



# State Revolving Fund Loan Programs Drinking Water, Wastewater, Nonpoint Source

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## ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

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### CITY OF RICHMOND Former Manufactured Gas Plant Remediation STATE REVOLVING FUND PROJECT WW 13 04 89 04- B

**DATE: October 5, 2012**

**TARGET PROJECT APPROVAL DATE: November 5, 2012**

#### I. INTRODUCTION

The above entity has applied to the Waste Water State Revolving Fund (WWSRF) Loan Program for a loan to finance all or part of the waste water project described in the accompanying Environmental Assessment (EA). As part of facilities planning requirements, an environmental review has been completed which addresses the project's impacts on the natural and human environment. This review is summarized in the attached EA, which can also be viewed at <http://www.in.gov/ifa/srf/>.

#### II. PRELIMINARY FINDING OF NO SIGNIFICANT IMPACT (FNSI)

The WWSRF has evaluated all pertinent environmental information regarding the proposed project and determined that an Environmental Impact Statement is not necessary. Subject to responses received during the 30-day public comment period, and pursuant to Indiana Code 4-4-11, it is our preliminary finding that the construction of the proposed project will result in no significant adverse environmental impact. In the absence of significant comments, the attached EA shall serve as the final environmental document.

#### III. COMMENTS

All interested parties may comment upon the EA/FNSI. Comments must be received at the address below by the deadline date above. Significant comments may prompt a reevaluation of the preliminary FNSI; if appropriate, a new FNSI will be issued for another 30-day public comment period. A final decision to proceed, or not to proceed, with the proposed project shall be effected by finalizing, or not finalizing, the FNSI as appropriate. Comments regarding this document should be sent within 30 days to:

**Sarah Hudson**  
**Senior Environmental Manager**  
**State Revolving Fund**  
**100 N. Senate Ave. IGCN 1275**  
**Indianapolis, IN 46204**  
**317-232-8663; [sahudson@ifa.in.gov](mailto:sahudson@ifa.in.gov)**

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**ENVIRONMENTAL  
ASSESSMENT**

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**I. PROJECT IDENTIFICATION**

Project Name: Former Manufactured Gas Plant Remediation

SRF Project Number: WW 13 04 89 04- B

Authorized Representative: Mr. Richard Bodiker  
City of Richmond Sanitary Board President  
4286 South "C" Street  
Richmond, IN 47374

**II. PROJECT LOCATION**

The project area is located in Richmond, Indiana, in the Wayne Civil Township of Wayne County. Specifically, the project is located in Township 14 N, Range 1 W, Section 32 of the Richmond USGS quadrangle. The address of the site is 16 East Main Street, Richmond IN 47374

The contaminated area is a hillside where a former manufactured gas plant was located and is adjacent to the floodplain for the Whitewater River. The area of impacted soil on and adjacent to the site is 1.53 acres in size. The area of impacted groundwater extends approximately 300 feet to the west of the site and covers an area of approximately 0.5 acre. These features are included on the site Layout Map, attached as Figure 3.

**III. PROJECT HISTORY, NEED, AND DESCRIPTION**

Site History:

The Indiana Gas Building, and formerly known as the Richmond Manufactured Gas Plant, used a coal carbonization process to produce gas beginning in approximately 1855. The facility operated intermittently until approximately 1941. After the city acquired the property by donation in 1978, it has remained vacant. In 2009, the city demolished the building and structures. The site is now being designed as an entryway into the Veteran's Park from Main Street and will include parking for the Cardinal Greenway Trail.

Project Need:

Previous site investigations were conducted between 1994 and 2011 to delineate soil and groundwater impacts associated with the manufactured gas plant operations through means of records searches, subsurface structure identification, local hydrogeological investigations, surface and subsurface sampling, installation of groundwater monitoring wells, and laboratory analysis of soil and groundwater samples. The results of these investigations provided data used to delineate source areas in the soil at the site. The city has an approved work plan to address source areas and chemicals of concern (COC). The COC at the site are benzene, toluene, ethylbenzene, total xylenes and polynuclear aromatic hydrocarbons, Resource Conservation and Recovery Act heavy metals, and total cyanide.

Project Description:

This project will be performed in a phased approach over a period of 24 to 36 months and will include source removal, capping activities, and groundwater treatment and post-treatment monitoring in order to reduce the mass of contaminants. Source removal and capping activities will occur within the "property line" of the manufactured gas plant site as shown on Figure 3. Groundwater treatment will

occur in the area of the “approximate extent of contaminant plume” as shown on Figure 3. All property is owned by the city of Richmond.

Source removal activities will include the excavation and removal of impacted soil in source areas on the manufactured gas plant site as defined in the approved work plan.

The next phase will be to install the impermeable clay cap across targeted areas of the site to minimize surface water infiltration to groundwater following the completion of the on-site excavation activities and to eliminate the potential for direct contact exposure from remaining soil. The configuration and size of the cap is dependent upon the pending design of an access road across the site by the City’s engineers. Impermeable surfaces of this access road may be incorporated into cap design. Limited clearing and grubbing will be performed in order to facilitate cap placement. The cap will consist of a 1.5-foot thick layer of compacted clay. Following placement and compaction, the clay cap will be covered with approximately 6 inches of topsoil and seeded to match the surrounding greenway conditions. The city will use a commercial source for fill dirt that has been approved for use in this area.

The final phase of this work plan will include injection events of an In-Situ Chemical Oxidation (ISCO) to address impacted groundwater. In order to allow for confirmatory sampling and analysis considerations, these events will be performed in consecutive quarters, assuming that multiple injection events are necessary to reduce mass and destroy COC in the groundwater plume. The ISCO injection program may be considered complete after the primary or secondary injection events if significant COC mass reduction and destruction is demonstrated.

Once COC mass reduction is achieved and the ISCO injection program is considered complete, a subsequent groundwater monitoring program will be implemented. This monitoring program will continue for a period of 8 quarters to demonstrate elimination or mass reduction of the plume and stabilization of indicator parameters.

**V. ESTIMATED PROJECT COSTS, AFFORDABILITY AND FUNDING**

Estimated Project Costs

Source Removal	\$285,000
Impacted Soil Removal	
Site Grading	
Free Product Removal	
Cleanup Efforts to Define the Plume	\$58,000
Well Installation	
GW Sampling	
Groundwater Flow	
Potentiometric Evaluation	
Porosity and Permeability Evaluation	
Free Product Evaluation	
Delineation	
Fingerprinting- Chemical Identification	
Capping Activities	
Clearing & Grubbing	\$19,000
Cap Placement	\$190,000
Topsoil Placement	\$52,000

Groundwater Remediation	
Injections	\$901,000
Groundwater Monitoring	
Groundwater Sampling (8 quarters @ \$6,000/event)	\$48,000
Progress Reporting (8 Reports @ \$3,500/event)	\$28,000
Laboratory Analysis (8 samples X 8 events X \$275/sample)	\$17,600
Site Closure	
Reporting	\$15,000
Regulatory Coordination	\$9,000
<b>Total Estimated Project Cost</b>	<b>\$1,622,600</b>

Monitoring activities more than three years into remedy implementation and operation & maintenance costs are not eligible for SRF assistance.

The City will fund a portion of this project with a loan from the State Revolving Fund (SRF) for a 20-year term at an annual interest rate to be determined at loan closing. Monthly user rates and charges may need to be analyzed to determine if adjustments are required for loan repayment.

#### VI. DESCRIPTION OF EVALUATED ALTERNATIVES

**No action:** Unless contaminated soil and groundwater is remediated benzene, toluene, ethylbenzene, total xylenes and polynuclear aromatic hydrocarbons, Resource Conservation and Recovery Act heavy metals, and total cyanide will remain at the site and will continue posing risks to human health and the environment.

**Selected Alternative:** As described above, the selected remedial approach for this project is excavation and disposal of contaminated soils, in addition to chemical oxidation to treat groundwater. Afterwards, the site will be capped and groundwater will be monitored to assess effectiveness.

#### VII. ENVIRONMENTAL IMPACTS OF THE FEASIBLE ALTERNATIVES

**Disturbed Land:** All project activities will take place on land which has been significantly disturbed by construction and industrial activities, as described above.

**Structural Resources:** The site is the former location of the 1855 Richmond Gas Company Building (Wayne County Historical Interim Report site #177-536-55524). The city demolished it in 2009. No above-ground structures remain on the site.

The Section 106 review of this project is in process and is under the direction of the Federal Highway Administration (DHPA No. 13537).

**Wetlands:** Wetlands will not be impacted by this project.

**Surface Waters:** Surface waters will not be impacted by this project. The project will not adversely affect waters of high quality listed in 327 IAC 2-1-2(3), exceptional use streams listed in 327 IAC 2-1-11(b), Natural, Scenic and Recreational Rivers and Streams listed in 312 IAC 7-(2), Salmonid Streams listed in (327 IAC 2-1.5-5(a)(3), or waters on the Outstanding Rivers list (Natural Resources Commission Non-rule Policy Document).

**Floodplain:** The treatment of groundwater via injection wells may occur in the 100-year floodplain of the Whitewater River. Source removal and capping activities will occur within the “property line” of the manufactured gas plant site as shown on Figure 3. All excavation activities will only occur at the manufactured gas plant site, which is not in the 100-year floodplain.

**Groundwater:** The project proposes In-Situ Chemical Oxidation (ISCO) to address impacted groundwater, which is injecting chemicals into the groundwater to treat the contamination. By the nature of injection activity, temporary, localized water table mounding at the point of injection may occur but will not significant impact short or long term groundwater levels. No dewatering is expected for this project. This project will not impact a sole source aquifer.

**Plants and Animals:** The site is vegetated and some tree removal is expected. The construction and operation of the project will not negatively impact state or federal-listed endangered species or their habitat. The project will be implemented to minimize impact to non-endangered species and their habitat.

**Prime Farmland:** The project will not cause conversion of prime farmland.

**Air Quality:** Excavation in contaminant source areas has the potential to impact short-term air quality. Continuous air quality monitoring will be performed during invasive excavation activities and activities will be suspended if airborne COC concentrations exceed their respective Occupational Safety and Health Administration Permissible Exposure Levels and the risk based action levels presented in the approved work plan. Other short-term impacts include those due to construction: noise, fumes and dust. The project is not expected to cause long-term air quality impacts.

**Open Space and Recreational Opportunities:** The proposed project will create open space and recreation opportunities.

**Lake Michigan Coastal Program:** The proposed project is not located within the Lake Michigan Coastal Zone.

**National Natural Landmarks:** Construction and operation of the proposed project will not impact National Natural Landmarks.

**Indirect Impacts:** The City of Richmond, through the authority of its council, planning commission or other means, will ensure that future development, as well as future collection system or treatment projects connecting to SRF-funded facilities will not adversely affect wetlands, archeological/historical/structural resources or other sensitive environmental resources. The city will require new development and treatment projects to be constructed within the guidelines of the U.S. Fish and Wildlife Service, Indiana Department of Natural Resources, Indiana Department of Environmental Management, and other environmental review authorities.

**Mitigation Measures:** The City of Richmond will follow Best Management Practices with regard to local, state and federal rules and regulations associated with environmental remediation. These practices will include at a minimum: preparation and implementation of a site-specific health and safety plan, erosion control, ambient air monitoring during construction activities, and utilization of comprehensive waste characterization and disposal procedures. Mitigation measures cited in comment letters from the Indiana Department of Natural Resources and the U. S. Fish and Wildlife Service will be implemented.

**Comments from the Environmental Review Authorities:** In correspondence dated September 13, 2012, the Natural Resources Conservation Service stated that the project *will not cause a conversion of prime farmland*.

This document is the first notice to the U.S. Fish and Wildlife Service, the Indiana Department of Natural Resources Division of Historic Preservation and Archaeology, and the Indiana Department of Natural Resources Environmental Unit.

#### **VIII. PUBLIC PARTICIPATION**

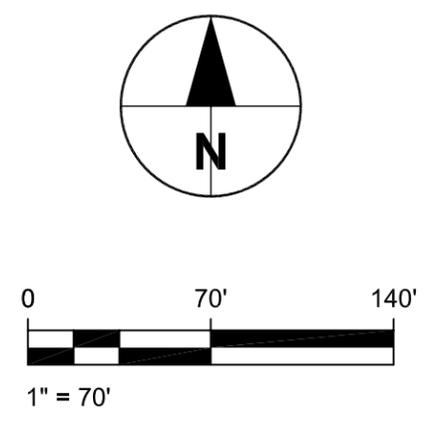
Public hearings were held June 19, 2012 and September 5, 2012 at the City of Richmond Municipal Building, located at 50 North 5<sup>th</sup> Street, Richmond, Indiana to discuss the project.

**LEGEND**

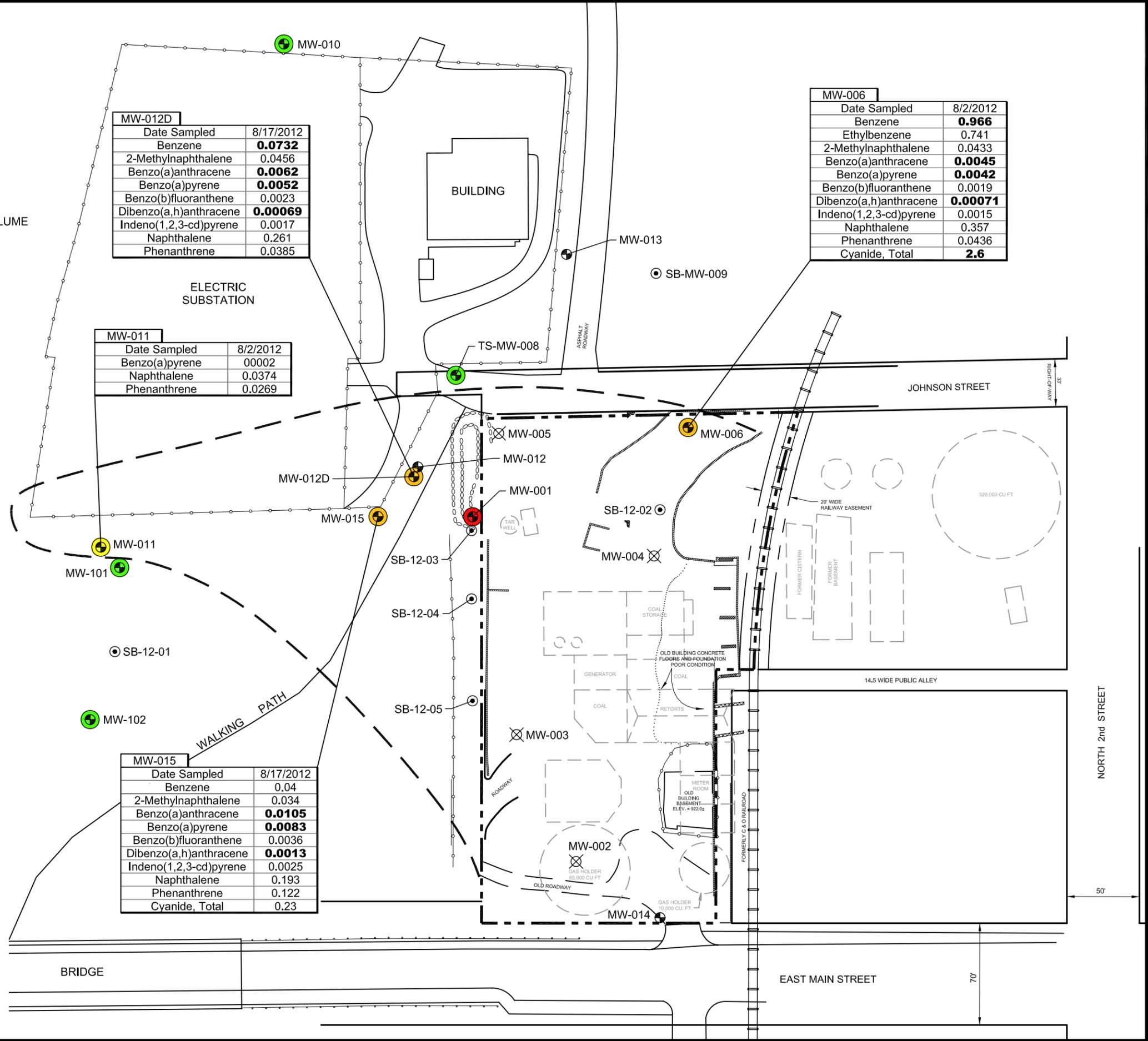
- MONITORING WELL
- DESTROYED MONITORING WELL
- SOIL BORING
- NO EXCEEDANCES
- RESIDENTIAL EXCEEDANCES
- INDUSTRIAL EXCEEDANCES
- LNAPL PRESENT IN WELL
- APPROXIMATE EXTENT OF CONTAMINANT PLUME
- PROPERTY LINE
- HISTORICAL MGP STRUCTURE
- CHAIN LINK FENCE
- GUARD RAIL
- CONCRETE/STONE WALL
- CONCRETE PAD
- CONCRETE PIER

Constituents	RISC Residential Default Groundwater Level	RISC Industrial Default Groundwater Level
Benzene	0.005	<b>0.052</b>
Ethylbenzene	0.7	<b>10</b>
2-Methylnaphthalene	0.031	<b>0.41</b>
Benzo(a)anthracene	0.0012	<b>0.0039</b>
Benzo(a)pyrene	0.0002	<b>0.00039</b>
Benzo(b)fluoranthene	0.0012	<b>0.0039</b>
Dibenzo(a,h)anthracene	0.00012	<b>0.00039</b>
Indeno(1,2,3-cd)pyrene	0.0012	<b>0.0039</b>
Naphthalene	0.0083	<b>2</b>
Phenanthrene	0.023	<b>0.31</b>
Cyanide, Total	0.2	<b>2</b>

- NOTES:**
- ALL ANALYTICAL RESULTS ARE MEASURED IN mg/L.
  - A BOLD CONCENTRATION DENOTES A RISC INDUSTRIAL DEFAULT GROUNDWATER EXCEEDANCE.



BASE MAP PREPARED BY RICK L. McAVENE, CITY SURVEYOR, ENGINEERING DEPARTMENT, CITY OF RICHMOND, INDIANA. DATE: MARCH 18, 2011.



**MW-010D**

Date Sampled	8/17/2012
Benzene	<b>0.0732</b>
2-Methylnaphthalene	0.0456
Benzo(a)anthracene	<b>0.0062</b>
Benzo(a)pyrene	<b>0.0052</b>
Benzo(b)fluoranthene	0.0023
Dibenzo(a,h)anthracene	<b>0.00069</b>
Indeno(1,2,3-cd)pyrene	0.0017
Naphthalene	0.261
Phenanthrene	0.0385

**MW-011**

Date Sampled	8/2/2012
Benzo(a)pyrene	00002
Naphthalene	0.0374
Phenanthrene	0.0269

**MW-015**

Date Sampled	8/17/2012
Benzene	0.04
2-Methylnaphthalene	0.034
Benzo(a)anthracene	<b>0.0105</b>
Benzo(a)pyrene	<b>0.0083</b>
Benzo(b)fluoranthene	0.0036
Dibenzo(a,h)anthracene	<b>0.0013</b>
Indeno(1,2,3-cd)pyrene	0.0025
Naphthalene	0.193
Phenanthrene	0.122
Cyanide, Total	0.23

**MW-006**

Date Sampled	8/2/2012
Benzene	<b>0.966</b>
Ethylbenzene	0.741
2-Methylnaphthalene	0.0433
Benzo(a)anthracene	<b>0.0045</b>
Benzo(a)pyrene	<b>0.0042</b>
Benzo(b)fluoranthene	0.0019
Dibenzo(a,h)anthracene	<b>0.00071</b>
Indeno(1,2,3-cd)pyrene	0.0015
Naphthalene	0.357
Phenanthrene	0.0436
Cyanide, Total	<b>2.6</b>