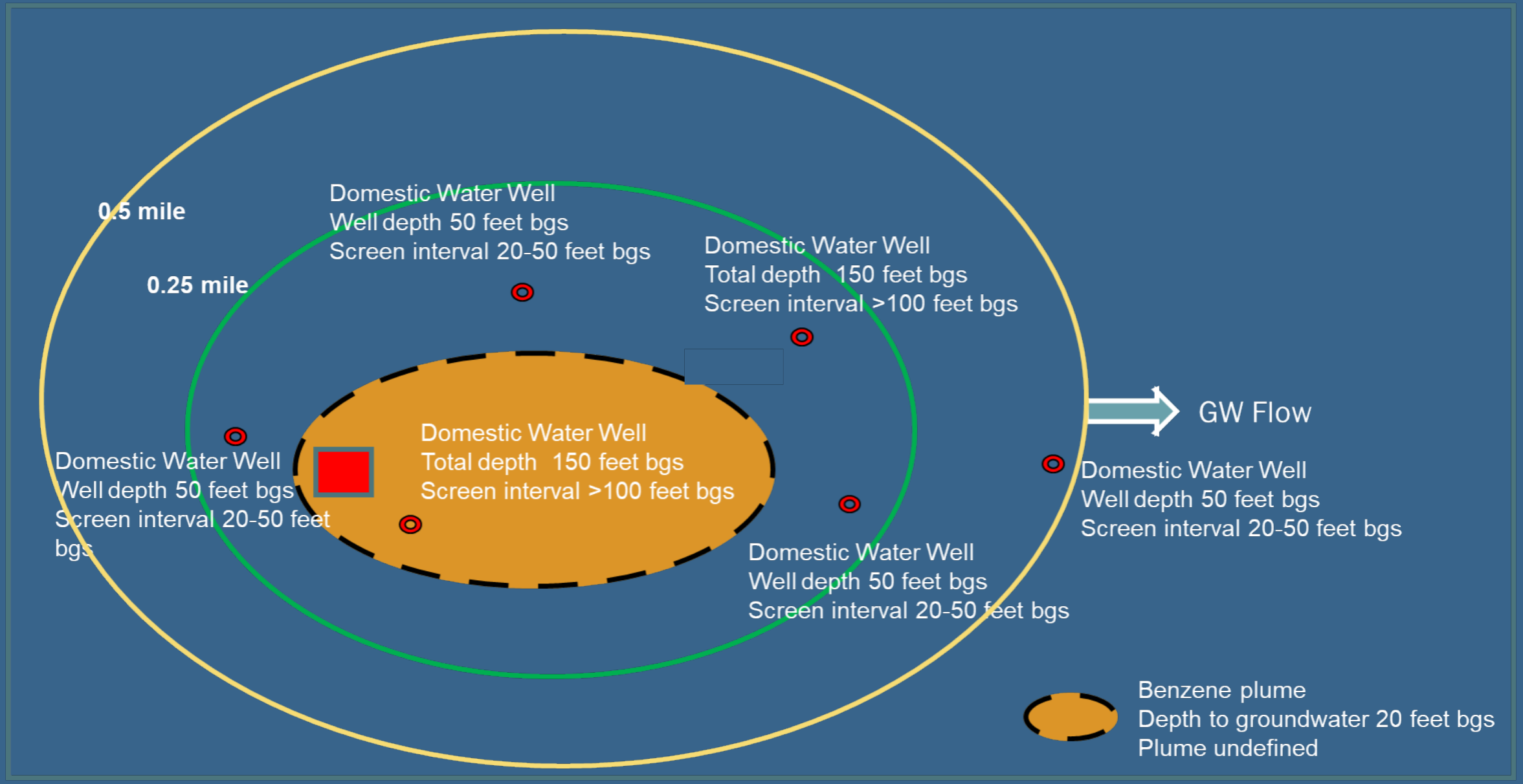
Introduction

- What is the issue?
  - Groundwater contamination may affect private or public drinking water wells
  - Well owners are unaware of the potential risk
  - Local officials are unaware of potential public health issue
- Who's responsible?
  - The TCEQ is required by statute to notify the well owners and public officials about groundwater contamination

❖ Note: Public Supply Wells are not subject to TWC 26.408 notifications



Quiz


0.5 mile
0.25 mile
Domestic Water Well
Well depth 50 feet bgs
Screen interval 20-50 feet bgs
Domestic Water Well
Total depth 150 feet bgs
Screen interval >100 feet bgs
Domestic Water Well
Well depth 50 feet bgs
Screen interval 20-50 feet bgs
Domestic Water Well
Total depth 150 feet bgs
Screen interval >100 feet bgs
GW Flow
Domestic Water Well
Well depth 50 feet bgs
Screen interval 20-50 feet bgs
Domestic Water Well
Well depth 50 feet bgs
Screen interval 20-50 feet bgs
Benzene plume
Depth to groundwater 20 feet bgs
Plume undefined

Applicable Texas Water Codes

- Texas Water Code (TWC) 26.408
  - Places responsibility on the TCEQ to notify private water well owners and groundwater conservation districts that may be affected by the groundwater contamination (ingestion standards exceeded)
- TWC 5.236
  - Places responsibility on the TCEQ to notify county judges, county health officials, groundwater conservation districts, and any person under TCEQ's jurisdiction suspected of contributing to the contamination, of a public health concern related to groundwater contamination

*Notification to be provided no later than 30 days after TCEQ becomes aware of groundwater contamination that may affect a private drinking water well

History of Statute

Texas Water Code Section	Regarding	Since
§5.236	Notice to County Judge and Health Official; * Groundwater conservation districts added in 2011.	1987
§26.408	Notice to Owners of Private Drinking Water Wells	2003[1]

- TWC 26.408 & TWC 5.236 are independent laws created for notification of groundwater contamination
- This presentation will not cover notifications required by program rules (e.g., TRRP §350.55). Refer to TCEQ Regulatory Guidance, RG-366/TRRP -17

https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg-366-trrp-17.pdf

Statutory Requirement

TWC 26.408 requires TCEQ to

- Notify by first class mail the owners of private drinking water wells affected or threatened by groundwater contamination
  - Applies to contamination reported after September 1st, 2003; cases older than 2003 may be opened by changes in circumstance
  - TCEQ relies on contractors and regulated parties to provide the information specified in RG-428 *Preparation of a Drinking Water Survey Report* https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg-428.pdf

Content of Notification

TWC 26.408	TWC 5.236
•Name of contaminant(s) •Range of analytical results •Possible health effects •Possible source(s) of contaminant(s) •Suggested actions/precautions •Contact for further information	•Type of Incident •Nature of the Impact •Monitoring Well/ water well location •Name of Contaminants •source of contamination – Property name and address •Actions Taken

Key Term - Private Drinking Water Well

Consider well a Private Drinking Water Well if it is:

- Used for human consumption
- Plumbed to a structure for potable purposes (includes wells used for filling swimming pools due to incidental ingestion and dermal contact)
- Actual use of the well is unknown/not confirmed

Wells used solely for the following purposes are not considered private water wells for purposes of notification:

- Irrigation, industrial use, monitoring, dewatering, geothermal etc.

Key Term - Potentially Affected Water Wells

Consider well a Potentially Affected Drinking Water Well if it is:

- Within the extent of groundwater contamination delineated to residential health-based levels for a **defined** contaminant plume
- Within 0.25 miles of the known extent of groundwater contamination for an **undefined** contaminant plume

Do not consider depth of contamination relative to depth of water well intake, location of water wells relative to groundwater gradient, water well construction details, site geology, etc.

Key Term – Groundwater Contamination

For the purpose of this topic, consider the groundwater is contaminated if:

- chemical concentrations exceed residential health-based values for ingestion

Implementation of 26.408

To comply with the statute, the TCEQ requests that the regulated community

- Submit the Drinking Water Survey Report (DWSR) in accordance with RG-428
  - With the initial site investigation that confirms groundwater contamination
  - or at any time thereafter when requested by the TCEQ
- Update the DWSR every time the groundwater contaminant plume is further delineated

If unwilling to conduct the survey, the TCEQ will schedule a state contractor to conduct the survey and seek cost recovery.

Implementation of 26.408

when an impact or imminent threat to a water well exists

- Within 3 working days, provide a written response stating the willingness or refusal to submit an expedited DWSR
- Within 20 days of the request, the expedited DWSR must be submitted

when an impact or imminent threat to a water well is not present

- Within 7 days, provide a written response stating the willingness or refusal to submit a DWSR.
- The DWSR must be submitted within 30 days of the date of the survey request letter

*Imminent threat : The presence of any water well within 500 feet of the known extent of groundwater contamination, when not defined laterally and vertically

When does the process trigger?

- When the groundwater data shows there is a health-based exceedance of
  - TRRP Tier 1 residential groundwater ingestion PCL
  - LPST Action Level for groundwater for Underground and Aboveground Petroleum Storage Tank releases

TRRP Tier 1 RALs

- Compare to residential levels only

Table 3

Tier 1 Groundwater PCLs - Residential and Commercial/Industria

Last Revised: April 27, 2018

Chemical of Concern	CAS	Residential							
		$^{GW}GW_{Ing}$[2] (mg/L)	note[4]	$^{GW}GW_{Class3}$[3] (mg/L)	note[4]	$^{Air}GW_{Inh-V}$ 0.5 acre source area (mg/L)	note[4]	$^{Air}GW_{Inh-V}$ 30 acre source area (mg/L)	note[4]
Acenaphthene	83-32-9	1.5E+00	n	1.5E+02	n >S	–	–	–	–
Acenaphthylene	208-96-8	1.5E+00	n	1.5E+02	n >S	–	–	–	–
Acetaldehyde	75-07-0	2.4E+00	n	2.4E+02	n	2.4E+03	n	3.1E+02	n
Acetate, 2-ethoxyethanol	111-15-9	2.4E+00	n	2.4E+02	n	4.5E+05	n >S	5.8E+04	n
Acetate, isoamyl	123-92-2	1.8E+00	n	1.8E+02	n	–	–	–	–
Acetate, isobutyl	110-19-0	1.2E+00	n	1.2E+02	n	–	–	–	–
Acetate, sec-butyl	105-46-4	1.2E+00	n	1.2E+02	n	–	–	–	–
Acetic acid*	64-19-7	–	–	–	–	–	–	–	–
Acetone (2-propanone)	67-64-1	2.2E+01	n	2.2E+03	n	1.0E+06	n >S	1.0E+06	n >S
Acetone cyanohydrin	75-86-5	7.3E-02	n	7.3E+00	n	3.4E+05	n	4.4E+04	n
Acetonitrile	75-05-8	7.8E-01	n	7.8E+01	n	3.2E+04	n	4.2E+03	n
Acetophenone	98-86-2	2.4E+00	n	2.4E+02	n	–	–	–	–
Acetylaminofluorene, 2-	53-96-3	2.4E-04	c	2.4E-02	c	6.3E+02	c >S	1.0E+02	c >S
Acifluorfen, sodium	62476-59-9	3.2E-01	n	3.2E+01	n	–	–	–	–
Acridine	260-94-6	7.3E-02	n	7.3E+00	n	–	–	–	–
Acrolein	107-02-8	1.2E-02	n	1.2E+00	n	9.5E+03	n	1.2E+03	n

LPST Action Levels

- Based on action levels and not LPST Plan A Target Concentrations for applicable groundwater category
- If TRRP and PST release, submit only one DWSR

PST Program Action Levels [1,2,3]			
CHEMICAL OF CONCERN	**SOIL** (mg/kg) Surface (0 - 15 ft)	**SOIL** (mg/kg) Subsurface (>15 ft)	**GROUNDWATER** (mg/L)
Volatile Organic Compounds			
Benzene	0.12	0.12	0.005
Ethylbenzene	36.8	36.8	0.7
Toluene	39.1	39.1	1
Total xylenes	117	117	10
Oxygenates			
MTBE (methyl tert-butyl ether)	2.56	2.56	0.240
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	34.1	34.1	2.19
Anthracene	2.04	2.04	11
Acenaphthylene	54.7	54.7	2.19
Benz-a-anthracene	0.877	7.10	0.000117
Benzo-a-pyrene	0.0877	3.09	0.0002
Benzo-b-fluoranthene	0.877	3.61	0.000117
Benzo-g,h,i-perylene	0.824	0.824	1.10
Benzo-k-fluoranthene	1.35	1.35	0.00117
Chrysene	1.24	1.24	0.0117
Dibenz-a,h-anthracene	0.0877	1.91	0.0002
Dibenzofuran	48.8	48.8	0.146
Fluoranthene	25.5	25.5	1.46
Fluorene	30.2	30.2	1.46
Indeno-1,2,3-cd-pyrene	0.877	26.0	0.000117
Naphthalene	99.7	99.7	0.73
Phenanthrene	28.2	28.2	1.1
Pyrene	10.3	10.3	1.1
Total Petroleum Hydrocarbons:	No action level for TPH. TPH is used only to screen for PAHs.[3]		

http://www.tceq.state.tx.us/asset/public/remediation/rpr/documents/ActionLevelTable.docx

Exceptions

- At this time, Drinking Water Survey Reports are not being requested for Innocent Owner/Operator (IOP) sites
  - If submitted data indicates potential drinking water exposure to a known water well, contact IOP project manager
- Municipal Setting Designations (MSDs) do not affect the RAL trigger for a DWSR, whether the MSD application is certified or not.

Reports that often trigger a DWSR

- TRRP release:
  - Phase II Environmental Site Assessment
  - Limited Site Investigation Report
  - VCP Application
  - Unit Closure Request
  - Affected Property Assessment Report
- PST release:
  - Release Determination Report (RDR)
  - Assessment Report Form

- Any other report that includes groundwater data where there are exceedances of a residential health-based level

TABLE 3 - GROUNDWATER SAMPLE RESULTS – VOCs and TPH

Sample I.D.	Sample Date	VOCs	TPH (C_6 to C_{12})	TPH (C_{12} to C_{28})	TPH (C_{28} to C_{35})	TPH (C_6 to C_{35})
TRRP RAL[1]		*Acetone- 22 Chloroform- 0.24 Chloromethane- 0.07 Cis-1,2-Dichloroethene- 0.07 Methylene chloride- 0.005 **Tetrachloroethene- 0.005** Trichloroethene- 0.005 1,2,3- Trimethylbenzene- 1.2*	***0.98***	*0.98*	*0.98*	*NE*
EPA Target Groundwater Concentration- Residential VISL[2]		*Acetone- 23,000 Chloroform- 0.0071 Chloromethane- 0.26 Cis-1,2-Dichloroethene- NE Methylene chloride- 4.7 **Tetrachloroethene- 0.058** Trichloroethene- 0.0052 1,2,3- Trimethylbenzene- 0.029*	*NE*	*NE*	*NE*	*NE*
MW-1	6.21.13	ND	<0.60	<0.60	<0.60	<0.60
MW-2	6.27.13	Acetone- 0.017 J Chloromethane- 0.00039 J Cis-1,2-Dichloroethene- 0.0033 **Tetrachloroethene- 1.0** Trichloroethene- 0.00097 J 1,2,3- Trimethylbenzene- 0.00042 J	<0.60	<0.60	<0.60	<0.60
MW-3	6.21.13	Chloroform- 0.00073 J Methylene chloride- 0.0010 J	<0.60	<0.60	<0.60	<0.60
MW-4	6.21.13	ND	**1.4**	<0.60	<0.60	1.4
MW-5	7.16.13	**Tetrachloroethene- 6.4**	**1.9 J**	0.67 J	<0.60	2.6

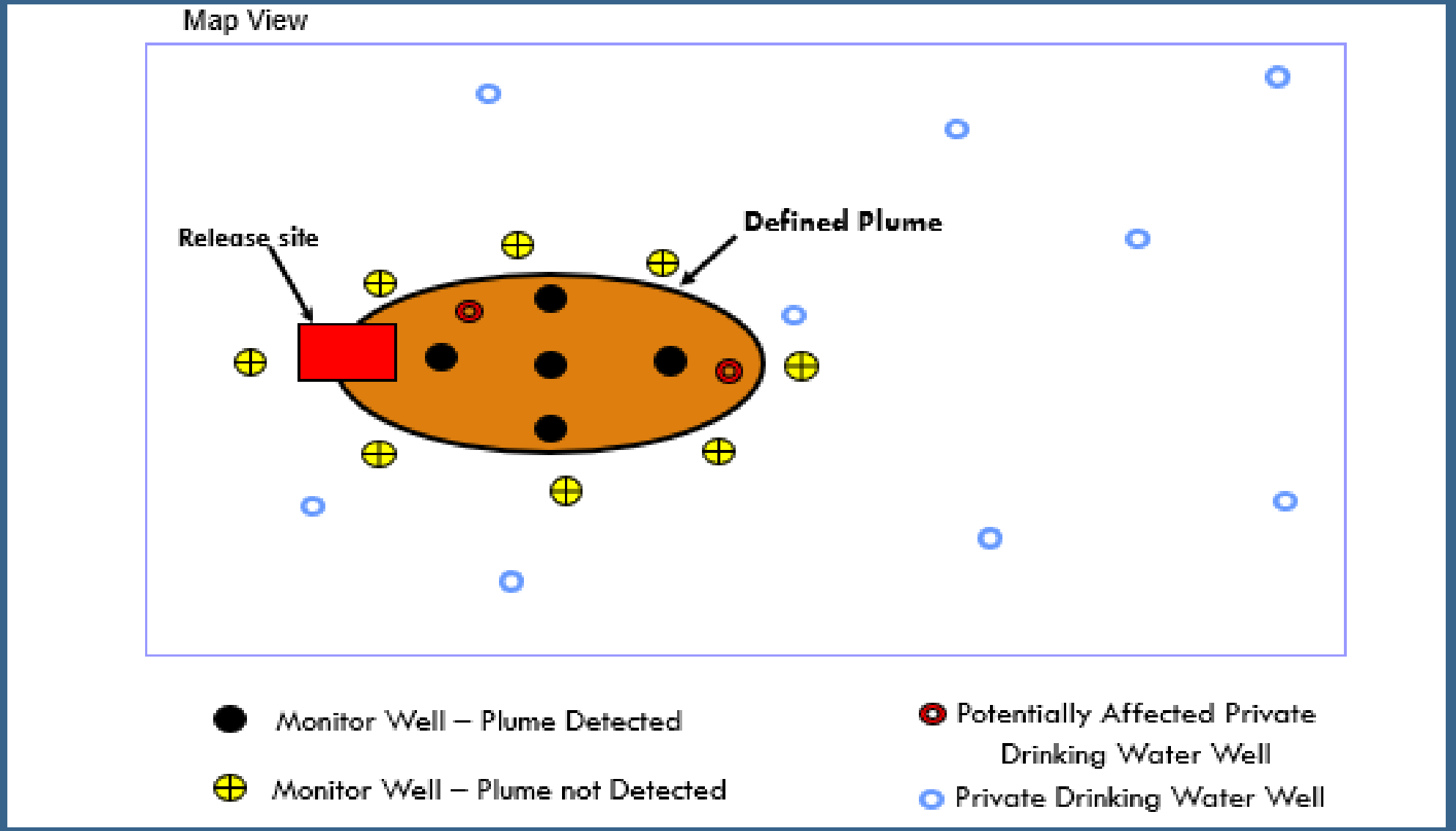
All concentrations presented in milligrams per Liter (mg/L)
1 - Texas Risk Reduction Program Tier 1 Residential Assessment Level (0.5-acre Source) – June 2012
2 - EPA OSWER Vapor Intrusion Screening Level (VISL) Calculator, Version 3.1, June 2013 RSLs
J= value is above the method detection limit but below the quantitation limit
ND= not detected above laboratory method detection limits
NE= not established

A simplified approach. Two scenarios.

1. Plume is delineated
2. Plume is not delineated

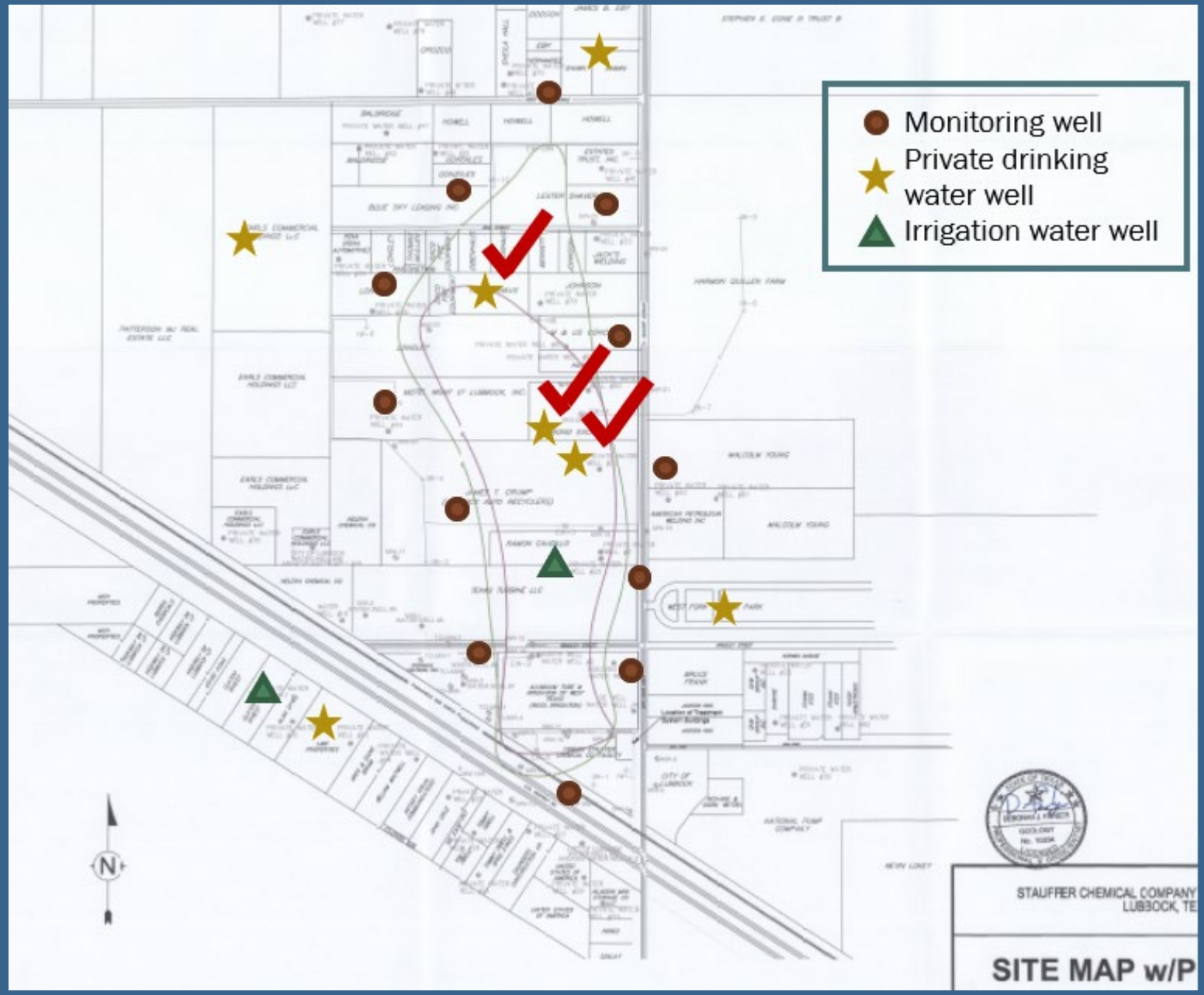
Delineated horizontally and vertically.

Potentially Affected Wells – Defined Plume



1. Plume is delineated

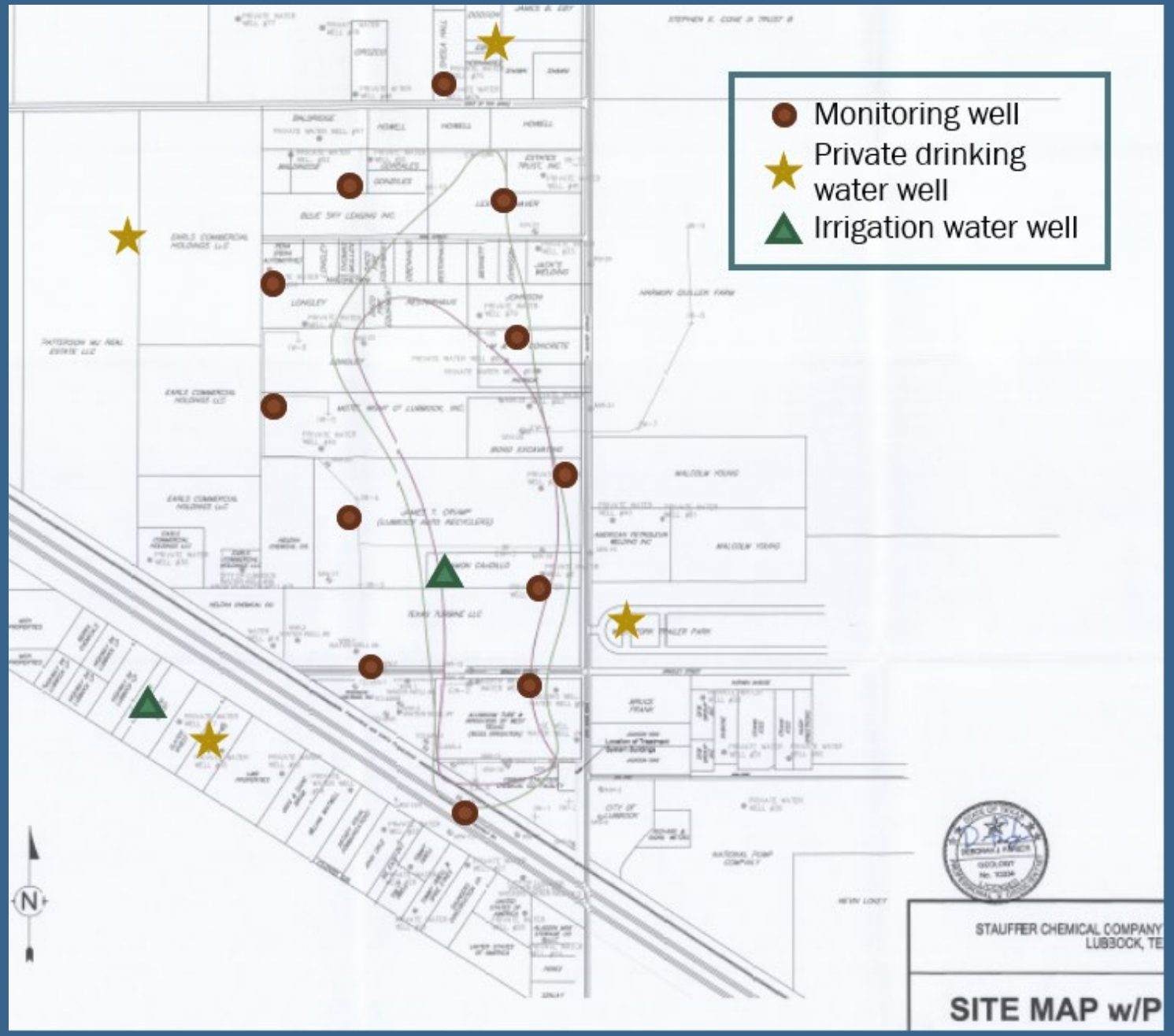
- Are there private drinking water wells inside the delineated plume?
  - ➢ Yes → notification under TWC 26.408 required



* Wells listed as domestic are generally considered private drinking water wells *

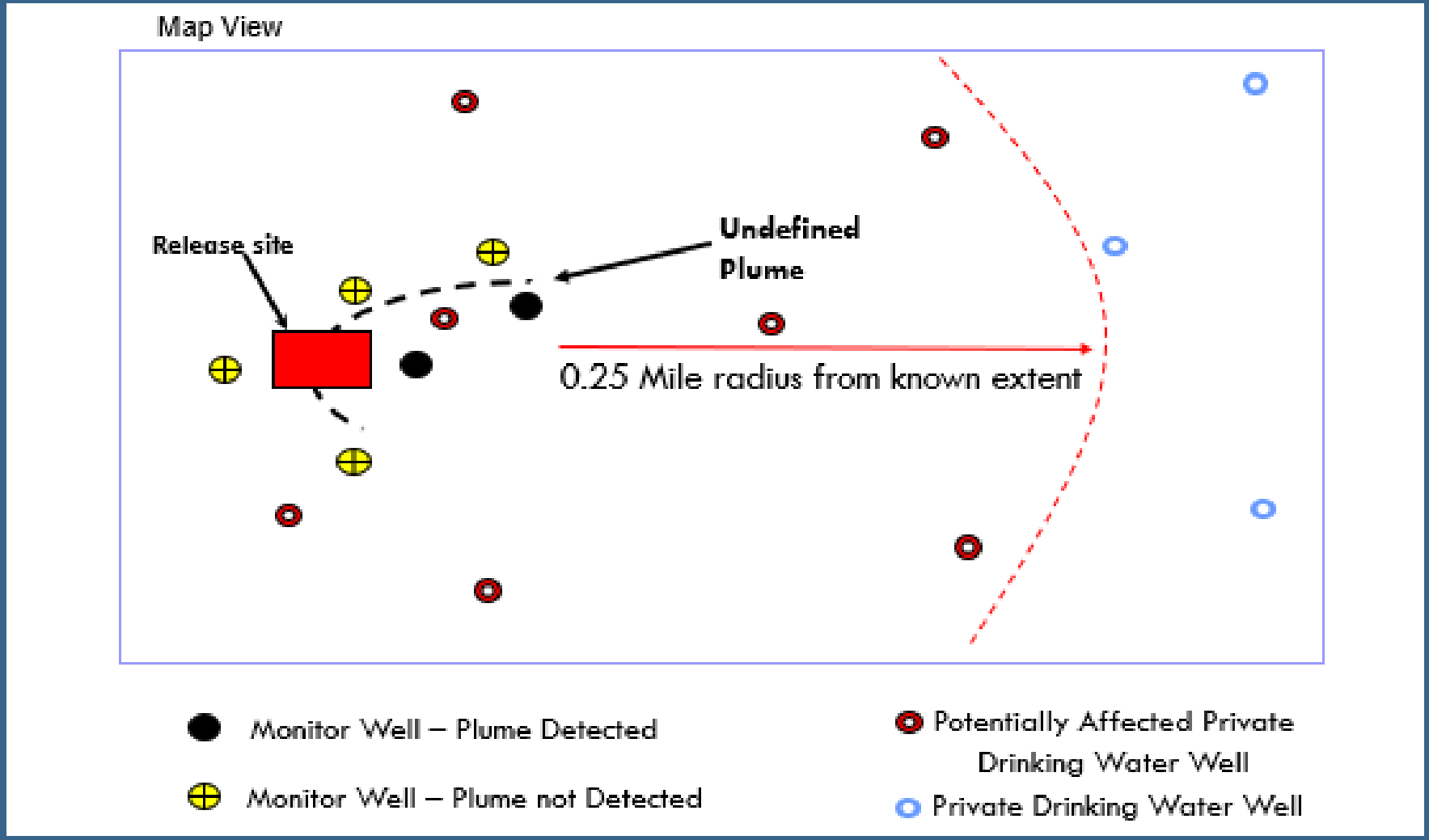
1. Plume is delineated

- Are there private drinking water wells inside the delineated plume?
  - ➢ No → notification under TWC 26.408 **not required**

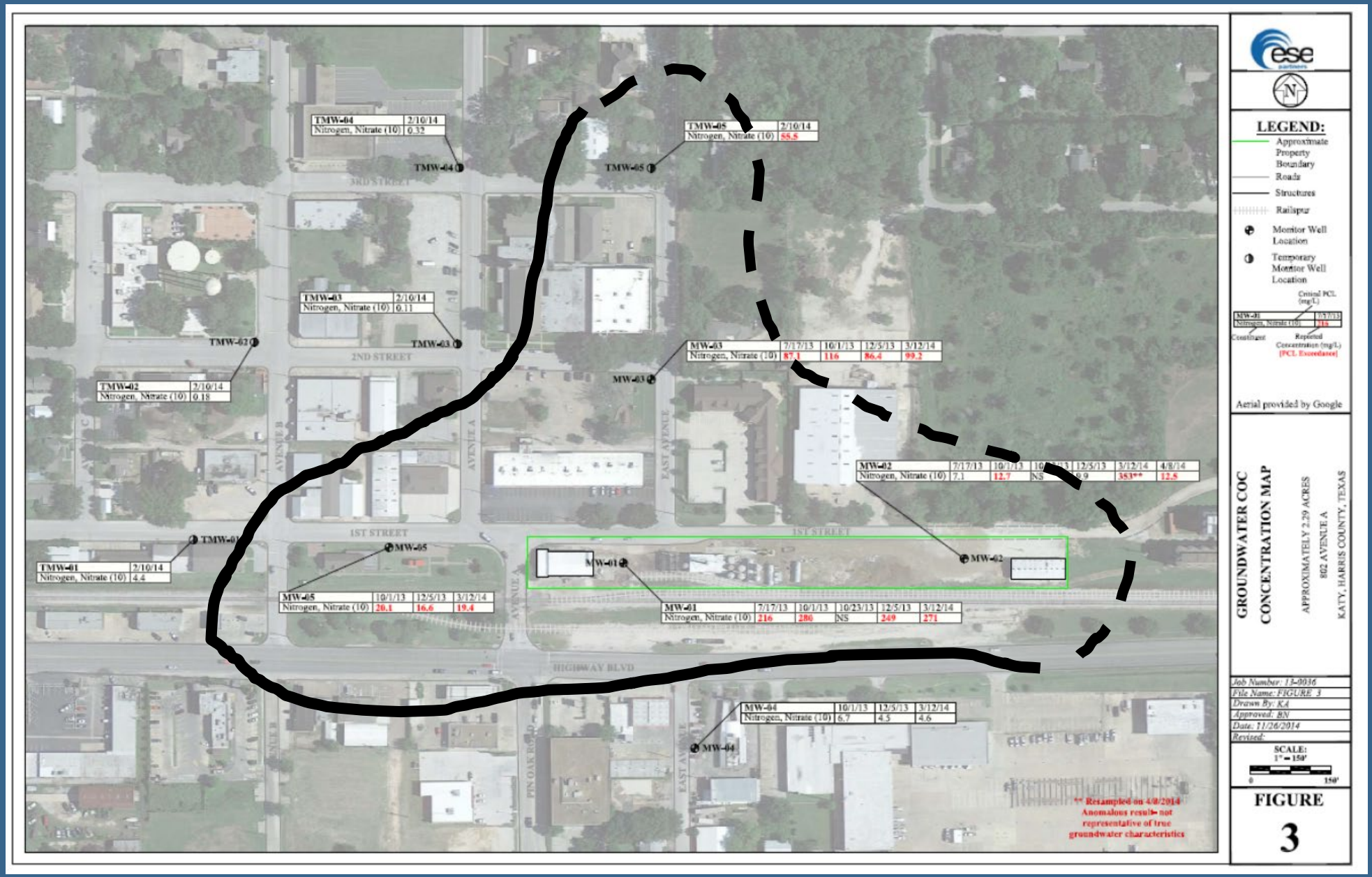


* Wells listed as domestic are generally considered private drinking water wells *

Potentially Affected Wells – Undefined Plume

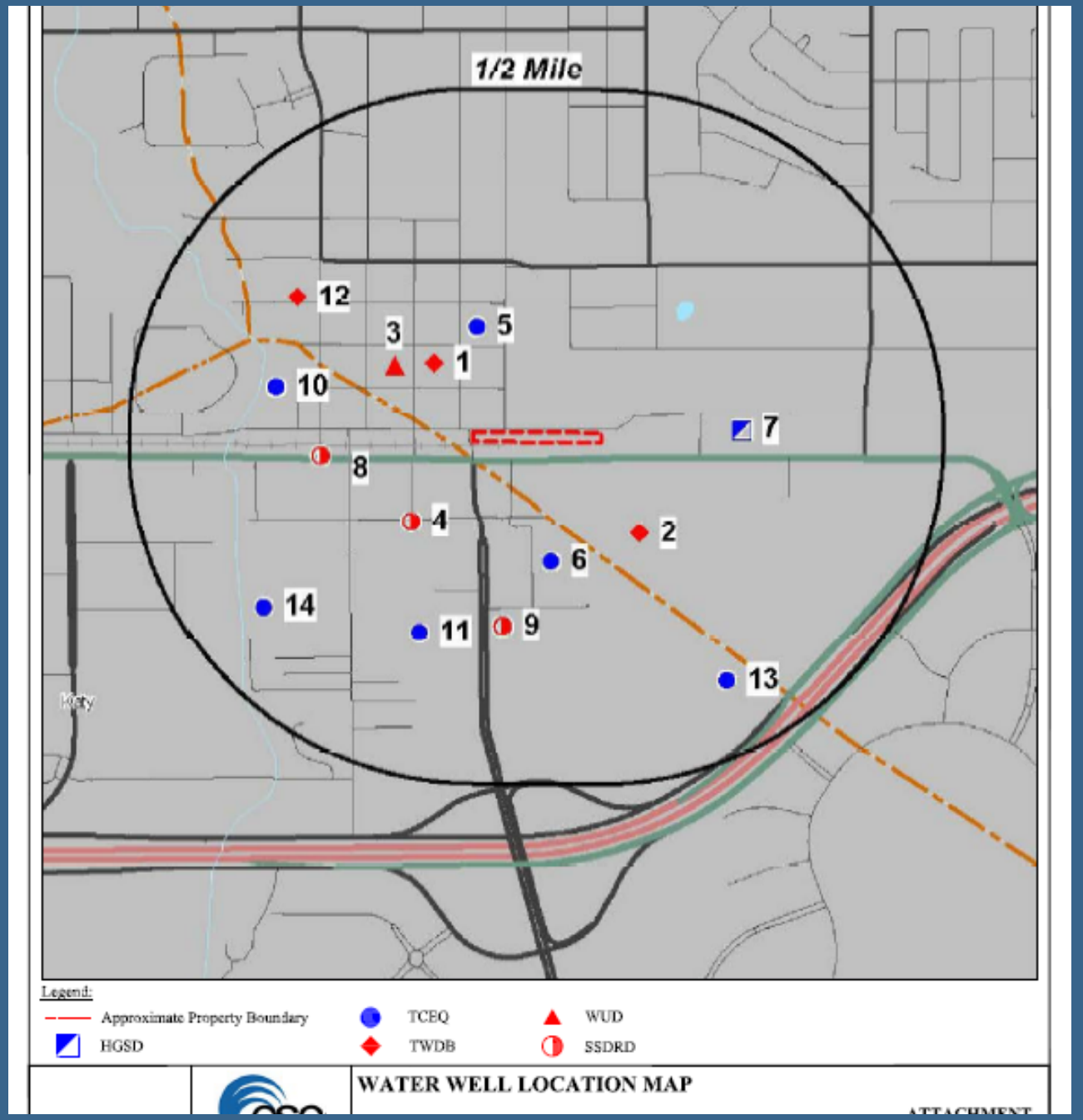


2. Plume is NOT delineated



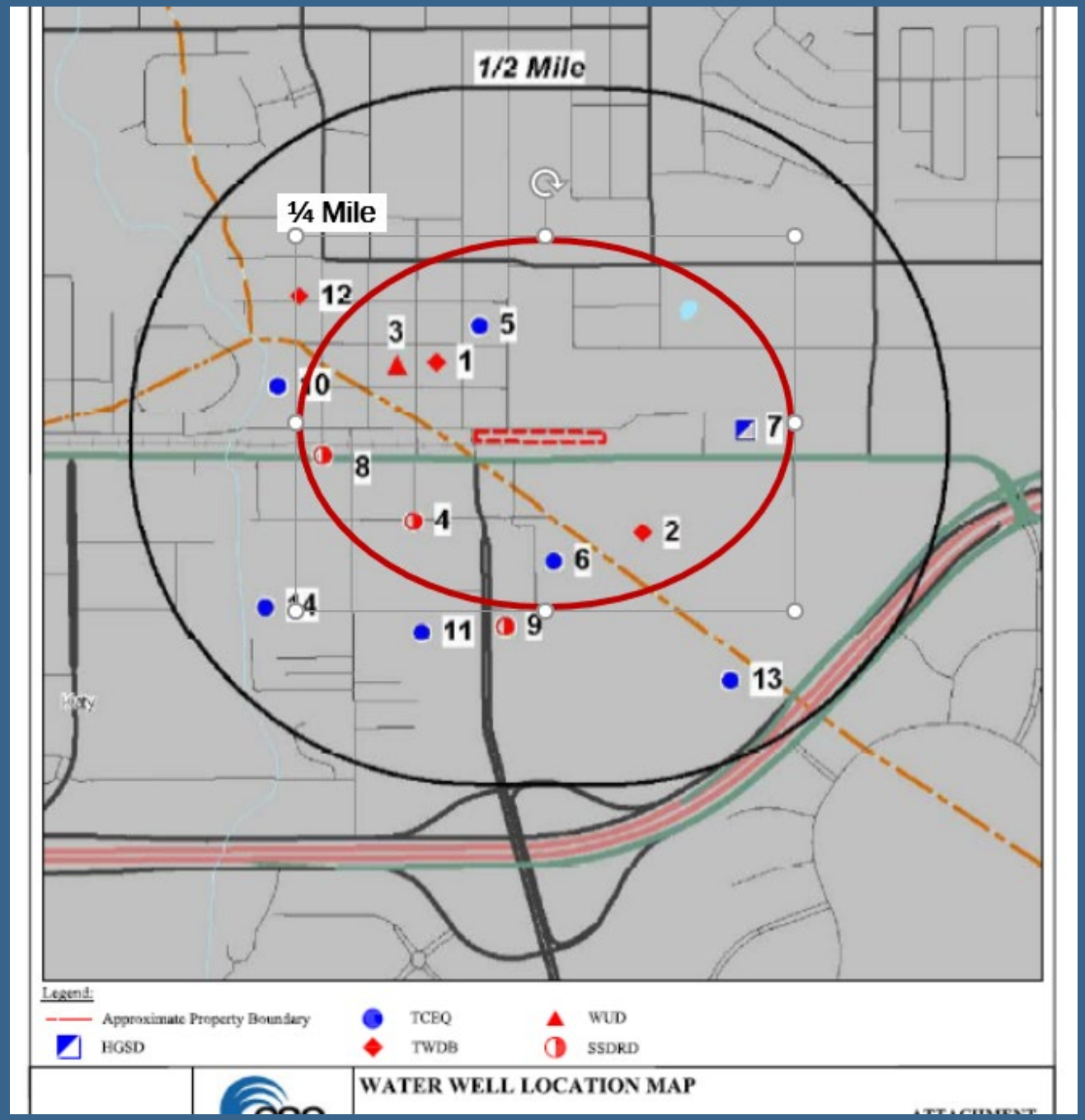
2. Plume is not delineated

- More common scenario
- Water well search should be conducted for 0.5 miles from known extent of the contamination
- Public water availability/connection search needed
- DWSR also requires a 500-foot walking survey from boundary of the known extent of contamination

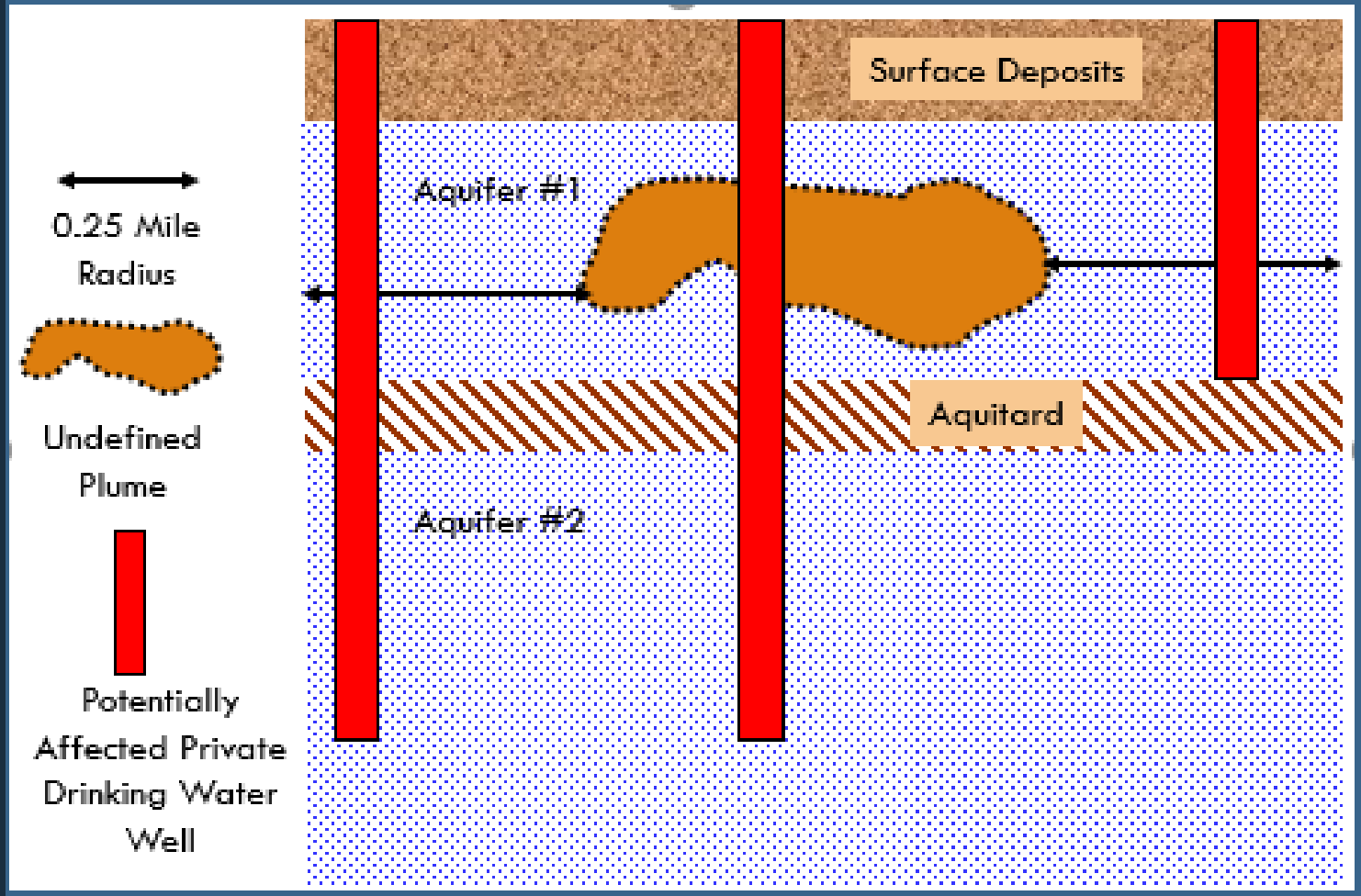


2. Plume is not delineated

- Concerned with private drinking water wells (as described in previous slide) <0.25 miles for TWC 26.408 notification purposes



Potentially Affected Wells – Vertically Undefined Plume



All 3 wells are considered potentially affected because:

- The vertical extent of the plume is not known
- The TCEQ does not consider construction details of the well (e.g., casing, cement intervals, and depth of well screens)

Notification Process

- A referral packet is completed by the Project Manager and sent to the Impact Evaluation Team (IET) of the TCEQ
- IET determines if notifications under TWC 26.408 are necessary
  - Balance between over- and under-notification
  - Consistency among programs
- Toxicology Division sends the notification letters based on the information referred by the programs.

TWC 26.408 Notice - Recap

- The notice is based solely on the **use of a well** and its **location**

- Information not considered at this time:
  - Partial plume delineation
  - Location relative to groundwater gradient (up-, down-, cross-gradient)
  - Water well construction details
  - Site Hydrogeology

Other Notices

- County Judges and county health officers receive 5.236 notice on all cases when 26.408 notice has been performed
- Groundwater conservation district (GCD), if one exists, also receives 26.408 notice and 5.236 notice
- Remediation Division notifies Public Drinking Water Section, Water Supply Division of public supply wells within 0.25 mile radius of plume

* Note: 5.236 notice letters are sent by the Remediation Division

Preparing a DWSR

Three critical steps

1. Identifying Public Water Supply Availability - 0.5 mile
2. Conducting Records Survey – 0.5 mile
3. Performing field survey
   - Walking Survey – 500 feet
   - Visual survey – 0.25 mile
   - Door-to-door survey – 0.25 mile (applicable properties)

Preparing a DWSR: Public Water Supply Availability

Identify properties or areas without a public water supply and look for water wells with in 0.5 miles of known extent of groundwater contamination

- DWSR should include dates and names of contact with public suppliers
- “Available” does not always mean “Connected”
- Evaluate properties for actual connection to the system
  - Water meters, fire hydrants, billing records from providers, etc.

Preparing a DWSR: Records Survey

Locate public drinking water sources and recorded water wells within 0.5 mile radius from the known extent of the plume

- "Registered" water wells
- Public water supply availability / connection
  - Areas that might have public supply available, but:
    - ✓ The property might not be connected to public supply
    - ✓ Public water providers may not divulge information for security or other reasons
- Groundwater Conservation District information
  - Who was contacted and what information was provided

Preparing a DWSR: Field Surveys

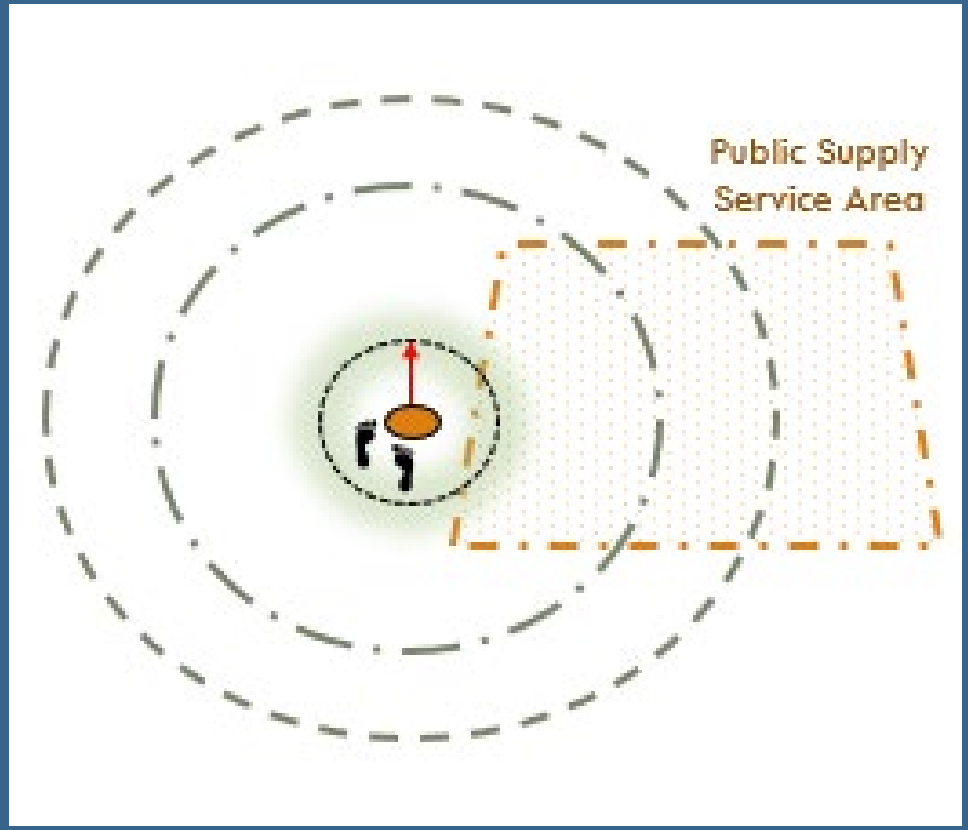
Locate water wells that were not identified during the records survey and confirm information obtained during the record survey, including but not limited to:

- Identifying “unregistered” wells
- Updating “registered” wells information
- Identifying current owners, users, and type of use of water wells
- Determining connection to public supply
- Collecting locational data on wells

Preparing a DWSR: Walking Survey

A **walking survey** should cover an area within 500 feet of known extent of the plume

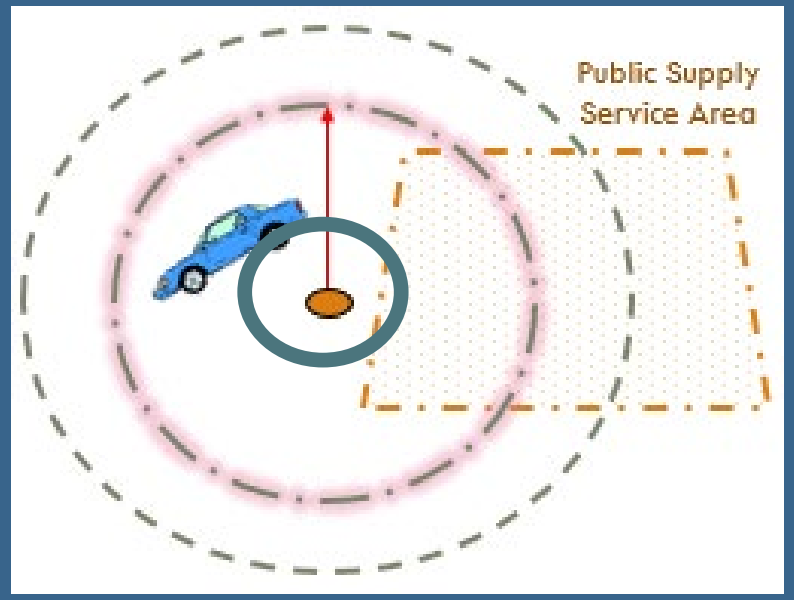
- Look for water wells within the area
- Look for other items called for by the regulatory program's "receptor survey"



Preparing a DWSR: Visual Survey

A **visual survey** should cover certain areas within 0.25 miles from known extent of release

- Look for visual indicators of wells and public supply availability (e.g., fire hydrants and water meter boxes)
- Conduct a door-to-door survey looking for indications of water wells in areas that:
  - A well was identified in the records survey
  - Are not serviced by public supply



DWSR: Table 1

Table 1 combines the results of the records and field surveys

- Must contain property address and current owner's mailing address as in Central Appraisal District (CAD)
  - If current owner's address is different from property address, the owner's address is used for notification
  - Notice can go to either "Resident at" or "Business at" if different than the owner's address
  - Name of owner from driller's log

  https://www.tceq.texas.gov/assets/public/remediation/twc26.408/prvww.xls

DWSR: Results of Door-to-Door Survey

Door-to-door survey shouldn't just verify registered wells, should also identify properties with unregistered wells

- Provide discussion on how survey was done and the results
- Include access or availability issues, if any
  - Nobody responds, can't see or check yard, loose dogs, etc.

DWSR: Water Well Locations

Water well locations and/or use can change over time

- Locations often only approximate location for older wells
  - Old wells plotted near road intersections
  - Verify the actual location vs plot
- Land use changes – is the area now urbanized? Subdivided?
  - Older wells may have been destroyed

* Provide explanations in the DWSR

DWSR: Use of Water Wells

Use all available resources to determine the use of the water well

- Start by assuming potable water if use can not be verified
- Confirmation of non-potable uses can exclude the well from notice
  - Irrigation, lawn watering, geothermal
  - documentation in the DWSR
- Interview statement “We don’t drink the well water”
  - TCEQ is concerned if the well is plumbed to a structure because situations can change
  - Potable use includes drinking, cooking, bathing, showering, food crop watering

Outcome: Notices Required?

Notices Required			
• No Private wells • No Public wells	• No Private wells • Public wells exist	• Private wells exist • No public wells	• Private wells exist • Public wells exist
No TWC 5.236 or 26.408 Notices	TWC 5.236 notice Email to PDW Section	TWC 5.236 notice TWC 26.408 notice	TWC 5.236 notice, TWC 26.408 notice, Email to PDW Section

*Note: Exist means wells are located in the extent of a defined plume or within 0.25 miles of the known extent of an undefined plume

Questions?

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