Letter Health Consultation

FORMER STAGG OIL CO.
(KINDER-PUMPELLY OIL)

KINDER, ALLEN PARISH, LOUISIANA

Prepared by the
Louisiana Department of Health and Hospitals

NOVEMBER 23, 2010

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
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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LETTER HEALTH CONSULTATION

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Louisiana Department of Health and Hospitals
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Agency for Toxic Substances and Disease Registry

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Department of Health and Hospitals
Center for Environmental Health Services

Tom Harris, Administrator
Environmental Technology Division
Louisiana Department of Environmental Quality
602 N. Fifth Street
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Dear Mr. Harris,

The Louisiana Department of Health and Hospitals/Office of Public Health/Section of Environmental Epidemiology and Toxicology (DHH/OPH/SEET) has evaluated groundwater and soil sampling data collected from the Kinder-Pumpelly Oil, formerly known as the Stagg Oil Co., in Kinder, Louisiana. The following letter provides the results of SEET's assessment.

Background and Statement of Issues

Kinder-Pumpelly Oil, formerly known as the Stagg Oil Co., is located at 536 North 9th Street, Kinder, Louisiana, 70648 (Figure A-1). The approximately 1.5-acre-site, which is currently inactive, is located in an area consisting primarily of residential and railroad properties. The site has been owned by Union Pacific since 1906 and was leased to the Stagg Oil Co. from August 1992 – August 2005 as a fuel storage facility. Ten inactive aboveground storage tanks (AST) are located in the northwestern portion of the site [1].

In June 2001, a limited site investigation (LSI) was performed on behalf of the former Stagg Oil Facility. The investigation did not detect levels of on-site contaminants exceeding LDEQ standards for industrial sites. In December 2005, an LSI was performed on Union Pacific's property for JP Morgan Chase Bank USA, N.A. without Union Pacific's knowledge or consent. Soil borings installed during this LSI yielded samples containing concentrations of benzene, toluene, naphthalene, 2-methylnaphthalene, and total petroleum hydrocarbons for gasoline range organics (TPH-GRO) and diesel range

organics (TPH-DRO) that exceeded LDEQ's Risk Evaluation/Corrective Action Program (RECAP) screening standards, which were established in 2003. Three of the soil borings were converted into monitoring wells (MW-1 through MW-3) [1].

In March 2006, a citizen submitted a complaint to LDEQ about oil in a ditch running between the railroad tracks and the site. The oil appeared to be leaking from an onsite tank battery. The immediate spill was contained and removed with absorbent pads. In June 2006, groundwater samples were collected from monitoring wells established onsite during the limited site investigations; analytical results from these samples indicated that lead, mercury, hexachlorobenzene, and bis(2-ethylhexyl) phthalate were present in concentrations that exceeded LDEQ's RECAP screening standards for groundwater [1].

In December 2007, Conestoga-Rovers & Associates, an environmental consulting firm retained by Union Pacific, the site's property owners, submitted a workplan to conduct a site investigation in accordance with LDEQ's RECAP criteria. This SI would determine whether any contaminants were present in site soils and groundwater at concentrations that could pose a hazard to human health and the environment. The workplan was approved by LDEQ Remediation Services Division, and the SI was performed in February 2008, with additional sampling done in April and July 2008 to examine the potential for soil-to-groundwater leaching of specific contaminants. After the results from these two sampling events were assessed, the soil-to-groundwater migration pathway was eliminated for benzene, methyl tert-butyl ether, and the aromatics C8 to C10 [1].

Discussion

The RECAP site evaluation assessed samples collected during multiple sampling events. Samples assessed included groundwater samples collected from three monitoring wells established at the site during the December 2005 limited site investigation (MW-1 – MW-3); soil samples collected from four soil borings installed during the January 2007 site investigation (SB-1 – SB-4); soil samples from six soil borings installed during the February 2008 site investigation (SB-5 – SB-9 and GT-1); and the additional soil samples collected to test for soil to groundwater leaching in April and July 2008. All soil samples were characterized in the site investigation as "surface soils" (0-15 feet below ground surface (ft-bgs)) or "subsurface soils" (>15 ft-bgs) [1]. The depths at which soil samples were collected from each of the soil borings are listed in Table B-1. SEET screened the contaminants detected in each sample for potential human health risks using health-based comparison values, as described in Appendix B.

Groundwater Samples

Under current site conditions, no routes of exposure exist between groundwater at the Former Stagg Oil site and the public. There is no current use of the site groundwater, and its potential point of discharge is not a drinking water source. Groundwater flow was measured in February 2008 as flowing to the southeast. The nearest drinking water aquifer is approximately 640 feet below the layer of groundwater at the site. The site's groundwater was first encountered at approximately 50 ft-bgs during the installation of the soil borings and saturates the soil in a layer ranging from 7.6 – 9.0 ft thick. This layer

is described as being “shallow”, in “declining condition”, and “not present in significant quantities”; the potential for discharge into the nearest downgradient surface water body was deemed “virtually non-existent due to distance” (approximately 1,040 ft) [1].

There are seven registered wells located within a 1-mile radius of the site. Four are water sources: two of these are registered for public supply use, one for domestic use, and one for irrigation. The other three wells are monitoring wells. Figure A-3 shows the location of these wells in relation to the Former Stagg Oil site. The nearest well is located within 740 feet of the site boundary. Public supply wells within the 1-mile radius are located to the south and southwest of the site, away from the direction of site groundwater flow. Within the 1-mile radius is also a residential well (identified as “domestic”), located to the northeast [1,2]. The nearest registered residential well located to the south is approximately 1.7 miles (about 9,000 ft) away from the site [2]. The irrigation well, which is located about 5,000 ft to the southeast of the site, draws water from 234 ft bgs; its source is the Chicot Aquifer, which serves as the primary source of water in this area and is not in contact with the site groundwater [1, 2]. SEET and ATSDR therefore conclude that groundwater from the site will not harm people’s health.

Soil Samples

Twenty-four soil samples were analyzed for over 100 contaminants including volatile organics, semivolatile organics, petroleum hydrocarbons, and metals. All soil samples were collected and analyzed using quality assurance/quality control (QA/QC) procedures approved by the U.S. Environmental Protection Agency (US EPA) [1]. Figure A-2 shows the locations of soil borings. Table B-1 lists the soil borings taken from the site and the depths at which soil samples were collected from the borings.

Exposure to soil from the site could theoretically occur through ingestion of on-site soil, dermal contact with either medium, or inhalation of vapors from on-site soil. Inhalation was not included in the assessment of these soil samples because there are no activities occurring onsite that would agitate soil particles or residual contaminants into the air.

Only three out of the 24 soil samples analyzed were obtained from the soil strata at or near the surface, and no contaminants of concern were identified in these three samples. This is not sufficient data to characterize the extent of contamination at the soil surface. SEET therefore cannot currently conclude whether soil at or near the surface of the Former Stagg Oil site could harm people’s health.

The aromatics (C8-C10) and (C10-C12), arsenic, total petroleum hydrocarbons for diesel-range organics (TPH-DRO) and gasoline-range organics (TPH-GRO) were identified as COCs in subsurface soil at the site. However, because these contaminants were found at least ten feet below ground surface, they are unlikely to come into contact with on-site workers or residents of Kinder, LA. Although the site is incompletely fenced, it is highly unlikely that any trespassers would dig to soil greater than ten feet below the ground surface.

Conclusion

SEET and ATSDR understand community concerns about the risks involved in exposure to unsafe chemicals. Our agencies are committed to providing the community of Kinder, LA with the best science-based information available to keep the community safe. SEET concludes that the groundwater at the Former Stagg Oil site will not harm people's health. Under current site conditions, no routes of exposure exist between residual site groundwater contaminants and the public. There is no connection between the site's groundwater and the recreational or municipal water sources for the community, so community members will not consume groundwater from the site or use it for any activities that would involve physical contact, such as washing or swimming.

Contaminant concentrations of concern were found in soil samples collected at least 10 ft bgs, but unless excavation occurs at the site, no route of exposure is likely to the subsurface soil. Only three out of the 24 soil samples analyzed were from the soil strata at or near the surface. Further sampling of surface soils at 0-3 inches bgs or 0-6 inches bgs would be needed to comprehensively assess the extent of surface soil contamination and the associated impact on public health at the site. Because this information is not currently available, SEET cannot definitively conclude whether soil at the Former Stagg Oil site could harm people's health.

Recommendations

SEET will be available to assess any additional samples that may be collected from the Former Stagg Oil site. If future activities requiring excavation are undertaken at the area of interest at the Former Stagg Oil site, a new evaluation of site soils should be performed.

Sincerely,

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References

1. Conestoga –Rovers & Associates. Site Investigation (SI and Risk Evaluation Corrective Action Program (RECAP) Evaluation. Prepared for: Kinder Pumpelly Oil, 536 North 9th Street, Kinder, Allen Parish, Louisiana, Agency Interest No.: 15326. Ref. No. 28702(1). 2008 Aug.

2. Louisiana Department of Transportation and Development. GIS Well Locator. Accessed 2010 Apr 12 at URL: http://gis.dotd.la.gov/Maps/WaterWells.aspx

Certification

This Former Stagg Oil letter health consultation was prepared by the Louisiana Department of Health and Hospitals under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures at the time the health consultation was begun. The editorial review was conducted by the Cooperative Agreement Partner.

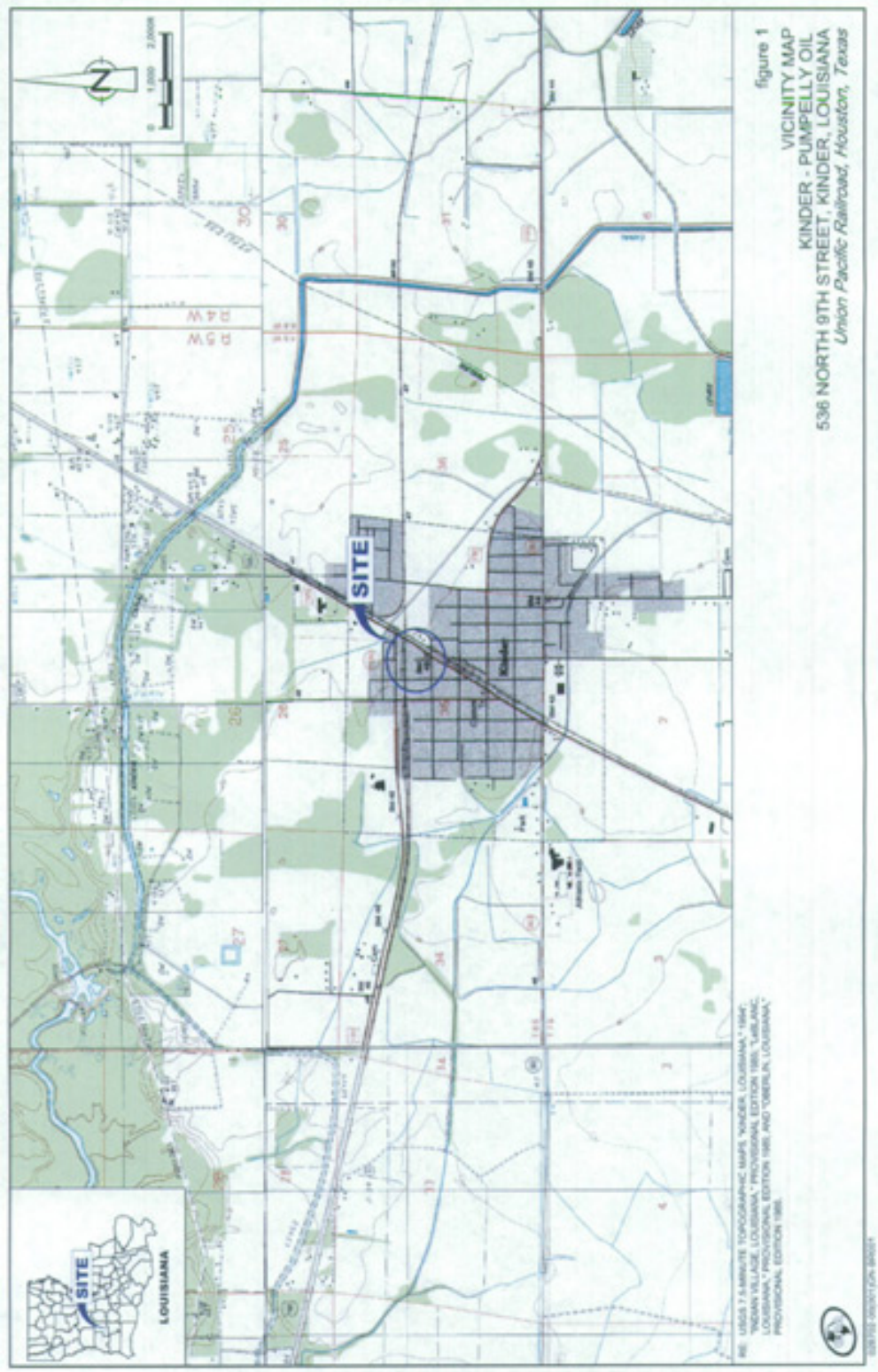
Jeffrey Kellam
Technical Project Officer, Division of Health Assessment and Consultation (DHAC)

The Division of Health Assessment and Consultation, ATSDR, has reviewed this public health consultation and concurs with the findings.

Alan W. Yarbrough
Cooperative Agreement Team Leader, DHAC, ATSDR

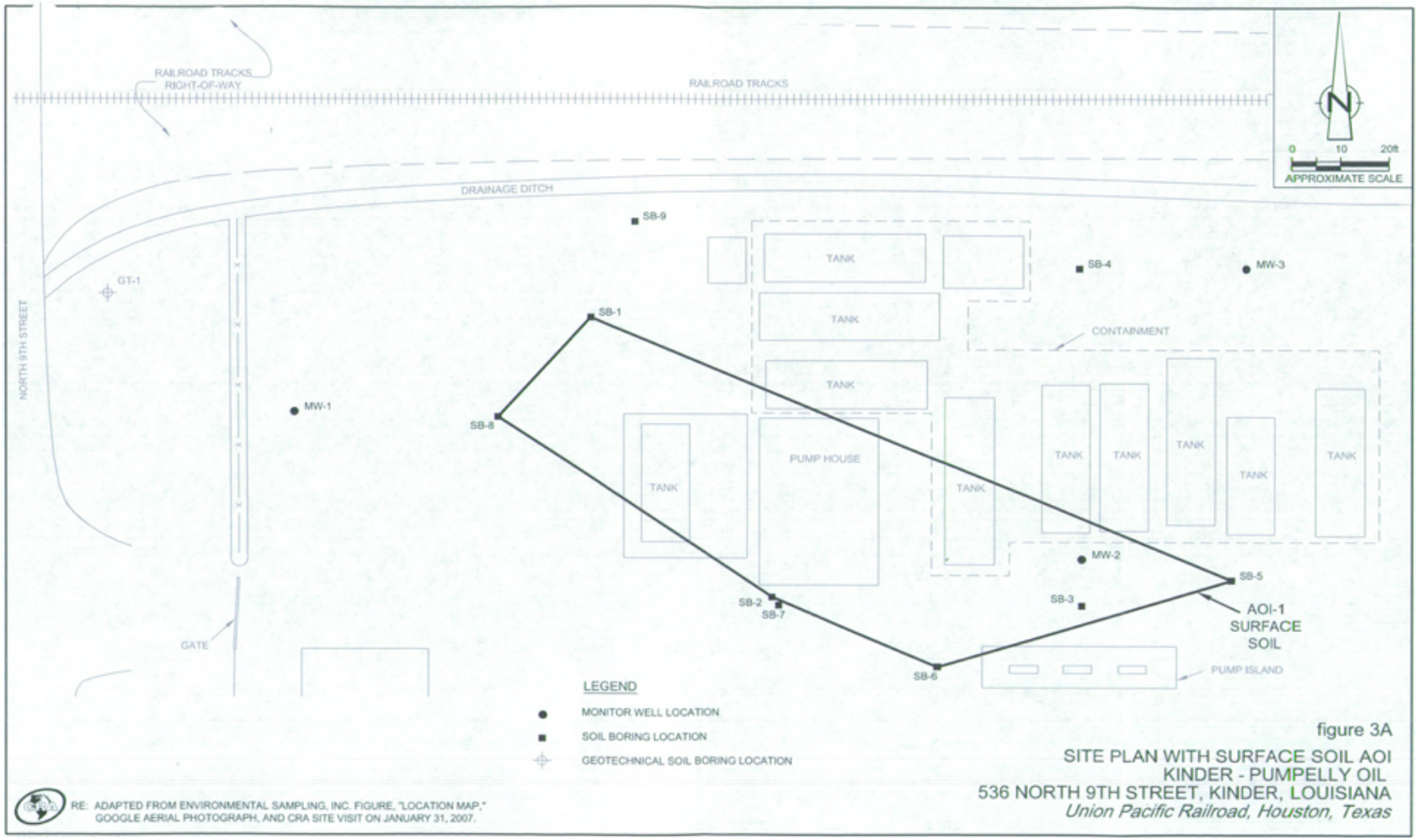
APPENDIX A: Maps

Figure A-1: Location of the Former Stagg Oil site



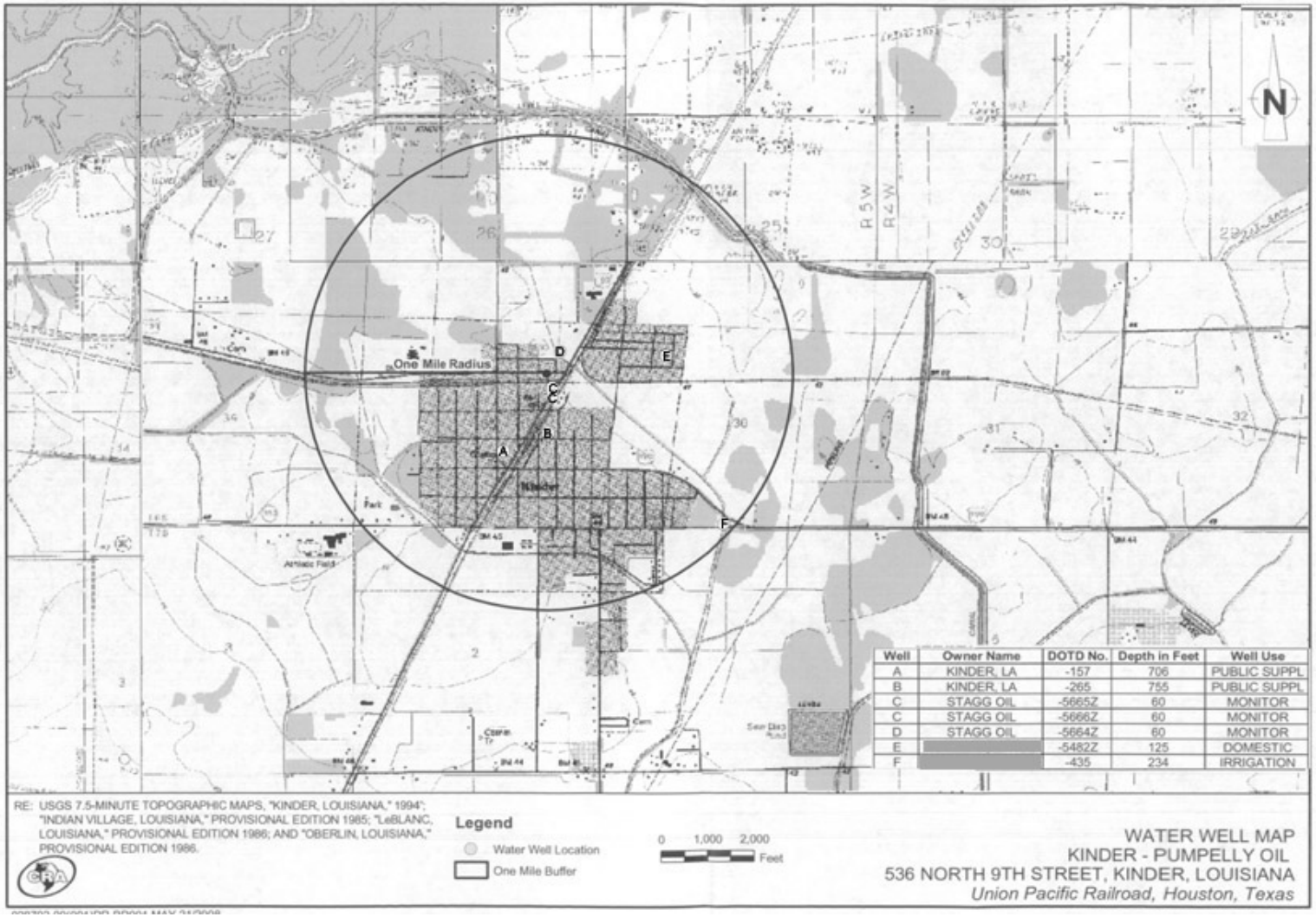
Map adapted from Conestoga –Rovers & Associates. Site Investigation (SI and Risk Evaluation Corrective Action Program (RECAP) Evaluation. Prepared for: Kinder Pumpelly Oil, 536 North 9th Street, Kinder, Allen Parish, Louisiana, Agency Interest No.: 15326. Ref. No. 28702(1). 2008 Aug.

Figure A-2: Map of site sampling plan (with surface soil Area of Interest) for the Former Stagg Oil site



Map adapted from Conestoga –Rovers & Associates. Site Investigation (SI and Risk Evaluation Corrective Action Program (RECAP) Evaluation. Prepared for: Kinder Pumpelly Oil, 536 North 9th Street, Kinder, Allen Parish, Louisiana, Agency Interest No.: 15326. Ref. No. 28702(1). 2008 Aug.

Figure A-3: Map of registered water wells located around the Former Stagg Oil site



Well	Owner Name	DOTD No.	Depth in Feet	Well Use
A	KINDER, LA	-157	706	PUBLIC SUPPL
B	KINDER, LA	-265	755	PUBLIC SUPPL
C	STAGG OIL	-5665Z	60	MONITOR
C	STAGG OIL	-5666Z	60	MONITOR
D	STAGG OIL	-5664Z	60	MONITOR
E		-5482Z	125	DOMESTIC
F		-435	234	IRRIGATION

Map adapted from Conestoga –Rovers & Associates. Site Investigation (SI and Risk Evaluation Corrective Action Program (RECAP) Evaluation. Prepared for: Kinder Pumpelly Oil, 536 North 9th Street, Kinder, Allen Parish, Louisiana, Agency Interest No.: 15326. Ref. No. 28702(1). 2008 Aug.

APPENDIX B: Data Evaluation

Table B-1: Depths of soil sampled for each soil boring at the Former Stagg Oil site

Soil Boring	Sample Depths (ft-bgs*)	Soil Boring	Sample Depths (ft-bgs)
SB-1:	0-2	SB-6:	14-15
	10-12		20-22
SB-2:	14-15		48-50
	16-18	SB-7:	26-28
	22-24		50-52
SB-3:	10-12		54-56
	14-16	SB-8:	12-14
SB-4:	10-12		20-24
SB-5:	0-2		48-50
	26-28	SB-9:	4-6
	50-52		38-40
	52-54		48-50

* ft bgs = feet below ground surface

Screening Process

Table B-1 lists the soil borings taken from the site and the depths at which soil samples were collected from the borings. Comparison values were initially used to determine which soil and groundwater samples from the Former Stagg Oil site needed to be closely evaluated. Comparison values are media-specific concentrations of chemicals that are used by health assessors to screen environmental contaminants for further evaluation. These values are not used as predictors of adverse health effects. Contaminants with concentrations higher than the comparison values were identified as contaminants of concern (COCs) and underwent further evaluation. The following comparison values were used in the evaluation of samples collected from the Former Stagg Oil site:

> *Environmental media evaluation guides* (EMEGs) are estimated contaminant concentrations at which noncarcinogenic health effects are unlikely. They are calculated from the Agency for Toxic Substances and Disease Registry's (ATSDR) minimal risk levels (MRLs).

Table B-2: Ranges of contaminants detected in soil samples from the Former Stagg Oil site

Contaminant of Concern	Concentration Range (mg/kg*) Low	High	Sample ID†, High Sample	CV‡ (mg/kg)	CV reference
Aromatics (C_8-C_{10})	5.02	845	SB-6 20-22 ft bgs§ sampled 2/18/2008	65	LDEQ RECAP SO SS** (non-industrial)
Aromatics (C_{10}-C_{12})	<0.483 (ND††)	271	SB-6 20-22 ft bgs sampled 2/18/2008	120	LDEQ RECAP SO SS (non-industrial)
Arsenic	<0.994 (ND)	3.92	SB-2 16-18 ft bgs sampled 1/31/3007	0.5	CREG‡‡
TPH-DRO§§	<4.75 (ND)	2300	SB-1 10-12 ft bgs sampled 1/31/3007	65	LDEQ RECAP SO SS (non-industrial)
TPH-GRO***	<4.25 (ND)	1590	SB-6 20-22 ft bgs sampled 2/18/2008	65	LDEQ RECAP SO SS (non-industrial)

* mg/kg=milligrams per kilogram
† ID = identification
‡ CV=comparison value
§ ft bgs = feet below ground surface
** LDEQ RECAP SO SS =Louisiana Department of Environmental Quality Risk Evaluation/Corrective Action Program Screening Option Screening Standard
†† ND = not detected
‡‡ CREG = cancer risk evaluation guide
§§ TPH-DRO = Total petroleum hydrocarbons for diesel-range organics
*** TPH-GRO = Total petroleum hydrocarbons for gasoline-range organics

Reference dose media evaluation guides (RMEGs) are estimated contaminant concentrations at which noncarcinogenic health effects are unlikely. They are calculated from the U.S. Environmental Protection Agency's (EPA) reference dose (RfD).

Cancer risk evaluation guides (CREGs) are estimated contaminant concentrations that would be expected to cause no more than one additional excess cancer in 1 million exposed persons over a lifetime. CREGs are calculated from EPA's cancer slope factors (CSFs).

Table B-3: Ranges of contaminants detected in groundwater samples from the Former Stagg Oil site

Contaminant of Concern	Concentration Range (mg/L*) Low	High	CV † (mg/L)	Sample ID‡, High Sample	CV reference
TPH-DRO§	<0.0952 (ND**)	1.78	0.15	MW-1 sampled 1/31/2007	LDEQ RECAP SO SS††
TPH-ORO‡‡	<0.0952 (ND)	0.891	0.15	MW-1 sampled 1/31/2007	LDEQ RECAP SO SS

* mg/L=milligrams per liter
†CV=comparison value
‡ ID = identification
§TPH-DRO = Total petroleum hydrocarbons for diesel-range organics
** ND = not detected
††LDEQ RECAP SO SS=Louisiana Department of Environmental Quality Risk Evaluation/Corrective Action Program Screening Option Screening Standard
‡‡TPH-ORO = Total petroleum hydrocarbons for oil-range organics

Risk-based concentrations (RBCs) are estimated contaminant concentrations in a media at which noncarcinogenic or carcinogenic health effects are unlikely. TheRBCs used in this health consultation were last updated in September 2008.

Maximum contaminant levels (MCLs) are the maximum permissible level of a contaminant in water which will ultimately be delivered to a public water system. MCLs are established by the EPA's Office of Ground Water and Drinking Water.

When no health-based comparison value was available for a contaminant, screening was based on the Louisiana Department of Environmental Quality's Risk Evaluation/Corrective Action Program (RECAP) screening standards. *RECAP screening standards* are concentrations at or above which remediation of a medium (soil, sediment, or water) should occur. Contaminants identified as COCs by the screening process are listed in Tables B-2 and B-3.

Contaminants that were not detected in soil samples, such as the polycyclic aromatic hydrocarbons (PAHs), were assessed using a value of half the reported practical quantitation limit (PQL, the lowest concentration that can be reliably measured) to screen for the protection of human health.

There were no health-based comparison values or RECAP screening standards available with which to evaluate chlorobromomethane and 2,2'-oxybis (2-chloropropane).