Health Consultation

Review of Groundwater Data

PETRO PROCESSORS OF LOUISIANA, INC.

EAST BATON ROUGE PARISH, LOUISIANA

EPA FACILITY ID: LAD057482713

Prepared by the
Louisiana Department of Health and Hospitals

JANUARY 14, 2014

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Community Health Investigations
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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List of Acronyms

ATSDR	Agency for Toxic Substances and Disease Registry
BBR	Bayou Baton Rouge
BRWS	Baton Rouge Water Supply
CB	Central Branch
CD	Consent Decree
cis-DCE	cis-1,2-Dichloroethene
COC	Contaminant of Concern
CREG	Cancer Risk Evaluation Guide
CSF	Cancer Slope Factor
CVs	Comparison Values
DCA	1,2-Dichloroethane
DCHI	Division of Community Health Investigations
DNAPL	Dense Non-aqueous phase liquid
EA	Enhanced Attenuation
EMEG	Environmental Media Evaluation Guide
EPA	Environmental Protection Agency
HCB	Hexachlorobenzene
HCBD	Hexachlorobutadiene
IUR	Inhalation Unit Risk
LDEQ	Louisiana Department of Environmental Quality
LDHH	Louisiana Department of Health and Hospitals
LTMP	Long Term Monitoring Plan
MRL	Minimal Risk Level
MSL	Mean Sea Level
MNA	Monitored Natural Attenuation
NA	Not Applicable
NPC	NPC Services, Inc.
NPL	National Priorities List
OPH	Office of Public Health
OU	Operating Unit
PCE	Tetrachloroethene
PPI	Petro Processors of Louisiana, Inc. Superfund Site
RfC	Reference Concentration
RfD	Reference Dose
RMEG	Reference Media Evaluation Guide
SEET	Section of Environmental Epidemiology and Toxicology
SRAP	Supplemental Remedial Action Plan
TCA	1,1,2-Trichloroethane
TCE	Trichloroethene
TeCA	1,1,2,2-Tetrachloroethane
TOC	Total Organic Carbon
trans-DCE	trans-1,2-Dichloroethene
ug/L	Microgram per Liter
VC	Vinyl Chloride

Summary and Statement of Issues

INTRODUCTION	The Petro Processors of Louisiana Inc. (PPI) Superfund Site is located in East Baton Rouge Parish, Louisiana, about six miles north of the City of Baton Rouge. From 2009-2011, groundwater samples were collected from the PPI Brooklawn and Scenic operating units (OUs) as part of monitored natural and enhanced attenuation processes at the PPI site. The PPI site, is currently undergoing enhanced attenuation at the Scenic OU, with regular groundwater monitoring at both OUs. In cooperation with the Environmental Protection Agency (EPA), Louisiana Department of Health and Hospitals/Office of Public Health/Section of Environmental Epidemiology and Toxicology (LDHH/OPH/SEET) evaluated the most recent groundwater data available for the PPI site to determine whether contaminants in groundwater pose a potential public health hazard.
CONCLUSION	After assessing the potential for the public to be exposed to these contaminants in ground water, SEET concludes that the contaminants remaining at the PPI site will not harm people's health.
BASIS FOR DECISION	Drinking water is sourced from the 400-foot aquifer. Regular groundwater monitoring is conducted at both OUs; none of the 400-foot aquifer monitoring wells have shown evidence of contaminant migration. There is no other exposure pathway by which people can be exposed to these contaminants.
NEXT STEPS	SEET will be available to assess any additional samples collected from the PPI site or to reassess current data following any changes in usage of or access to the site. The information produced within this health consultation will be made available to the community members and stakeholders in East Baton Rouge Parish, LA.
FOR MORE INFORMATION	If you have further concerns about the site, you can call ATSDR at 1-800-CDC-INFO and ask for information about the PPI site.

Background

Site Description & History

The Petro Processors of Louisiana Inc. (PPI) Superfund Site is located in East Baton Rouge Parish, Louisiana, about six miles north of the City of Baton Rouge (Appendix A, Figure 1). The site consists of two petrochemical disposal operating units (OUs) on the banks of Bayou Baton Rouge (BBR) in or near the floodplain of the Mississippi River. The two OUs, Scenic and Brooklawn, are situated about 1.5 miles apart and total 97 acres. Brooklawn is the larger of the two, estimated at 80 acres. The Scenic OU is just west of Scenic Highway (Highway 61) and one-quarter mile north of the intersection of Highways 61 and 964. The disposal area of the Scenic OU covers approximately 17 acres and includes a portion of BBR, and is located immediately adjacent to the western end of the waste pit. The Brooklawn OU is west-southwest of the Scenic OU and includes the disposal area and the adjacent BBR area [1].

The stratigraphy beneath the Brooklawn OU is divided into two types: Pleistocene terrace sediments and recent alluvial deposits. Significant permeable zones are present within the Pleistocene terrace water table; the -40 mean sea level (MSL) zone, the intermediate sand zone (-75 to -100 MSL) and the 400-foot aquifer (Appendix A, Figure 2). Permeable zones within the recent alluvial deposits include the shallow and deep water tables and the semi-confined alluvial zone. The stratigraphy beneath the Scenic OU includes a +40 MSL zone, +20 MSL zone, -40 MSL zone, intermediate sand zone and the 400-foot aquifer [1]. The deep groundwater regime of concern is the 400-foot aquifer as it provides a source of drinking water.

Both areas were operated by the same management with equipment and personnel employed interchangeably. The Scenic OU, originally a borrow pit, was used for petrochemical waste disposal from 1961 to 1974. The Brooklawn OU was open from 1969 to 1978, accepting additional petrochemical wastes as the Scenic OU was filled to capacity. An estimated 300,000 tons of solid, sludge and liquid waste were deposited during operations at both units; approximately 52,000 tons of liquid wastes were non-chlorinated organic compounds, while 63,000 tons were chlorinated and 10,000 tons were aqueous liquids [1].

In July 1980, the U.S. Justice Department filed suit against PPI and Industry Defendants for disposal of hazardous wastes at the Scenic and Brooklawn OUs. The February 1984 Consent Decree (CD) for site closure/remedial action states that the Potentially Responsible Party (PRP) defendants, called NPC Services, Inc. (NPC), are responsible for perpetual maintenance. PPI was added to the final National Priorities List (NPL) by EPA on September 21, 1984 [2].

The initial response action specified the design of a waste disposal vault and the complete closure of both OUs by excavating, solidifying and land-filling all visible waste along with recovery of deeper waste and treatment by incineration. A supplemental investigation was conducted and the Federal Court approved a Supplemental Remedial Action Plan (SRAP) to include the implementation of hydraulic containment and recovery. As site characterization progressed, additional remedial activities were expanded. Contaminants of concern (COCs) at the PPI site include: Hexachlorobutadiene (HCBD), Hexachlorobenzene (HCB), 1,1,2,2-Tetrachloroethane (TeCA) 1,1,2-Trichloroethane (TCA), 1,2-Dichloroethene (DCA), Tetrachloroethene (PCE), Trichloroethene (TCE), trans-1,2-Dichloroethene (trans-DCE), cis-1,2-Dichloroethene (cis-DCE), and Vinyl Chloride (VC). Groundwater at both OUs was the primary contaminated media of concern, while BBR surface sediments and biota were also a concern [1].

The following remedial action plans have been completed and/or are ongoing:

- Source control and protective coverings of original open pits at both OUs.
- Source reduction at the Brooklawn and Scenic OUs by pump treatment and removal of Dense Non-Aqueous Phase Liquid (DNAPL) -contaminated groundwater. Source reduction was discontinued in 2006 based on low recovery rates and modeling that has shown that further recovery attempts are not required to protect the 400-foot drinking water aquifer. Long-term monitoring and inspection activities will continue under approved work plans.
- Placements of protective fill (2003) and monitoring of BBR distributaries has restored surface sediment and biota contaminant concentrations to protective levels. Protective fill inspections will continue to be conducted annually for a period of 20 years through 2023. Biota sampling and reporting was discontinued in 2008 due to significant reductions in risks to human and ecological receptors.
- Monitored Natural Attenuation (MNA) remedy for groundwater at the Brooklawn OU is in the operation and maintenance phase with long-term monitoring in place for a period of at least 30 years through 2030.
- Enhanced Attenuation (EA) remedy for groundwater at the Scenic OU as a source control remedy to prevent the downgradient transport of COCs is currently being implemented.
- Administrative controls are in place to limit access to the PPI site, limiting entry to approved site personnel via perimeter fencing and security.

In coordination with the Louisiana Department of Environmental Quality (LDEQ) and NPC Services, EPA completed a second five-year review of the remedy in December 2010, and found that the remedy is functional and protective of human health and the environment [1].

Demographics

PPI is located in East Baton Rouge Parish, Louisiana. Census 2012 estimated a parish population of 444,526. The largest ethnic group in the parish at that time was Caucasian (50%), followed by African American (46%). Approximately four percent (4%) of the population identified themselves as Hispanic. The median household income in 2012 was $46,838, with approximately eighteen percent (18%) of persons living below poverty level [3].

The land surrounding the PPI site is primarily zoned as heavy industrial. The nearest concentration of residences is the Alsen Community on Scenic Highway about two miles east-southeast of the Brooklawn OU and one mile south of the Scenic OU. There are about six residential homes on Springfield Road 1.5 miles east of the Brooklawn OU and one-half mile south of the Scenic OU. The East Baton Rouge city/parish landfill is about one mile north-northeast of the Brooklawn OU and one mile northwest of the Scenic OU. The Jetson Correctional Facility for adolescents is two miles east of the Brooklawn OU and one-half mile southeast of the Scenic OU. The Joint Emergency Services Training Center operated by the Louisiana State Police is located one-half miles northwest of the Brooklawn OU [1].

Most residents in the area are connected to the Baton Rouge Water Supply (BRWS) system, drawn from the 400-foot aquifer. There is one domestic water well in the 400-foot aquifer

within one-half mile of the Scenic OU. There are no domestic wells within one-half mile of the Brooklawn OU [4]. The CD identifies the 400-foot aquifer as an aquifer of concern to be protected from infiltration of contaminants originating from the pits and lagoons previously located on the Brooklawn and Scenic OUs.

Discussion

Environmental Data

Brooklawn OU

Monitored Natural Attenuation (MNA) 2010 Data

MNA is conducted at the Brooklawn OU as required by the long-term monitoring plan (LTMP) for the PPI site. A total of twenty-seven (27) groundwater samples (inclusive of two duplicates) were collected at twenty-four (24) monitoring wells from October through December 2010 to assist in measuring the performance of the MNA remedy (Appendix A, Figure 3). Samples were collected from the shallow and deep water zones of the permeable recent alluvial deposits and the stratigraphically significant permeable -40 MSL zone and the 400-foot aquifer (Appendix A, Figure 2). All samples were analyzed for volatile organic compounds via EPA Method 8260B; further geochemical data were collected to verify favorable conditions for natural attenuation. Total Organic Carbon (TOC), pH, dissolved gases, chloride, nitrate, nitrite, sulfate, sulfide and iron were identified as supported geochemical data for this sampling event.

Maximum detected contaminant concentrations (by MSL) exceeding health based comparison values (CVs) are presented in Table 1 below; all samples collected from monitoring wells located in the -40 MSL and the 400-foot aquifer were either non-detect or below CVs. CVs and their usage in the screening process are explained further in Appendix B.

Four samples, each located within the deep water alluvial deposits zone, were rejected due to laboratory dilution methods altering detection limits. Laboratory detection limits exceeded health based comparison values for acrylonitrile, 2-chloroethylvinyl ether and vinyl chloride. Per EPA, of these chemical constituents, only vinyl chloride has been identified as a historical COC for the PPI site. Vinyl chloride is also a degradation product of the MNA process. However, it is critical that laboratory detection limits are more than or as sensitive as health based comparison values in order to allow scientists to correctly assess the public health implications of exposure.

Table 1: Maximum detected contaminant concentrations exceeding comparison values during routine natural attenuation monitoring at the PPI Brooklawn OU. October-December 2010.

Contaminant	Maximum Detected Concentrations (ug/L)[1] by Mean Sea Level (MSL)		Comparison Value (ug/L)
	Permeable recent alluvial deposits		
	Deep Water (-30 to -50)	Shallow Water (0 to -30)	
1,1-Dichloroethane	ND[2]	8.2	2.4 RSL[3]
1,2-Dichloroethane	2.42	ND	0.38 CREG[4]
Benzene	ND	12.5	0.64 CREG

[1]ug/L- micrograms per liter; [2]ND- not detected < detection limit [3] RSL- Regional Screening Level; [4]CREG- Cancer Risk Evaluation Guide

Monitored Natural Attenuation (MNA) 2011 Data:

Regularly scheduled LTMP groundwater sampling was conducted from July through November 2011 at the Brooklawn OU. A total of thirty-one (31) samples were collected from twenty-one (21) monitoring well locations. Sampling locations, MSL depths, analytes and geochemical data remained the same as 2010 Brooklawn OU sampling event parameters.

Seven samples, each located at the same (2010) monitoring well locations in the deep water alluvial deposits zone, were rejected due to laboratory dilution methods altering detection limits. Laboratory detection limits exceeded health based comparison values for acrylonitrile, 2-chloroethylvinyl ether and vinyl chloride.

Maximum detected contaminant concentrations (by MSL) exceeding CVs are presented in Table 2 below; all samples collected from monitoring wells located in the -40 MSL, and 400-foot aquifer were either non-detect or below CVs.

Table 2: Maximum detected contaminant concentrations exceeding comparison values during routine natural attenuation monitoring at the PPI Brooklawn OU. July-November 2011.

Contaminant	Maximum Detected Concentrations (ug/L)[1] by Mean Sea Level (MSL)		Comparison Value (ug/L)
	Permeable recent alluvial deposits		
	Deep Water (-30 to -50)	Shallow Water(0 to -30)	
1,1,2,2-Tetrachloroethane	1.86	ND[2]	0.18 CREG[3]
1,1,2,-Trichloroethane	53.6	0.644	0.61 CREG
1,1-Dichloroethane	5.47	18.4	2.4 RSL[4]
1,2-Dichloroethane	153	ND	0.38 CREG
Benzene	1.28	22.8	0.64 CREG
Trichloroethene	18.4	ND	0.76 CREG

[1]ug/L- micrograms per liter;[2]ND- not detected<detection limit; [3]CREG- Cancer Risk Evaluation Guide; [4]RSL- Regional Screening Level

Scenic OU:

Monitored Natural Attenuation:

MNA is also conducted at the Scenic OU as required by the LTMP for the PPI site. A total of fifty-two (52) groundwater samples (inclusive of five duplicates) were collected at forty-six (46) monitoring wells from January through August 2010 to assist in measuring the performance of the MNA remedy. Samples were collected from the +40 MSL zone, +20 MSL zone, -40 MSL zone, intermediate sand and the 400-foot aquifer (Appendix A, Figure 4). All samples were analyzed for volatile organic compounds via EPA Method 8260B; geochemical data was also collected to verify favorable conditions for natural attenuation.

Maximum detected contaminant concentrations (by MSL) exceeding CVs are presented in Table 3 below; all samples collected from monitoring wells located in the intermediate sand and 400-foot aquifer were either non-detect or below CVs.

Seven samples, located within the +20 MSL and +40 MSL zones, were rejected due to laboratory dilution methods altering detection limits. Laboratory detection limits exceeded health based comparison values for acrylonitrile, 2-chloroethylvinyl ether and vinyl chloride.

Table 3: Maximum detected contaminant concentrations exceeding comparison values during routine natural attenuation monitoring at the PPI Scenic OU. January-August 2010.

Contaminant	Maximum Detected Concentrations (ug/L)[1] by Mean Sea Level (MSL)			Comparison Value (ug/L)
	+20 MSL	+40 MSL	-40 MSL	
1,1,2-Trichloroethane	58.1	ND[2]	NA[3]	0.61 CREG[4]
1,1-Dichloroethane	4.08	ND	NA	2.4 RSL[5]
1,2-Dichloroethane	76	9.9	NA	0.38 CREG
Benzene	2.15	ND	NA	0.64 CREG
Carbon Tetrachloride	1.61	ND	NA	0.5 CREG
Dibromochloromethane	1.16	0.44	NA	0.42 CREG
Tetrachloroethene	136	ND	NA	17 CREG
Trichloroethene	108	ND	3.03	0.76 CREG

[1]ug/L- micrograms per liter;[2]ND- not detected ; [3] NA- not applicable (contaminant detected below comparison value);[4]CREG- Cancer Risk Evaluation Guide; [5]RSL- Regional Screening Level

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Enhanced Attenuation (EA):

Following MNA performance modeling, EA was proposed to accelerate anaerobic degradation/reductive dechlorination of COCs in the +20 MSL zone. Three COCs including PCE, TCE and TCA were not fully attenuating under the existing MNA remedy. Modeling predicted that these contaminants would migrate downgradient (in their partially attenuated form) into the +20 MSL channel. EA pilot testing was initiated by collecting baseline groundwater sampling in February 2009 from one injection well (STZ-I01), two downgradient monitoring wells (IP-3, ED01) and one upgradient well (SBP-017-B) in the field test area (Appendix A, Figure 5). The field test area is situated downgradient of the former contaminant source disposal pits at the Scenic OU. After substrate addition in March 2009, groundwater performance samples were collected to evaluate contaminant reduction induced by the addition of molasses. Contaminant-specific baseline and final EA groundwater sampling results by location are presented in Table 4 below; additional EA performance monitoring data were collected at periodic intervals preceding the final collection date, and is available upon request.

The data presented in Table 4 show significant decreases in COC concentrations at locations within the interior of the field test area (STZ-I01, IP-1, and IPW), and at upgradient and downgradient monitoring wells (IP-3, ED01, and SBP-017-B). Results have shown that favorable conditions for EA processes have been created by using the molasses substrate in the +20 MSL channel pilot.

Groundwater samples collected during the EA pilot project are presented (in this health consultation) to illustrate contaminant reduction measured during the pilot, not for purposes of evaluating human health risk. The +20 MSL zone is not a drinking water aquifer.

Following initial pilot testing, EA has expanded into three treatment zones at the Scenic OU: the primary and secondary treatment zones and the distal treatment zone on the Louisiana State Police property.

Table 4: Baseline and Final COC Data (in Micrograms per Liter) for EA Performance Monitoring of the +20 MSL Zone at the PPI Scenic OU. 2009-2010.

Location ID	Date Sampled	TeCA[1]	TCA[2]	PCE[3]	TCE[4]	DCA[5]	trans-DCE[6]	cis-DCE[7]	VC[8]
ED01	02/13/09	128	845	674	1130	1310	235	3130	3200
	12/07/10	10*	10*	10*	10*	42.1	52.3	888	693
IP-3	02/13/09	107	1360	1140	1430	2300	226	2260	2420
	12/07/10	25*	25*	25*	25*	25*	132	2450	2010
IP-1	02/12/09	71.9	729	674	987	1310	250*	2380	2710
	12/06/10	1*	1*	1*	1*	1*	1.77	1.54	2.28
MW01+	02/12/09	117	2370	2370	1710	3870	168	518	678
	12/07/10	20*	20*	20*	20*	20*	82.2	1620	1300
STZ-I01	02/14/09	121	2040	623	3630	4180	271	1600	2430
	12/07/10	1*	1*	1*	1.08	1*	1*	1.77	3.32
IPW	02/24/09	113	904	330	1640	2010	288	2750	2190
	12/06/10	1*	1*	1*	2.75	2.43	1*	36.2	96.3
ES01+	02/13/09	23	2300	47.4	3190	1420	208	907	3080
	12/06/10	50*	296	50*	452	1190	277	5220	5820
EN01+	02/13/09	163	3830	970	4690	6450	216	669	1460
	12/06/10	100*	100*	100*	100*	100*	252	5630	3880
EU01+	02/13/09	230	2230	744	5890	6820	303	1010	3040
	12/06/10	245	1520	136	6680	5320	333	1040	3760
SBP-017-B	02/13/09	285	5540	4640	4440	8890	241	787	983
	12/07/10	258	4200	3910	3680	5560	201	652	866

*laboratory reported detection limit; +additional monitoring well location; [1]TeCA- 1,1,2,2-Tetrachloroethane; [2]TCA-1,1,2-Trichloroethane; [3]PCE- Tetrachloroethene; [4]TCE-Trichloroethene; [5]DCA- 1,2-Dichloroethane; [6]trans-DCE-trans-1,2-Dichloroethene; [7]cis-DCE- cis-1,2-Dichloroethene; [8]VC- Vinyl Chloride

Exposure Pathways

To determine whether a child or adult would be exposed to contaminants detected in groundwater from the PPI site, SEET evaluated the environmental and human components that lead to exposure. An exposure pathway contains the following five elements: a source of contamination, transport through some kind of environmental medium, a point of exposure, a route of exposure, and a receptor population. ATSDR categorizes an exposure pathway as a completed or potential exposure pathway if the exposure pathway cannot be eliminated. Completed pathways require that the five elements exist and indicate that exposure to a contaminant has occurred in the past, is presently occurring, or will occur in the future. Potential pathways, however, indicate that exposure to a contaminant could have occurred in the past, could be occurring now, or could occur in the future. An exposure pathway can be eliminated if at least one of the five elements is missing and will never be present.

The PPI site is located over the 400-foot aquifer, a major drinking water aquifer. The CD identified the 400-foot aquifer as an aquifer of concern to be protected from infiltration of contaminants from the Brooklawn and Scenic OUs. MNA and EA remedial actions at the PPI site are proactively reducing the potential for future exposure to site-related contaminants. Regular groundwater monitoring is conducted at both OUs; none of the 400-foot aquifer monitoring wells has shown evidence of contaminant migration. SEET did not identify any potential or completed pathways at the PPI site.

Health Effects Evaluation

There are no completed exposure pathways at the PPI site, as site-related contaminants have not migrated into the 400-foot aquifer. Natural and enhanced attenuation remedial actions including anLTMP are in place to monitor future groundwater contaminant migration patterns at the PPI site. Drinking water sourced from the 400-foot aquifer is not expected to harm people's health.

Child Health Considerations

In communities faced with air, water, or food contamination, the many physical differences between children and adults demand special emphasis. Children could be at greater risk than are adults from certain kinds of exposure to hazardous substances. Children play outdoors and sometimes engage in hand-to-mouth behaviors that increase their exposure potential. Children are shorter than are adults; this means they breathe dust, soil, and vapors close to the ground. A child's lower body weight and higher intake rate results in a greater dose of hazardous substance per unit of body weight. If toxic exposure levels are high enough during critical growth stages, the developing body systems of children can sustain permanent damage. Finally, children are dependent on adults for access to housing, for access to medical care, and for risk identification. Thus adults need as much information as possible to make informed decisions regarding their children's health. Site-related contaminants have not migrated into the 400-foot drinking water aquifer, and there is no other pathway by which children might come in contact with these contaminants. Drinking water sourced from the 400-foot aquifer is not expected to harm children's health.

Conclusions

The PPI site's Long Term Monitoring Plan (LTMP) requires Monitored Natural Attenuation (MNA) of the groundwater at the Brooklawn and Scenic Operating Units (OUs) MNA data collected from the Brooklawn OU in 2010 and 2011 and from the Scenic OU in 2010 have shown no evidence of contaminant migration into the 400-foot aquifer. Performance Enhanced Attenuation (EA) data from the 2009-2010 Scenic OU pilot testing reported accelerated contaminant reductions and led to the implementation of EA at three primary, secondary and distal zones of the +20 MSL zone of the Scenic OU. Drinking water sourced from the 400-foot aquifer is not expected to harm people's health.

Recommendations

We recommend future groundwater samples collected from the PPI site to be analyzed using more sensitive laboratory quantitation limits (below existing CVs) for 2-Chloroethylvinyl ether, acrylonitrile and vinyl chloride. The 400-foot aquifer needs to be continued to be monitored for contamination.

Public Health Action Plan

SEET is available to assess samples collected in further investigations or assessments performed at the PPI site upon request.

The information produced within this health consultation will be disseminated to the public repositories, community members and stakeholders within East Baton Rouge Parish, Louisiana by SEET.

Report Preparation

This Health Consultation for the Review of Groundwater Data from Petro Processors of Louisiana, Inc. Superfund Site was prepared by the Louisiana Department of Health and Hospitals/Office of Public Health/Section of Environmental Epidemiology and Toxicology under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with the approved agency methods, policies, procedures existing at the date of publication. Editorial review was completed by the cooperative agreement partner. ATSDR has reviewed this document and concurs with its findings based on the information presented.

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Appendix A: Figures

Figure 1: Regional Map

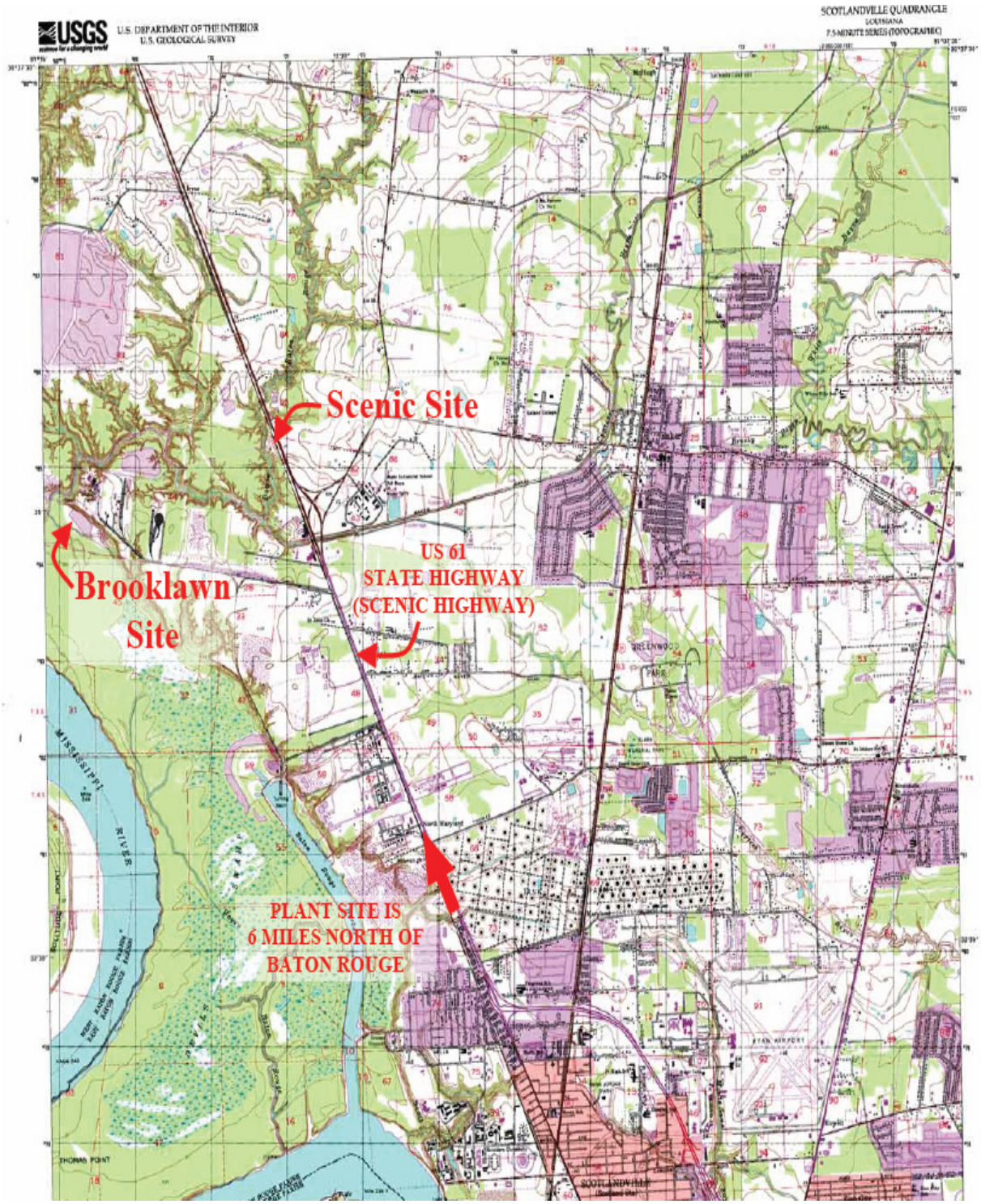

Figure 2: PPI Site Stratigraphy: Brooklawn OU

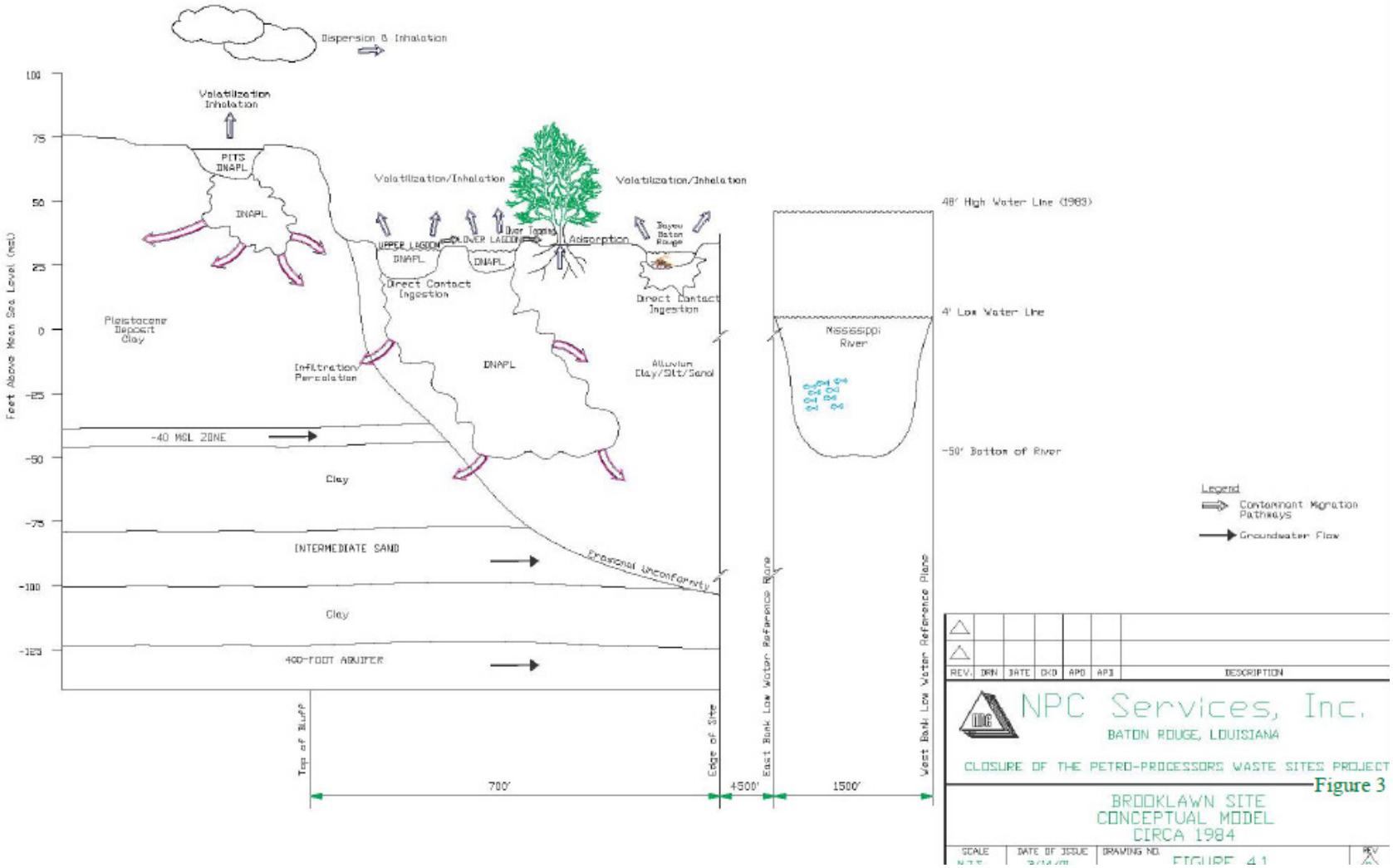

Figure 3: MNA Well Locations: Brooklawn OU

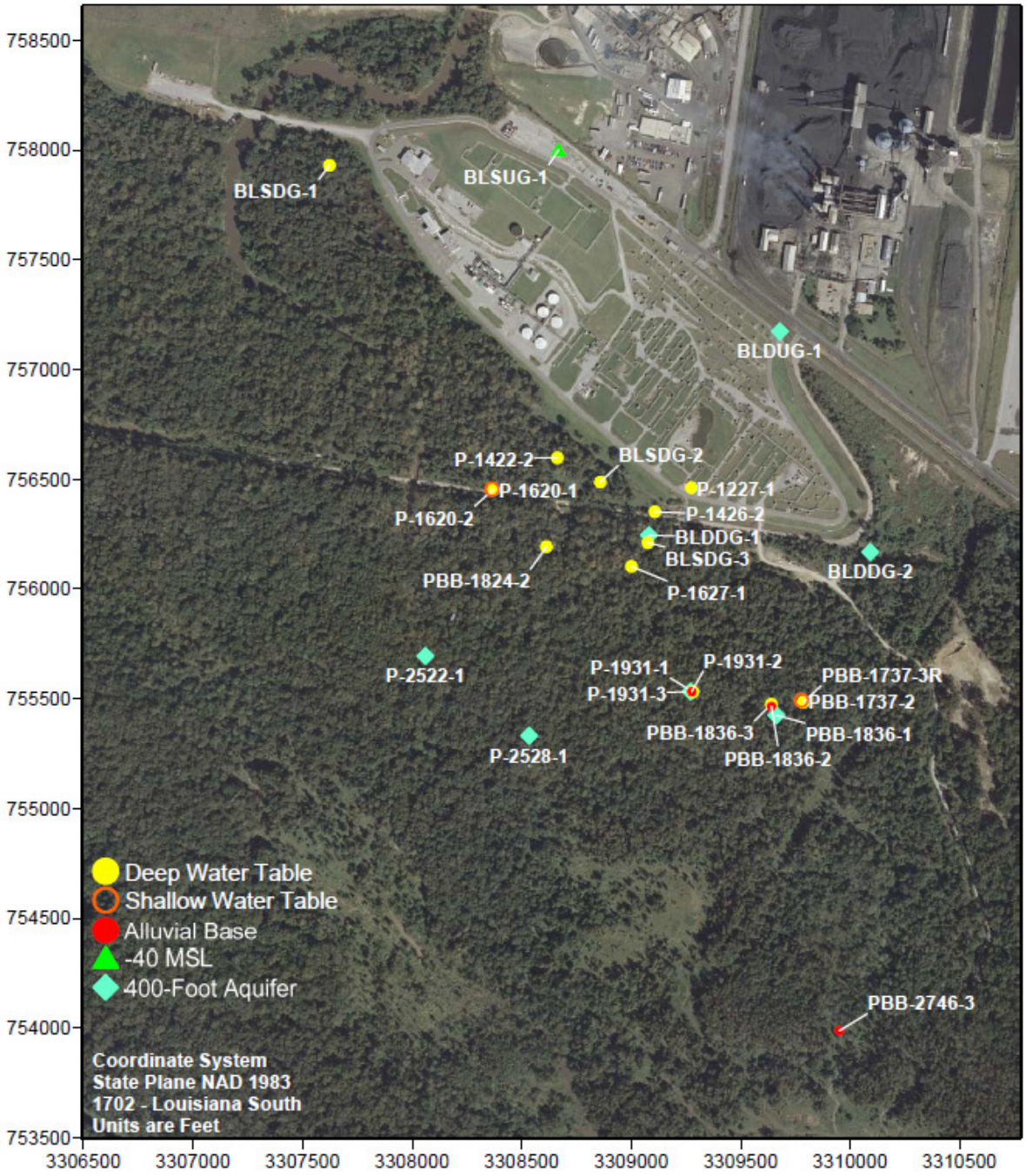

Figure 4: PPI Site Stratigraphy: Scenic OU

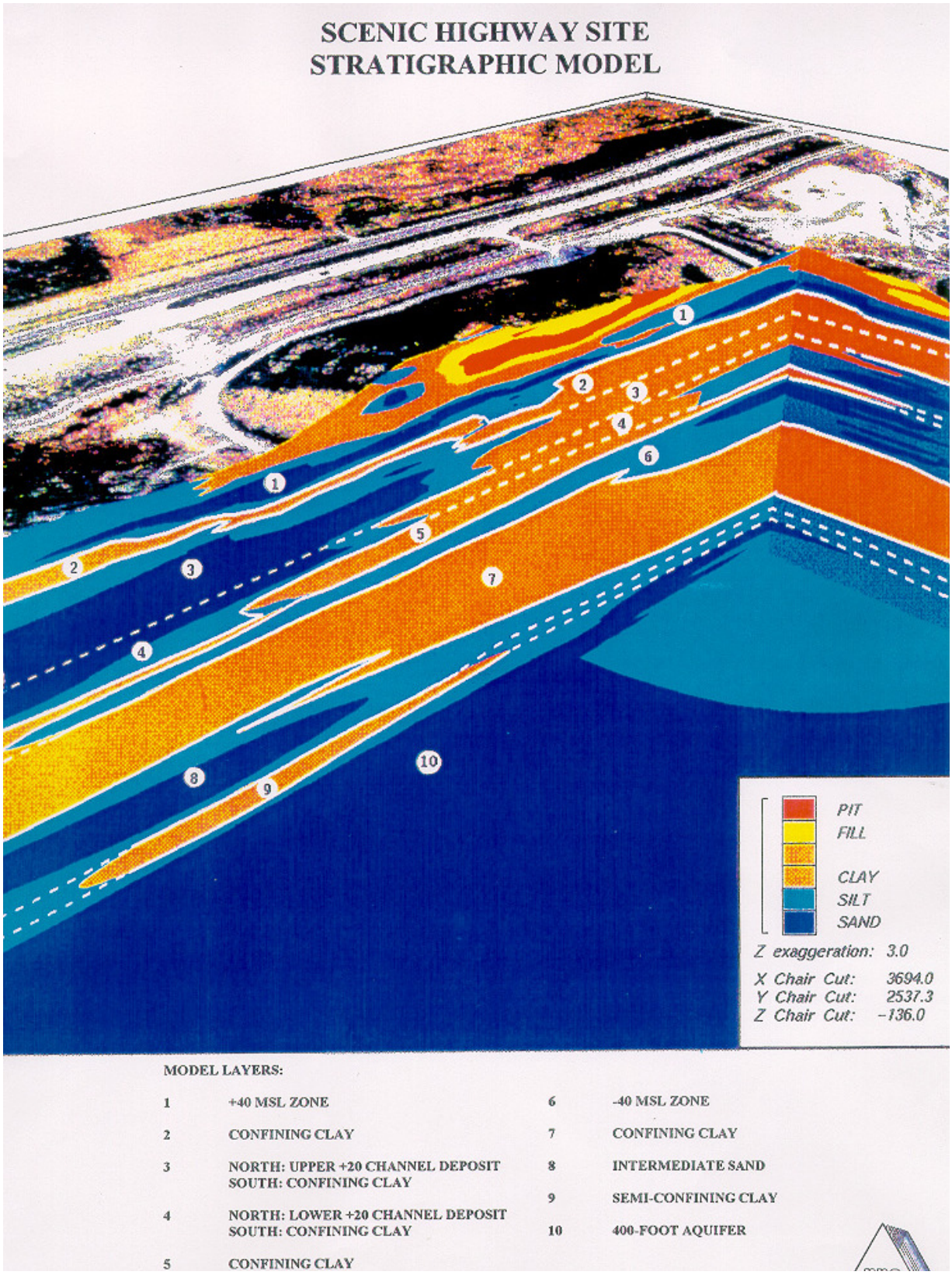

Figure 5: EA Performance Monitoring Well Locations (+20 MSL Zone): Scenic OU

Appendix B: Data Evaluation

Screening Process

Comparison Values (CVs) are chemical and media-specific concentrations in air, soil, and drinking water that are used by ATSDR health assessors and others to identify environmental contaminants at hazardous waste sites that require further evaluation. CVs incorporate assumptions of daily exposure to the chemical and in the case of soil and water a standard amount that someone may likely take into their body each day. CVs are conservative and non-site specific. CVs are based on health guidelines with uncertainty or safety factors applied to ensure that they are adequately protective of public health.

The comparison of environmental data with ATSDR CVs is one of the first steps in the public health assessment process. The results of this screening step give health assessors an understanding of the priority contaminants at the site. When a contaminant is detected at a concentration less than its respective CV, exposure is not expected to result in health effects and it is not considered further as part of the public health assessment process. It should be noted that contaminants detected at concentrations that exceed their respective CVs do not necessarily represent a health threat. Instead, the results of the CV screening identify those contaminants that warrant a more detailed, site-specific evaluation to determine whether health effects are expected to occur. CVs are not intended to be used as environmental clean-up levels.

CVs can be based on either carcinogenic or non-carcinogenic effects. Cancer-based CVs are calculated from U.S. Environmental Protection Agency's (EPA) oral cancer slope factor (CSF) or inhalation unit risk (IUR). CVs based on cancerous effects account for a lifetime exposure (70 years) with a theoretical excess lifetime cancer risk of 1 extra case per 1 million exposed people. Non-cancer values are calculated from ATSDR's Minimal Risk Levels (MRLs), EPA's Reference Doses (RfDs), or EPA's Reference Concentrations (RfCs). When a cancer and non-cancer CV exists for the same chemical, the lower of these values is used in the data comparison for public health protectiveness.

The ATSDR Cancer Risk Evaluation Guides (CREGs) were used in this evaluation. Cancer risk comparison CREG values used in this health consultation are based EPA CSFs. CREGs help to identify concentration of cancer-causing substances that are unlikely to result in an increase of cancer rates in an exposed population. EPA's Regional Screening Levels (RSLs) were also used as CVs in this evaluation. RSLs are calculated using EPA's reference dose and are also used as a screening tool when evaluating non-carcinogenic health effects.

Data Limitations

Several comparison values used in the data evaluation were below their respective chemical-specific laboratory detection limit at varied sample locations and were therefore unable to be fully evaluated in this health consultation. LDHH recognizes that all regulatory agencies do not use the same comparison values for evaluation purposes; however, it is critical that laboratory detection limits are more than or as sensitive as health based comparison values in order to allow scientists to correctly assess the public health implications of exposure. The following contaminants of potential concern that were fully or partially affected include:

- 2-Chloroethylvinyl ether
- Acrylonitrile
- Vinyl Chloride

Thus we recommend that future analysis of water samples from these sites include more sensitive detection for these three contaminants.