Land Quality

Environmental Cleanup

Environmental Cleanup Site Information (ECSI) Database
Site Summary Report - Details for Site ID 398, ARKEMA, Inc.

This report shows data entered as of December 21, 2015 at 3:16:41 PM

This report contains site details, organized into the following sections: 1) Site Photos (appears only if the site has photos); 2) General Site Information; 3) Site Characteristics; 4) Substance Contamination Information; 5) Investigative, Remedial and Administrative Actions; and 6) Site Environmental Controls (i.e., institutional or engineering controls; appears only if DEQ has applied one or more such controls to the site). A key to certain acronyms and terms used in the report appears at the bottom of the page.

Note: DEQ may have posted online documents related to this site. If so, they would be available for viewing or downloading on ECSI Summary Page

Go to DEQ's Facility Profiler to see a site map as well is information on what other DEQ programs may be active at this site.

Site Photos

Click to View Photo	Picture Date	Caption	Size
View Photo	07/10/2012	Construction of stormwater sandfilter basin liner and quality control testing	771 Kb
View Photo	08/26/2012	Mixing soil and bentonite for groundwater cutoff wall slurry backfill	657 Kb
View Photo	08/30/2012	New stormwater sandfilter	679 Kb
View Photo	08/30/2012	New stormwater detention basin	692 Kb
View Photo	09/10/2012	Excavation of groundwater cutoff wall. Depth to bedrock is approximately 88 feet at this location. Water/bontonite slurry entering trench from pipe keeps trench open. Smaller trackhoe is mixing excavated soil with bentonite.	364 Kb
View Photo	09/10/2012	Mixing bentonite/water slurry which is pumped from slurry pond into the open groundwater cutoff wall trench as it is excavated.	2390 Kb
View Photo	09/27/2012	Soil-bentonite groundwater cutoff wall construction	3790 Kb
View Photo	10/09/2012	Adding bentonite to cutoff wall excavation spoils. Once mixed to approximately 5% bentonite, the soil-bontonite slurry is placed back into the groundwater cutoff wall trench.	619 Kb
View Photo	10/16/2012	New stormwater detention basin holding first week of rain after construction completion.	1801 Kb
View Photo	10/16/2012	Temporary cap located on the northern end of the site between the new East and West stormwater channels. Orange trackhoe marks the northern extent of the groundwater cutoff wall.	17024 Kb
View Photo	10/16/2012	Temporary cap at northern end of site. Trackhoe marks the northern end of the groundwater cutoff wall. East stormwater	8338 Kb

channel on left of photo. Confluence with West channel on the right. Stormwater detention basin on right edge of photo.

General Site Information

Site ID: 398	Site Name: ARKEMA, Inc.	CERCLIS No: 009031840	
Address:	6400 NW Front Ave. Portland 97210		
	County: Multnomah	Region: Northwest	
Other location information:			
Investigation Status:	Listed on CRL or Inventory		
	Brownfield Site: No NPL Site: No	Orphan Site: No	Study Area: No
Property:	Twnshp/Range/Sect: 1N , 1W , 13	Tax Lots: 36	
	Latitude: 45.5713 deg. Longitude: -122.7447 deg.	Site Size: 54 acres	
Other Site Names:	Elf Atochem North America Pennwalt Chemical Corp. Portland Harbor Sediment Study ATOFINA Chemicals, Inc.		

Site Characteristics

General Site Description:	
Site History:	Manufacturing operations began at the site in 1941 by Pennsylvania Salt Manufacturing, and ceased in 2001. The facility produced various chemicals including sodium chlorate, potassium chlorate, chlorine, sodium hydroxide, DDT, sodium orthosilicate, magnesium chloride hexahydrate, ammonia, hydrogen, ammonium and sodium perchlorate (rocket fuel) and hydrochloric acid.
Contamination Information:	(5/19/93 KPD/SAS) The facility primarily produced chlorine, but also produced hydrochloric acid, hydrogen, sodium chlorate, and sodium hydroxide. Asbestos (used as a diaphragm in electrolytic cells) was historically buried in a pit on-site. The buried asbestos was removed in 1992 with DEQ Air Quality Program oversight. Waste diaphragm asbestos was subsequently conveyed to a filter press and the filter cake placed into drums for off-site disposal. "Brine purification residue" (a mixture of calcium carbonate and magnesium hydroxide) was initially managed in on-site ponds. Brine pond residue was subsequently removed and disposed in a off-site landfill. Brine residue was more recently dewatered in a filter press and the dry solids landfilled at a DEQ permitted landfill. Four Willamette River outfalls are present. Only one is currently active which is the most down stream of the four. It discharges treated stormwater and groundwater under NPDES permits. Six chemical spills were reported to have occurred at the site in 1987, the first year reporting was required. Excavation activities in 1992 encountered residues determined to be associated with the manufacture of DDT by Pennwalt in the late 1940s and early 1950s. DDT residue was removed by Atochem in a trench disposal area from the northwestern portion of the plant site in 1994. Investigation of the former DDT-manufacturing area (current acid plant area) by Atochem in 1994 showed high concentrations of DDT in soil and monochlorobenzene in groundwater. (11/21/01 MJM/VCP). Remedial investigation work detected hexavalent chromium, perchlorate, chloroform and chloride in site groundwater associated with former facility operations.
Manner and Time of Release:	Historical site operations and spills, documented in 1987.
Hazardous Substances/Waste Types:	Chlorine, hydrochloric acid, ammonia, sodium hydroxide, asbestos, sodium metabisulfite, sodium bichromate, sulfuric acid, monochlorobenzene, and DDT.
Pathways:	The site is located in a heavily industrialized part of NW Portland. The Willamette River is adjacent to the site on the north and east. The Remedial Investigation, completed in 2006, identified surface soil impacts from DDT and other facility related

contaminants. Groundwater in the Acid Plant area is impacted with DDT, chlorobenzene, perchlorate and VOCs (e.g., chloroform). Groundwater in the Chlorate Plant area is impacted by hexavalent chromium and perchlorate. Chloride levels are high in groundwater site-wide, but are most elevated in the Chlorate Plant area. Current complete exposure pathways are human and ecological exposure to site soils, groundwater and stormwater migration to the Willamette River and potential riverbank errosion.

Environmental/Health Threats:

Status of Investigative or Remedial Action: (10/29/97 MJM/VCP) Elf Atochem entered the DEQ Voluntary Cleanup Program (2/96) and requested DEQ oversight for the investigation & cleanup of the former DDT manufacturing area (former Acid Plant area). Elf Atochem and DEQ entered Voluntary RI/FS Agreement to investigate former DDT manufacturing releases and to complete a RI of the facility. Fall 2000, ATOFINA removed approximately 3,000 cubic yards of soil with some of the highest levels of DDT . ATOFINA also paved or placed temporary covers over areas of the plant to control surface soils containing DDT from being transported by stormwater to the Willamette River. In December 2000, ATOCHEM constructed and started operation of a vapor-extraction system to remove chlorobenzene from vadose zone soils in the location of the former chlorobenzene recovery unit. Plant operations ceased in 2001; phased demoloition of the plant structures occurred through 2005. A number of pilot and full-scale interim removal measures have been implimented since 2000. These include attempts to treat chlorobenzene and DDT with sodium persulfate, in-situ reduction of hexavalent chromium to trivalent chromium using calcium polysulfide and treatment of chlorobenzene by air sparging and soil vapor recovery.

Construction of upland source control measures began in April 2012 to control the migration of impacted stormwater and groundwater to the Willamette River.

* Stormwater - The existing stormwater collection and conveyance system was decommissioned including the upstream three NPDES outfalls. Surface soils in the more contaminated portions of the site were covered with temporary clean caps to prevent transport by stormwater. New stromwater conveyance channels, detention basin and sand filter were constructed and operational in October 2012.

* Groundwater - Construction of a 1600 lineal foot soil-bentonite slurry groundwater cutoff wall was completed in 2012. The wall is up to 88 feet deep and in contact with basalt bedrock. Construction of a groundwater collection and treatment system associated with the cutoff wall was completed in 2013 and became operational in 2014.

Data Sources: EPA Preliminary Assessment (12/10/84). Laboratory Data. Correspondence FROM owner and/or operator. Doane Lake Study Area files (ECSI #36). Voluntary Cleanup Program project file and Remedial Investigation Report.

Substance Contamination Information

Substance	Media Contaminated	Concentration Level	Date Recorded
AMMONIA	Soil	Unknown	
CHLOROBENZENE	Groundwater	370 mg/L	11/3/1994
CHROMIUM	Groundwater	26.7 mg/L	5/3/2001
DDT,p,p'-	Soil	150,000 mg/kg	4/20/1994
SODIUM BICHROMATE	Surface Water	Unknown	
SODIUM CHLORATE	Surface Water	Unknown	

Investigative, Remedial and Administrative Actions

Action	Start Date	Compl. Date	Resp. Staff	Lead Pgm
FEASIBILITY STUDY (Primary Action)	01/28/2009		Matt McClincy	SRS

Key to Certain Acronyms and Terms in this Report:

CERCLIS No.: The U.S. EPA's Hazardous Waste Site identification number, shown only if EPA has been involved at the site.
Region: DEQ divides the state into three regions, Eastern, Northwest, and Western; the regional office shown is responsible for site investigation/cleanup.
NPL Site: Is this site on EPA's National Priority List (i.e., a federal Superfund site)? (Y/N).
Orphan Site: Has DEQ's Orphan Program been active at this site? (Y/N). The Orphan Program uses state funds to clean up high-priority sites where owners and operators responsible for the contamination are absent, or are unable or unwilling to use their own resources for cleanup.
Study Area: Is this site a Study Area? (Y/N). Study Areas are groupings of individual ECSI sites that may be contributing to a larger, area-wide problem. ECSI assigns unique Site ID numbers to both individual sites and to Study Areas.
Pathways: A description of human or environmental resources that site contamination could affect.
Lead Pgm: This column refers to the Cleanup Program affiliation of the DEQ employee responsible for the action shown. SAS or SAP = Site Assessment; VCS or VCP = Voluntary Cleanup; ICP = Independent Cleanup; SRS or SRP = Site Response (enforcement cleanup); ORP = Orphan Program.

You may be able to obtain more information about this site by contacting Matt McClincy at the Northwest regional office or via email at mcclincy.matt@deq.state.or.us. If this does not work, you may contact Gil Wistar at (503) 229-5512, or via email at wistar.gil@deq.state.or.us or contact the Northwest regional office.

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For more information about **ECSI** call Gil Wistar at 503-229-5512 or email.

For more information about **DEQ's Land Quality programs**, visit the DEQ contact page.

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The Oregon Department of Environmental Quality is a regulatory agency authorized to protect Oregon's environment by the State of Oregon and the Environmental Protection Agency.