STATEMENT OF BASIS FOR PROPOSED REMEDY SELECTION	Region II ID#7775

ASHLAND INC.
130 South Street
Rensselaer, NY

Facility/Unit Type:	**Former chemical distribution facility, now vacant**
Contaminants:	**Volatile organic compounds (VOCs) and Chlorinated VOCs (CVOCs)**
Media:	**Soil, groundwater, and soil vapor**
Proposed Remedy:	**Onsite enhanced bioremediation; monitored natural attenuation (MNA); groundwater monitoring and evaluation of the need for additional vapor monitoring at a downgradient offsite property; institutional and engineering controls; groundwater monitoring program; and shutdown of existing groundwater collection and treatment system.**

FACILITY DESCRIPTION

USEPA (Region 2) and Ashland Inc. (Ashland) entered into an Administrative Order on Consent, in 1992, Docket No. II RCRA-92-3008(h)-0201 requiring investigation and remediation of the Ashland facility at 130 South Street in Rensselaer, NY (site).

The 4.8-acre site was used by Ashland as a chemical distribution facility until operations were discontinued in 2001. The buildings and associated structures were recently demolished and the site is now vacant.

Land use in the areas surrounding the site is predominantly residential/commercial/light industrial. The site is located on the edge of the Hudson River floodplain, approximately 1650 feet southeast of the river. A small unnamed creek runs through the site in a buried culvert. Most surface water drains to storm drains and ultimately into the creek.

The site is underlain by a variable thickness of fill. The fill is underlain by discontinuous beds of alluvial fine to coarse-grained material interbedded with silt and clay. Groundwater is approximately 3 to 9 feet below ground surface and groundwater flow is generally to the west-northwest. Completed investigations demonstrate that VOCs are present in onsite soil and groundwater and offsite groundwater. Interim remedial measures (IRMs) have been completed and include excavation and onsite treatment of the excavated soil with a soil vacuum extraction system. A groundwater extraction and treatment system was also installed to address VOCs in groundwater.

EXPOSURE PATHWAYS

Potential exposure to VOCs in onsite soil and onsite and offsite groundwater is the primary potential exposure pathway. Onsite soil impacts have been addressed through the completed IRMs and will be further addressed through implementation of onsite institutional and engineering controls.

Soil vapor intrusion (SVI) to offsite residential properties (located upgradient of the site) has been evaluated. The investigation findings indicated that site-related VOCs are not impacting these properties. SVI into a downgradient commercial building has also been evaluated and no site-related impacts were found. Potential SVI impacts to this building will be assessed in the future through a groundwater monitoring program and additional SVI investigations will be completed if groundwater quality or property use changes.

CONTAMINANTS DETECTED AND CLEANUP GOALS FOR THE ASHLAND INC. FACILITY

Media	Estimated Volume	Contaminant	Maximum Concentration (mg/kg) [1]	Action Level (mg/kg) [2]	Cleanup Goal (mg/kg)	Point of Compliance
Onsite Soil	NA	1,1,1-trichloroethane	0.043	1,000	1,000	NA – institutional and engineering controls
		1,1-dichloroethane	0.88	480	480	
		1,1-dichloroethene	0.040	1,000	1,000	
		1,2-dichloroethane	0.086	60	60	
		2-butanone	9.2	1,000	1,000	
		2-hexanone	0.076	--	--	
		4-Methyl-2-pentanone	8.6	--	--	
		acetone	18	1,000	1,000	
		benzene	6.8	89	89	
		bromodichloromethane	0.005	--	--	
		carbon disulfide	0.025	--	--	
		carbon tetrachloride	0.036	44	44	
		chlorobenzene	0.018	1,000	1,000	
		chloroform	0.12	700	700	
		cis-1,2-dichloroethene	82	1,000	1,000	
		ethylbenzene	410	780	780	
		methylene chloride	0.28	1,000	1,000	
		styrene	0.0092	--	--	
		tetrachloroethene	4.8	300	300	
		toluene	4600	1,000	1,000	
		trans-1,2-dichloroethene	0.88	1,000	1,000	
		trichloroethene	6.1	400	400	
		vinyl chloride	1.5	27	27	
		xylenes (total)	2300	1,000	1,000	

Media	Estimated Volume	Contaminant	Maximum Concentration (mg/L) [1]	Action Level (mg/L) [3]	Cleanup Goal (mg/L)	Point of Compliance
Onsite Groundwater	NA	1,1,1-trichloroethane	2	0.005	0.005	NA – institutional and engineering controls
		1,1,2,2-tetrachloroethane	0.019	0.005	0.005	
		1,1-dichloroethane	1.6	0.005	0.005	
		1,1-dichloroethene	0.54	0.005	0.005	
		1,2-dicloroethane	1.7	0.0006	0.0006	

Media	Estimated Volume	Contaminant	Maximum Concentration (mg/L) [1]	Action Level (mg/L) [3]	Cleanup Goal (mg/L)	Point of Compliance
Onsite Groundwater	NA	1,2-dichloropropane	0.0014	0.001	0.001	NA – institutional and engineering controls
		2-butanone	0.012	--	--	
		acetone	0.018	0.050	0.050	
		cis-1,2-dichloroethene	23	0.005	0.005	
		bromoform	0.010	0.050	0.050	
		bromomethane	0.026	0.005	0.005	
		carbon disulfide	0.040	--	--	
		carbon tetrachloride	0.051	0.005	0.005	
		chlorobenzene	0.012	0.005	0.005	
		chloroethane	0.49	0.005	0.005	
		chloroform	0.10	0.007	0.007	
		chloromethane	0.0015	--	--	
		styrene	0.023	0.005	0.005	
		benzene	0.76	0.001	0.001	
		ethylbenzene	1.2	0.005	0.005	
		tetrachloroethene	40	0.005	0.005	
		toluene	7.1	0.005	0.005	
		trans-1,2-dichloroethene	0.23	0.005	0.005	
		trichloroethene	29	0.005	0.005	
		vinyl chloride	14	0.002	0.002	
		xylenes (total)	11	0.005	0.005	
Offsite Groundwater	NA	1,1-dichloroethane	0.0011	0.005	0.005	Down-gradient offsite wells
		1,1-dichloroethene	0.013	0.005	0.005	
		1,2-dichloroethane	0.18	0.0006	0.0006	
		benzene	0.0016	0.001	0.001	
		carbon disulfide	0.0099	--	--	
		chlorobenzene	0.014	0.005	0.005	
		cis-1,2-dichloroethene	1.0	0.005	0.005	
		ethylbenzene	0.01	0.005	0.005	
		styrene	0.019	0.005	0.005	
		tetrachloroethene	0.017	0.005	0.005	
		toluene	0.012	0.005	0.005	
		trans-1,2-dichloroethene	0.031	0.005	0.005	
		trichloroethene	0.042	0.005	0.005	

Media	Estimated Volume	Contaminant	Maximum Concentration (mg/L) [1]	Action Level (mg/L) [3]	Cleanup Goal (mg/L)	Point of Compliance
Offsite Groundwater	NA	vinyl chloride	0.25	0.002	0.002	Down-gradient offsite wells
		xylenes (total)	0.023	0.005	0.005	

Media	Estimated Volume	Contaminant	Maximum Concentration ($\mu g/m^3$) [1]	Action Level ($\mu g/m^3$) [4]	Cleanup Goal ($\mu g/m^3$)	Point of Compliance
Soil Vapor	NA	1,1,1-trichloroehane	14			NA
		benzene	45			
		ethylbenzene	31			
		m&p-Xylene	39			
		o-Xylene	12			
		tetrachloroethene	14			
		toluene	1200 D			
		trichloroethene	75			
		trans-1,2-Dichloroethene	0.67			
		xylenes (total)	110			
Indoor Air	NA	benzene	3.5			NA
		ethylbenzene	2.2			
		m&p-xylene	1.2			
		o-xylene	0.48			
		tetrachloroethene	1.1	100	100	
		toluene	14			
		trichloroethene	0.81	5	5	
		xylenes (total)	10			

Notes:

1. Maximum observed concentrations are for the highest observed concentration during the entire investigation period lasting over 13 years. Implementation of prior IRMs and ongoing natural attenuation has reduced concentrations in soil and groundwater.
2. Soil action levels as referenced in the NYSDEC Part 375-6.5 soil cleanup requirements, dated December 14, 2006, for the protection of groundwater, human health, and ecology.
3. Groundwater action levels/cleanup goals as referenced in NYSDEC Technical and Operational Guidance Series 1.1.1 Water Guidance Values.
4. Soil vapor action levels as referenced in Table 3.1 NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006.

D – laboratory dilution run
NA – not applicable
NYSDOH – New York State Department of Health
NYSDEC - New York State Department of Environmental Conservation
mg/kg – milligrams per kilogram
mg/L – milligrams per liter
$\mu g/m^3$ - micrograms per meter cubed

PROPOSED REMEDY

The evaluation of nine (9) potential remedial alternatives for the Ashland site and offsite areas were evaluated in the draft Corrective Measures Study (CMS) Report (pages 31-41) dated November 2006. A copy of this draft CMS document is contained in the revised draft CMS Report dated March 2009. The CMS can be reviewed at the NY State Dept. of Environmental Conservation Central Office, the Rensselaer Public Library, and the E. Greenbush Community Library (addresses on enclosed public notice).

The components of the proposed remedy include enhanced bioremediation; monitored natural attenuation (MNA); groundwater monitoring and evaluation of the need for additional vapor monitoring at a downgradient offsite property; institutional and engineering controls; groundwater monitoring program; and shutdown of existing groundwater collection and treatment system.

As part of onsite enhanced bioremediation, an enhanced reductive dechlorination (ERD) in-situ reactive zone (IRZ) will be created by injecting a soluble carbon substrate (e.g., molasses) through injection wells along two lines near the downgradient site boundary in the central and south areas of the site. The soluble substrate will promote enhanced bioremediation downgradient (offsite) of the barrier due to groundwater transport of the substrate.

MNA will be implemented to remediate groundwater downgradient of the IRZ. The remedial progress will be evaluated through an ongoing monitoring program.

Current data indicate that VOC-containing groundwater originating from the site does not impact groundwater quality near the downgradient former Volvo Service Center and does not present a vapor intrusion risk. Groundwater will be monitored to verify there is no increase in VOC concentrations in the area near the former Volvo Service Center. If site-related VOC concentrations do not increase, vapor monitoring will not be required in the Volvo Service Center building (provided the property use does not change). Institutional controls will include a deed restriction limiting future use of the site to industrial purposes and restricting the use of groundwater. Engineering controls (fencing, pavement, former building floor slabs) will limit access to the site and site soils.

Existing monitoring wells will be maintained and the semiannual groundwater sampling continued until risk-based groundwater criteria are achieved or data demonstrate that concentrations will decrease to risk-based criteria through natural mechanisms. A network of onsite and offsite monitoring wells will be used to monitor the performance of the ERD IRZ on a quarterly basis at the onset and modified as appropriate based on the results.

The groundwater extraction and treatment system was shutdown in July 2008 because the concentrations of VOCs in groundwater captured by the system are approaching applicable standards and are limited in areal extent. Furthermore, if operational at the time of remedy implementation, it may impede the enhanced bioremediation by recovering a portion of the soluble substrate.

The selected remedy meets the corrective measures objectives and can be implemented in a timely manner. This remedy will mitigate offsite migration of CVOCs by stopping migration of these constituents at the property boundary. The downgradient plume will degrade over time once the ERD IRZ is in place.

The total estimated capital cost is $200,100. The 10-year present worth of operation & maintenance costs are estimated to be $905,100. The total estimated 10-year present worth cost associated with implementation of the remedy is $1,105,000.

It is conservatively estimated that once the remedial system is in place, reducing conditions favorable to ERD will be observed within one year of system startup. It may take up to two years to see decreased concentrations in downgradient monitoring wells.

INNOVATIVE TECHNOLOGIES CONSIDERED

Enhanced bioattenuation through creation of an ERD IRZ is the key component of the remedy.

PUBLIC PARTICIPATION

A Public Participation Plan was developed for the site and will be used throughout the implementation of the remedy. The site's Public Participation Plan outlines the specific community relations activities to be undertaken, provides the public with necessary contact information, and identifies document repositories where members of the public can obtain copies of project-related documents. Concurrently with this Statement of Basis, the Agency is announcing a public comment period for the draft RCRA Facility Investigation (RFI) Report and draft CMS.

NEXT STEPS

The Agencies will review & address public comments on the Draft RFI & CMS documents. If no substantive comments are received, EPA may approve both documents. After approval of the CMS, a pre-design investigation will be completed. A Corrective Measures Implementation Plan will be submitted for approval to the Agencies followed by construction & implementation of the remedy.

KEY WORDS

volatile organic compounds, chlorinated volatile organic compounds, onsite enhanced bioremediation, monitored natural attenuation, enhanced reductive dechlorination, in-situ reactive zone

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