PAGE(S) MISSING

REDACTED VERSION

Cover Page

Program ID No. (primary): SWR 80951 Report date: August 2015

TCEQ Region No.: 4 MSD Certificate No.:

Additional Program ID Numbers.: SWR/Facility ID No.: PST Facility ID No.:

DCRP ID No.: VCP ID No.: LPST ID No.:

MSW Tracking No.: HW Permit/CP No.: Enforcement ID No.:

Other ID Nos.: EPA CERCLIS TXD980865109

Reason for submittal (check all that apply):

- ☒ Initial submittal
- ☐ Revision

Notice of Deficiency Letter
Permit/Compliance Plan
Voluntary response

Enforcement/Agreed order
Directive/NOV letter
Other:

On-Site Property Information

On-Site Property (Facility) Name: Former F.J. Doyle Transformer Salvage/Recycling Facility

Street no. 905 Pre dir: N. Street name: Poplar Street type: St Post dir:

City: Leonard County: Fannin County Code Zip 75452

Nearest street intersection and location description: 0.344 acres, SW Corner of N. Poplar St and E. Cottonwood St

Latitude: Decimal Degrees (indicate one) North 33.389437

Longitude: Decimal Degrees (indicate one) West 96.243147

Contact Person for On-Site Property Information and Acknowledgment

Company Name or Person: Heirs: (b) (6) [redacted]

Contact Name: (b) (6) [redacted] Title: Owner

Mailing Address: (b) (6) [redacted]

City: Leonard State: TX Zip: 75452 Phone:

Email: Fax:

Person is: ✓ property owner ___ property manager ___ potential purchaser ___ tenant ___ operator

other

By my signature below, I acknowledge the requirement of §350.2(a) that no person shall submit information to the executive director or to parties who are required to be provided information under this chapter which they know or reasonably should have known to be false or intentionally misleading, or fail to submit available information which is critical to the understanding of the matter at hand or to the basis of critical decisions which reasonably would have been influenced by that information. Violation of this rule may subject a person to the imposition of administrative, civil, or criminal penalties.

Signature of Perso (b) (6) [redacted] Name (print) (b) (6) [redacted] Date: 9-13-15

Consultant Contact Person

Consultant Company Name: Terra-Solve, Inc.

Contact Person: Rick Robertson Title: VP

Mailing Address: PO Box 702522

City: Dallas State: TX Zip: 75370

Phone: 972-267-1900 Fax: E-mail address rick@terra-solve.com

9719503

Professional Signatures and Seals

Professional Geoscientist

Charles R. Robertson	150	07/31/2016
Professional Geoscientist	Geoscientist License number	Expiration date
Signature	8/31/15 Date	
972-267-1900		rick@terra-solve.com
Telephone number	FAX number	E-mail

Professional Engineer

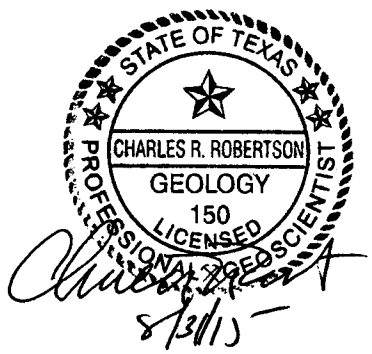
Professional Engineer	P.E. License number	Expiration date
Signature	Date	
Telephone number	FAX number	E-mail

Registered Corrective Action Specialists (RCASs) and Corrective Action Project Managers (CAPMs)

For LPST sites only.

Registered Corrective Action Specialist	RCAS Registration number	Expiration date
Signature	Date	
Corrective Action Project Manager	CAPM Registration number	Expiration date
Signature	Date	
Telephone number	FAX number	E-mail

Seals, as applicable:



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	Check if included
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Executive Summary

Environmental Media	Actual or Probable Exposures On-Site?		Actual or Probable Exposures Off-Site?		Have notifications for actual or probable exposures been completed? (§350.55(e))		
	Yes	No	Yes	No	Yes	No	N/A
Soil	X		X			X	
Groundwater	X		X			X	
Sediment	X		X			X	
Surface Water		X		X		X	

Is there, or has there been, an affected or potentially affected water well? ✓ Yes ____ No

If yes, what is the well used for? Publice Supply Well, 370 feet to the SW

Actual land use: On-site: ___ Res ✓ C/I Off-site affected property: ✓ Res ____ C/I __ N/A

Land use for critical PCL determination: On-site: ✓ Res ___ C/I Off-site affected property: ___ Res ___ C/I __ N/A

Did the affected property pass the Tier 1 ecological exclusion criteria checklist? _____ Yes _____ No

Affected groundwater-bearing unit(s) (in order from depth below ground surface), or uppermost groundwater-bearing unit if none affected

Unit No.	Name	Depth below ground surface (ft)	Resource Classification (1, 2, or 3)
1	Shallow	Not assessd	Unknown
2	Woodbine Formation	1,690	1
3			

Assessment

Environmental Media		Assessment Levels Exceeded?						Affected property defined to RAL?			Is COC extent stable or expanding?	General classes of COCs (VOCs SVOCs, metals, etc.)
		On-Site?			Off-Site?							
		Yes	No	Not sampled	Yes	No	Not sampled	Yes	No	N/A		
Soil	Surface	X			X				X		Unknown	PCB, Mtls
	Subsurface	X			X				X		Unknown	PCB, Mtls
Groundwater				X			X		X		Unknown	PCB, Mtls
Sediment				X			X		X		Unknown	PCB, Mtls
Surface Water				X			X		X		Unknown	PCB, Mtls

NAPL Occurrence Matrix (Unknown, last sampled 1990s)

	NAPL Occurrence		Description
NAPL in vadose zone		No NAPL in vadose zone	There is no direct or indirect evidence of NAPL in the vadose zone
		NAPL in/on soil	NAPL detected in or on unsaturated, unconsolidated clay-, silt-, sand-, and/or gravel-dominated soils
		NAPL in fractured clay	NAPL detected in fractures of unsaturated fine-grained soils
		NAPL in fractured or porous rock	NAPL detected in unsaturated lithologic material
		NAPL in karst	NAPL detected in karst environment
NAPL at capillary fringe		No NAPL at capillary fringe	There is no direct or indirect evidence of NAPL at the capillary fringe
		NAPL at capillary fringe	NAPL detected at vadose-saturated zone transition, capillary fringe (in contact with water table)
NAPL in saturated zone		No NAPL in saturated zone	There is no direct or indirect evidence of NAPL in the saturated zone
		NAPL in soil	NAPL detected in saturated unconsolidated clay-, silt-, sand-, and/or gravel-dominated soils
		NAPL in fractured clay	NAPL detected in fractures of saturated fine-grained soil or other double-porosity sediments
		NAPL in saturated fractured or porous rock	NAPL detected in saturated lithologic material
		NAPL in saturated karst	NAPL detected in karst environment within the saturated zone
NAPL in surface water or sediment		No NAPL in surface water or sediment	There is no direct or indirect evidence of NAPL in surface water or sediments
		NAPL in surface water	NAPL detected in surface water at exceedance concentration levels or visual observation
		NAPL in sediments	NAPL detected in sediments at exceedance concentration levels or visual observation via migration pathway or a direct release

Remedy Decision

Environmental Media		Critical PCL exceeded on-site?			Critical PCL exceeded off-site?			PCLE zones defined?			General class (VOCs, SVOCs, metals, etc.) of COCs requiring remedy
		Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	
Soil	Surface	X			X				X		PCB, metals
	Subsurface	X			X				X		PCB, Metals
Groundwater											Not sampled
Sediment		X			X						PCB, metals
Surface Water											Not sampled

NAPL Triggers (Unknown, last sampled in 1990s)

NAPL Response Action Triggers		Description of Triggers
	No NAPL response action triggers	No NAPL triggers have been observed in any assessment zones (vadose, capillary fringe and saturated), nor in surface water or sediments
	NAPL vapor accumulation is explosive	NAPL vapors accumulate in buildings, utility and other conduits, other existing structures, or within anticipated construction areas at levels that are potentially explosive (≥ 25% LEL)
	NAPL zone expanding	NAPL zone is observed to be expanding using time-series data
	Mobile NAPL in vadose zone	NAPL zone is observably mobile, or is theoretically mobile based on COC concentrations and residual saturation
	NAPL creating an aesthetic impact or causing nuisance condition	NAPL is responsible for objectionable characteristics (e.g., taste, odor, color, etc.) resulting in making a natural resource or soil unfit for intended use
	NAPL in contact with Class 1 groundwater	NAPL has come in actual contact with saturated zone or capillary fringe of a Class 1 GWBU
	NAPL in contact with Class 2 or 3 groundwater	NAPL has come in actual contact with saturated zone or capillary fringe of a Class 2 or Class 3 GWBU
	NAPL in contact with surface water	Liquid containing COC concentrations that exceed the aqueous solubility in contact with surface water via various migration pathways or direct release to surface water
	NAPL in or on sediments	Liquid containing COC concentrations that exceed the aqueous solubility impact surface water sediments via migration pathway or a direct release

Conclusions and Recommendations

Use this section to summarize the major activities conducted, results, and conclusions of the assessment and to briefly discuss the recommended response actions.

Assessment Results

Investigation of the site began in 1990 by both EPA and TCEQ contractors, and soil samples collected indicated elevated levels of PCBs, yet no cleanup has ever been conducted. Please see the attached comprehensive chronology of the case and a figure showing the previous sampling points and their PCB concentrations. No groundwater samples have been collected.

On-site soils exceed the Tier I Residential PCLs for PCBs, copper, and hexachlorobenzene. Off-site residential properties to the west and south contain affected soil above the Tier I Residential PCLs for PCBs, copper, and hexachlorobenzene. Sediment samples from the Right-of-way's also exceed the Tier I PCLs for the above-mentioned constituents. The horizontal and vertical extent of these contituents in the soil has not been determined.

NAPL Discussion

All previous sample results are included in this report, however documentation of these efforts are incomplete and lost to time. No specific information on the presence or absence of NAPL was available. The proposed additional sampling will address this deficiency. If present, a NAPL management plans and assessment will be developed in accordance with the guidance documents *Risk-Based NAPL Management* (RG-366/TRRP-32) and *NAPL Assessment* (RG-366/TRRP-12A), respectively.

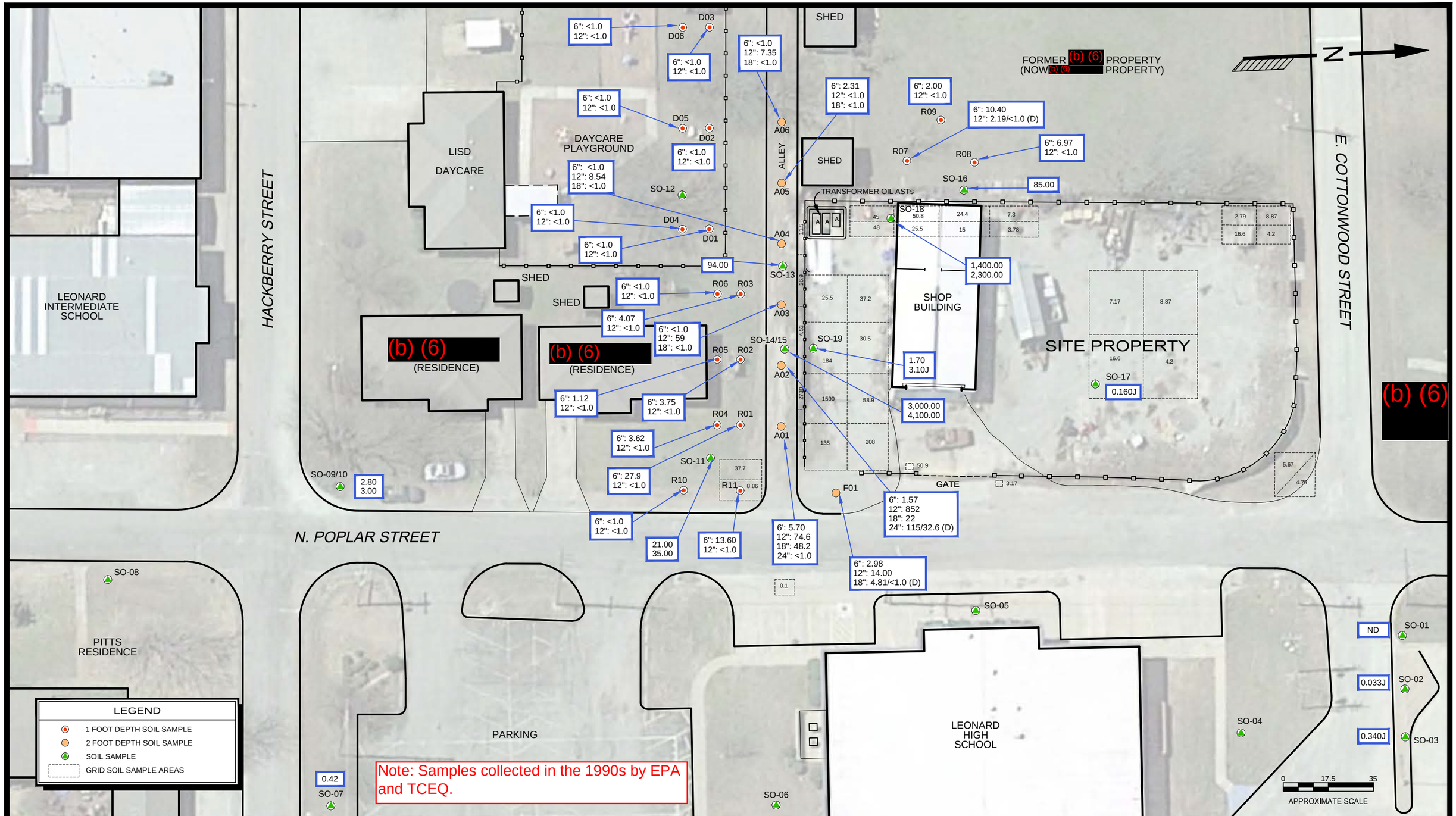
Response Actions and Recommendations

Remedy Standard B allows the use of physical and institutional controls to be used in combination with or in lieu of removal or decontamination of the COCs to block exposure or to control COCs such that exposure does not occur. After the current site conditions and groundwater pathway has been assessed or eliminated, any remaining off-site soils above the PCLs will be removed. The site will be covered by paving and maintained as an engineering control to prevent exposure to any remaining on-site soils above the PCLs. A deed restriction will be filed to prevent exposure to on-site soils exceeding PCLs.

The former F.J. Doyle Transformer Salvage site is planned to be razed and paved over and used for a parking lot for the Leonard ISD High School. It is anticipated that this engineering control and a Deed Restriction will be the ultimate Remedy Standard for the site. Terra-Solve recommends additional soil and groundwater samples be collected on site to determine the current site conditions. Terra-Solve also recommends that additional off-site soil samples be collected from the upper 15 feet of soil near the former soil sample locations and along the drainage ditches around the site perimeter, and that three monitoring wells be installed near the former source areas. Based on these results, the current conditions can be established and the groundwater exposure pathway can be evaluated, and any further efforts to determine the horizontal extent of COCs above the Tier I Residential PCLs that may be required. Any off-site soils exceeding the Tier I Residential PCLs will be removed.

Figure A - Affected Property and PCLE Zone Map

A map illustrating the results of the EPA and TCEQ sampling efforts from the 1990s is attached. As shown on the map, PCBs above the Tier I Residential PCLs are present both on site and off site.



Note: Samples collected in the 1990s by EPA and TCEQ.

TERRA · SOLVE
ENVIRONMENTAL CONSULTANTS
3216 COMMANDER DRIVE, SUITE 103
CARROLLTON, TX 75006-2518
PHONE (972) 267-1900
FAX (972) 267-1902
RCAS NO. 00530

PCB CONCENTRATION MAP

FORMER F.J. DOYLE SALVAGE TRANSFORMERS
305 COTTONWOOD STREET (905 N. POPLAR STREET)
LEONARD, FANNIN COUNTY, TEXAS

DATE:	SCALE:
JULY 2014	SEE ABOVE
PROJECT NO.: 09724	FIGURE NO.: A

Specialized Submittals Checklist

X **Check here if no specialized submittals in this report**

	If included, specify section or appendix
Ecological Risk Assessment	
Reasoned justification, expedited stream evaluation, Tier 2 or 3 ecological risk assessment, and/or proposal for ecological services analysis	
Statistics	
Calculated site-specific background concentrations	
Used alternate statistical methods to determine proxy values for non-detected results (§350.51(n))	
Calculated representative concentrations (§350.79(2)) for remedy decision	
Analytical Issues	
Used SQL for assessment or critical PCL instead of the MQL (§350.51(d)(1)) or PCL (§350.79)	
The MQL of the analytical method exceeds assessment levels/critical PCLs (§350.54(e)(3))	
Human Health/Toxicology	
Variance to exposure factors approved by TCEQ Executive Director[1] (§350.74(j)(2))	
Developed PCLs based on alternate exposure areas	
Evaluated non-standard exposure pathway (e.g., agricultural, contact recreation, etc)	
Combined exposure pathways across media for simultaneously exposed populations (§350.71(j))	
Adjusted PCLs due to residual saturation, cumulative risk, hazard index, aesthetic concerns, or theoretical soil vapor	
Utilized non-default human health RBELs to calculate PCLs (includes use of non-default parameters, toxicity factors not published in rule, etc.) (§350.51(l), §350.73, §350.74)	
Calculated Tier 2 or 3 RBELs/PCLs or TSCA levels for polychlorinated biphenyls, or calculated Tier 2 or 3 RBELS/PCLs for cadmium, lead, dibenzo-p-dioxins, dibenzofurans, and/or polycyclic aromatic hydrocarbons	
Calculated Tier 1, 2, or 3 total petroleum hydrocarbon (TPH) PCLs	
Developed sediment/surface water human health RBELs and PCLs	
Fate and Transport	
Used or developed groundwater to surface water dilution factors	
Calculated Tier 2 PCL	
Calculated Tier 3 PCL	
Groundwater Issues	
Conducted aquifer test, classified Class 3 groundwater, or determined non-groundwater bearing unit (saturated soil)	

[1] Prior approval by Executive Director is required.

Section 1 Property Information

Use this section to describe the environmental setting, the geology/hydrogeology of the area, general operational history for the property, the affected property, and sources of releases.

Section 1.1 Physical Location

Property Location and Land Use

The site is the location of the former F.J. Doyle Transformer Salvage and Recycling facility. The property is located at 905 N. Poplar Street and consists of two lots of land. The property (total of 0.344 acre) is bounded by E. Cottonwood Street to the north, N. Poplar Street to the east, a single-family residence to the south, and a vacant lot to the west in the city of Leonard in Fannin County, Texas, 75452. The property is abutted by vacant and single family residential properties. Leonard High School is located to the east across N. Poplar Street. The latitude of the center of the property is approximately 33° 23' 22.05" N and the longitude is approximately 96° 14' 35.31" W. The legal description of the property is included in Appendix 16.

The site is owned by (b) (6) [redacted], heirs of the late Mr. Frank J. Doyle. Site Photographs are provided in Appendix A, a Site Vicinity Map and the Site Plan is included in the attachments (Figures 1A and 1B).

Topography

Based on Terra-Solve's review of the United States Geological Survey (USGS) 7.5 Minute Topographic Map of the Leonard, Texas Quadrangle (1964) the property is located at an elevation of approximately 735 feet above mean sea level (MSL). The topography of the area is gently rolling to the south toward Arnold Creek. A copy of the topographic map is included in the attachments (Figure 2C).

Terra-Solve reviewed the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), for Fannin County, Texas, Unincorporated Area, Panel Number 480807 0010B, November 8, 1977. Although the city limits of Leonard are excluded from this map, the proximity of the site to the northeast corner of the city allows Terra-Solve to infer that the property is likely located in Zone X, considered outside the 500-year flood zone. This designation is not considered to present an environmental concern to the property. A copy of the FEMA map is located in the attachments.

Weather

In recent years, the area has experienced significant periods of drought, followed by near record rainfalls in 2015. Leaching to lower depth during dry periods and smearing of oil in the subsurface due to fluctuating water table periods is possible. Metals are not particularly mobile vertically (pH dependent), but runoff from contaminated site soils/sediment could impact soil along drainage ditches bordering the site. Average rainfall is approximately 45 inches per year. The effect of these variations and overall lowering on COC transport and distribution depends on the nature of the COC. For LNAPLs, it has the effect of creating a "smear" zone. However, for the COCs at the site (PCBs and metals), drought conditions would not appreciably exacerbate

their effect.

Section 1.2 Affected Property and Sources of Release

History and Operations

Transformer were salvaged, oil was drained, and copper was recovered from the salvaged transformers at the site from 1974 to 1999. Initially oil was used as weed killer on site and distributed to others in the community as weed killer. Later recovered oil was stored in aboveground tanks and drums. The land is improved by two buildings, a 2,190 square-foot shop and a 450 square-foot shed. A portable building and a concrete containment sump with three aboveground storage tanks are also present. The site has subsequently been used as a vehicle repair and tire shop.

During site reconnaissance conducted by Terra-Solve in November of 2009, the following items were observed:

- Terra-Solve observed a solvent parts washer in the warehouse repair area. The warehouse and office storeroom also store various amounts of general cleaning and general maintenance supplies.

- Three aboveground storage tanks (ASTs) are present in a secondary containment basin at the southwest corner of the property. All three were reported to previously have been used to store residual transformer oil during the transformer salvage operations. The three tanks still retain a "No PCB" sticker near their fill pipes. The ASTs are located in a concrete secondary containment basin with a valve for draining the containment after rain events after the operator first examines the water to insure that no sheen or floating oil is present. The containment was over half full of rainwater at the time of the site visit, and significant debris and hydrocarbon sheen on the water was observed. The drain was closed, but was not locked.

- A kerosene-dispensing AST was observed on the north side of the shop building. The AST appeared to be empty, but this could not be confirmed.

- Numerous 55-gallon drums of new/used oil and hydraulic fluid are located in and around the shop and numerous used and emptied drums are stored in and around the secondary containment basin.

- Numerous areas of oil staining were observed on the concrete inside the shop building and staining was observed near the secondary containment basin and hydrocarbon sheens were observed in the parking lot.

- One pole-mounted transformer is located across N. Poplar Street east of the shop building, and four other pole-mounted transformers are located across N. Poplar Street from the northeast corner of the site. One old transformer from the salvage business is still located inside the shop building. The active units are owned and serviced by Texas New Mexico Power Company (TNMP) and one of the four is considered to possibly contain PCBs.

- The remaining transformer inside the shop at the site has a "No PCBs" sticker and is left over from the transformer salvage operations at the site.

- Terra-Solve observed numerous unidentified containers on the property, mostly inside and near the shop building and on-site trash cans for authorized disposal. However, a large amount of debris and parts are stored on site.

As stated earlier, the future planned use of the site is for a parking lot for Leonard ISD.

Project Overview

This site is located adjacent to a high school, a school-owned daycare, and several residences. Investigation of the site began in 1990 by both EPA and TCEQ contractors, and samples collected indicated elevated levels of PCBs on the site and on some adjacent properties, yet no cleanup has ever been conducted. Please see the attached comprehensive chronology of the case and a figure showing the previous sampling points and their PCB concentrations.

CHRONOLOGY OF EVENTS

FORMER F.J. DOYLE SALVAGE TRANSFORMERS
305 E. COTTONWOOD STREET
LEONARD, FANNIN COUNTY, TEXAS

EPA CERCLIS NO. TXD980865109 / TCEQ SWR 80951
TERRA-SOLVE PROJECT NO. 09724

DATE	ACTIVITY
1974-1989	
1974	Mr. Frank Doyle began operations at the site for reclamation of electrical transformers. The wiring and scrap metal were recycled and the residual oil was used for weed killer both on site and was distributed to others within the City of Leonard. **[Note that Terra-Solve was informed by the owner the site began operations in 1976].**
1976	Mr. Doyle indicated that after this date, no transformers containing PCBs were accepted at the facility.
01/21/88	Mr. Doyle began application to the Texas Air Control Board (TACB) for a special air operating permit to allow for operation of a heat cleaning unit at the site.
03/22/88	A public hearing was held on the above air permit application.
06/27/88	TACB issued an Agreement and Stipulation of Facts in lieu of the hearing on June 28, 1988.
07/15/88	TACB issued an order so the permit could not later be challenged by its opponents.
08/23/88	TACB issued the permit
04/22/89	Mr. Doyle applied for the air operating permit
1990	
07/20/90	EPA conducted a **PCB Inspection** at the site. *No record of this work has been located by subsequent EPA contractors even as early as May 1997.*
10/12/90	Ecology & Environment Technical Assistance Team (TAT), an EPA contractor, conducted a **Site Assessment** sampling investigation. *No record of this work has been located by subsequent EPA contractors even as early as May 1997.*
1991 - 1992	
04/05/91	Texas Air Control Board (TACB) issued an air permit to allow for operation of a combustion unit at the site.
04/19/91	Ecology & Environment TAT, an EPA contractor, conducted another **Site Assessment** sampling investigation. *No record of this work has been located by subsequent EPA contractors even as early as May 1997.*

1993-1994	
1993	Mr. Frank Doyle registered the site with TCEQ for various non-hazardous waste disposal for non-PCB oil, ash residue, plant refuse, various storage containers, and a Dumpster.
09/07/94	EPA conducted another **PCB Inspection** at the site. *No record of this work has been located by subsequent EPA contractors even as early as May 1997.*
1995-1996	
05/23-24/95	Worldwide Reclamation, a Doyle contractor, under supervision of EPA, conducted surface and subsurface **soil sampling**. *No record of this work has been located by subsequent EPA contractors even as early as May 1997.*
07/10-12/95	Ecology and Environment TAT, an EPA contractor, conducted a **Site Assessment (SA)** sampling investigation. A total of 68 samples were collected from the site, the alleyway, and the neighboring residences to the south, west, and east. Elevated levels of PCBs were found both on- and off-site. On-site levels ranged from 50.9 ppm to 2,730 ppm. Alleyway levels ranged from 5.7 ppm top 857 ppm while off-site residence levels ranged from 10.44 ppm to 37.7 ppm
07/95	Site was entered in CERCLIS database.
08/31/95	Ecology and Environment, EPA TAT, issued a **Site Assessment (SA) Report** recounting the above findings and requested a meeting with Mr. Frank Doyle at their offices no later than 09/15/95 to discuss *"removing and disposing of this contamination in an expeditious manner."*
10/4/95	Mr. Doyle met with three EPA officials as requested above. The contents of this meeting are unknown. However, files indicate calculations regarding the cubic yardage of affected materials were made by hand; these calculations show 94.21 cubic yards of on-site soil and 86.98 cubic yards of off-site soil for a total of 181.19 cubic yards would be needed to be removed presumably to meet the above requirements.
1997	
01/97	Frank Doyle retired and (b) (6) [redacted] became the operator of the site.
05/20/97	Fluor Daniel, EPA TAT, conducted a site reconnaissance. EPA issued its **Preliminary Assessment Report (PA)** later that month. This report set that groundwater and soil exposure pathways were the only exposure pathways of concern.
07/21/97	EPA Screening Site Inspection (SSI) was approved to evaluate these pathways.
12/18/97	TCEQ issued a **Screening Site Inspection (SSI) Work Plan** to allow for further evaluation of the site using the above pathways of concern.
1998 - 1999	
01/13-14/98	TCEQ personnel conducted SSI work with sampling of city water supply wells and collection of on- and off-site soil samples. The groundwater samples did not contain metals or PCBs. Analysis of soil samples from 17 locations indicated that

	moderate levels of copper were detected at two on-site sample locations. PCBs were found on site and along drainage ditches away from the site.
09/98	TCEQ issued **SSI Report** on the above findings.
08/99	The site ceased operations.
2000-2009	
06/29/00	The Texas Department of Health (TDH), under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), issued a **Health Consultation Report** which recommended that further delineation of the extent of PCB-affected soil be conducted, or that the soil be removed.
2001	Based on the above, the ATSDR chose not to enter the site into National Priorities List (NPL) for superfund sites.
07/14/06	TCEQ issued Unit Closure Request Letter to Mr. Frank J. Doyle.
10/23/06	(b) (6) [redacted] responded to the above letter noting the passing of his father earlier that year and requesting clarification on what TCEQ was specifically requesting.
01/26/07	TCEQ responded to the above letter directing that a closure report for the waste management units (WMUs) be submitted and that an **Affected Property Assessment Report (APAR)** be completed.
02/09/07	(b) (6) [redacted] emailed a response to the above letter.
09/05/08	TCEQ issued Second Request Letter reiterating the 01/26/07 letter requirements above.
08/10/09	TCEQ created a Case File Memorandum which noted that due to the lack of response to the above letters, the case was being considered for Notice of Violation (NOV) and that the 3rd letter would be the NOV.
08/24/09	(b) (6) [redacted] emailed again to TCEQ regarding the above letter in anticipation of a potential sale of the property.
09/11/09	TCEQ responded to the above email with a new point of contact, Mr. Pindy Lall.
11/05/09	A client contracted with Terra-Solve to conduct a Phase I ESA of the site.
11/20/09	Terra-Solve conducted site reconnaissance for the Phase I ESA and met with Mr. (b) (6) [redacted] at the site.
11/30/09	Terra-Solve issued Freedom of Information Act (FOIA) request to EPA.
12/04/09	EPA issued response letter to the above FOIA request and Terra-Solve issued the Phase I ESA Report to the client noting this response.
12/15/09	EPA requested an extension in response time to 12/30/10.

2010 - 2013	
01/08/10	The client faxed additional information from Mr. Doyle to Terra-Solve. This information consisted of the items above with asterisks (*) next to the dates. Terra-Solve contacted Mr. Pindy Lall of TCEQ, the latest point of contact, and he requested a few days to familiarize himself with the case file.
01/19/10	Mr. Pindy Lall of TCEQ contacted Terra-Solve to discuss the case. He indicated that the items requested in the 01/26/07 letter (WMU closure reports and APAR investigation) are still required to complete work on the site.
01/30/10	Terra-Solve received a CD-ROM from EPA with the various reports referred to in the above entries and assembled this comprehensive chronology of site events.
02/03/10	Terra-Solve submitted a proposal to the client to arrange for and attend a meeting with TCEQ to discuss
02/08/10	Terra-Solve received a copy of the Central File Registry records from TCEQ and updated this chronology.
03/22/10	Terra-Solve received authorization to send the above information to TCEQ from the client and its attorney, Abernathy Roeder.
04/14/10	Terra-Solve submitted this information to Mr. Pindy Lall of TCEQ after several weeks of attempted contacts. Mr. Lall later contacted Terra-Solve regarding the above email submissions of EPA documents and directed Terra-Solve to submit a formal letter requesting review of this information.
04/15/10	Terra-Solve submitted the above-requested letter.
06/18/10	TCEQ issued a letter to Terra-Solve which outlined a "path to closure" for the site. Specifically, the letter directed the following:

(1) Surface soils be delineated horizontally to 1.1 ppm PCBs and copper and hexachlorobenzene to their Risk-Based levels;
(2) Vertical soil delineation to method quantitation limits (MQLs) or collect groundwater samples, in which case the entire soil column is assumed to be contaminated;
(3) If the site enters the Voluntary Cleanup Program (VCP), a groundwater sample will be required;
(4) If the entire soil column is assumed to be contaminated, a control such as a parking lot that serves as impervious cover may be implemented to prevent exposure, but such a measure would require maintenance to ensure integrity of the lot, and any uncovered areas would have to be removed, decontaminated, and/or otherwise controlled; and
(5) Demonstration that the drainage ditches are not impacting surface water will be needed.

2014	
04/24/14	Terra-Solve contacted by Abernathy Roeder regarding a possible sale of the subject property and asked to facilitate a meeting between all regulatory parties.
06/26/14	Terra-Solve and Abernathy Roeder met with Mr. James Sales of EPA Region VI at his office and also teleconferenced in Mr. Pindy Lall of TCEQ.
08/11/14	Terra-Solve and Abernathy Roeder met with other interested parties at the site to go over probably boring and well locations. It was determined that if the likely amount of agency-directed assessment and analysis was going to ultimately be required, the cost of such work would likely make the project untenable based on the value of the property. It was agreed that Terra-Solve would contact Pindy Lall to discuss these concerns.
08/13/14	After receiving non-deliverable replies to emails to Pindy Lall, Terra-Solve learned that Mr. Lall left the agency a few days previously. Terra-Solve attempted to find who the new coordinator is by telephone and in person on 08/14/14.
08/22/14	Terra-Solve submitted a letter to Mr. Richard Scharlach of TCEQ recapping the recent (2014) events and requesting a new case coordinator be assigned.
08/25/14	TCEQ assigned a new coordinator, Mr. Rodney Bryant.
09/02/14	TCEQ assigned a different coordinator, Ms. Eleanor Wehner, PG. Terra-Solve conferred with Ms. Wehner and wrote an update letter dated 09/10/14 which gave some hope for a reduced sampling scheme, particularly if the site did NOT go into the VCP. She did note, however, that a Drinking Water Survey was needed.
09/12/14	Terra-Solve conferred with Ms. Stephanie Kirschner of TCEQ regarding the availability of brownfields funds for the site. As the site is being contemplated for purchase by a non-profit group, these monies are available. A letter providing this information was submitted to the parties on 09/15/14 and a proposal for completion of the forms was submitted on 09/16/14.
10/21/14	Terra-Solve was engaged to complete the Brownfields Site Assessment (BSA) application.
10/23/14	Terra-Solve submitted the BSA application to Abernathy Roeder and the client.
2015	
04/21/15	Terra-Solve contacted by (b) (6) [redacted] regarding redevelopment of the site. Terra-Solve confirmed with Leonard ISD that no conflict of interest exists.
04/24/15	Terra-Solve spoke with Ms. Wehner who confirmed that she sent a letter to Mr. Doyle on 03/30/15 directing that the APAR and WMU Closure be conducted forthwith or that enforcement procedures would begin.
04/27/15	Terra-Solve met with (b) (6) [redacted] to discuss the site.

Section 1.3 Geology/Hydrogeology

According to the *Geologic Atlas of Texas, Sherman Sheet* (1967, revised 1991) the property is located on Upper Cretaceous-age Gober Chalk. This formation is characterized by bluish-gray chalk with clay that weathers white and is brittle. This formation is up to 400 feet thick but is thinner in the east.

The *Soil Survey of Fannin County, Texas* (NRCS on line data, 2001) indicates that the on-site soils are classified as Fairlie-Dalco complex, 1-3 percent slopes. These soils consist of deep, moderately well drained soils. The typical soil profile consists of dark-gray to black silty clay loam to a depth of 24 inches underlain to a depth of 35 inches by dark gray silty clay. From 35-54 inches black clay is present overlying white platy chalk of the Austin Chalk Formation/Gober Chalk.

Records of the previous assessments conducted by the TCEQ and EPA have been lost to time. A subsurface soil investigation would be needed to verify actual soil types and conditions. Such an evaluation was beyond the scope of this assessment.

As interpreted from the USGS topographic map, local shallow groundwater in the property area is anticipated to be between 10 feet and 20 feet below ground surface. Groundwater flow direction is likely generally south to southwestwardly toward Arnold Creek. Therefore, in assessing potential external environmental impact, properties located north to northeast of the property are of primary concern due to their inferred up gradient locations. However, actual groundwater gradient is often locally influenced by factors such as underground structures, seasonal fluctuations, soil and bedrock geology, production wells, and other factors beyond the scope of this study.

Based on Terra-Solve's review of the Geological Atlas of Texas, Sherman Sheet (1967, revised 1991), and Ground-Water Quality of Texas (1989), the property is underlain by the Trinity major aquifer and Woodbine minor aquifer. The upper Woodbine could be a minor source of water at a depth of 100-200 feet in its lower, more sandy sections. The Trinity Aquifer consists of the early Cretaceous age Paluxy, Glen Rose, and Twin Mountains-Travis Peak formations. Extensive historical development of the Trinity Aquifer in the Dallas-Fort Worth region has caused the water level to drop as much as 550 feet. Since the mid-1970s, many public water supply wells have been abandoned, and surface water is currently the primary water source for the area. However, the wells in Leonard are still in use.

The State Database of Well Information (SDWI) of the Texas Water Development Board database (Figure 2C) indicates that there is one registered water well within 0.5 miles of the property. This one well is an active public supply well, City Well #1, installed in 1957 in the Woodbine Formation and is 1,690 feet deep. This well is the primary source of drinking water for the City of Leonard (Appendix 13, Photograph 8).

Estimated groundwater levels and/or flow directions may vary due to seasonal fluctuations in precipitation, local usage demands, geology, underground structures, or dewatering operations, and can be more accurately determined through the installation of groundwater monitoring wells.

Table 1A - Sources of Release

List the sources (for example: landfill, tank, impoundment) being addressed under this assessment which are contributing COCs to each affected property. Use the inputs from the list provided below to complete Table 1A. For each source, provide the type of source, applicable NOR unit or SWMU numbers, substances of potential concern, the size of the source (capacity, area, or volume as applicable), and specify the status of the release source. Indicate whether a release from the source has been confirmed, provide the method of release discovery, and the date the release was discovered. Include the date if the status is "closed."

Inputs list for Table 1A (do not include this list in the report)

Column 1	Column 2	Column 3	Column 4
Types of Potential Sources	Substances of Potential Concern	Status of Source	Method of Release Discovery
Container	Acid solution	Active	Site assessment
Container storage area	Adhesives/epoxy	Inactive	Spill incident
Landfills	Caustic solution	Abandoned	NAPL discovery
Piping/distribution system	Dioxins/furans	Closed - specify date closed	Water well impact
Spills	Explosives	Other (specify)	Vapor impact
Sump	Fertilizer		Surface water/sediment impact
Surface impoundments/ponds/ lagoons	Halogenated hydrocarbons		Release detection equipment
Tanks	Lacquer/varnish		Other (specify)
Wash/repair areas	Metals		
Waste piles	Paint/ink/dyes		
Waste treatment unit	Paint thinner		
Waste water treatment unit	PCBs		
Other (specify)	Pesticide (herbicide, insecticide)		
	Petroleum Hydrocarbons (specify): gasoline, aviation gas, jet fuel (type), diesel, lube oil, hydraulic oil, used oil, etc.		
	Radionuclides		
	Wood preservatives		
	Other (specify)		

Table 1A. Sources of Release (see input values on preceding page)

Affected property name/number[1]	Name of potential source[2] (supplied by the person)	Type of potential source (select from Column 1 on Inputs list)	NOR unit or SWMU number, if applicable	Substances of potential concern (select from Column 2 on Inputs list)	Size of source (capacity, area, or volume)	Status of source (select from Column 3 on Inputs list)		Was a release from this source confirmed? (if yes, indicate the discovery method from Column 4 on Inputs list, and date release was discovered)			
						Status[3]:	If closed or other, list date closed or explain:	No	Yes	Discovery method	Date
Site	Transformers	Transformer	001, 002, & 003	Oil, PCBs, Metals	Unknown	Abandoned			X	Samples	1990s
Off Site	Transformers	Transformer	001, 002, & 003	Oil, PCBs, Metals	Unknown	Abandoned			X	Samples	1990s
Site	ASTs, Drums	Transformer Oil	001, 002, & 003	Oil, PCBs, Metals	Unknown	Unknown			X	Samples	1990s
Site	ASTs, Drums	Car maintenance and repair activities	001, 002, & 003	Petroleum hydrocarbons, metals, solvents	Unknown	Unknown		X			
Site	Dumpster	Plant Trash	003	Unknown	4 yds.	Unknown		X			
Off Site	ASTs, Drums	Car maintenance and repair activities	001, 002, & 003	Petroleum hydrocarbons, metals, solvents	Unknown	Unknown		X			

SWMU:
001: Various storage tanks- one 375-gallon AST, two 500-gallon ASTs, and one 55-gallon drum on the concrete pad.
002: High temperature oven to burn varnish off copper.
003: Dumpster, 4 yds. for accumulation of plant trash.

[1] The name or number is an identification of the affected property assigned by the person. Continue using the name or number identification throughout this report and all other correspondence on the affected property.
[2] The potential source is the source of the release. The person determines the name given to the potential source. Examples: northwest tank farm, Main Street landfill, etc.
[3] Specify whether the source status is active, inactive, abandoned, closed, or specify another status as appropriate.

Table 1B - Potential Off-Site Sources

Table 1B. Potential Off-Site Sources

Affected property name/number	Off-site facility/ site name	Physical address	Regulatory ID number	Type of operation/ business	Years of operation (if known)	COCs
none						

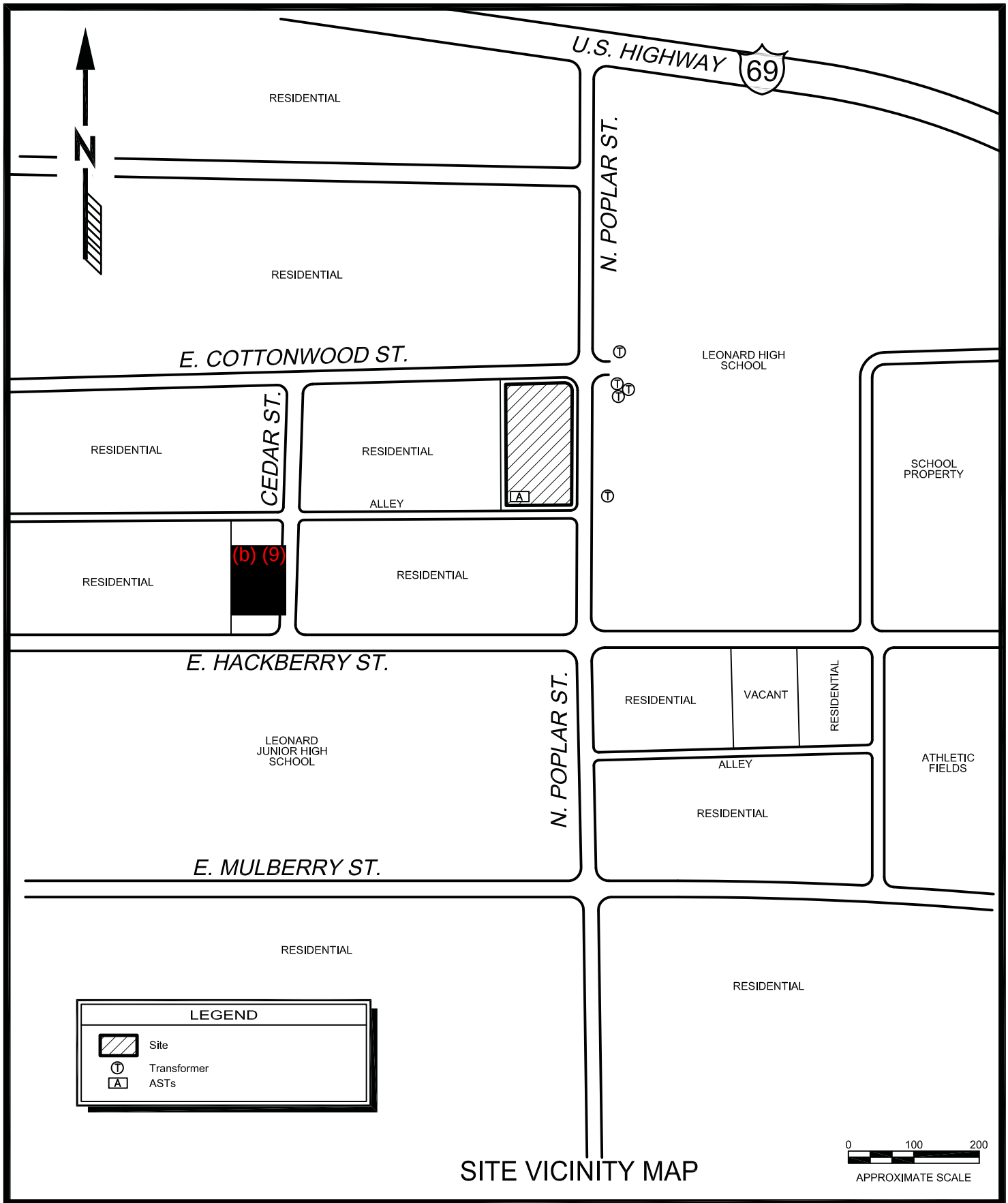
Attached:

Figure 1A - On-Site Property Map
Included in the attachments.

Figure 1B - Affected Property Map
Included in the attachments.

Figure 1C - Regional Geologic Map
Included in the attachments.

Figure 1D - Regional Geologic Cross Section(s)
Included in the attachments.



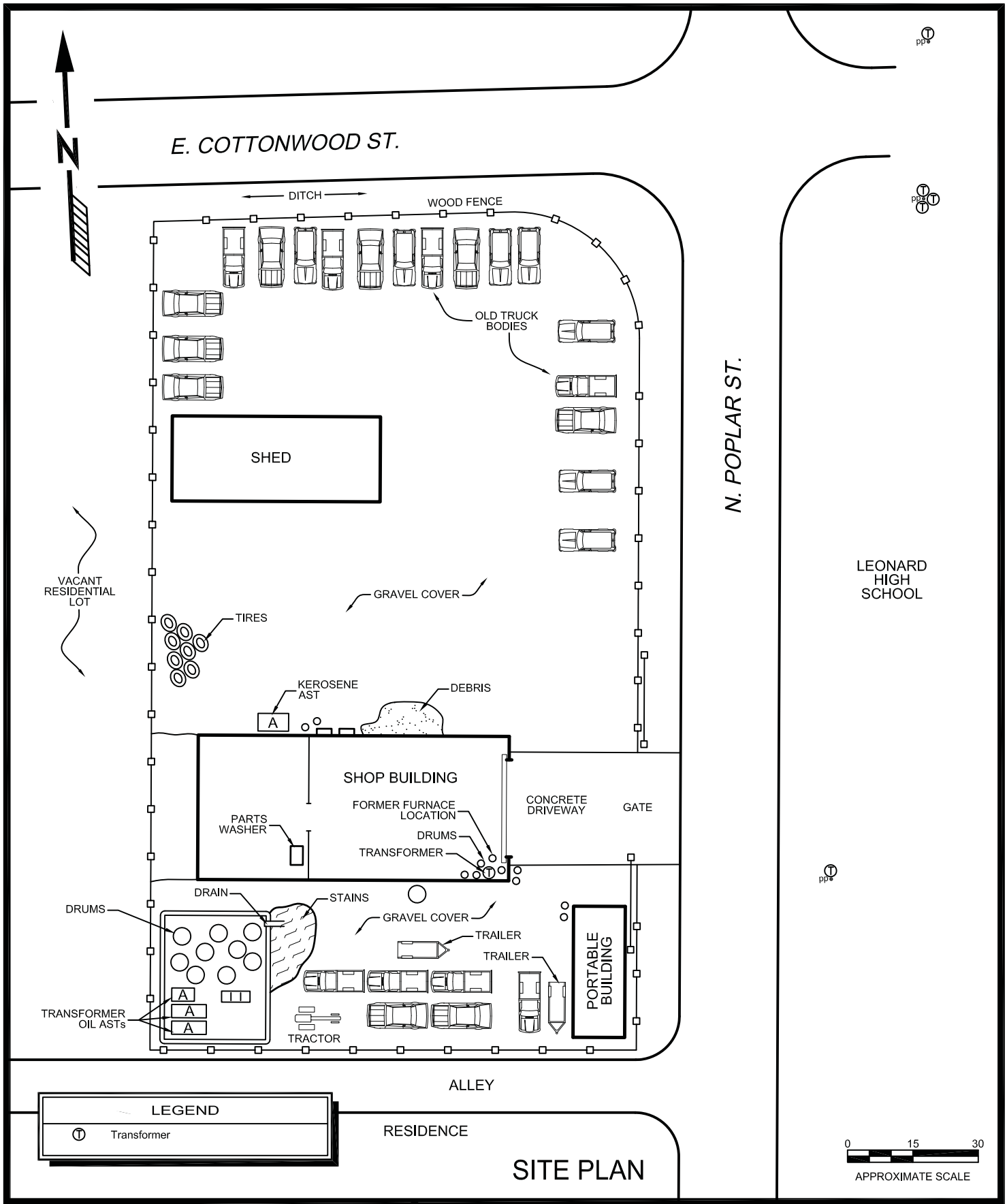
SITE VICINITY MAP

TERRA • SOLVE
ENVIRONMENTAL CONSULTANTS
3216 COMMANDER DRIVE, SUITE 103
CARROLLTON, TX 75006-2518
PHONE (972) 267-1900
FAX (972) 267-1902
RCAS NO. 00530

TWO LOTS OF IMPROVED LAND

APPROXIMATELY 0.344 ACRES
905 N. POPLAR STREET
LEONARD, FANNIN COUNTY, TEXAS

DATE:	SCALE:
NOV. 2009	SEE ABOVE
PROJECT NO.:	FIGURE NO.:
09724	1 A



SITE PLAN

TERRA • SOLVE
ENVIRONMENTAL CONSULTANTS
3216 COMMANDER DRIVE, SUITE 103
CARROLLTON, TX 75006-2518
PHONE (972) 267-1900
FAX (972) 267-1902
RCAS NO. 00530

TWO LOTS OF IMPROVED LAND

APPROXIMATELY 0.344 ACRES
905 N. POPLAR STREET
LEONARD, FANNIN COUNTY, TEXAS

DATE:	SCALE:
NOV. 2009	SEE ABOVE
PROJECT NO.:	FIGURE NO.:
09724	1B

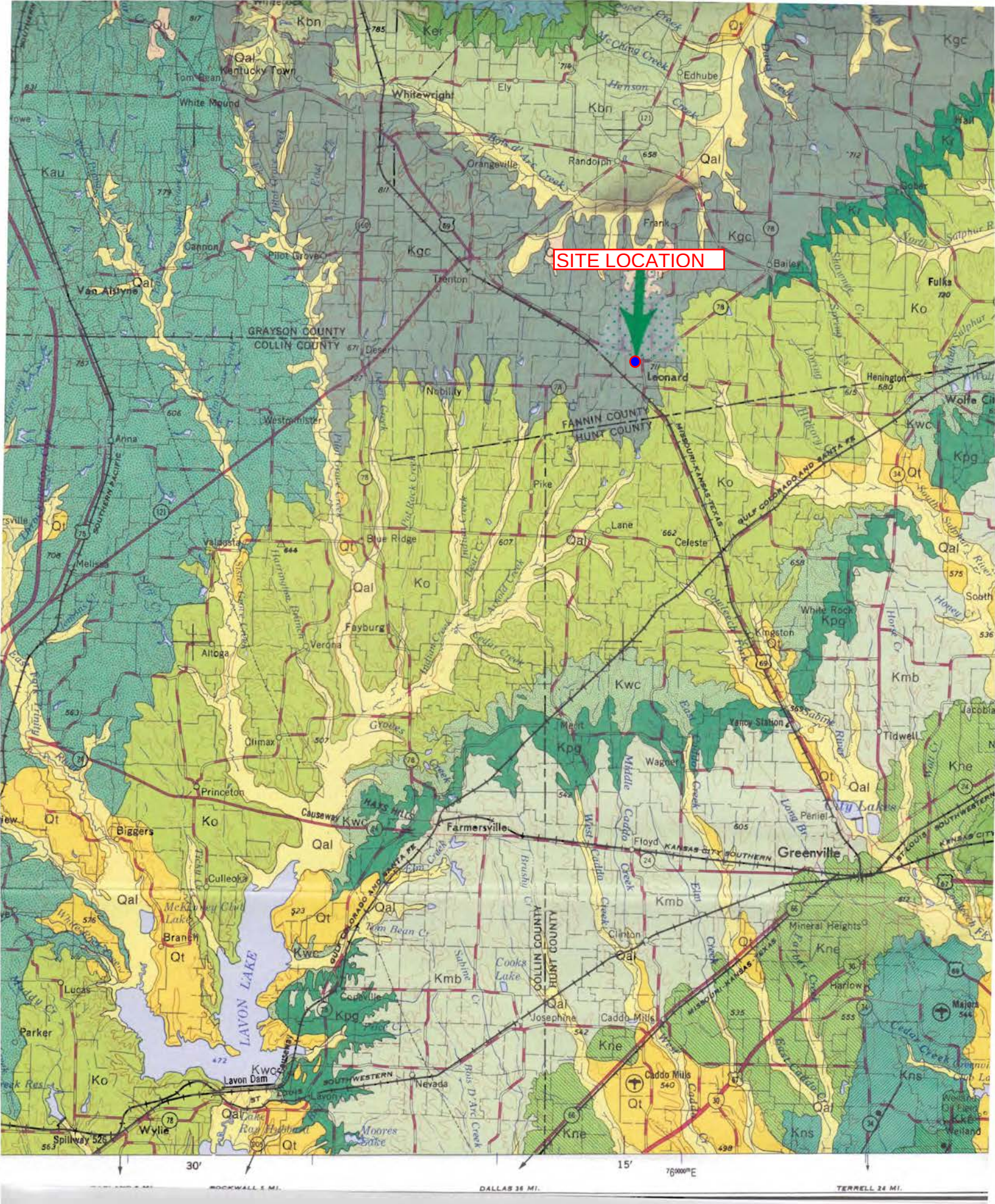


Figure 1C - Regional Geologic Map
Geological Atlas of Texas, Sherman Sheet (1967, revised 1991)

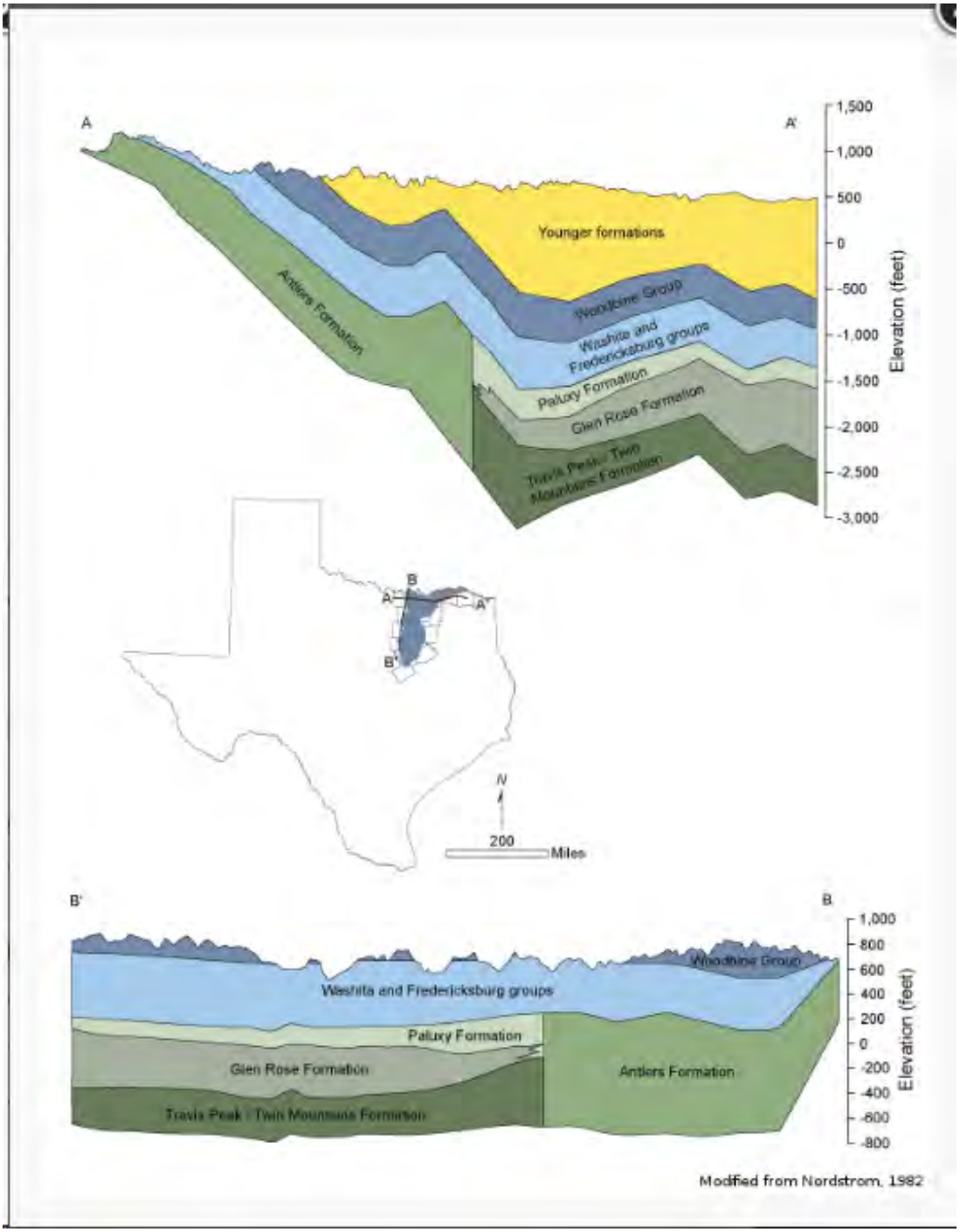


Figure 1D - Regional Geologic Cross Section
https://www.twdb.texas.gov/groundwater/aquifer/minors/woodbine.asp

Section 2 Exposure Pathways and Groundwater Resource Classification

Section 2.1 Source(s) of Potable Water for On-Site Property and Affected Off-Site Properties

The source(s) of potable water for the real property within the affected property and presumable all the vicinity, are municipal public supply water wells. The supplier is the City of Leonard, the owner of the several wells throughout the city which are used to supply city residences and businesses. The nearest well, (b) (9) [redacted] is located approximately (b) (9) [redacted] of the affected property. This well produces from the Woodbine Formation and is 1,690 feet deep. Given the depth of this well, it is unlikely that it would be impacted from affected shallow groundwater, if present.

No field walking survey has been performed, but it is likely that all real properties within the 500-foot field receptor survey radius are connected to the public water supply.

It is unknown if the City of Leonard has any ordinances or deed restrictions applicable to the affected property that prevent or restrict the installation of water wells.

Section 2.2 Field Receptor Survey

No 500-ft field door-to-door walking receptor survey has been conducted. As part of a Phase I ESA, site reconnaissance was performed by Terra-Solve on November 20, 2009, a limited "drive-by" survey of surrounding properties was conducted. The property (total of 0.344 acre) is bounded by E. Cottonwood Street to the north, N. Poplar Street to the east, a single-family residence to the south, and a vacant lot to the west in the city of Leonard in Fannin County, Texas, 75452. The property is abutted by vacant and single family residential properties. Leonard High School is located to the east across N. Poplar Street.

Section 2.3 Records Survey

As part of a Phase I ESA conducted in 2009, Terra-Solve requested a survey of records on receptors available within one-half mile radius of the affected property, including both on-site and off-site properties. This information, gathered by GeoSearch, Inc., of Austin, Texas, researched the databases of the Texas Water Development Board (TWDB), and the Texas Commission on Environmental Quality (TCEQ). Copies of the records survey results are included in Appendix 5; the list of sources of information used are included in Appendix 16.

Section 2.4 Receptor Survey Results

A single family residences is located north across E. Cottonwood Street. A vacant lot with single a family residence beyond abuts the site on the west side. An alley with a single family residence and a Leonard ISD daycare facility beyond is located south of the site. Leonard High School is located to the east across N. Poplar Street.

The general land use in the area is primarily residential. The site is located on a topographic high and the immediate site vicinity slopes away in all directions. Based on Terra-Solve's review of the United States Geological Survey (USGS) 7.5 Minute Topographic Map of the Leonard, Texas Quadrangle (1964) the property is located at an elevation of approximately 735 feet above mean sea level (MSL). The topography of the area is gently rolling to the south toward Arnold Creek. A copy of the topographic map is included in Appendix H.

One water well was found in the 0.5-mile radius search. No intermittent or perennial surface water bodies are present in the immediate area; drainage ditches are located along E. Cottonwood Street on the north side of the site and along E. Poplar Street on the east side of the site. The nearest surface water body, Arnold Creek, is located approximately one mile south-southwest of the site.

One water well was noted in the database search within the 0.5-mile radius search of the site. Based on Terra-Solve's review of the Geological Atlas of Texas, Sherman Sheet (1967, revised 1991), and Ground-Water Quality of Texas (1989), the property is underlain by the Trinity major aquifer and Woodbine minor aquifer. The upper Woodbine could be a minor source of water at a depth of 100-200 feet in its lower, more sandy sections. The Trinity Aquifer consists of the early Cretaceous age Paluxy, Glen Rose, and Twin Mountains-Travis Peak formations. Extensive historical development of the Trinity Aquifer in the Dallas-Fort Worth region has caused the water level to drop as much as 550 feet. Since the mid-1970s, many public water supply wells have been abandoned, and surface water is currently the primary water source for the area. However, the wells in Leonard are still in use. The State Database of Well Information (SDWI) of the Texas Water Development Board database (included in Appendix K) indicates that there is one registered water well within 0.5 miles of the property. This one well is an active public supply well, City Well #1, installed in 1957 in the Woodbine Formation and is 1,690 feet deep. This well is the primary source of drinking water for the City of Leonard. Given the depth of this well, it is unlikely that it would be impacted from affected shallow groundwater, if present.

Section 2.5 Groundwater Resource Classification

Groundwater beneath the site has not been assessed.

Section 2.6 Exposure Pathways

The previous soil samples collected by EPA and TCEQ in the early 1990s identified PCBs, copper, and hexachlorobenzene in excess of the current Tier I Residential 0.5-acre source area PCLs. These levels were identified on the site, on the residential vacant lot to the west, in the alley, and on residential properties to the south.

The primary exposure pathways for PCBs is through contact with soil or sediment. According to the EPA, PCBs are very persistent, hydrophobic, and generally do not migrate. However, there are some site characteristics that may have a bearing on the potential of PCBs to migrate. For example, PCBs in oil will be mobile if the oil itself is present in a volume large enough to physically move a significant distance from the source. Soil or sediment characteristics that affect the mobility of the PCBs include soil density, particle size distribution, moisture content, and permeability. Additionally, meteorological and chemical characteristics such as amount of precipitation, organic carbon content, and the presence of organic colloids also affect PCB

mobility.

Because of the stability of PCBs, many exposure routes must be considered: dermal exposure; ingestion of PCB-contaminated soil, water, and food; and inhalation of ambient air contaminated with PCBs. PCBs have a high potential for bioaccumulation, which is an important factor to consider due to their ability to accumulate in aquatic environments such as lakes, rivers, and harbors. Although not very common, volatilization and other transport mechanisms may remove PCBs from the contaminated soil or sediment or entrain them into the air. Remedies involving excavation may create short-term exposures to workers and surrounding communities from inhalation of dust emissions (EPA/540/S-93/506, October 1993: *Technology Alternatives for the Remediation of PCB-Contaminated Soil and Sediment*). PCBs are recognized as a carcinogen.

Generally, copper is not mobile in soils. It is attracted to soil organic matter and clay minerals. In general, maximum retention of cationic metals occurs at pH>7 and maximum retention of anionic metals occurs at pH<7. Because of the complexity of the soil-waste system, with its myriad of surface types and solution composition, such a generalization may not hold true. For example, cationic metal mobility has been observed to increase with increasing pH due to the formation of metal complexes with dissolved organic matter. Copper is retained in soils through exchange and specific adsorption mechanisms. At concentrations typically found in native soils, Cu precipitates are unstable. This may not be the case in waste-soil systems and precipitation may be an important mechanism of retention. It is suggested that a clay mineral exchange phase may serve as a sink for Cu in noncalcareous soils. In calcareous soils, specific adsorption of Cu onto $CaCO_3$ surfaces may control Cu concentration in solution. Copper is adsorbed to a greater extent by soils and soil constituents than the other metals studied, with the exception of Pb. Copper, however, has a high affinity for soluble organic ligands and the formation of these complexes may greatly increase Cu mobility in soils (EPA/540/S-92/018, October 1992: *Behavior of Metals in Soils*).

Hexachlorobenzene (HCB) is classified as a carcinogen. HCB is a highly persistent environmental toxin that was synthesized and used from the 1940s to the late 1970s as a fungicide on grain seeds such as wheat. The use of chlorinated organic compounds in industrial chlorination processes is also known to inadvertently generate HCB wastes.

HCB is considered a probable human carcinogen and is toxic by all routes of exposure. The general population appears to be exposed to very low concentrations of HCB, primarily through ingestion of meat, dairy products, poultry, and fish. Ingestion of HCB-contaminated fish is potentially the most significant source of exposure. HCB bioaccumulates in fish, marine animals, birds, lichens, and their predators. HCB has been found in fish and wildlife throughout the U.S., though the Great Lakes and Gulf coast are areas of particularly high contamination.

HCB is a highly persistent environmental toxin that degrades slowly in air and remains in the atmosphere through long range transport. Current research suggests that HCB has a half-life from 2.7 to 6 years in water and in the atmosphere, and may have a half-life of more than 6 years in soil. In water, HCB binds to sediments and suspended matter. In soil, HCB binds strongly and generally does not leach to water. Transport to ground water is slow, but varies with the organic makeup of the soil, as HCB tends to bind more strongly to soils with high organic content. Co-solvents in active/inactive sites can mobilize HCB (The USEPA Persistent, Bioaccumulative and Toxic Pollutants (PBT) HCB Workgroup, November 2000: *Draft PBT National Action Plan For Hexachlorobenzene (HCB)*
for Public Review).

Transformer salvage operations ceased at the site in August of 1999. Subsequently the site was leased to various tenants that performed vehicle maintenance and operated a tire shop. The site improvements have not changed since transformer salvage ceased. The site remains unpaved with various improvements. The AST bulk oil storage area WMU has reportedly been closed.

Runoff from the property has the potential to affect surface soils and drainage ditches adjacent to the site. The nearest surface water is located approximately one mile from the site and is not expected to be affected by a release from the site, however sediment along the drainage ditches remain a potential source for future surface water impacts, if left unaddressed.

Table 2A - Water Well Summary

Complete this table if water wells are identified in either the 500-ft receptor survey or the one-half mile records survey. Provide the information available on the water wells identified in the survey radius. Include wells found from the sources of information. Highlight the threatened or affected wells.

Table 2A. Water Well Summary

Well no. / designation	Well owner's name of record	Distance from affected property (ft.)	Screened interval/open interval (ft)	Cemented interval (ft)	Completion type	Total depth	Date drilled	Producing formation	Current water use[1]	Current status[2]	Data source[3]
Downgradient Wells											
(b) (9)	City Of Leonard	370	1523-1673	Unknown	Under-reamed, gravel packed	1,690	1957	Woodbine	PS	Act	TWDB
Cross-gradient Wells											
Upgradient Wells											

[1] Current water use: Dom - domestic; PS - public supply/municipal; Ind - industrial; Comm - commercial; Irr - irrigation; Liv - livestock
[2] Current status: Act - active; Ab - abandoned/not in use; SB - standby/backup; P&A - plugged and abandoned
[3] Indicate the specific primary source of well information.

Table 2B - Affected Water Well Summary

List the threatened or affected water wells from Table 2A in this table. Provide the owner's name, telephone number, property address, and name of tenant or easement holder. Document the sources of information used to obtain this information in Appendix 16.

Table 2B. Threatened and Affected Water Well Summary

Well number/ designation	Current owner and phone number	Property address and/or legal description[1]	Tenants and/or easement holders[2]	Samples collected		Do COC concentrations exceed Tier 1 $^{GW}GW_{Ing}$ PCLs?	
				Yes	No	Yes	No
None known							

[1] Provide the address of the property containing the threatened or affected well. If the property does not have an address or if property plot maps are provided, include the legal description of the property (i.e., lot and block numbers, appraisal district reference numbers, etc.)

[2] If samples were collected on property not owned by the person and results exceed Tier 1 PCLs, provide the names of tenants and/or easement holders.

Table 2C - Complete or Reasonably Anticipated to be Complete Exposure Pathways
Use this table to indicate the complete or reasonably anticipated to be complete exposure pathways by checking the applicable pathways based on the media affected by COCs and the potential for migration of COCs. The shaded boxes are those pathways considered complete per the TRRP rule. If a shaded box is not checked, explain in Section 2.6 why the pathway is not complete.

Table 2C. Complete or Reasonably Anticipated to be Complete Exposure Pathways

Exposure pathway	Surface soil[1]	Subsurface soil[2]	Groundwater	Surface water/ sediment
${}^{Tot}Soil_{Comb}$[3]	X	NA	NA	NA
${}^{Air}Soil_{Inh\text{-}V}$	NA			
${}^{GW}Soil_{Ing}$ or ${}^{GW}Soil_{Class3}$	X			
${}^{GW}GW_{Ing}$ or ${}^{GW}GW_{Class3}$	NA	NA	UNKNOWN	
${}^{Air}GW_{Inh\text{-}V}$			UNKNOWN	
${}^{SW}GW$				
${}^{Sed}GW$				
${}^{SW}SW$ or ${}^{Sed}Sed$			NA	X
Other (specify)[4]				

Surface soil has not been assessed to the residential 0-15 feet interval. Groundwater has not been assessed.

Attached:
Figure 2A - Potential Receptors Map

Figure 2B - Field Survey Photographs

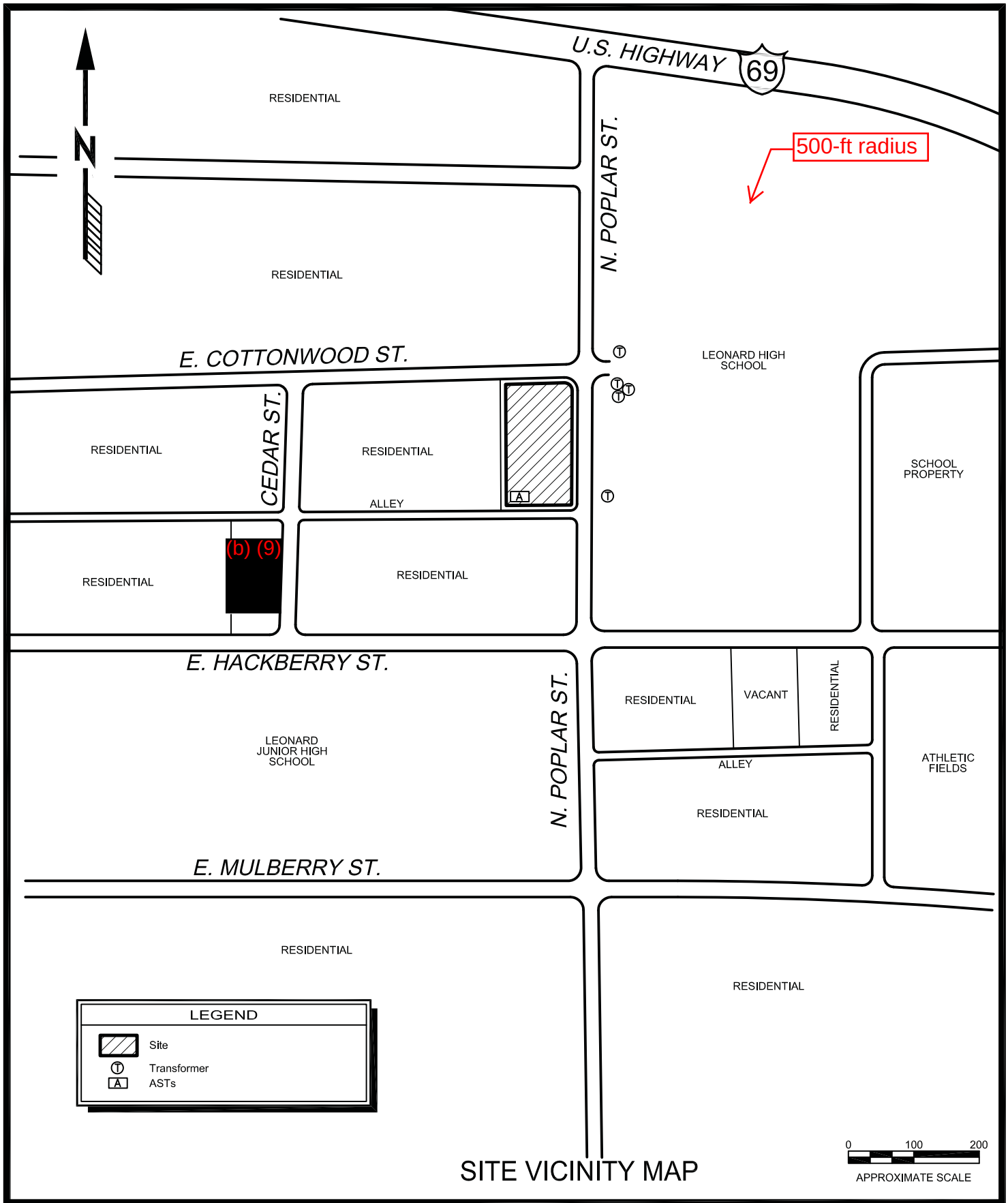
Figure 2C - Water Well Map

Attachment 2A - Tier 1 Ecological Exclusion Criteria Checklist
Complete this checklist for each affected property. Refer to Chapter 307, Texas Surface Water Quality Standards, *Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas* (RG-263 revised, and future updates), and *Determining PCLs for Surface Water and Sediment* (RG-366/TRRP-24) for the definition of surface water, surface water types, uses, basin numbers, and state-designated stream segment numbers. The person and the preparer must sign this checklist.

Not enough information is available to complete this section.

Attachment 2B - Tier 1 Ecological Exclusion Criteria Supporting Documentation
As required in the Tier 1 Ecological Exclusion Criteria Checklist, attach a brief statement (not to exceed 1

[1] Residential: soils from 0-15 feet deep, or to bedrock or groundwater-bearing unit if shallower.
Commercial/industrial: soils from 0-5 feet deep, or to bedrock or groundwater-bearing unit if shallower.
[2] The vadose zone beneath the surface soil extending to the groundwater-bearing unit, and including unsaturated zones between stratified groundwater-bearing units.
[3] Residential: ${}^{Air}Soil_{Inh\text{-}VP} + {}^{Soil}Soil_{Ing} + {}^{Soil}Soil_{Derm} + {}^{Veg}Soil_{Ing}$
Commercial/industrial: ${}^{Air}Soil_{Inh\text{-}VP} + {}^{Soil}Soil_{Ing} + {}^{Soil}Soil_{Derm}$
[4] If other exposure pathways are identified here, include those pathways in the derivation of assessment levels and evaluation of critical PCLs.



SITE VICINITY MAP

TERRA • SOLVE
ENVIRONMENTAL CONSULTANTS
3216 COMMANDER DRIVE, SUITE 103
CARROLLTON, TX 75006-2518
PHONE (972) 267-1900
FAX (972) 267-1902
RCAS NO. 00530

TWO LOTS OF IMPROVED LAND

APPROXIMATELY 0.344 ACRES
905 N. POPLAR STREET
LEONARD, FANNIN COUNTY, TEXAS

DATE:	SCALE:
NOV. 2009	SEE ABOVE
PROJECT NO.: 09724	FIGURE NO.: 2A

Photograph 1: View looking west of the automobile repair shop building. This building was previously used as the transformer recycling facility.

Photograph 2: View looking south of the west property boundary showing the shed (left) and the vacant lot located west of the site.

Photograph 3: View looking southeast of the portable building and of the exterior of the automobile repair shop.

Photograph 4: View looking northwest the three aboveground storage tanks and multiple 55-gallon drums in and near the spill containment sump.

Photograph 5: View looking west showing the northern property line with E. Cottonwood Street and the residential neighborhood beyond.

Photograph 6: View looking north along N. Poplar Street showing the school buildings east of the site. Also note the one transformed on the power pole in the foreground (#N6497) and in the three in the background (Nos. N23508, N21884, and N21888).

Photograph 7: View looking west of the alleyway south of the site with the residences beyond.

Photograph 8: View looking southeast of (b) (9) [redacted] and its storage tanks located approximately (b) (9) from the site

Photograph 9: View inside the shop building showing the parts washer and other chemicals.

Photograph 10: View inside the shop building showing 5-gallon buckets of chemicals and oil, both new and used. Numerous areas of stained concrete are visible in the shop.

Photograph 11: View looking southwest of the drums inside and outside the AST secondary containment basin. Note the drain valve and the stains and hydrocarbon sheen on the standing water.

Photograph 12: View looking southeast the kerosene-dispensing AST, drums, and other debris on the north side of the shop building.

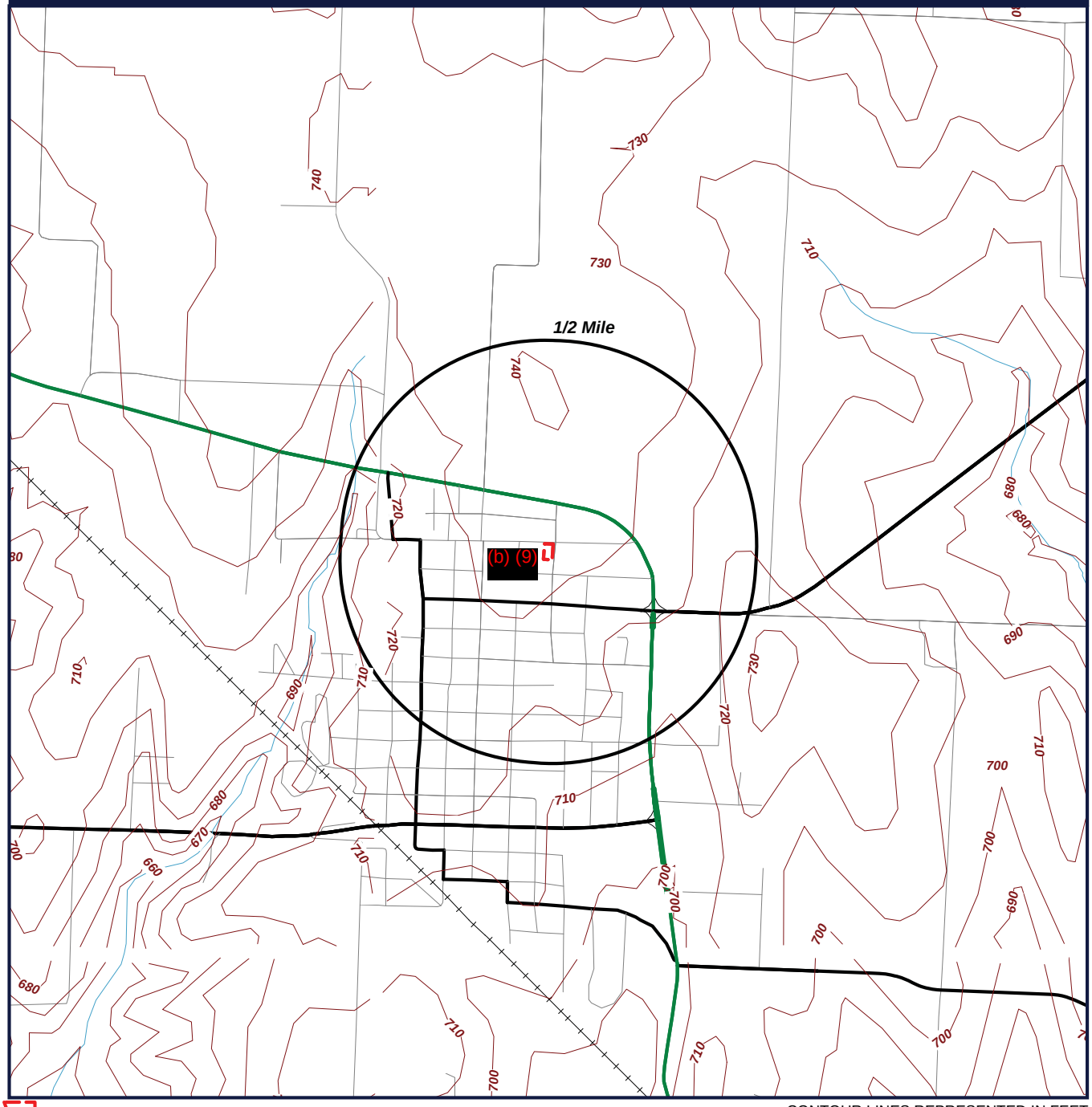
Photograph 13: View inside the shop building of equipment, parts, and new and used oil containers and drums.

Photograph 14: View looking northwest of the rainbow hydrocarbon sheen visible on the concrete driveway near the shop building.

Photograph 15: View inside the shop building showing the leftover transformer from the salvage business. Note the blue "No PCB" sticker on the transformer. This area is where the furnace used for burning the insulation from the transformer was located.

Photograph 16: View looking southwest of the north side of the shop building showing some of the scattered areas of debris and parts.

WATER WELL MAP



Target Property (TP)

TWDB

Two Lots with Improvements
905 N. Poplar
Leonard, Texas
75452

CONTOUR LINES REPRESENTED IN FEET

N
W E
S

0' 1000' 2000' 3000'

SCALE: 1" = 2000'

GeoSearch 2705 Bee Caves Rd, Suite 330 - Austin, Texas 78746 - phone: 866-396-0042 - fax: 512-472-9967

JOB #: 11793 - 11/9/2009

Figure 2C-1

REPORT SUMMARY OF LOCATABLE SITES

MAP ID#	DATABASE NAME	SITE ID#	DISTANCE FROM SITE	SITE NAME	ADDRESS	CITY, ZIP CODE	PAGE #
(b) (9) [redacted]				CITY OF LEONARD			1

page) summarizing the information provided in Attachment 2A. Include in this summary sufficient information to verify that the affected property meets or does not meet the exclusion criteria. Also include in this attachment photographs and correspondence with wildlife management agencies used to complete the checklist. Include a topographic map and/or aerial photo to depict the affected property and surrounding area.

Not enough information is available to complete this section.

Attachment 2A. Tier 1 Exclusion Criteria Checklist

PART I. Affected Property Identification and Background Information

1) Provide a description of the specific area of the response action and the nature of the release. Include estimated acreage of the affected property and the facility property, and a description of the type of facility and/or operation associated with the affected property. Also describe the location of the affected property with respect to the facility property boundaries and public roadways.

Attach available USGS topographic maps and/or aerial or other affected property photographs to this form to depict the affected property and surrounding area. Indicate attachments:
_____ Topo map _____ Aerial photo _____ Other (specify) _____

2) Identify environmental media known or suspected to contain chemicals of concern (COCs) at the present time. Check all that apply:

Known/Suspected COC Location	Based on sampling data?	
____ Soil <5 ft below ground surface	_____ Yes	_____ No
____ Soil >5 ft below ground surface	_____ Yes	_____ No
____ Groundwater	_____ Yes	_____ No
____ Surface Water/Sediments	_____ Yes	_____ No

Explain (previously submitted information may be referenced):

3) Provide the information below for the nearest surface water body which has become or has the potential to become impacted from migrating COCs via surface water runoff, air deposition, groundwater seepage, etc. Exclude wastewater treatment facilities and stormwater conveyances/impoundments authorized by permit. Also exclude conveyances, decorative ponds, and those portions of process facilities that are:

a. Not in contact with surface waters in the State or other surface waters which are ultimately in contact with surface waters in the State; <u>and</u>
b. Not consistently or routinely utilized as valuable habitat for natural communities including birds, mammals, reptiles, etc.

The nearest surface water body is _____ feet/miles from the affected property and is named:

_____

The water body is best described as a:
____ freshwater stream:
  ____ perennial (has water all year)
  ____ intermittent (dries up completely for at least 1 week a year)
  ____ intermittent with perennial pools
____ freshwater swamp/marsh/wetland
____ saltwater or brackish marsh/swamp/wetland
____ reservoir, lake, or pond; approximate surface acres _____
____ drainage ditch
____ tidal stream ____ bay ____ estuary
____ other; specify

Is the water body listed as a State classified segment in Appendix C of the current Texas Surface Water Quality Standards; §§307.1 - 307.10?

_____ Yes Segment # _____ Use Classification: _____

_____ No

If the water body is not a State classified segment, identify the first downstream classified segment.

Name: _____

Segment #: _____

Use Classification: _____

As necessary, provide further description of surface waters in the vicinity of the affected property:

PART II. Exclusion Criteria and Supportive Information

Subpart A. Surface Water/Sediment Exposure

1) Regarding the affected property where a response action is being pursued under the TRRP, have COCs migrated and resulted in a release or imminent threat of release to either surface waters or to their associated sediments via surface water runoff, air deposition, groundwater seepage, etc.? Exclude wastewater treatment facilities and stormwater conveyances/impoundments authorized by permit. Also exclude conveyances, decorative ponds, and those portions of process facilities which are:

a. Not in contact with surface waters in the State or other surface waters which are ultimately in contact with surface waters in the State; and

b. Not consistently or routinely utilized as valuable habitat for natural communities including birds, mammals, reptiles, etc.

_____ Yes _____ No

Explain:

If the answer is yes to Subpart A above, the affected property does not meet the exclusion criteria. However, complete the remainder of Part II to determine if there is a complete and/or significant soil exposure pathway, then complete PART III - Qualitative Summary and Certification. If the answer is No, go to Subpart B.

Subpart B. Affected Property Setting

In answering "Yes" to the following question, it is understood that the affected property is not attractive to wildlife or livestock, including threatened or endangered species (i.e., the affected property does not serve as valuable habitat, foraging area, or refuge for ecological communities). (May require consultation with wildlife management agencies.)

1) Is the affected property wholly contained within contiguous land characterized by: pavement, buildings, landscaped area, functioning cap, roadways, equipment storage area, manufacturing or process area, other surface cover or structure, or otherwise disturbed ground?

____ Yes ____ No

Explain:

If the answer to Subpart B above is Yes, the affected property meets the exclusion criteria, assuming the answer to Subpart A was No. Skip Subparts C and D and complete PART III - Qualitative Summary and Certification. If the answer to Subpart B above is No, go to Subpart C.

Subpart C. Soil Exposure

1) Are COCs which are in the soil of the affected property solely below the first 5 feet beneath ground surface **or** does the affected property have a physical barrier present to prevent exposure of receptors to COCs in surface soil?

____ Yes ____ No

Explain:

If the answer to Subpart C above is Yes, the affected property meets the exclusion criteria, assuming the answer to Subpart A was No. Skip Subpart D and complete PART III - Qualitative Summary and Certification. If the answer to Subpart C above is No, proceed to Subpart D.

Subpart D. *De Minimus* Land Area

In answering "Yes" to the question below, it is understood that all of the following conditions apply:

- The affected property is not known to serve as habitat, foraging area, or refuge to threatened/endangered or otherwise protected species. (Will likely require consultation with wildlife management agencies.)
- Similar but unimpacted habitat exists within a half-mile radius.
- The affected property is not known to be located within one-quarter mile of sensitive environmental areas (e.g., rookeries, wildlife management areas, preserves). (Will likely require consultation with wildlife management agencies.)
- There is no reason to suspect that the COCs associated with the affected property will migrate such that the affected property will become larger than one acre.

1) Using human health protective concentration levels as a basis to determine the extent of the COCs, does the affected property consist of one acre or less and does it meet all of the conditions above?

____ Yes ____ No

Explain how conditions are met/not met:

If the answer to Subpart D above is Yes, then no further ecological evaluation is needed at this affected property, assuming the answer to Subpart A was No. Complete PART III - Qualitative Summary and Certification. If the answer to Subpart D above is No, proceed to Tier 2 or 3 or comparable ERA.

PART III. Qualitative Summary and Certification (complete in all cases.)

Attach a brief statement (not to exceed 1 page) summarizing the information you have provided in this form. This summary should include sufficient information to verify that the affected property meets or does not meet the exclusion criteria. The person should make the initial decision regarding the need for further ecological evaluation (i.e., Tier 2 or 3) based upon the results of this checklist. After review, TCEQ will make a final determination on the need for further assessment. **Note that the person has the continuing obligation to re-enter the ERA process if changing circumstances result in the affected property not meeting the Tier 1 exclusion criteria.**

Completed by _____ (Typed/Printed Name)

_____ (Title)

_____ (Date)

I believe that the information submitted is true, accurate, and complete, to the best of my knowledge.

_____ (Typed/Printed Name of Person)

_____ (Title of Person)

_____ (Signature of Person)

_____ (Date Signed)

Section 3 Assessment Strategy

Use this section to discuss the rationale for the assessment and identify remaining data gaps.

Section 3.1 General Assessment Issues

Environmental Media Assessed

All information provided in this APAR are based on the sampling performed by EPA and TCEQ in the 1990s and on site reconnaissance conducted by Mr. Charles R. Robertson of Terra-Solve, Inc., on November 20, 2009, as part of a Phase I Environmental Site Assessment.

Only soil samples were collected during the 1990s assessment conducted by EPA and TCEQ. As mentioned previously, the complete reports of these activities has been lost and are not available from EPA or TCEQ files. No groundwater assessment has been performed.

Target COCs

As outlined in a meeting with EPA, TCEQ, Terra-Solve, the attorney representing Leonard ISD, and the owner, the following chemicals of concern (COCs) were identified that exceed the current (November 2014) TCEQ Tier I Residential 0.5-acre source area PCLs:

- Polychlorinatedbiphenyls (PCBs);
- Hexachlorobenzene (HCB); and
- Copper.

Also in the meeting it was noted that TCEQ also will require samples to assess impacts to sediment and groundwater. A copy of the letter summarizing the meeting is attached. The TCEQ response letter dated June 18, 2010, outlining the additional requirements is also attached.

Background

Three background metals samples were collected from unaffected areas, upgradient and upwind from the site. The results are given in Table 4D.

Section 3.2 Assessment Strategy

General Assessment Approach

No information is available on the sampling methods, etc. used by EPA and TCEQ, however, TCEQ has agreed that the sample results obtained from the EPA and TCEQ files are acceptable for use in evaluating the site conditions. Refer to the above-mentioned letter summarizing the meeting with all parties.

Assessment Methods

No information is available on the sampling methods, etc. used by EPA and TCEQ, however, TCEQ has agreed that the sample results obtained from the EPA and TCEQ files are acceptable for use in evaluating the site conditions. Refer to the above-mentioned letter summarizing the meeting with all parties.

Table 3A - Underground Utilities

No assessment of underground utilities has been performed. No sanitary sewer service to the site exists, but it is available from the City of Leonard. Potable water to the site is provided by the City of Leonard. Electricity to the site is provided by Texas New Mexico Power Company. Natural gas service to the site is provided by Atmos Energy.

Table 3A. Underground Utilities

Utility type	Construction material	Backfill material	Approx. depth (ft)	Utility company name	Potential migration pathway?		Affected?	
					Yes	No	Yes	No
Water	Unknown	Unknown	?	City of Leonard	X		Unknown	
Electricity	Unknown	Unknown	?	Texas New Mexico Power Company		X	Unknown	
Natural Gas	Unknown	Unknown	?	Atmos Energy	X		Unknown	

Section 4 Soil Assessment

Use this section to discuss the results of the surface and subsurface soil assessment and the nature and extent of NAPL and COCs in soil. For this discussion, the term soil includes the vadose zones, capillary fringe, and saturated zones that are not groundwater-bearing units. Refer to *Affected Property Assessment Requirements* (RG-366/TRRP-12) for guidance on assessment levels and *NAPL Assessment* (RG-366/TRRP-12A) for information on determining the nature and extent of NAPL.

Section 4.1 Derivation of Assessment Levels

The proposed use of the site as a parking lot for the Leonard ISD constitutes a residential use. The surrounding properties with in a 500-foot radius of the site are residential use, therefore the proposed assessment level is the TCEQ November 2014 Tier I Residential 0.5-acre source PCLs.

Section 4.2 Nature and Extent of COCs and NAPL in Soil

The previous soil samples collected by EPA and TCEQ in the early 1990s identified PCBs, copper, and hexachlorobenzene in excess of the current Tier I Residential 0.5-acre source area PCLs. These levels were identified on the site, on the residential vacant lot to the west, in the alley, and on residential properties to the south of the site.

A groundwater assessment has not been performed.

Table 4A - Surface Soil Residential Assessment Levels with no Ecological Component

Use this table to summarize the residential assessment level for each COC analyzed in surface soils in areas where human health PCLs apply and to compare the residential assessment level to the higher of the maximum COC concentration or the maximum SQL to determine if the residential assessment level has been exceeded. For each COC, highlight the value that is the residential assessment level and highlight the maximum concentration if it exceeds the residential assessment level. Add columns as necessary to include applicable exposure pathways. If a Tier 2 or Tier 3 ^{GW}Soil PCL was used as the residential assessment level, include supporting documentation in Appendix 9.

Table 4A. Surface Soil Residential Assessment Levels for Human Health Exposure Pathways

COC	Source area size (acres)	$^{Tot}Soil_{Comb}$ PCL (mg/kg)	^{GW}Soil PCL		MQL (mg/kg)	Back-ground (mg/kg)	Maximum concentration			
			(mg/kg)	Tier			Sample ID	Sample depth	Sample date	Conc (mg/kg)
PCBs (On Site)	0.344	1.1	11	I		NA	SO-18, N. of ASTs	0.5'-1.0'	1990s	2,300
PCBs (Off Site)	0.344	1.1	11	I		NA	SO-14, alley adj. to transformer storage area	0.5'-1.0'	1990s	4,100
HCB (On Site)	0.344	1.1	1.1	I		NA	SO-18, N. of ASTs	0.5-1.0'	1990s	15,000
HCB (Off Site)	0.344	1.1	1.1	I		NA	NA	NA	NA	NA
Cu (On Site)	0.344	1,300	1,000	I		NA	SO-17, transformer off-load area	0.5-1.0'	1990s	279
Cu (Off Site)	0.344	1,300	1,000	I		NA	SO-14, alley s. of site	0.5-1.0'	1990s	1,860
PCBs (Drainage Ditch)	0.344	1.1	11	I		NA	SO-9, (drainage ditch NWC Poplar and Hackberry Streets)	Grab	1990s	3.00
Cu (Drainage Ditch)	0.344	1,300	1,000	I		NA	SO-9, (drainage ditch NWC Poplar and Hackberry Streets)	Grab,	1990s	105
Cu (upgradient)	NA	1,300	1,000			11.6	SO-1, Unaffected area		1990s	NA
Cu (upgradient)	NA	1,300	1,000			20.6	SO-2, Unaffected area		1990s	NA
Cu (upgradient)	NA	1,300	1,000			20.0	SO-3, Unaffected area		1990s	NA

Table 4B - Surface Soil Residential Assessment Levels with Ecological Component

Use this table to summarize the residential assessment level for each COC analyzed in surface soils in areas where human health and ecological concerns apply and to compare the residential assessment level to the maximum COC concentration to determine if the residential assessment level has been exceeded. If a PCL has not been developed under an ecological risk assessment, provide the basis for the value used. Complete this table for each COC analyzed. For each COC, highlight the value that is the residential assessment level and highlight the maximum concentration if it exceeds the assessment level.

Table 4B. Surface Soil Residential Assessment Levels with Ecological Component

COC	Human health PCL[1] (mg/kg)	Ecological PCL (0 to 0.5 ft)		Ecological PCL (0.5 to 5 ft)		MQL (mg/kg)	Back-ground (mg/kg)	Maximum concentration in areas of ecological concern			
		(mg/kg)	Basis[2]	(mg/kg)	Basis[2]			Sample ID	Sample depth	Sample date	Conc (mg/kg)

[1] List the lower of ${}^{Tot}Soil_{Comb}$ and ${}^{GW}Soil$ values from Table 4A.

[2] Specify the basis of the ecological PCL (benchmark, MQL, background, Tier 2 PCL, or Tier 3 PCL).

TABLE 4D: SOIL DATA SUMMARY

Samples Collected on 07/12/95 (R, A, D, F); 01/13-14/98 (SO)

Sample	Sample Interval	Description	PCBs	VOCs	SVOCs								
(b) (6) [redacted]	6"	(b) (6) [redacted]	**27.9**	---	---	---	---	---	---	---	---	---	---
	12"		ND	---	---	---	---	---	---	---	---	---	---
	6"		**3.75**	---	---	---	---	---	---	---	---	---	---
	12"		ND	---	---	---	---	---	---	---	---	---	---
	6"		**4.07**	---	---	---	---	---	---	---	---	---	---
	12"		ND	---	---	---	---	---	---	---	---	---	---
	6"		**3.62**	---	---	---	---	---	---	---	---	---	---
	12"		ND	---	---	---	---	---	---	---	---	---	---
	6"		**1.12**	---	---	---	---	---	---	---	---	---	---
	12"		ND	---	---	---	---	---	---	---	---	---	---
	6"		ND	---	---	---	---	---	---	---	---	---	---
	12"		ND	---	---	---	---	---	---	---	---	---	---
R07	6"	(b) (6) [redacted], 7' W Of Facility, 19' N of E Garage	**10.40**	---	---	---	---	---	---	---	---	---	---
	12"		2.19/ND	---	---	---	---	---	---	---	---	---	---
R08	6"	(b) (6) [redacted], 7' W Of Facility, 43' N of E Garage	**6.97**	---	---	---	---	---	---	---	---	---	---
	12"		ND	---	---	---	---	---	---	---	---	---	---
R09	6"	(b) (6) [redacted], 24' W Of Facility, 31' N of E Garage	**2.00**	---	---	---	---	---	---	---	---	---	---
	12"		ND	---	---	---	---	---	---	---	---	---	---
(b) (6) [redacted]	6"	(b) (6) [redacted]	ND	---	---	---	---	---	---	---	---	---	---
	12"		ND	---	---	---	---	---	---	---	---	---	---
	6"		**13.60**	---	---	---	---	---	---	---	---	---	---
	12"		ND	---	---	---	---	---	---	---	---	---	---
TRRP Tier 1 PCLs					**Various**	**5.0**	**440**	**1.5**	**2,400**	**3.0**	**0.0078**	**2.3**	**0.48**

Results listed in mg/kg (parts per million; ppm) with reporting limits shown on the laboratory reports.

[1] Defined by TRRP Table 1, Residential Soils, June 2012 tables. TPH levels are Residential screening levels.

[2] No lab reports are available from the EPA and TCEQ files, therefore the detection limits cannot be stated.

BRL: Below Reporting Limits. ---: Not Analyzed for this compound. N/A: Not Applicable. **Boldface denotes a concentration greater than TRRP Tier 1 PCLs.**

TABLE 4D: SOIL DATA SUMMARY:

Sample	Sample Interval	Description	PCBs	VOCs	SVOCs	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
A01	6”	Alley, 12.K’ W of Facility East Fence	**5.70**	---	---	---	---	---	---	---	---	---	---
	12”		**74.60**	---	---	---	---	---	---	---	---	---	---
	18”		**48.20**	---	---	---	---	---	---	---	---	---	---
	24”		ND	---	---	---	---	---	---	---	---	---	---
A02	6”	Alley, 25’ W of A01	**1.57**	---	---	---	---	---	---	---	---	---	---
	12”		**852.00**	---	---	---	---	---	---	---	---	---	---
	18”		**22.00**	---	---	---	---	---	---	---	---	---	---
	24”		**115.00 / 32.60**	---	---	---	---	---	---	---	---	---	---
A03	6”	Alley, 25’ W of A02	ND	---	---	---	---	---	---	---	---	---	---
	12”		**59.00**	---	---	---	---	---	---	---	---	---	---
	18”		ND	---	---	---	---	---	---	---	---	---	---
	24”		ND	---	---	---	---	---	---	---	---	---	---
A04	6”	Alley, 25’ W of A03	ND	---	---	---	---	---	---	---	---	---	---
	12”		**8.54**	---	---	---	---	---	---	---	---	---	---
	18”		ND	---	---	---	---	---	---	---	---	---	---
	24”		ND	---	---	---	---	---	---	---	---	---	---
A05	6”	Alley, 25’ W of A04	**2.31**	---	---	---	---	---	---	---	---	---	---
	12”		ND	---	---	---	---	---	---	---	---	---	---
	18”		ND	---	---	---	---	---	---	---	---	---	---
	24”		ND	---	---	---	---	---	---	---	---	---	---
A06	6”	Alley, 25’ W of A05	ND	---	---	---	---	---	---	---	---	---	---
	12”		**7.35**	---	---	---	---	---	---	---	---	---	---
	18”		ND	---	---	---	---	---	---	---	---	---	---
	24”		ND	---	---	---	---	---	---	---	---	---	---
TRRP Tier 1 PCLs					**Various**	**5.0**	**440**	**1.5**	**2,400**	**3.0**	**0.0078**	**2.3**	**0.48**

Results listed in mg/kg (parts per million; ppm) with reporting limits shown on the laboratory reports.

[1] Defined by TRRP Table 1, Residential Soils, June 2012 tables. TPH levels are Residential screening levels.

[2] No lab reports are available from the EPA and TCEQ files, therefore the detection limits cannot be stated.

BRL: Below Reporting Limits. ---: Not Analyzed for this compound. N/A: Not Applicable. **Boldface denotes a concentration greater than TRRP Tier 1 PCLs.**

TABLE 4D: SOIL DATA SUMMARY:

Sample	Sample Interval	Description	PCBs	VOCs	SVOCs	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
D01	6”	Day Care, 2’ S of N Fence 9’ W of E Fence	ND	---	---	---	---	---	---	---	---	---	---
	12”		ND	---	---	---	---	---	---	---	---	---	---
D02	6”	Day Care, 2’ S of N Fence 29’ W of E Fence	ND	---	---	---	---	---	---	---	---	---	---
	12”		ND	---	---	---	---	---	---	---	---	---	---
D03	6”	Day Care, 2’ S of N Fence 49’ W of E Fence	ND	---	---	---	---	---	---	---	---	---	---
	12”		ND	---	---	---	---	---	---	---	---	---	---
D04	6”	Day Care, 15’ S of N Fence 9’ W of E Fence	ND	---	---	---	---	---	---	---	---	---	---
	12”		ND	---	---	---	---	---	---	---	---	---	---
D05	6”	Day Care, 15’ S of N Fence 29’ W of E Fence	ND	---	---	---	---	---	---	---	---	---	---
	12”		ND	---	---	---	---	---	---	---	---	---	---
D06	6”	Day Care, 15’ S of N Fence 49’ W of E Fence	ND	---	---	---	---	---	---	---	---	---	---
	12”		ND	---	---	---	---	---	---	---	---	---	---
F01	6”	Outside Facility, 6’ E of E Fence, 15’ N of S Fence	**2.98**	---	---	---	---	---	---	---	---	---	---
	12”		**14.00**	---	---	---	---	---	---	---	---	---	---
	18”		**4.81**	---	---	---	---	---	---	---	---	---	---
	24”		ND	---	---	---	---	---	---	---	---	---	---
TRRP Tier 1 PCLs					**Various**	**5.0**	**440**	**1.5**	**2,400**	**3.0**	**0.0078**	**2.3**	**0.48**

Results listed in mg/kg (parts per million; ppm) with reporting limits shown on the laboratory reports.

[1] Defined by TRRP Table 1, Residential Soils, June 2012 tables. TPH levels are Residential screening levels.

[2] No lab reports are available from the EPA and TCEQ files, therefore the detection limits cannot be stated.

BRL: Below Reporting Limits. ---: Not Analyzed for this compound. N/A: Not Applicable. **Boldface denotes a concentration greater than TRRP Tier 1 PCLs.**

TABLE 4D: SOIL DATA SUMMARY:

Sample	Sample Interval	Description	PCBs	Hexa-Clhloro-benzne	VOCs		SVOCs	Cadmium	Copper	Lead	Cyanide		
SO-01		BACKGROUND	ND					ND	11.6				
SO-02		BACKGROUND	0.033					0.41	20.6				
SO-03		BACKGROUND	0.340					ND	20.0				
SO-04		N of HIGH SCHOOL											
SO-05		W of HIGH SCHOOL											
SO-06		S of HIGH SCHOOL											
SO-07		HACKBERRY ST DITCH						0.45	98.4	30.6	0.22		
SO-08		POPLAR ST DITCH						0.75	42.7	107	0.33		
SO-09		CULVERT AT HACKBERRY ST						0.42	105	59.7	0.35		
SO-10		DUPLICATE of SO-09						0.48	115	62.2	0.80		
(b) (6)		(b) (6) DITCH						1.1	1,580	73.5	0.22		
SO-12		DAY CARE YARD											
SO-13		ALLEY W. LOCATION						0.85	1,760	76.5	0.23		
SO-14		ALLEY E. LOCATION						0.77	1,860	70.0	0.29		
SO-15		SO-14 DUPLICATE						1.3	1,390	57.6	0.25		
(b) (6)		(b) (6) YARD						0.39	1,100	35.2	0.18		
SO-17		SITE OFF-LOAD AREA	0.160	ND					279				
SO-18		SITE CONTAINER STORAGE	**1,400**	15					204				
SO-19		SITE TRANSFORM. STORAGE	**1.70**	ND					30.9				
TRRP Tier 1 PCLs					**Various**	**5.0**	**440**	**1.5**	**2,400**	**3.0**	**0.0078**	**2.3**	**0.48**

Results listed in mg/kg (parts per million; ppm) with reporting limits shown on the laboratory reports.

[1] Defined by TRRP Table 1, Residential Soils, June 2012 tables. TPH levels are Residential screening levels.

[2] No lab reports are available from the EPA and TCEQ files, therefore the detection limits cannot be stated.

BRL: Below Reporting Limits. ---: Not Analyzed for this compound. N/A: Not Applicable. **Boldface denotes a concentration greater than TRRP Tier 1 PCLs.**

Table 4C - Subsurface Soil Residential Assessment Levels

The purpose of this table is to illustrate the residential assessment levels for each COC analyzed in subsurface soils and to compare the residential assessment level to the maximum COC concentration to determine if the residential assessment level has been exceeded. Complete this table for each target COC**.** Highlight the value that is the residential assessment level for each COC and highlight the maximum concentration if it exceeds the assessment level. Add columns as necessary to include other applicable exposure pathways. If a Tier 2 or Tier 3 ^{GW}Soil PCL was used as the residential assessment level, include supporting documentation in Appendix 9.

No residential subsurface (greater than15 feet below ground surface), assessment has been performed.

Table 4C. Subsurface Soil Residential Assessment Levels

COC	Source area size (acres)	$^{Air}Soil_{Inh-V}$ PCL (mg/kg)	^{GW}Soil PCL		MQL	Back-ground	Maximum concentration			
			(mg/kg)	Tier	(mg/kg)	(mg/kg)	Sample ID	Sample depth	Sample date	Conc (mg/kg)

Table 4D - Soil Data Summary

A summary of the soil data from the previous EPA and TCEQ assessments is included.

Table 4E - Soil Geochemical/Geotechnical Data Summary
Provide summary tables of geochemical or geotechnical analyses results. Include in the tables the sample ID number, boring number, sample date, sample depth, parameter analyzed, analytical method, and analytical result. Include data qualifiers and identify the data qualifiers. Report non-detected results as less than the SQL, where applicable.

NA

Figure 4A - Surface Soil COC Concentration Maps

The two maps included were constructed using the EPA and TCEQ data.

Figure 4B - Subsurface Soil COC Concentration Maps

No residential subsurface (greater than15 feet below ground surface), assessment has been performed.

Figure 4C - Cross Sections

No information is available from the previous assessments performed by the EPA and TCEQ.

Section 5 Groundwater Assessment

No groundwater assessment has been performed.

Section 5.1 Derivation of Assessment Levels

No groundwater assessment has been performed.

Section 5.2 Nature and Extent of COCs and NAPL in Groundwater

No groundwater assessment has been performed.

Table 5A - Groundwater Residential Assessment Levels

No groundwater assessment has been performed.

Table 5A. Groundwater Residential Assessment Levels

COC	$^{GW}GW_{Ing}$ or $^{GW}GW_{Class3}$ (mg/L)	$^{Air}GW_{Inh-V}$		$^{SW}GW^{1}$ (mg/L)	$^{Sed}GW^{1}$ (mg/L)	MQL (mg/L)	Back-ground (mg/L)	Maximum concentration			
		(mg/L)	Source area size (acres)					Sample ID	Sample depth (ft)	Sample date	Conc (mg/L)

Table 5B - Groundwater Data Summary

No groundwater assessment has been performed.

Table 5C - Groundwater Geochemical Data Summary

No groundwater assessment has been performed.

Table 5D - Groundwater Measurements

No groundwater assessment has been performed.

Figure 5A - Groundwater Gradient Map

No groundwater assessment has been performed.

Figure 5B - Groundwater COC Concentration Maps

No groundwater assessment has been performed.

Figure 5C - Groundwater Geochemistry Maps

No groundwater assessment has been performed.

Figure 5D - Cross Section Groundwater-to-Surface Water Pathway

No groundwater assessment has been performed.

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[1] PCLs for these pathways are not applicable to all sites. Refer to *Determining PCLs for Surface Water and Sediment* (RG-366/TRRP-24) to determine when to calculate a PCL for this pathway.

Section 6 Surface Water Assessment and Critical PCL Development

No surface water assessment has been performed.

Section 6.1 Type of Surface Water and Applicable Water Quality Criteria

No surface water assessment has been performed.

Section 6.2 Surface Water Risk-Based Exposure Levels (RBELs) for Human Health and Aquatic Life Protection

No surface water assessment has been performed.

Section 6.3 Nature and Extent of COCs in Surface Water

No surface water assessment has been performed.

Section 6.4 Critical PCL for Surface Water

No surface water assessment has been performed.

Table 6A - Surface Water Critical PCLs

No surface water assessment has been performed.

Table 6A. Surface Water Critical PCLs

COC	Background (mg/L)	MQL (mg/L)	Human Health[1] ($^{SW}SW_{HH}$)				Aquatic Life and Ecological[2] ($^{SW}SW_{eco}$)			^{SW}SW petroleum fuel discharges[3] (mg/L)	Conc (mg/L)	
					Contact recreation						Max	Rep[4]
			Water and fish (mg/L)	Fish only (mg/L)	Incidental ingestion (mg/L)	Dermal contact (mg/L)	Acute (mg/L)	Chronic (mg/L)	Wildlife receptors (mg/L)			

[1] $^{SW}SW_{HH}$ – Surface water PCL protective of human health.
[2] $^{SW}SW_{eco}$ – Surface water PCL protective of aquatic life and wildlife ecological receptors. If a PCL was not developed under an ecological risk assessment, provide the value used (benchmark, MQL, background, or human health PCL), as appropriate.
[3] ^{SW}SW – Surface water PCL for discharge of petroleum fuel contaminated water. See Section 3.4 of *Determining PCLs for Surface Water and Sediment* (RG-366/TRRP-24).
[4] Document the development of representative concentrations in Appendix 8.

Table 6B - Surface Water Data Summary

No surface water assessment has been performed.

Figure 6A - Surface Water PCLE Zone Map

No surface water assessment has been performed.

Figure 6B - Photographs

No surface water assessment has been performed.

Section 7 Sediment Assessment and Critical PCL Development

Complete this section for sediment threatened, affected, and/or sampled, or if the groundwater-to-sediment pathway is complete or reasonably anticipated to be complete. The purpose of this section is to describe and provide sufficient documentation to support the sediment RBELs for human health and the critical PCLs for sediment based on human and ecological receptors. Refer to *Determining PCLs for Surface Water and Sediment* (RG-366/TRRP-24) for guidance.

Section 7.1 Type of Sediment and Applicable Criteria

No sediment assessment has been performed.

Section 7.2 Sediment Risk-based Exposure Levels (RBELs) for Human Health

No sediment assessment has been performed.

Section 7.3 Nature and Extent of COCs in Sediment

No sediment assessment has been performed.

Section 7.4 Critical PCL for Sediment

No sediment assessment has been performed.

Section 8 Air Assessment and Critical PCL Development

Section 8.1 Risk-Based Exposure Levels

No air assessment has been performed.

Section 8.2 Nature and Extent of COCs in Air

No air assessment has been performed.

Table 8A - Outdoor Air Data Summary

No air assessment has been performed.

Section 9 Ecological Risk Assessment

No ecological assessment has been performed.

Reasoned Justification

No ecological assessment has been performed.

Expedited Stream Evaluation

No ecological assessment has been performed.

Tier 2 Screening Level Ecological Risk Assessment (SLERA)

No ecological assessment has been performed.

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Tier 3 Site-Specific Ecological Risk Assessment (SSERA)

No ecological assessment has been performed.

Proposal for Ecological Services Analysis

No ecological assessment has been performed.

Section 10 COC Screening

NA

Section 10.1 Frequency of Detection

NA.

Section 10.2 Lab Contaminant or Blank Contaminant

NA.

Section 10.3 COC Not Sourced On-Site

NA.

Section 10.4 Appropriate Sample Quantitation Limits

NA.

Section 10.5 Screened COCs Expected to be Present Dropped from Future Sampling

NA.

Table 10A - COC Screening Summary Table

NA.

Table 10A. COC Screening Summary Table (NA)

1	2	3	4	5	6	7	8	SQL Justifications	
								9	10
COC	All detected concentrations and SQLs < residential assessment level in all sampled media §350.71(k)(1)	COC not detected in any sample in the medium §350.71(k)(3)	Frequency of detects <5% of the ≥20 samples in this medium[1] §350.71(k)(2)(A)(i) through (iii)	Common lab contaminant[2] §350.71(k)(2)(B)	Blank contaminant[2] §350.71(k)(2)(C)	Max conc < background §350.71(k)(2)(D)	COC not sourced on-site[3] §350.71(k)(2)(E)	All SQLs < RAL §350.71(k)(3)(A)	SQL > RAL but justified[4] §350.71(k)(3)(B)

[1] Provide in the text justification that a critical PCL is not warranted based on the criteria specified in §350.71(k)(2)(A)(iii).
[2] Provide in the text justification that the COC is not anticipated to be present at the site (see §350.71(k)(2)(B) or (C)).
[3] Provide in the text justification that the COC is not from an on-site source (see §350.71(k)(2)(E)).
[4] Provide in the text justification that all requirements of §350.71(k)(3)(B) are met.

Section 11 Soil Critical PCL Development

NA. Using Tier I Residential, 0.5-acre source PCLs.

Section 11.1 Tier 2 or 3 PCL Development and Non-Default Parameters

Tier 2 and 3 Development
NA.

Non-Default Affected Property Parameters
NA.

Section 11.2 Soil PCL Adjustments

NA.

Section 11.3 Soil Critical PCLs

NA.

Section 12 Groundwater Critical PCL Development

NA, no groundwater assessment has been performed.

Section 12.1 Tier 2 or 3 PCL Development and Non-Default Parameters

Tier 2 and 3 Development
NA.

Non-Default Affected Property Parameters
NA.

Groundwater to Surface Water Dilution Factors
NA.

Section 12.2 Groundwater PCL Adjustments

NA.

Section 12.3 Groundwater Critical PCLs

NA.

Section 13 Notifications

The purpose of this section is to describe the notifications that have been completed or will be completed under §350.55. Refer to *Notification Requirements* (RG-366/TRRP-17) for guidance on the conditions that require notice.

Section 13.1 Notification of Actual or Probable Exposure

Unknown if notifications have been made by EPA or TCEQ, based on their previous investigations.

Section 13.2 Other Notifications

Unknown.

Table 13A - Notification Summary

Use this table to identify the real properties for which notification is required. Assign each real property an ID that is then used on Figure 13A to distinguish property locations. In the Reason for Notification column, specify if notification was required for an actual or probable exposure or another situation that prompted notification. If actual or probable exposure necessitates the notification of tenants/lessees or other persons related to the property usage, provide a list of the persons, their mailing addresses, and telephone numbers with Table 13A and identify the property which with they are associated.

Table 13A. Notification Summary

Property ID	Property owner name	Physical property address, city, zip	Property owner mailing address, city, state, zip	Property owner phone no.	Contact name, mailing address, city, state, zip (if different from owner)	Reason for notification

Figure 13A - Notification Map

Include a large-scale map that illustrates the locations of the properties, including rights of way and easements, that require notification. Label each property with the property ID assigned in Table 13A. Illustrate the legal property boundary and the relevant affected property boundary as defined by the assessment levels. To eliminate this figure, this information may be presented in Figure 1A or 1B if the scale is appropriate.

Appendices

Appendix 1 Notifications (NA)

Provide copies of notification to affected landowner(s) or other entities requiring notification. Document that the required notices have been completed by providing a notarized statement of such fact including the names and addresses of persons receiving direct notice, such as mail, personal contact, public meeting, fliers, etc. Refer to *Notification Requirements* (RG-366/TRRP-17) for guidance.

Appendix 2 Boring Logs and Monitor Well Completion Details (NA)

For each boring drilled or monitor well installed during the assessment, provide a soil boring log with monitor well completion details if applicable. Include in the boring log:

- elevation of ground surface referenced to mean sea level,
- soil description and classification,
- moisture content,
- depth at which groundwater was encountered while drilling,
- visual confirmation of NAPL, such as staining,
- identification of groundwater-bearing units and saturated zones,
- field-screening results and field-screening sample locations,
- sample locations submitted for laboratory analyses,
- depth markings,
- sample type (Shelby tube, split spoon, etc.),
- boring diameter,
- date drilled,
- name of the person who logged the well, and
- drilling method.

Include in the monitor well completion details:

- elevation of top and bottom of casing referenced to mean sea level,
- static water level and date measured (referenced from both depth below ground surface and mean sea level),
- screened interval and slot size,
- casing interval and diameter,
- sand pack grain size and interval,
- date(s) of installation,
- cement and grout interval.

If the assessment was conducted solely by excavation, indicate such and provide lithologic descriptions and the other information requested to the extent appropriate.

Appendix 3 Monitor Well Development and Purging Data (NA)

Submit monitor well development and purging data in a table or provide in photocopies of field notes that specify water quality stabilization parameters, turbidity measurements, water-level measurements while purging, flow rates, and the other parameters measured during well development and purging.

Appendix 4 Registration and Institutional Controls(NA)

Include in this appendix copies of the Industrial and Solid Waste Notice of Registration (NOR), MSD documentation (a copy of the ordinance, deed restriction, and a copy of the MSD certificate and a map that illustrates the boundary of the MSD and the affected property), and/or existing institutional controls restricting well installation or other uses of the property.

Appendix 5 Water Well Records

Include a copy of the State Well Report and companion documents (water quality analysis, undesirable water reports, etc) completed by the driller for each water well identified in the receptor surveys. Also include in this appendix other documentation on the water wells, including information from state agency databases and records, published reports (particularly those by the Texas Water Development Board and Bureau of Economic Geology), records from groundwater conservation districts or subsidence districts, and records from other entities with information on the water well(s). Document the presence or absence of water wells and the primary sources of information researched to come to this conclusion.

Appendix 6 Monitor Well Records (NA)

Provide a copy of the State Well Report completed by the driller for each installed monitor well. For information on completing State Well Reports, contact the Texas Department of Licensing and Regulation at 800-803-9202 or 512-463-6599 or http://www.tdlr.state.tx.us.

Appendix 7 Aquifer Testing Data (NA)

For the aquifer tests performed on each groundwater-bearing unit, provide a narrative description of the work performed and the conclusions drawn. Identify the monitor wells used and provide an analysis of the field data, governing equations, sample calculations, assumptions, limitations in the collection of data, and justification for choosing the test method based on the site conditions. Provide a table of field measurements and input parameters such as transmissivity, hydraulic conductivity, storage coefficient of the aquifer, optimum sustainable groundwater pumping rate, and groundwater capture zone/radius of influence. Also provide a graph of well plots showing time of drawdown/buildup (or recovery for a slug test). Refer to the appropriate figure(s) which illustrate the locations of wells utilized.

Appendix 8 Statistics Data Tables and Calculations (NA)

Use this appendix to document data and statistical calculations used to determine site-specific background or representative concentrations of COCs in the following situations:

1. for calculating the site-specific background value, used as the residential assessment level or the critical PCL, for direct comparison to the individual samples from the assessed environmental medium data, as provided in §350.51(l) and §350.79(1);
2. for calculating a representative concentration (the upper confidence limit (UCL)) from the sample data from the environmental medium within an exposure area for statistical comparison to the critical PCL, or an alternative statistical method which meets the performance criteria required in §350.79(2)(A); or
3. for statistically comparing the environmental medium data set within an exposure area to the site-specific background data set, meeting the performance criteria required in §350.79(2)(B).

When applicable, include a map of exposure areas and provide justification for the placement and size of the exposure areas. Provide full documentation of the statistical comparisons including, but not limited to, the name and description of the statistical method(s) used and a list of statistical parameters and assumptions. Provide tables that, at a minimum, contain the following for each media: COC or parameter type, concentration, sample depth or interval, total number of samples used in the statistical calculation, and the statistical value calculated. Non-detect analytical results should be assigned a proxy value in accordance with §350.51(n). Either provide a map illustrating the sample locations used in the statistical calculations, or reference the appropriate figure in this report in which those samples have been specifically denoted.

Appendix 9 Development of Non-Default RBELs and PCLs (NA)

Include in this appendix the equations, calculations, detailed explanations beyond that provided in other sections, justification, input parameters, results, and supporting documentation associated with the development of non-default RBELs and Tier 2 and 3 PCLs. Refer to *Tiered Development of Human Health PCLs* (RG-366/TRRP-22). Also include in this appendix the information on development of TPH PCLs (refer to *Development of Human Health PCLs for Total Petroleum Hydrocarbon Mixtures* (RG-366/TRRP-27). Be sure to clearly label the information to adequately identify the COC, the input parameters, the model used, and the tier under which the evaluation was conducted. Document the applicability of non-default input parameters with lab reports, calculations, maps, or other justification. If PCLs have been adjusted due to cumulative risk/hazard level, aesthetic concerns, residual soil saturation, or theoretical soil vapor calculations, complete the appropriate tables and discuss the logic and methods used to make the adjustments. Support non-default input parameters and development of Tier 2 and 3 PCLs with complete documentation and justification. Unsubstantiated information will be considered invalid. Exposure factors that cannot be varied are listed in §350.74. Include verification that the TCEQ Executive Director has approved a variance from default exposure factors.

For convenience, Tier 2 tables are provided in this appendix. Use the tables only as necessary. Repeat the tables as necessary to document PCL development for different media, and for differing PCLs on-site and off-site. If Tier 3 PCLs were calculated, develop tables to document the inputs. If a Tier 2 dilution factor was calculated, provide maps and cross sections, if not referenced elsewhere in the report, to illustrate the location and measurements for deriving the inputs.

Appendix 9 Tables

COC Chemical/Physical Parameters and Toxicity Factors

Use these two tables only when a parameter was changed from that listed in rule or guidance. If a parameter different from that listed in rule or guidance was not used, do not submit this table. Provide in this appendix the associated supporting documentation. See *Toxicity Factors and Chemical/Physical Parameters* (RG-36/TRRP-19) for more information.

Properties for many COCs are listed in the Chemical/Physical Properties table in the Tier 1 PCL tables available on the TRRP web page. Use this table to list ONLY those COCs that are not included in the rule or web page or those COCs for which the person changed the value from a Tier 1 default. Only complete the portions that apply to these particular COCs. Note that values for shaded columns may not be changed from values listed in the rule. Include the calculations in this appendix and document the sources of information for those properties changed in accordance with §350.73(e). Do not complete this table for those COCs where the properties are the same as those listed in Figure 30 TAC 350.73(e) or in the chemical/physical properties table available from http://www.tnrcc.state.tx.us/permitting/trrp.htm.

COC	Physical state	Type	M.W. (g/mole)	H' (cm^3-H_2O/cm^3-air)	$LogK_{oc}$	$LogK_d$	D_{air} (cm^2/s)	D_{wat} (cm^2/s)	Solubility (mg/l)	Vapor pressure (mm Hg)	Log K_{ow}	Br_{Abg} (g soil/g D.W.)	Br_{Bg} (g soil/g D.W.)

Physical state	s - solid at 20°C; l - liquid at 20°C; g - gaseous at 20°C;	K_d	Soil-water partition coefficient (cm^3-H_2O/g-Soil)
Type	O: organic; I: inorganic; M: metal; OA: organic acid	D_{air}	Diffusion coefficient in air (cm^2/s)
M.W.	Molecular weight (g/mole)	D_{wat}	Diffusion coefficient in water (cm^2/s)
H'	Dimensionless Henry's Law Constant H' = H x 41.57 at 20°C (cm^3-H_2O/cm^3-air)	K_{ow}	Octanol-water partition coefficient (cm^3-H_2O/cm^3-Octanol)
H	Henry's Law Constant (atm-m^3/mole)	Br_{Abg}	Soil-to-above ground plant biotransfer factor (g soil/g plant tissue dry weight)
K_{oc}	Soil organic carbon-water partition coefficient (cm^3-H_2O/g-Carbon)	Br_{Bg}	Soil-to-below ground plant biotransfer factor (g soil/g plant tissue dry weight)

List the COCs not included in the Toxicity Factors Table. Do not complete this table if the toxicity factors are the same as those in the Toxicity Factors Table as provided in the Tier 1 PCL tables at http://www.tnrcc.state.tx.us/permitting/trrp.htm. Note that the toxicity factors must be provided by the TCEQ before use.

Provide the date of the toxicity factors table used: _____

COC	Reference concentration RfC[1] (mg/m^3)	Oral reference dose RfD_o (mg/kg-day)	Dermal reference dose RfD_d (mg/kg-day)	Dermal slope factor SF_d (mg/kg day)	Oral slope factor SF_o (mg/kg day)	Inhalation unit risk factor URF ($\mu g/m^3$)	Relative bioavailability factor RBAF (unitless)	Dermal absorption fraction ABS.d[2] (unitless)	Gastrointestinal absorption fraction ABS_{GI} (unitless)

[1] When no RfC or URF is available, use the most current TCEQ Chronic Remediation-Specific Effects Screening Level value as the RfC.

[2] It is not necessary to calculate a soil dermal contact RBEL for COCs with a vapor pressure in mm HG≥ 1.

Surface Soil - $^{Tot}Soil_{Comb}$

Tier 2 Evaluation

Use these tables to document the derivation of Tier 2 $^{Tot}Soil_{Comb}$ PCLs. Show the calculations in this appendix.

Specify if table is for on-site or off-site property _____ On-site _____ Off-site

Off-site land use(s) for purpose of PCL development[1]: _____ Residential _____ Commercial/industrial

	Soil bulk density ρ_b (g/cm^3)	Total porosity θ_T (cm^3/cm^3)	Volumetric water content θ_{ws} (cm^3/cm^3)	Volumetric air content θ_{as} (cm^3/cm^3)	Fraction organic carbon foc (g/g)	Garden soil fraction organic carbon foc (g/g)	Fraction vegetative cover V	Wind speed U_m (m/s)	Equivalent threshold value of windspeed U_t (m/s)	Function dependent on (U_t/U_m) F(x)	Averaging time AT.w (years)	Exposure duration ED.w (years)	Exposure frequency EF.w (days/yr)
Tier 1 defaults	1.67	0.37	0.16	0.21	0.008	0.008	0.50	4.80	11.32	0.224	25	25	250
Tier 2 values													

COC	Source area size (acres)	Affected soil thickness d_s (cm)	Q/C	VFss	PEF	Carcinogenic						Noncarcinogenic						$^{Tot}Soil_{Comb}$ PCL (mg/kg)
				(mg/m³/mg/kg)		Air RBEL Inh-c	Soil RBEL Ing-c	Soil RBEL Derm-c	AbgVeg RBEL Ing-c	BgVeg RBEL Ing-c	PCL	Air RBEL Inh-nc	Soil RBEL Ing-nc	Soil RBEL Derm-nc	AbgVeg RBEL Ing-nc	BgVeg RBEL Ing-nc	PCL	

[1] Repeat the table if needed for different off-site land uses.

Surface and Subsurface Soil - ^{GW}Soil

Tier 2 Evaluation

Specify media to which tables apply ____ Surface soil ____ Subsurface soil

Specify if table is for on-site or off-site property ____ On-site ____ Off-site
Off-site land use(s) for purpose of PCL development[1]: ____ Residential ____ Commercial/industrial

	Soil bulk density ρ_b (g/cm^3)	Volumetric water content θ_{ws} (cm$^{3/}$/cm^3)	Volumetric air content θ_{as} (cm$^{3/}$/cm^3)	Fraction organic carbon foc (g/g)	Groundwater Darcy velocity U_{gw} (cm/year)	Aquifer thickness b_{gw} (m)	Ground-water gradient i (m/m)	Hydraulic conductivity K (m/day)	Average annual precipitation P (cm/yr)	Net infiltration rate I_f (cm/yr)	Saturated hydraulic conductivity of vadose zone soils K_{vs} (cm/s)
Tier 1 defaults	1.67	0.16	0.21	0.002	NA	NA	NA	NA	NA	NA	NA
Tier 2 values											

COC	Critical GW PCL (from Table 12A)		Affected soil thickness L_1 (cm)	Depth from top of affected soil to gw table L_2 (cm)	Source area width parallel to gw flow W_s (m)	GW mixing zone thickness δ_{gw} (m)	Soil-leachate partition factor K_{sw} (mg/L/mg/kg)	Lateral dilution factor LDF	^{GW}Soil PCL (mg/kg)
	(mg/L)	pathway[2]							

[1] Repeat the table if needed for different off-site land uses.
[2] Specify the pathway for the critical groundwater PCL ($^{GW}GW_{Ing}$, $^{GW}GW_{Class3}$, $^{Air}GW_{Inh-V}$, ecological PCL (eco), ^{SW}GW, etc.)

Subsurface Soil – $^{Air}Soil_{Inh-V}$
Tier 2 Evaluation

Specify if table is for on-site or off-site property _____ On-site _____ Off-site
Off-site land use(s) for purpose of PCL development[1]: _____ Residential _____ Commercial/industrial

	Soil bulk density ρ_b (g/cm^3)	Total porosity θ_T (cm^3/cm^3)	Volumetric water content θ_{ws} (cm^3/cm^3)	Volumetric air content θ_{as} (cm^3/cm^3)	Averaging time[2] AT.w (years)	Exposure duration[2] ED.w (years)	Exposure frequency[2] EF.w (days/yr)
Tier 1 defaults	1.67	0.37	0.16	0.21	25	25	250
Tier 2 values							

COC	Source area size (acres)	Affected soil thickness d_s (cm)	Q/C	K_d (cm^3-water/g-soil)	VFss ($mg/m^3/mg/kg$)	Carcinogenic		Noncarcinogenic		$^{Air}Soil_{Inh-V}$ PCL (mg/kg)
						$^{Air}RBEL_{Inh-c}$	PCL	$^{Air}RBEL_{Inh-nc}$	PCL	

[1] Repeat the table if needed for different off-site land uses.
[2] Prior approval from the TCEQ Executive Director is required for the variance (see §350.74(j)(2)).

Theoretical Soil Saturation Limit (C_{sat})

Use these tables to determine a property-specific theoretical soil saturation limit in order to demonstrate the volatilization pathways are not applicable for a particular COC. See §350.75(i)(8) for applicability. Support non-default parameters by providing supporting documentation, the equation, and calculations in this appendix.

Specify media to which tables apply _____ Surface soil _____ Subsurface soil

	Volumetric water content in vadose soils θ_{ws} (cm^3/cm^3)	Volumetric air content in vadose soils θ_{as} (cm^3/cm^3)	Fraction organic carbon in soil/gw F_{oc} (g/g)	Soil bulk density ρ_b (g/cm^3)
Tier 1	0.16	0.21	0.002	1.67
Tier 2				

COC	Aqueous solubility of pure COC S (mg/L)	Henry's Law Constant (air-water partition coefficient) H′	Soil-water partition coefficient K_d (cm^3/g)	Organic carbon partition coefficient K_{oc} (cm^3/g)	C_{sat} PCL (mg/kg)

Residual Soil Saturation Limit

Use these tables to determine the presence of NAPL and estimate the concentration of an organic COC at which NAPL becomes mobile. See §350.75(i)(9) for applicability. **Support non-default parameters by documentation and explanation.** Support non-default parameters by providing supporting documentation, the equation, and calculations in this appendix.

Specify media to which tables apply ☐ Surface soil ☐ Subsurface soil

	Residual saturation Res_{sat} (cm^3/cm^3)	Total soil porosity θ (cm^3/cm^3)	Density of NAPL ρ_{NAPL} (g/cm^3)	Soil bulk density ρ_b (g/cm^3)
Tier 1	0.04514[1]	0.37	1	1.67
Tier 2				

COC	$Soil_{Res}$ PCL (mg/kg)

[1] The value listed in the rule is in error.

Risk Level and Hazard Check

Specify media to which table applies ____ Surface soil ___ Subsurface soil ___ Groundwater

Use this table to document the adjustment of a PCL based on cumulative risk. Repeat this table for each complete or reasonably anticipated to be complete exposure pathway in the medium for which there are 10 or more carcinogens or 10 or more noncarcinogens acting through a single exposure pathway. When adjusting the $^{Tot}Soil_{Comb}$ PCL using exposure areas, specify the exposure area to which the adjustment applies. Do not use this table for $^{GW}Soil$, $^{GW}GW_{Class3}$, or ^{SW}GW.

Complete this form for both the carcinogenic and noncarcinogenic effects for each COC for each human health exposure pathway using PCLs calculated at chosen tier. For example, for a given exposure pathway, if a Tier 1 PCL is calculated for COC "X," a Tier 2 PCL is calculated for COC "Y," and a Tier 3 PCL is calculated for COC "Z," those PCLs are included in the table together and are not segregated by tier. This is a precursor to establishing critical PCLs. If a PCL was not established because of lack of an applicable toxicity factor, input "NA" for the COC in the applicable column. For TPH, complete only the noncarcinogenic portion and do not handle concurrently with the other non-TPH COCs. TPH is treated in isolation. See TCEQ guidance document *Risk Levels and Hazard Indices* (RG-366/TRRP-18) for specific information on cumulative adjustments and *Development of Human Health PCLs for Total Petroleum Hydrocarbon Mixtures* (RG-366/TRRP-27) for TPH.

COC`	Carcinogenic Endpoint			Non-Carcinogenic Endpoint		
	PCL_i-adj	PCL_i (mg/kg or mg/L)	PCL_i-adj/PCL_i (ratio)	PCL_i-adj	PCL_i (mg/kg or mg/L)	PCL_i-adj/PCL_i (ratio)
Cumulative Risk Level (RL):				**Hazard Index (HI):**		

Groundwater Non-Default Affected Property Parameters

Name(s) of groundwater-bearing unit(s): _____

COC-Specific Affected Property Parameters

COC	Cross sectional area of air emissions source A (m^2)	Length of air emissions source parallel to wind direction L (m)

Affected Property Parameters

Term	Affected property parameters	Tier 1 defaults	Value used for Tier 2/3
GW pH	Measured groundwater pH	NA	
σ_y	Transverse air dispersion coefficient (m) (dispersion estimates based on the Pasquill-Gifford system adopted by U.S. Public Health Service, Turner, 1970, *EPA Workbook of Atmospheric Dispersion Estimates*; see Cooper & Alley, 1994, *Air Pollution Control*)	NA	
σ_z	Vertical air dispersion coefficient (m) (dispersion estimates based on the Pasquill-Gifford system adopted by U.S. Public Health Service, Turner, 1970, *EPA Workbook of Atmospheric Dispersion Estimates*; see Cooper & Alley, 1994, *Air Pollution Control*)	NA	
Q	Air volumetric flow through mixing zone (m^3/s)	NA	

Groundwater – $^{GW}GW_{Ing}$[1] or $^{GW}GW_{Class3}$[1] and $^{Air}GW_{Inh-V}$

Groundwater-bearing unit: _____ Repeat tables for each groundwater-bearing unit.
Specify if table is for on-site or off-site property _____ On-site ____ Off-site
Off-site land use(s) for purpose of PCL development[2]: _____ Residential ____ Commercial/industrial

Tier 2 Evaluation

	Total porosity (vadose zone) θ_T (cm^3/cm^3)	Volumetric water content (vadose zone) θ_{ws} (cm^3/cm^3)	Volumetric air content of vadose zone soils θ_{ws} (cm^3/cm^3)	Volumetric water content (capillary fringe) θ_{wcap} (cm^3/cm^3)	Volumetric air content (capillary fringe) θ_{acap} (cm^3/cm^3)	Vadose zone thickness h_v (cm)	Capillary fringe thickness h_{cap} (cm)	Depth to gw L_{gw} (cm)	Average windspeed U_{air} (cm/sec)	Ambient air mixing zone height δ_{air} (cm)	Averaging time[3] AT.w (years)	Exposure duration[3] ED.w (years)	Exposure frequency[3] EF.w (days/yr)
Tier 1 defaults	0.370	0.16	0.21	0.333	0.037	300	5	305	240	200	25	25	250
Tier 2 values													

COC	Source area width W_g (cm)	VF_{wamb} (mg/m^3/mg/L)	Carcinogenic				Noncarcinogenic				MCL, MCL2 or EPA[4]	$^{GW}GW_{Ing}$ or $^{GW}GW_{Class3}$ PCL		$^{Air}GW_{Inh-V}$ PCL	
			$^{GW}RBEL_{Ing}$ or $^{GW}RBEL_{Class3}$	PCL	$^{GW}RBEL_{Inh}$	PCL	$^{GW}RBEL_{Ing}$ or $^{GW}RBEL_{Class3}$	PCL	$^{GW}RBEL_{Inh}$	PCL		(mg/L)	>S[5]	(mg/L)	>S

[1] Only applies for COCs for commercial/industrial land use without an MCL and those for which a variance under §350.74(j)(2) is obtained.
[2] Repeat the table if needed for different off-site land uses.
[3] Prior approval from TCEQ Executive Director for the variance is required (§350.74(j)(2)).
[4] Specify whether the PCL is based on the MCL, secondary MCL, or other EPA value.
[5] Specify if PCL exceeds the aqueous solubility limit.

Groundwater - ^{SW}GW and ^{Sed}GW

Provide a map that illustrates how the input parameters were measured or determined.

Groundwater-bearing unit: _____

Repeat tables for each affected GWBU discharging to surface water.

Surface water body: _____

Parameter Selection for Tier 2 Dilution Factor Models

Term	Description	Defaults	Value Used
7Q2 flow rate	Seven-day low-flow occurring on average every two years (cm/s)	NA	
U_{gw}	Groundwater Darcy velocity (cm/yr)	NA	
K	Hydraulic conductivity (cm/s)	NA	
i	Lateral hydraulic flow gradient (cm/cm)	NA	
δ_p	Thickness of affected groundwater (cm) in excess of the ^{SW}RBEL or the SW_{eco}[1]	NA	
δ_{pi}	Thickness of affected groundwater in excess of ^{SW}RBEL discharging to surface water stream[1] (cm)	NA	
L_m	Influent width of groundwater PCLE zone at point of discharge to surface water[1] (cm)	NA	
Q_{igw}	Average influent flow of affected groundwater to surface water[1] (cm^3/s)	NA	
V_{sw}	Average surface water velocity in groundwater discharge mixing area (cm/s)	lake: 0.5 cm/s tidal water: 1 cm/s large river (>100 cfs): $3.5 \times (7Q2)^{0.5}$ cm/s	
W_{sw}	Distance from the shore extending into the surface water body through which affected groundwater discharges through sediment into surface water[1] (cm)	NA	
h_{sw}	Depth of surface water mixing area above the affected groundwater discharge to surface water (cm)	30	
Q_{sw}	Flow of surface water through the surface water mixing area - 7Q2 flow for a stream with 7Q2 ≤ 100 cfs or mixing area flow for other water body (cm^3/s)	NA	
ρ_{sed}	Sediment bulk density (g/cm^3)	1.67	
θ_T	Total sediment porosity (cm^3/cm^3)	0.37	
foc	Fraction organic carbon in sediment (g/g)	0.01	
K_{sed-w}	Sediment-groundwater partition coefficient (mg/L/mg/kg)	NA	
SWMF	Surface water mixing factor	1	

COC	^{SW}RBEL or SW_{eco} (mg/L)	DF	^{SW}GW (mg/L)	Tier

COC	Sediment RBEL	k_d	k_{oc}	^{Sed}GW (mg/L)	Tier

[1] This value may be determined for each COC if desired. If so, attach separate table listing the value used for each COC.

Appendix 10 Laboratory Data Packages and Data Usability Summary (NA)

Use this appendix to provide lab reports and supporting information. Print lab reports double-sided and also include with the report a CD with the lab reports in pdf format. Submit one data usability summary for all the data (field and laboratory) used in this APAR. Report data in conformance with the TCEQ guidance document *Review and Reporting of COC Concentration Data* (RG-366/TRRP-13). For each laboratory data package submitted with the APAR, provide a signed laboratory data package cover page (LDCP) and the items listed on the LDCP. The LDCP form is provided in Appendix A of *Review and Reporting of COC Concentration Data* (RG-366/TRRP-13).

Appendix 11 Miscellaneous Assessment

Include the results of assessment or sampling activities that are not included in the media sections. This section may be used to describe geophysical investigations such as seismic surveys, ground-penetrating radar surveys, and resistivity surveys; wipe samples; waste sampling (other than for waste classification purposes); concrete slab sampling; biota sampling (flora or fauna); food sampling; and other topics applicable to the assessment. Include tables and figures as necessary to summarize and illustrate assessment results.

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 18, 2010

Mr. Charles R. Robertson
Vice President
Terra-Solve, Inc.
3216 Commander Drive, Suite 103
Carrollton, Texas 75006-2518

Re: Comments to "Request for Additional Information"
Former F.J. Doyle Salvage
305 E. Cottonwood Street (905 N. Poplar Street), Leonard, Fannin County, Texas
TCEQ SWR No. 80951; EPA CERCLIS No. TXD980865109; Customer No. CN600359095; Regulated Entity No. RN100649227

Dear Mr. Robertson:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above referenced submittal. A list of the comments is enclosed.

Please call me at (512) 239-4940 if you need additional information or wish to discuss these comments or the due date. Thank you for your cooperation in this matter.

Sincerely,

PLall

Pindy Lall, Project Manager
VCP Team 1, VCP-CA Section
Remediation Division

PSL/jdm

Enclosure: Comments

cc: Mr. Sam Barrett, Waste Program Manager, TCEQ Region 4, Dallas/Fort Worth

TCEQ letter dated June 18, 2010
ENCLOSURE
TCEQ SWR No. 80951

Comments

1. Surface soils need to be delineated horizontally to 1.1 mg/kg for polychlorinated biphenyls (PCBs). Surface soils under Texas Risk Reduction Program (TRRP) are soils at a depth of 0-15 feet. Copper and hexachlorobenzene will also be required to be delineated horizontally.

2. Soil contamination will need to be delineated vertically.
   a. Soil vertical delineation is required to method quantitation limit (MQL) unless a groundwater sample is taken at the site.
   b. If a groundwater sample is taken, the entire soil column can be assumed to be contaminated.

3. If the site enters the Voluntary Cleanup Program (VCP), a groundwater sample will be required.

4. In situations where the entire soil column is assumed to be contaminated, a control (such as a parking lot that serves as an impervious cover) may be implemented to prevent exposure. A parking lot may be utilized as a impervious cover depending on the material used; however, maintenance of the parking lot would be required to ensure the integrity of the parking lot as a control. Any area that is not covered will be required to be removed, decontaminated, and/or controlled by other means.

5. A demonstration that the drainage ditches are not impacting surface water will be necessary.

Appendix 12 Waste Characterization and Disposition Documentation (NA)

Use this appendix to document waste characterization and disposition of wastes associated with an assessment or remediation, including investigation derived waste and other wastes generated during field activities. Describe the wastes generated and the results from the completed waste classification and disposal/treatment activities. Supporting documentation may include written documentation and process knowledge. Provide copies of waste characterization sample analytical data packages.

Appendix 13 Photographic Documentation

If not provided elsewhere, include relevant dated and oriented photographs depicting the affected property and field activities (e.g., potential source areas, surrounding properties, abatement activities, etc.).

Appendix 14 Standard Operating Procedures (NA)

Use this appendix to provide copies of the standard operating procedures followed during field activities (for example, sampling methods, drilling methods).

Appendix 15 OSHA Health and Safety Plan (§350.74(b)(1)) (NA)

Use this appendix only for documentation supporting the use of an available eight-hour time weighted average occupational inhalation criteria as the air inhalation RBEL. Provide documentation of the health and safety plan, a certification that the plan is followed, and the demonstration that offsite receptors are protected per §350.74(b)(1).

Appendix 16 Reference List

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), for Fannin County, Texas, Unincorporated Area; Panel Number 480807 0010B, November 8, 1977.

Geologic Atlas of Texas, Sherman Sheet; University of Texas at Austin, Bureau of Economic Geology, 1967, revised 1991.

GeoSearch, LP (GeoSearch), The GeoSearch Aerial Photo Decade Package, Job Number 11795, November 9, 2009, for Aerial Photographs, 1950, 1963, 1969, 1989, 1996, and 2004.

GeoSearch, LP (GeoSearch), The GeoSearch Radius Report with Geoplus; Job Number 11795, November 9, 2009.

National Oceanic & Atmospheric Administration, National Climatic Data Center; http://www.noaa.com.

Railroad Commission of Texas, Public GIS Map Viewer, http://gis2.rrc.state.tx.us/public.

Texas Water Development Board (TWDB) Groundwater Database, Fannin County.

www.twdb.state.tx.us/publications/reports/GroundWaterReports/GWDatabaseReports/GWdatabaserpt.htm
TexShare Database, Sanborn Map Reports. No coverage.

United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS), *Soil Survey of Fannin County, Texas;* 2001.

United States Geological Survey (USGS) 7.5-Minute Series Topographic Map; *Leonard, Texas Quadrangle;* 1964.