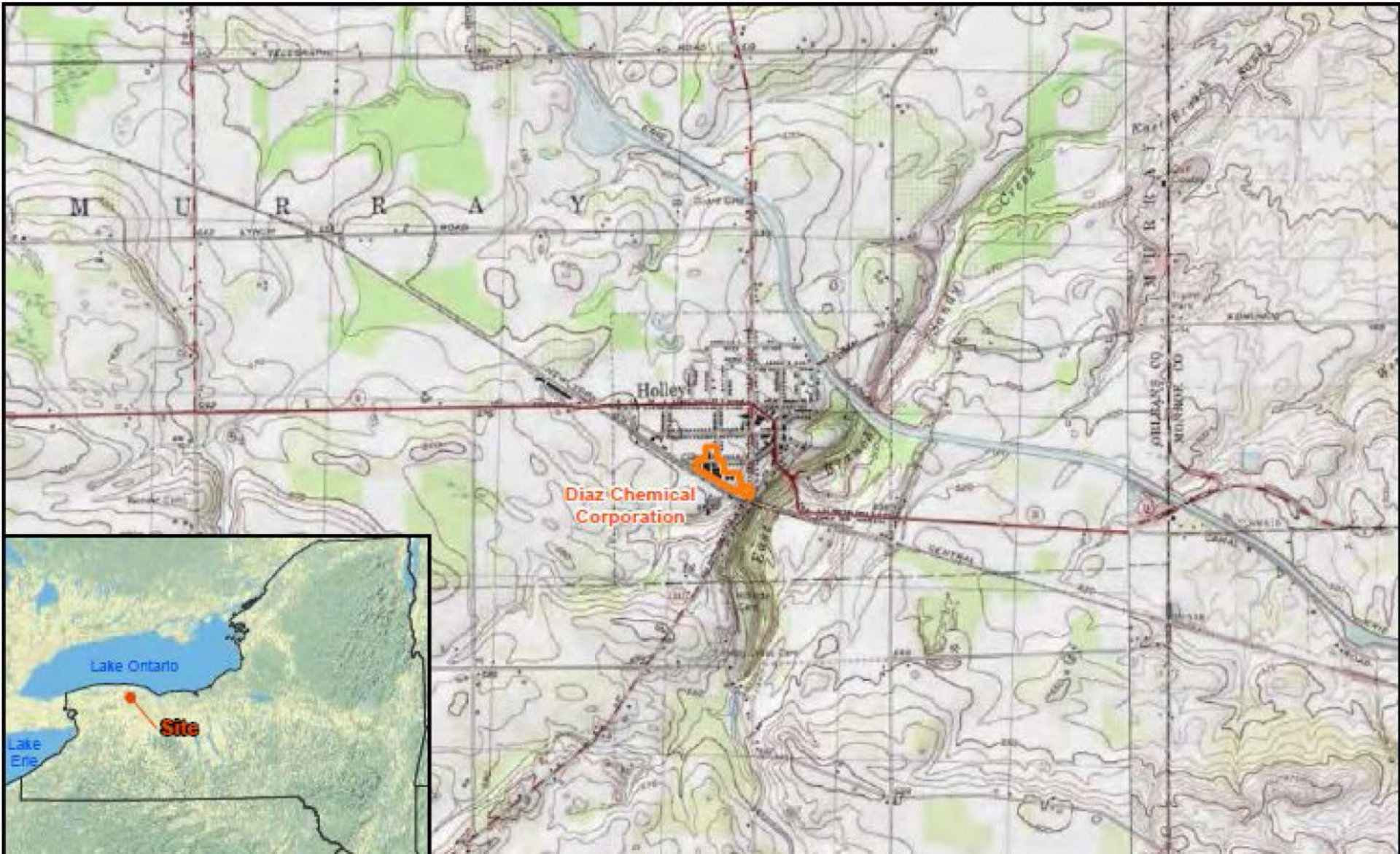
Diaz Chemical Corporation Superfund Site

SUPERFUND RESPONSE ACTION PRIORITY PANEL REVIEW

2013

Site Location



Village of Holley, Orleans Co, NY

Site History

- 1890s: Industrial plant used for food processing/cider vinegar production
- 1974: Diaz Chemical purchases facility
- Diaz Chemical manufactured specialty organic intermediates for agricultural, pharmaceutical, photographic and personal care product industries

Background Site History (cont'd)

- 1974 – 2002: long history of chemical releases
- 1994 – 1999: NYSDEC RI finds VOC and SVOC contaminated soils and groundwater
- March 2002: NYSDEC ROD calls for continued operation of trench groundwater extraction and treatment system installed by Diaz Chemical as an interim remedial measure in 1995.

EPA Involvement

- January 2002
  - Reactor vessel overheats, releasing chemical mixture consisting of a mixture of steam, toluene, and 2-chloro-6-fluorophenol into surrounding neighborhood
  - Residents complain of acute health effects.
  - Several residents voluntarily relocate to hotels with assistance from Diaz Chemicals
- March 2002
  - NYSDEC asks EPA to conduct assessment of neighborhood
- May 2002
  - EPA assumes temporary relocation expenses

EPA Involvement (cont'd)

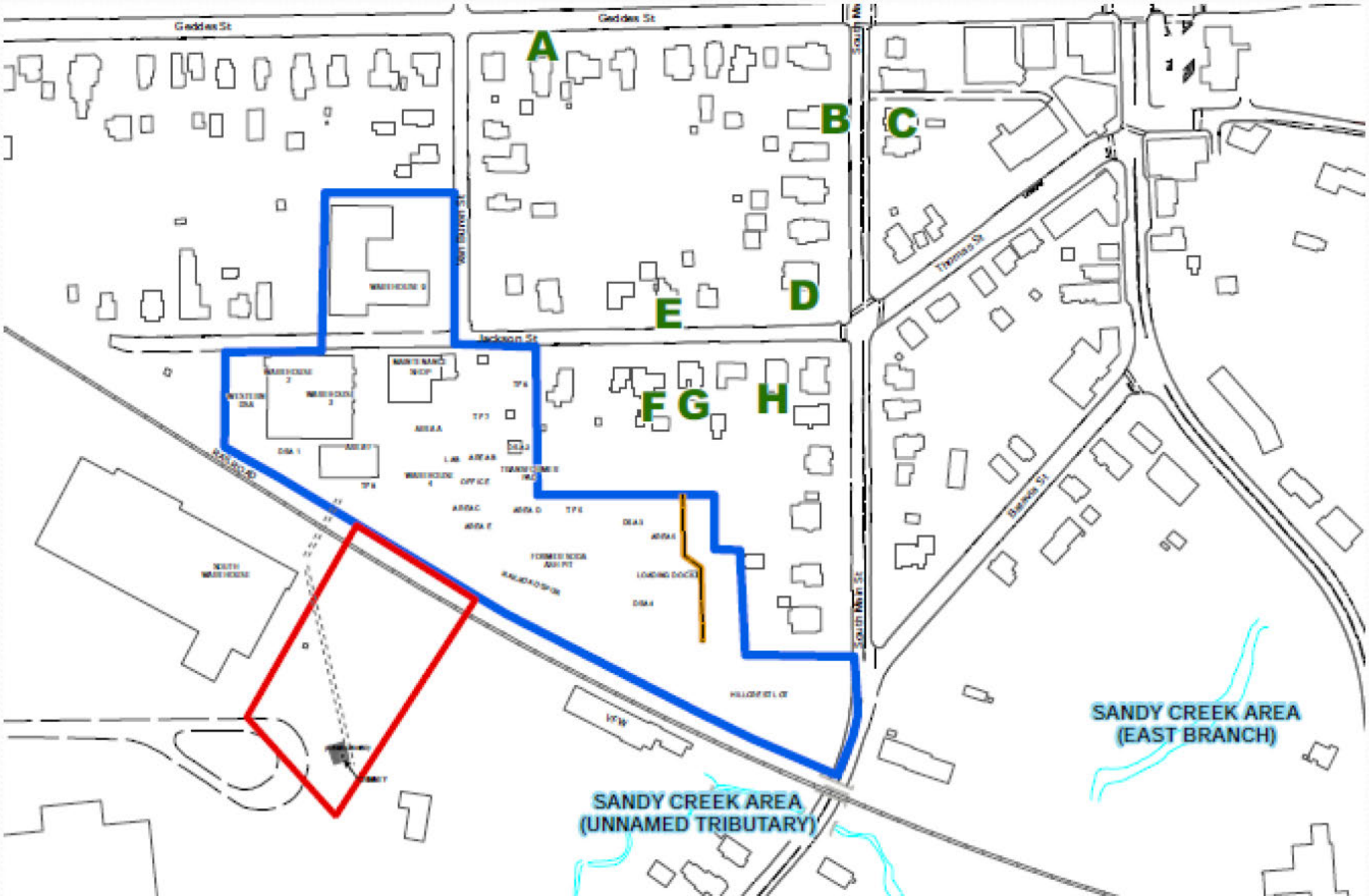
- June 2003
  - Diaz Chemical files for bankruptcy and abandons facility; leaves behind large volumes of chemicals in drums and tanks
- June 2003 – August 2007
  - EPA mobilizes to site, provides site security and general maintenance and continues operation of groundwater extraction and treatment system
  - EPA removes drums, tanks and facility piping
  - EPA dismantles production buildings

CAT
CAT
3300

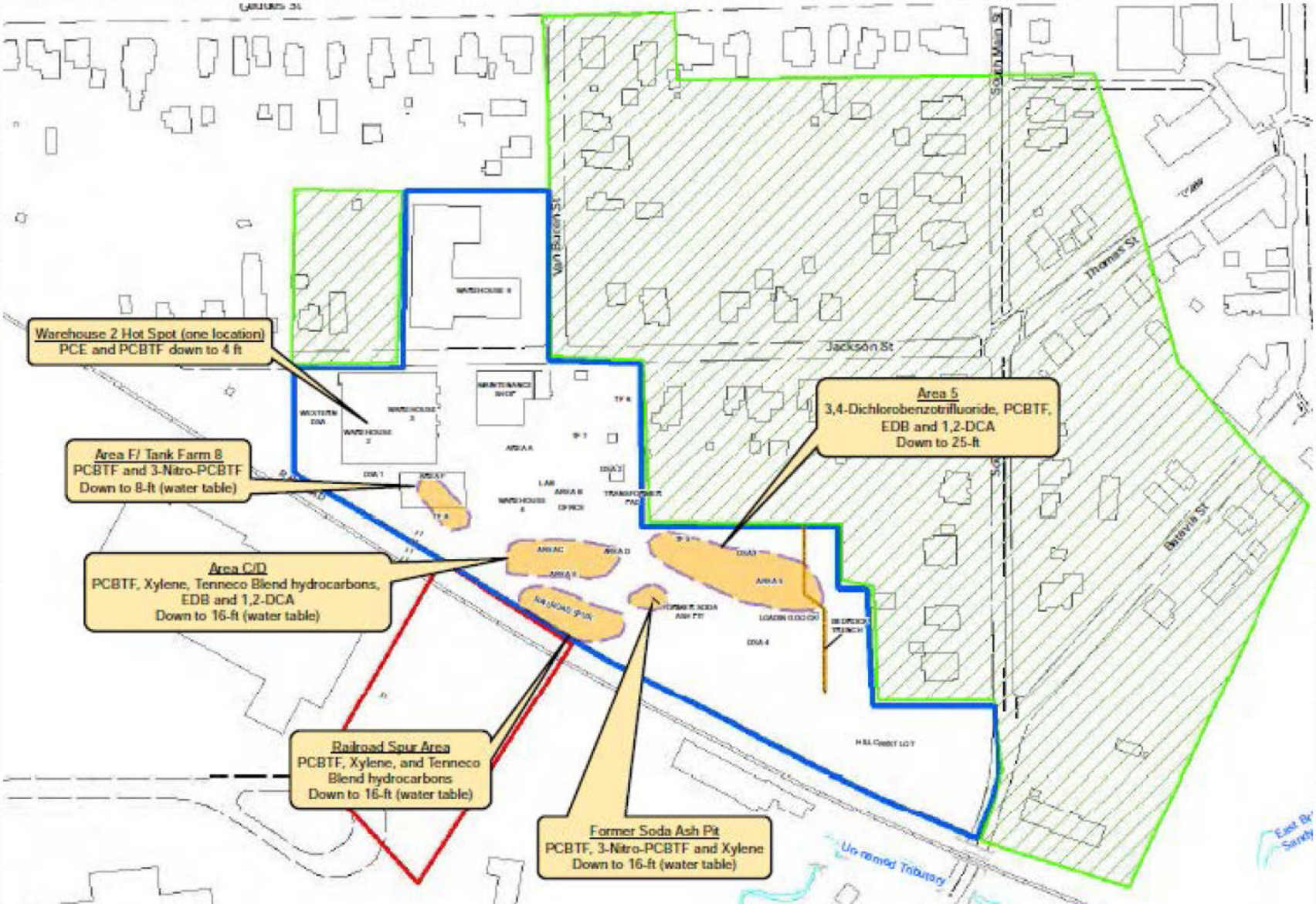
EPA Involvement (cont'd)

- July 2004
  - Diaz Chemical Corporation Superfund site placed on NPL
- March 2005 ROD
  - Property acquisition/permanent relocation of residents who remained relocated at that time
  - Maintenance of acquired properties
- RI/FS conducted 2004-2012
  - Soil and ground water found to be contaminated with VOC and SVOCs

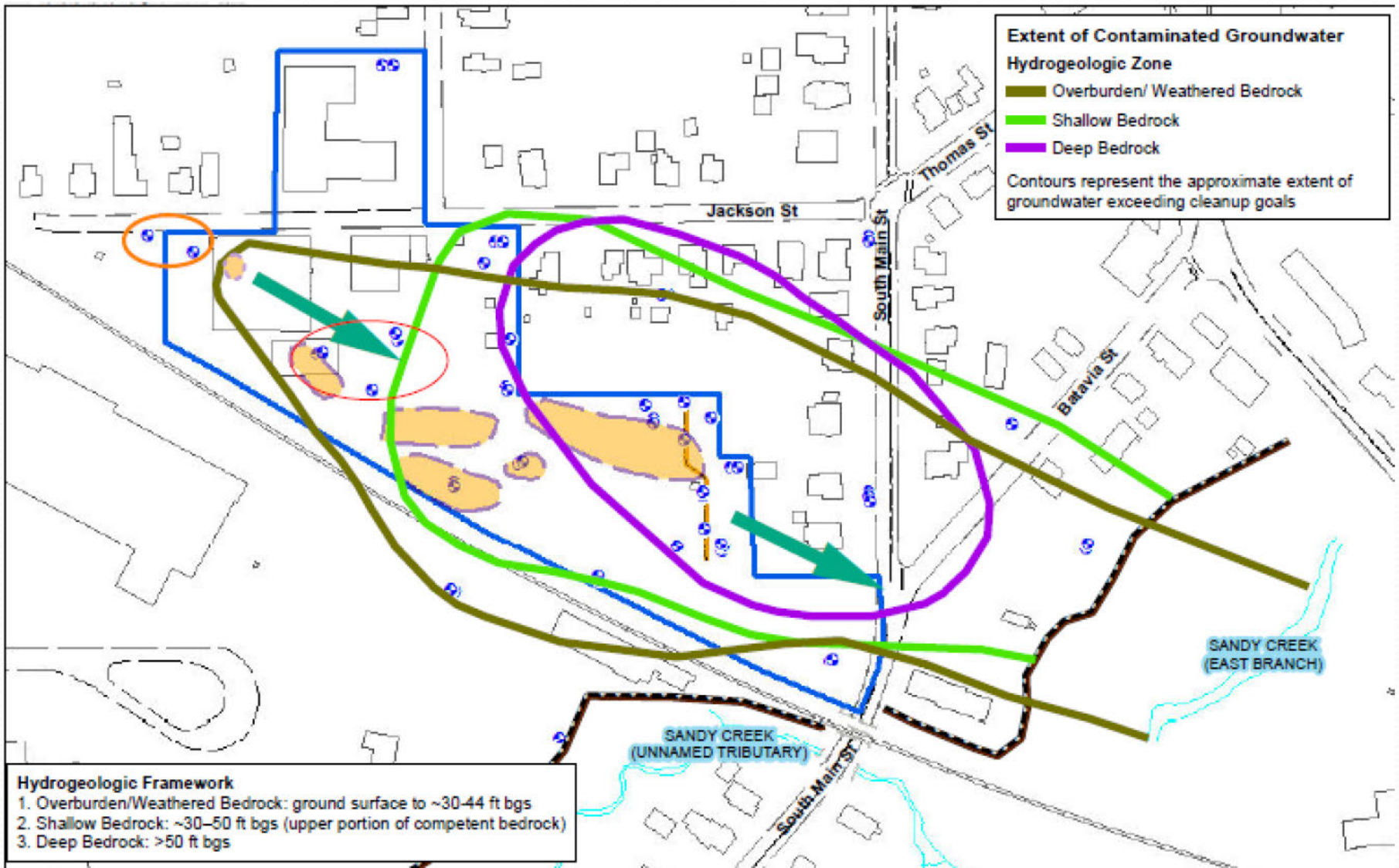
Site Plan


Geddes St
Geddes St
A
B
C
D
E
F
G
H
Jackson St
Thomas St
Balmoral St
South Main St
SANDY CREEK AREA
(EAST BRANCH)
SANDY CREEK AREA
(UNNAMED TRIBUTARY)

Source Areas



Extent of Groundwater Contamination



Risk Characterization Summary - Carcinogens

Future Off-Property Adult/Child Resident Groundwater Exposure

Chemical of Concern	Carcinogenic Risk			
	Ingestion Contact	Dermal	Inhalation	Total
Volatile Organic Compounds				
Benzene	3E-04	1E-05	7E-04	1E-03
Dibromo-3-Chloropropane, 1,2-	3E-04	6E-06	4E-02	4E-02
Dibromoethane, 1,2-	5E-02	NA	2E-01	2E-01
Dichloroethane, 1,2-	2E-02	2E-04	1E-01	1E-01
Ethylbenzene	5E-05	6E-06	1E-04	2E-04
Vinyl Chloride	1E-03	3E-03	3E-03	8E-03
Semi-volatile Organic Compounds				
Dibenz(a,h)anthracene	3E-05	1E-04	N/A	1E-04
Inorganics				
Arsenic	1E-03	3E-06	N/A	1E-03
Additional Targets				
Bromo-2-chloroethane,	1E-01	1E-04	4E-01	5E-01
Groundwater Total Risk				**9E-01**
Total Risk				**9E-01**

Risk Characterization Summary - Carcinogens

Future On-Property Adult/Child Resident Groundwater Exposure

Chemical of Concern		**Carcinogenic Risk**		
	Ingestion	**Dermal Contact**	**Inhalation**	**Total**
Total				
Volatile Organic Compounds				
Benzene	3E-04	1E-05	7E-04	1E-03
Dibromo-3-Chloropropane, 1,2-	3E-04	6E-06	4E-02	4E-02
Dibromoethane, 1,2-	5E-02	NA	2E-01	2E-01
Dichloroethane, 1,2-	2E-02	2E-04	1E-01	1E-01
Ethylbenzene 5E-05	6E-06	1E-04	2E-04	
Vinyl Chloride	1E-03	3E-03	3E-03	8E-03
Semi-volatile Organic Compounds				
Dibenz(a,h)anthracene	3E-05	1E-04	NA	1E-04
Inorganics				
Arsenic	1E-03	3E-06	NA	1E-03
Additional Targets				
Bromo-2-chloroethane	1E-01	1E-04	4E-01	5E-01
Groundwater Total Risk				**9E-01**

Risk Characterization Summary - Carcinogens

Future On-Property Adult/Child Resident Soil Exposure

Chemical of Concern	**Carcinogenic Risk**		
	Ingestion	**Dermal Contact**	**Total**
Semi-volatile Organic Compounds			
Benzo(a)anthracene	1E-04	5E-05	2E-04
Benzo(a)pyrene	1E-03	4E-04	1E-03
Benzo(b)fluoranthene	1E-04	5E-05	2E-04
Dibenz(a,h)anthracene	1E-04	5E-05	2E-04
Indeno(1,2,3-cd)pyrene	7E-05	3E-05	1E-04
Soil Total Risk			**2E-03**
Total Risk			**1E+00**

Risk Characterization Summary - Carcinogens

Future On-Property Child Park User Soil Exposure

Chemical Of Concern	**Carcinogenic Risk**		
	Ingestion	**Dermal Contact**	**Total**
Semi-volatile Organic Compounds			
Benzo(a)pyrene	1E-04	2E-05	1E-04
Total Soil Risk			**2E-04**
Total Risk			**2E-04**

Risk Characterization Summary - Carcinogens

Future On-Property Adult Worker

Chemical Of Concern	**Carcinogenic Risk**			
	Ingestion	**Dermal Contact**	**Inhalation**	**Total**
Volatile Organic Compounds				
Dibromoethane, 1,2-	1E-02			1E-02
Dichloroethane, 1,2-	5E-03			5E-03
Inorganics				
Arsenic	2E-04			2E-04
Additional Targets				
Bromo-2-chloroethane, 1-	2E-02			2E-02
Total Groundwater Risk				**4E-02**
Semi-volatile Organic Compounds				
Benzo(a)pyrene	5E-05	4E-05	2E-09	1E-04
Total Soil Risk				**2E-04**
Total Risk				**4E-02**

Risk Characterization Summary - Noncarcinogens

Future Off-Property Adult/Child Resident Groundwater Exposure

Chemical Of Concern	Primary Target Organ(s)	Noncarcinogenic Hazard Quotient			
		Ingestion	Dermal Contact	Inhalation	Total
Volatile Organic Compounds					
Benzene	Blood	6E+00	3E-01	2E+01	2E+01
Dibromo-3-Chloropropane, 1,2-	Reproductive	3E+00	6E-02	5E+01	5E+01
Dibromoethane, 1,2-	Reproductive/Liver/Adrenal/Respiratory (Nasal)	1E+01	NA	2E+02	2E+02
Dichloroethane, 1,2-	Kidney/CNS/Liver	2E+02	2E+00	3E+03	3E+03
Dichloroethene, cis-1,2-	Kidney	1E+00	3E-02	NA	1E+00
Tetrachloroethene	Neurological	4E-01	4E-02	1E+00	1E+00
Trichloroethene	Heart/Immune System/Developmental/Kidney	5E-01	2E-02	2E+00	3E+00
Xylene, o-	Body Weight/CNS/Respiratory	5E-01	6E-02	2E+00	3E+00
Inorganics					
Arsenic	Skin/Developmental/Cardiovascular System/CNS	1E+01	3E-02	NA	1E+01
Selenium	Hair	1E+00	4E-03	NA	1E+00
Additional Targets					
Chlorobenzotrifluoride, 4-	Liver	4E+01	5E-01	7E+00	5E+01
Total Groundwater HI:					**4E+03**

Risk Characterization Summary - Noncarcinogens

Future On-Property Adult/Child Resident Groundwater Exposure

Chemical Of Concern	Primary Target Organ(s)	Noncarcinogenic Hazard Quotient			
		Ingestion	Dermal Contact	Inhalation	Total
Volatile Organic Compounds					
Benzene	Blood	6E+00	3E-01	2E+01	2E+01
Dibromo-3-Chloropropane, 1,2-	Reproductive	3E+00	6E-02	5E+01	5E+01
Dibromoethane, 1,2-	Reproductive/Liver/Adrenal/Respiratory	1E+01	NA	2E+02	2E+02
Dichloroethane, 1,2-	Kidney/CNS/Liver	2E+02	2E+00	3E+03	3E+03
Dichloroethene, cis-1,2-	Kidney	1E+00	3E-02	NA	1E+00
Tetrachloroethene	Neurological	4E-01	4E-02	1E+00	1E+00
Trichloroethene	Heart/Immune System/Developmental/Kidney	5E-01	2E-02	2E+00	3E+00
Xylene, o-	Body Weight/CNS/Respiratory	5E-01	6E-02	2E+00	3E+00
Inorganics					
Arsenic	Skin/Developmental/Cardiovascular System/CNS	1E+01	3E-02	NA	1E+01
Selenium	Hair	1E+00	4E-03	NA	1E+00
Additional Targets					
Chlorobenzotrifluoride, 4-	Liver	4E+01	5E-01	7E+00	5E+01
Total Groundwater HI					**4E+03**

Risk Characterization Summary - Noncarcinogens

Future On-Property Adult Worker

Chemical Of Concern	Primary Target Organ(s)	Noncarcinogenic Hazard Quotient	
		Ingestion	Total
Volatile Organic Compounds			
Benzene	Blood	1E+00	1E+00
Dibromoethane, 1,2-	Reproductive/Liver/Adrenal	2E+00	2E+00
Dichloroethane, 1,2-	Kidney	3E+01	3E+01
Inorganics			
Arsenic	Skin	2E+00	2E+00
Additional Targets			
Chlorobenzotrifluoride, 4-	Liver	7E+00	7E+00
Total Groundwater HI			**4E+01**

September 2012 ROD Remedy for Soil and Groundwater

- In-situ thermal treatment, such as Electrical Resistance Heating, in 6 source areas for soil and groundwater in shallow bedrock (25 – 50 feet bgs)
- Monitored natural attenuation for downgradient groundwater
- Estimated capital cost of remedy is $13,200,000; estimated annual cost is $110,000 for 30 years

In-Situ Thermal Treatment

1 Figure + text

Residential Property Disposition

- EPA determined that sale or transfer of 8 properties acquired by EPA consistent with remedy
- EPA intends to sell or transfer properties