

**Ameren Services**

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February 3, 2009

Greg Dunn  
Voluntary Site Remediation Unit B  
Remedial Project Management Section  
Division of Remediation Management  
Bureau of Land  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois



**SUBJECT: Response to Comment Letter dated December 22, 2008  
0190100008/Champaign County  
Champaign/IP Town Gas  
Site Remediation Program/Technical Reports**

Dear Mr. Dunn:

In response to the Illinois Environmental Protection Agency (IEPA) letter to AmerenIP dated December 22, 2008 regarding the IEPA comments to the Champaign MGP Remedial Objectives Report dated December 5, 2008 (ROR), and the Champaign MGP Remedial Action Plan dated December 2008 (RAP), the following is a response to each comment. Clarifications and additional information have been provided in addition to the revised text, tables, and figures for the ROR and RAP. The IEPA comments are provided prior to each response.

Remedial Objectives Report, December 5, 2008:

1. The Illinois EPA understands the remediation objectives for the site will be the most stringent remediation objective established in 35 Illinois Administrative Code ("IAC") Part 742 (Tiered Approach to Corrective Action Objectives ("TACO")) or the remediation objectives proposed for the indoor inhalation pathway. Reviewing the tables, many of the compounds have soil migration to groundwater remediation objectives below the project remediation objectives established in Table 7-1. Please explain the discrepancy.

*We intend to meet the Tier 1 Residential ROs. The City of Champaign has recently enacted an Illinois EPA-approved groundwater ordinance. We intend to use this institutional control to address the groundwater ingestion and soil migration to groundwater ROs. We intend to use a combination of soil excavation, in situ treatment, engineered barriers or institutional controls to meet the relevant objectives. Table 7-1 of the ROR includes the correct project ROs. Table 2-1 of the RAP has been revised to reflect the correct project ROs (attached).*

2. For your information, the remediation objectives used in the ROR for the indoor inhalation pathway are remediation objectives proposed by the Illinois EPA for this new pathway. These remediation objectives will not take effect until the changes to TACO have been adopted by the Illinois Pollution Control Board.

*Thank you for the clarification. We do understand that these ROs are only proposed and are not yet formally required in the SRP/TACO process. We recognize that in addressing these ROs now, we are being more conservative than required by the current regulations. Nevertheless, we expect that the next TACO update will be adopted before we receive an NFR letter for the site. Therefore, we intend to address the Indoor Inhalation pathway.*

3. Executive Summary (page ii): The Executive Summary states there are 21 compounds of concern in groundwater, however Tables ES-1 and 3-1 only identify 20 compounds. Please clarify.

*Twenty (20) constituents of concern have been identified in groundwater on site. The executive summary (page ii) of the Remedial Objectives Report has been changed to state "Twenty-six constituents of concern (COC) in soil and twenty COC in groundwater have been identified." The revised page is attached.*

4. Page 12 – Soil Attenuation Capacity – The soil samples collected in 1996 for analysis of total organic carbon were not collected using the current method (ASTM Method D2974) and cannot be used to determine soil attenuation capacity. The default value of 2,000 mg/kg below one meter should be used or additional soil samples should be collected for total organic analysis using ASTM Method D2974. The appropriate conversion factor as identified in 35 IAC Part 742.215(b)(1)(B) should be applied to the result. Also, the soil samples should be collected in uncontaminated areas of the site, within the native soil horizon and also analyzed for volatile organic compounds ("VOCs") and semi-volatile organic compounds ("SVOCs").

*The default value of 2,000 mg/kg below one meter will be used in determining the soil attenuation capacity until site-specific data can be collected using the currently approved method. Page 12 and Table 3-21 have been modified accordingly and are attached. ASTM Method D2974 for the analysis of total organic carbon will be used for determining soil attenuation capacity in the future.*

5. Page 13 – PCBs have not been included as a constituent of concern for the No Further Remediation ("NFR") letter, but the Remedial Action Plan requests a comprehensive NFR letter.

*No historical evidence or analytical data suggests or indicates the presence of PCBs on site. PCBs are to be included as constituents of concern in order to meet the requirements for a comprehensive NFR letter as stated in the RAP. Page 13 of the ROR has been modified accordingly (attached).*

6. Page 19 – The Illinois EPA will require a Class V Injection Well Inventory Form be submitted for the in-situ chemical oxidation activities. The form can be found at <http://www.epa.state.il.us/land/regulatory-programs/permits-and-management/class-v-injection-well-inventory-form.html>. One copy of the form should be mailed to Mr. Bur Filson, UIC Coordinator, Mail Code #224, Illinois EPA, 1021 North Grand Avenue

East, P.O. Box 19276, Springfield, Illinois 62794-9276. One copy should also be included with the submittal addressing the comments in this letter.

*We will conduct a treatability study to obtain additional information and determine the most effective in-situ chemical oxidation procedure. Upon completion of the treatability study, the Class V Injection Well Inventory Form will be completed and submitted as requested.*

7. Table ES-1 and Table 3-1 are identified on the List of Tables as the constituents for inclusion in the focused NFR letter. However, the Remedial Action Plan requests a comprehensive NFR letter. Please clarify.

*AmerenIP intends to meet the requirements for a comprehensive NFR letter, therefore the List of Tables has been modified (attached).*

Remedial Action Plan, dated December 2008:

1. The Illinois EPA understands this RAP addresses only the contamination located within the boundaries of the remediation site as identified in the Illinois EPA's Site Remediation Program ("SRP"). Any off-site contamination issues will need to be addressed as separate sites enrolled in the SRP.

*Upon approval from the respective property owners, each affected off-site property will be enrolled in the SRP.*

2. The Illinois EPA understands the remediation objectives for the site will be the most stringent remediation objectives established in 35 Illinois Administrative Code ("IAC") Part 742 (Tiered Approach to Corrective Action Objectives ("TACO")) or the remediation objectives proposed for the indoor inhalation pathway. Reviewing the tables, many of the compounds have soil migration to groundwater remediation objectives below the project remediation objectives established in Table ES-2 and Table 2-1. Please explain this discrepancy.

*We intend to meet the Tier 1 Residential ROs. The city of Champaign has recently enacted an Illinois EPA-approved groundwater ordinance. We intend to use this institutional control to address the groundwater ingestion and soil migration to groundwater ROs. We intend to use a combination of soil excavation, in situ treatment, engineered barriers or institutional controls to meet the relevant objectives. Table 7-1 of the ROR includes the correct project ROs. Table 2-1 of the RAP has been revised to reflect the correct project ROs (attached).*

3. Figure 2-3 through 2-5 identify the extent of contamination exceeding the soil ingestion, soil inhalation, soil migration to groundwater, indoor inhalation or groundwater. The extent of contamination is depicted on these figures as remaining on-site although the Illinois EPA recognizes there are off-site exceedances. The maps should clearly state the exceedances are for on-site only and off-site contamination exists which will be addressed individually with off-site property owners.

*Although off-site impact has been identified, the on-site RAP addresses only the impact identified within the Ameren property line. Any off-site impact will be addressed in separate RORs and RAPs for each individual property. For clarification purposes, Figures 2-3 through 2-5 were changed to state: "Tier 1 RO exceedances are shown for*

*on-site only. Off-site exceedances exist beyond the Site property boundary and will be addressed individually with separate RORs and RAPs.” The revised figures are attached.*

4. The Illinois EPA does not review health and safety plans. However, any health and safety plan prepared and submitted to the Illinois EPA should be consistent with the Occupational Safety and Health Administration guidelines.

*The project health and safety plan will be consistent with applicable guidelines and regulations.*

5. The Illinois EPA understands certain details of the Remedial Action Plan are still under discussion or being finalized. Once this information (such as the disposal facility for the soil, truck routes, water discharge permit, etc.) is finalized, please forward the information onto the Illinois EPA.

*Details regarding trucking, disposal, wastewater treatment, etc. will be forwarded to the IEPA as soon as they are finalized.*

6. Page 11 – The backfill material brought to the site for the excavated areas shall be sampled and meet the Tier 1 residential remediation objectives.

*Backfill material from an approved local source will be sampled and analyzed prior to being transported on site. The analytical results will be provided to the IEPA.*

7. Certain chemical oxidation reactions precipitate out additional metals after treatment. To verify these metals do not exceed remediation objectives, the confirmation soil and groundwater samples from the in-situ chemical oxidation areas should also be analyzed for all the inorganics in 35 Illinois Administrative Code Part 740 Appendix A, Table D.

*Analysis for confirmation samples collected after in-situ chemical oxidation will include all inorganics in 35 IAC 740 Appendix A, Table D.*

8. If institutional controls or engineered barriers are required at this site, please address those requirements in the Remedial Action Completion Report.

*Any institutional controls or engineered barriers that may be required on site will be documented in the Remedial Action Completion Report.*

If you have any questions or require additional detail, please feel free to contact me at the above address, by phone, (314) 554-2233 or e-mail me at [bmartin2@ameren.com](mailto:bmartin2@ameren.com).

Sincerely,



Brian H. Martin, CHMM, MBA  
Consulting Environmental Scientist

## Executive Summary

AmerenIP is submitting this Remediation Objectives Report (ROR) for the Former Champaign Manufactured Gas Plant (MGP) site located at 308 North 5<sup>th</sup> Street in Champaign, Illinois. Site investigation activities have been performed and the results presented in the *Comprehensive Site Investigation Report, For AmerenIP Champaign, Illinois Former Manufactured Gas Plant, State ID 0190100008* (CSIR) dated December 2007 and the *Off-Site Investigation Report, Former Manufactured Gas Plant, Champaign Illinois, State ID 0190100008* (OSIR) dated August 22, 2008. Subsurface impact indicative of MGP operations was identified encompassing the entire remediation site. The subsurface impact has been delineated for the constituents of concern listed on Table ES-1.

Twenty-six constituents of concern (COC) in soil and twenty COC in groundwater have been identified. This ROR presents an evaluation of the COCs and describes the proposed exposure pathway exclusions. Ameren has elected to use a combination of soil excavation and disposal, in-situ chemical oxidation, and institutional controls to address the site impact. The remedial approach will be presented in the Remedial Action Plan (RAP). Additionally, AmerenIP has established project remediation objectives (ROs) that reflect the use of the most stringent Tier 1 ROs outlined in Illinois Administrative Code (IAC) Section 742. Tier 2 or Tier 3 evaluations may be performed following the above mentioned remediation activities as a method to address site residuals.

Upon implementation of the methods for pathway exclusion that are outlined in this ROR and in an accompanying RAP, Ameren intends to meet the requirements for a NFR letter for the remediation site.

### **3.3.2 Soil Attenuation Capacity**

IAC Section 742.215 requires determination of soil attenuation capacity by evaluation of natural organic carbon fraction data, TPH data and/or total organic carbon concentration (OCC). During 1996 twelve soil samples were collected from four probeholes completed onsite and were analyzed for total organic carbon using Method 415.1. Probeholes were located near the four corners of the AmerenIP property. Three samples were collected from each location; one sample from the surface soil, one from the 3 to 10 foot interval, and one from below 10 feet. Table 3-20 presents analytical results for total organic carbon (TOC) adjusted as per IAC Section 742.215(b).

Table 3-20 also presents information on soil type for the various depth intervals. All samples collected from the one foot interval were described as fill material containing coal, cinders, etc.; therefore the default value of 6,000 mg/kg was used to evaluate potential source materials from the surface soil interval (i.e. 0-3'). The default value of 2,000 mg/kg was used to evaluate potential source materials below one meter.

TPH results and total organic carbon concentration for CSI samples were compared to these TOC values. Table 3-21 presents a summary of those samples and includes location, depth, and TPH results. Based on the results presented in Table 3-21, potential source materials are present on the site at depths ranging from 4 feet to 24 feet bgs. These samples tend to represent the central and north central area of the AmerenIP property. Potential source material was identified at ten locations.

### **3.3.3 Reactivity**

Selected soil samples collected from locations within the impacted area were analyzed for reactive cyanide and sulfide. The soil samples results were compared to the requirements set within IAC Section 721.123. No exceedances were identified.

### **3.3.4 Soil pH**

Soil pH analyses were performed at boring locations representative of Site conditions. The calculated average site pH level is 7.5 as reported in the CSIR. The soil sample results were compared to the range in IAC Section 742.305(d). The reported pH levels are within the requirements specified in IAC Section 742.305(d).

### **3.3.5 Characteristics of Toxicity for Hazardous Waste**

Pursuant to 40 CFR Part 261 and the Federal Register (Volume 67, Number 49 for Wednesday, March 13, 2002) and IAC Section 721.124(a), toxicity characteristic leaching procedure (TCLP) does not apply for characterizing former MGP waste as hazardous; therefore, no TCLP analyses were completed during the CSI.

### **3.3.6 Polychlorinated Biphenyls in Soil**

No historical evidence suggests or indicates that an electrical substation was present or that equipment or materials were stored at this site that would potentially contain polychlorinated biphenyls (PCBs). Additionally, groundwater samples collected and analyzed during 2008 did not detect PCBs in groundwater beneath the site.

## **6 PROPOSED PATHWAY EXCLUSIONS**

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Impact is present on the AmerenIP property that exceeds Tier 1 ROs for the soil ingestion, the soil inhalation, indoor inhalation, the soil component to groundwater ingestion, and the groundwater ingestion exposure pathways. The impact exceeds the ROs for residential property use, industrial/commercial property use, and construction worker scenarios. The following section provides a description of how the COCs for each exposure route will be addressed in order to meet the requirements for a NFR letter.

### **6.1 Soil Ingestion Exposure Pathway**

All soil impact above the most stringent Tier 1 ROs discussed in Section 7.1 within the top 10 feet of ground surface will be addressed through soil removal and disposal. AmerenIP will then perform in-situ chemical oxidation to remediate impact deeper than 10 feet bgs that also exceeds the site remediation objectives. A Class V Injection Well Inventory Form will be submitted to the IEPA prior to the in-situ chemical oxidation activities. It is anticipated that the in-situ chemical oxidation will either completely address the impact or significantly reduce impact levels. If impact above the project ROs remains after completion of removal activities and in-situ chemical oxidation, AmerenIP will use the 10 feet of clean back fill material as an engineered barrier to exclude this pathway. A full description and discussion of the excavation areas and the in-situ chemical oxidation method will be provided in the RAP.

### **6.2 Soil Inhalation Exposure Pathway**

All soil impact above the most stringent Tier 1 ROs discussed in Section 7.1 within the top 10 feet of ground surface will be addressed through soil removal and disposal. AmerenIP will then perform in-situ chemical oxidation to remediate impact deeper than 10 feet bgs that also exceeds the site remediation objectives. A Class V Injection Well Inventory Form will be submitted to the IEPA prior to the in-situ chemical oxidation activities. It is anticipated that the in-situ chemical oxidation will either completely address the impact or significantly reduce impact levels. If impact above the project ROs remains after completion of removal activities and in-situ chemical oxidation, AmerenIP will use the 10 feet of clean back fill material as an engineered barrier to exclude this pathway. A full description and discussion of the excavation areas and the in-situ chemical oxidation method will be provided in the RAP.

### **6.3 Indoor Inhalation Exposure Pathway**

All soil impact above the most stringent Tier 1 ROs discussed in Section 7.1 within the top 10 feet of ground surface will be addressed through soil removal and disposal. AmerenIP will then perform in-situ chemical oxidation to remediate impact deeper than 10 feet bgs that also exceeds the site remediation objectives. A Class V Injection Well Inventory Form will be submitted to the IEPA prior to the in-situ chemical oxidation activities. It is anticipated that the in-situ chemical oxidation will either completely address the impact or significantly



## List of Tables

<b>Table Number</b>	<b>Table Name</b>
ES-1	Site Specific Constituents of Concern
3-1	Site Specific Constituents of Concern
3-2	Summary of Constituents of Concern in Soil by Exposure Pathway
3-3	Tier 1 Comparison – BTEX and PAH Results for 0 to 3 Foot Depth Interval
3-4	Tier 1 Comparison – BTEX and PAH Results for 3 to 10 Foot Depth Interval
3-5	Tier 1 Comparison – BTEX and PAH Results for Greater than 10 Foot Depth Interval
3-6	Tier 1 Comparison – VOC Results for 0 to 3 Foot Depth Interval
3-7	Tier 1 Comparison – VOC Results for 3 to 10 Foot Depth Interval
3-8	Tier 1 Comparison – VOC Results for Greater than 10 Foot Depth Interval
3-9	Groundwater Analytical Results, September 2008 – VOCs
3-10	Tier 1 Comparison – SVOCs for 0 to 3 Foot Depth Interval
3-11	Tier 1 Comparison – SVOCs for 3 to 10 Foot Depth Interval
3-12	Tier 1 Comparison – SVOCs for Greater than 10 Foot Depth Interval
3-13	Groundwater Analytical Results, September 2008 – SVOCs
3-14	Tier 1 Comparison – Metals and Cyanide for 0 to 3 Foot Depth Interval
3-15	Tier 1 Comparison – Metals and Cyanide for 3 to 10 Foot Depth Interval
3-16	Tier 1 Comparison – Metals and Cyanide for Greater than 10 Foot Depth Interval
3-17	Groundwater Analytical Results, September 2008 – Metals and PCBs
3-18	Groundwater Analytical Results, September 2008 – Pesticides
3-19	Evaluation for Soil Saturation Limits
3-20	TOC Sample Summary
3-21	Soil Attenuation Source Evaluation
7-1	Project Remediation Objectives

**TABLE 3-21  
SOIL ATTENUATION SOURCE EVALUATION  
CHAMPAIGN MGP SITE  
CHAMPAIGN, ILLINOIS  
AMERENIP**

<b>Location</b>	<b>Depth (Feet)</b>	<b>TPH (mg/kg)</b>	<b>TOC<sup>(1)</sup></b>	<b>TOC</b>
B-504-3	2-3	19,920	12.16	6000 <sup>(2)</sup>
TP-503-3	3	24,730	2,063.43	6000 <sup>(2)</sup>
TP-504-3	3	6,690	541.57	6000 <sup>(2)</sup>
TP-507-3.5	3.5	12,510	1,001.65	2,000 <sup>(2)</sup>
TP-508-4	4	28,610	3,011.84	2,000 <sup>(2)</sup>
B-516-5	4-5	5,410	145.95	2,000 <sup>(2)</sup>
B-505-6	5-6	31,110	6,106.50	2,000 <sup>(2)</sup>
B-553-6	5-6	---	3,360.16	2,000 <sup>(2)</sup>
B-504-7	6-7	---	7,371.70	2,000 <sup>(2)</sup>
B-515-7	6-7	---	2,233.98	2,000 <sup>(2)</sup>
TP-501-7	7	2,185	201.04	2,000 <sup>(2)</sup>
B-506-17	16-17	12,900	6,157.14	2,000 <sup>(2)</sup>
B-514-17	16-17	60,700	18,488.50	2,000 <sup>(2)</sup>
B-554-18	17-18	6,670	3,225.12	2,000 <sup>(2)</sup>
B-507-19	18-19	23,200	16,493.90	2,000 <sup>(2)</sup>
B-504-21	20-21	11,040	1,700.42	2,000 <sup>(2)</sup>
B-553-24	23-24	49,310	5,065.50	2,000 <sup>(2)</sup>

**Notes:**

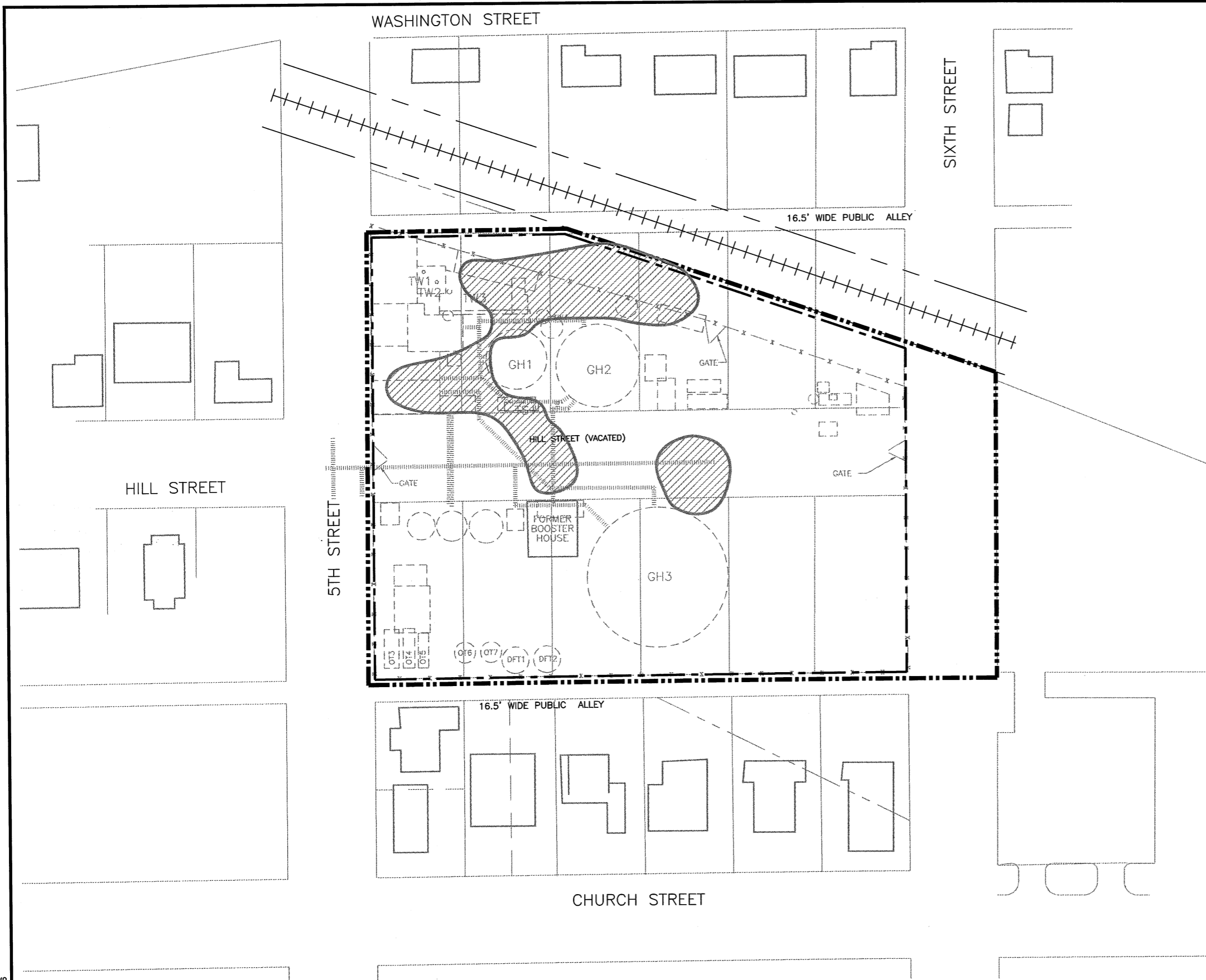
TPH - Total petroleum hydrocarbons

mg/kg - milligrams per kilogram

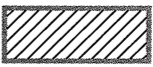
<sup>(1)</sup> - Sum of BTEX (8260B), PAHs (8270SIMS), VOCs (8260B) and SVOCs (8270C)

--- Analysis not performed on this sample.

<sup>(2)</sup> - Default value from IAC 742.215(b)(1)(A)

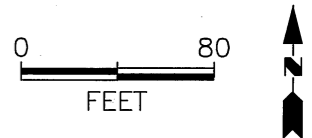


**LEGEND**

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- ..... FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- - - - - CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- x - x - FENCE
-  INDOOR INHALATION EXPOSURE PATHWAY HORIZONTAL EXTENT EXCEEDING TIER 1 ROs

- NOTE: 1. The historical manufactured gas plant structures are a composite from Sanborn Fire Insurance maps and historical Ameren site plans. The exact locations of the features are not known. Structures and buildings may have served multiple purposes during the operation of the plant.
2. Tier 1 RO exceedances are shown for On-Site only. Off-Site exceedances exist beyond the Site property boundary and are addressed individually with separate RORs and RAPs.

SOURCE: The source for the property boundary survey is Vegrzyn, Sarver, and Associates.



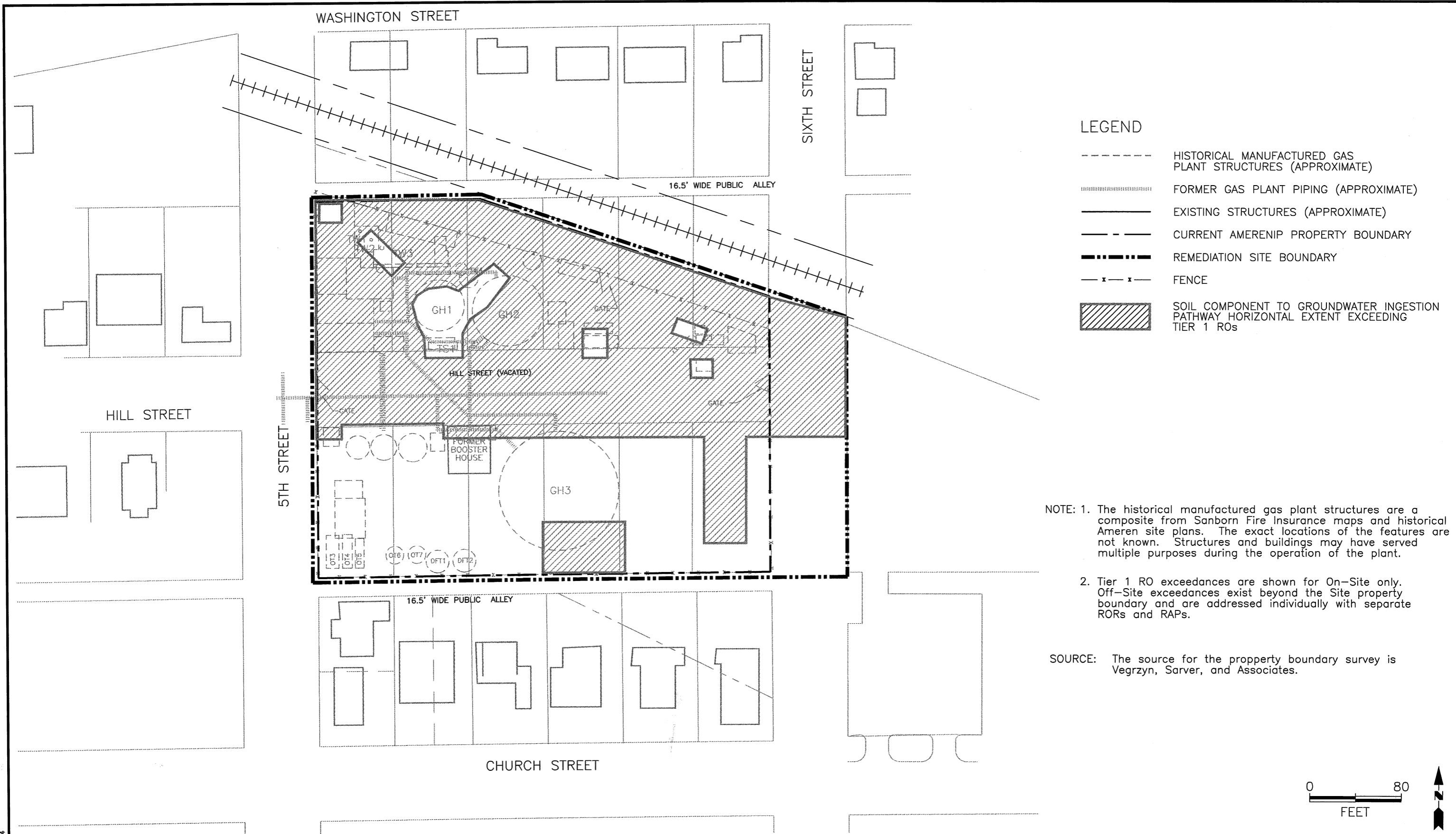
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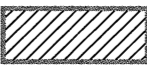


TITLE:  
 HORIZONTAL EXTENT OF SUBSURFACE IMPACT EXCEEDING TIER 1 REMEDIATION OBJECTIVES FOR INDOOR INHALATION EXPOSURE PATHWAY

DWN: TMM	DES: PTS
CHKD:	APPD:
DATE: 12/5/08	REV:

PROJECT NO: 62403053 AMERENIP CHAMPAIGN, ILLINOIS
FIGURE 2-3

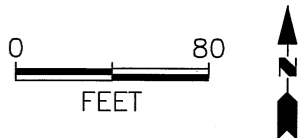


- LEGEND**
- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
  - ..... FORMER GAS PLANT PIPING (APPROXIMATE)
  - EXISTING STRUCTURES (APPROXIMATE)
  - - - - CURRENT AMERENIP PROPERTY BOUNDARY
  - REMEDIATION SITE BOUNDARY
  - x - x - FENCE
  -  SOIL COMPONENT TO GROUNDWATER INGESTION PATHWAY HORIZONTAL EXTENT EXCEEDING TIER 1 ROs

NOTE: 1. The historical manufactured gas plant structures are a composite from Sanborn Fire Insurance maps and historical Ameren site plans. The exact locations of the features are not known. Structures and buildings may have served multiple purposes during the operation of the plant.

2. Tier 1 RO exceedances are shown for On-Site only. Off-Site exceedances exist beyond the Site property boundary and are addressed individually with separate RORs and RAPs.

SOURCE: The source for the property boundary survey is Vegryn, Sarver, and Associates.



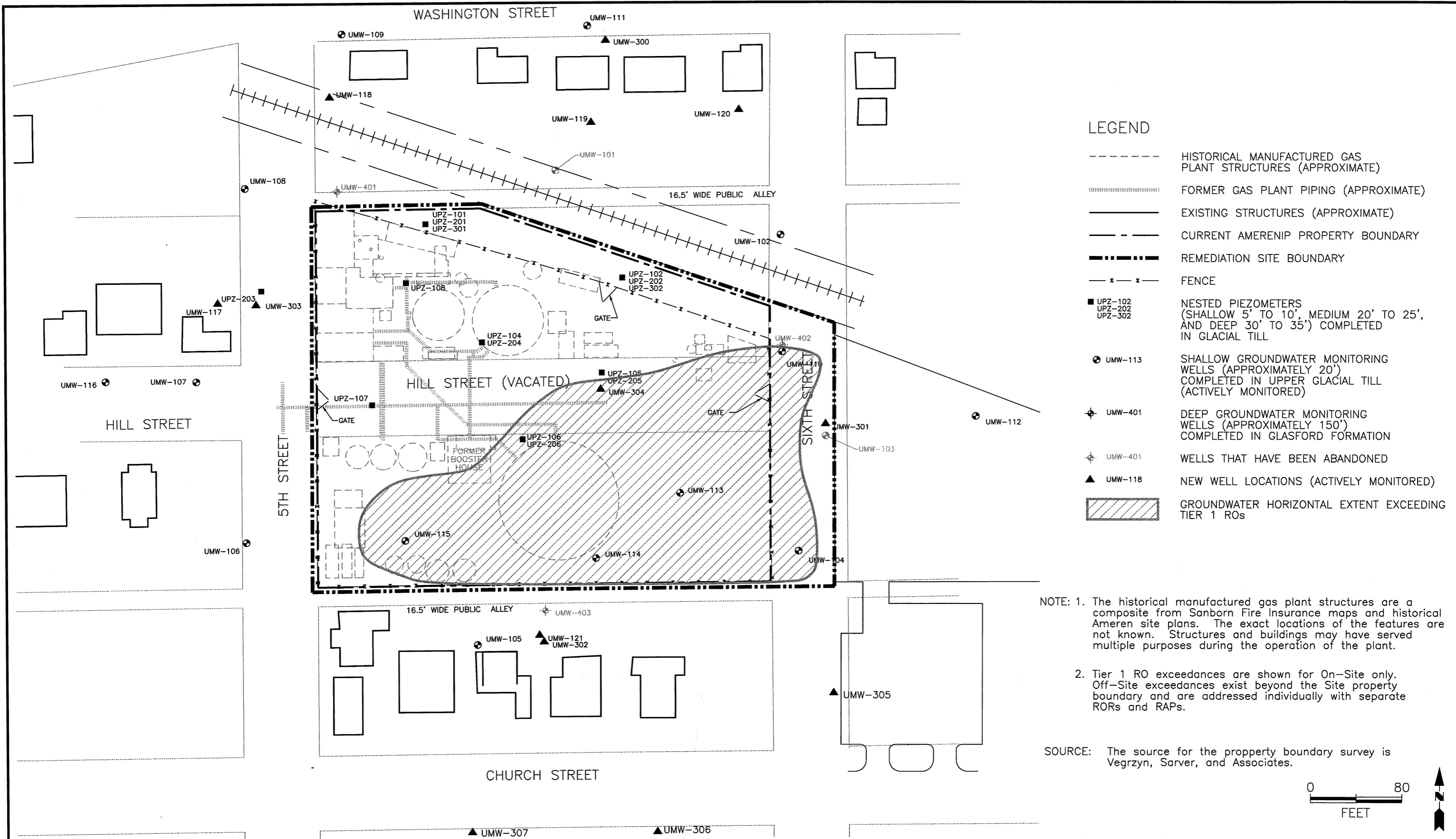
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TITLE:  
 HORIZONTAL EXTENT OF SUBSURFACE IMPACT EXCEEDING TIER 1 REMEDIATION OBJECTIVES FOR SOIL COMPONENT TO GROUNDWATER INGESTION EXPOSURE PATHWAY

DWN: TMM	DES: PTS
CHKD:	APPD:
DATE: 12/5/08	REV:

PROJECT NO: 62403053  
 AMERENIP  
 CHAMPAIGN, ILLINOIS  
 FIGURE 2-4



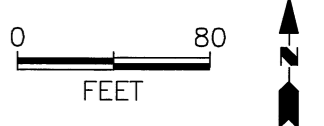
**LEGEND**

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- ..... FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- - - - - CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- x - x - FENCE
- UPZ-102  
■ UPZ-202  
■ UPZ-302 NESTED PIEZOMETERS (SHALLOW 5' TO 10', MEDIUM 20' TO 25', AND DEEP 30' TO 35') COMPLETED IN GLACIAL TILL
- ⊕ UMW-113 SHALLOW GROUNDWATER MONITORING WELLS (APPROXIMATELY 20') COMPLETED IN UPPER GLACIAL TILL (ACTIVELY MONITORED)
- ⊕ UMW-401 DEEP GROUNDWATER MONITORING WELLS (APPROXIMATELY 150') COMPLETED IN GLASFORD FORMATION
- ⊕ UMW-401 WELLS THAT HAVE BEEN ABANDONED
- ▲ UMW-118 NEW WELL LOCATIONS (ACTIVELY MONITORED)
- ▨ GROUNDWATER HORIZONTAL EXTENT EXCEEDING TIER 1 ROs

NOTE: 1. The historical manufactured gas plant structures are a composite from Sanborn Fire Insurance maps and historical Amerenip site plans. The exact locations of the features are not known. Structures and buildings may have served multiple purposes during the operation of the plant.

2. Tier 1 RO exceedances are shown for On-Site only. Off-Site exceedances exist beyond the Site property boundary and are addressed individually with separate RORs and RAPs.

SOURCE: The source for the property boundary survey is Vegryn, Sarver, and Associates.



COL. 624\02647B-055



TITLE:  
EXCEEDANCE OF CLASS I GROUNDWATER STANDARDS  
SEPTEMBER 2008

DWN:	TMM	DES:	MRC	PROJECT NO:	62403053
CHKD:		APPD:		AMERENIP CHAMPAIGN, ILLINOIS	
DATE:	11/17/08	REV:		FIGURE 2-5	

TABLE 2-1  
PROJECT REMEDIATION OBJECTIVES  
FOR CONSTITUENTS OF CONCERN  
CHAMPAIGN MGP  
AMERENIP

	Tier 1 Remediation Objective									Project Remediation Objective
	<u>Ingestion</u>			<u>Inhalation</u>			<u>Indoor Inhalation</u>		IEPA Accepted Background Levels MSA	
	Residential	Commercial	Construction	Residential	Commercial	Construction	Residential	Commercial		
<b>Volatile Organic Compounds (mg/kg)</b>										
Benzene	12	100	2,300	0.80	1.6	2.2	0.069	0.51	---	0.069
Ethylbenzene	7,800	200,000	20,000	400	400	58.0	130	130	---	58
Toluene	16,000	410,000	410,000	650	650	42.0	240	240	---	42
Total Xylenes	16,000	410,000	41,000	410	320	5.6	63	100	---	5.6
Styrene	16,000	410,000	41,000	1,500	1,500	430	230	230	---	230
Acetone	7,800	200,000	200,000	100,000	100,000	10,000	100,000	100,000	---	7,800
Methylene Chloride	85	760	12,000	13	24	34	1.4	10	---	1.4
<b>Semivolatile Organic Compounds (mg/kg)</b>										
Acenaphthene	4,700	120,000	120,000	---	---	---	---	---	0.13	4,700
Acenaphthylene	2,300 <sup>(1)</sup>	61,000 <sup>(1)</sup>	61,000 <sup>(1)</sup>	---	---	---	---	---	0.07	2,300
Benzo(a)anthracene	0.9	8	170	---	---	---	---	---	1.8	2
Benzo(a)pyrene	0.09	0.8	17	---	---	---	---	---	2.1	2.1
Benzo(b)fluoranthene	0.9	8	170	---	---	---	---	---	2.1	2.1
Benzo(k)fluoranthene	9	78	1,700	---	---	---	---	---	1.7	9
Chrysene	88	780	17,000	---	---	---	---	---	2.7	88
Dibenzo(a,h)anthracene	0.09	0.8	17	---	---	---	---	---	0.42	0.42
Dibenzofuran	310 <sup>(1)</sup>	8,200 <sup>(1)</sup>	820 <sup>(1)</sup>	---	---	---	---	---	---	310
Fluorene	3,100	82,000	82,000	---	---	---	---	---	0.18	3,100
Indeno(1,2,3-cd)pyrene	0.9	8	170	---	---	---	---	---	1.6	1.6
Naphthalene	1,600	41,000	4,100	170	270	1.8	34	34	0.2	1.8
Phenanthrene	2,300 <sup>(1)</sup>	61,000 <sup>(1)</sup>	61,000 <sup>(1)</sup>	---	---	---	---	---	2.5	2,300
2-methylnaphthalene	2,300	61,000	61,000	---	---	---	83	83	0.14	83
<b>Metals (mg/kg)</b>										
Arsenic	13	13	61	750	1,200	25,000	---	---	13	13
Chromium	230	6,100	4,100	270	420	690	---	---	16.2	230
Lead	400	800	700	---	---	---	---	---	36	400
Mercury	23	610	61	10	16	0.1	0.45	0.45	0.06	0.1
<b>Inorganics (mg/kg)</b>										
Cyanide	1,600	41,000	4,100	---	---	---	---	---	0.51	1,600

Notes:

(1) Non-TACO or provisional RO provided by the IEPA

--- No remediation objective has been established by the IEPA for this constituent for exposure route

mg/kg Milligrams per kilogram