

Region 3 GPRA Baseline RCRA Corrective Action Facility

Merck and Company, Inc.

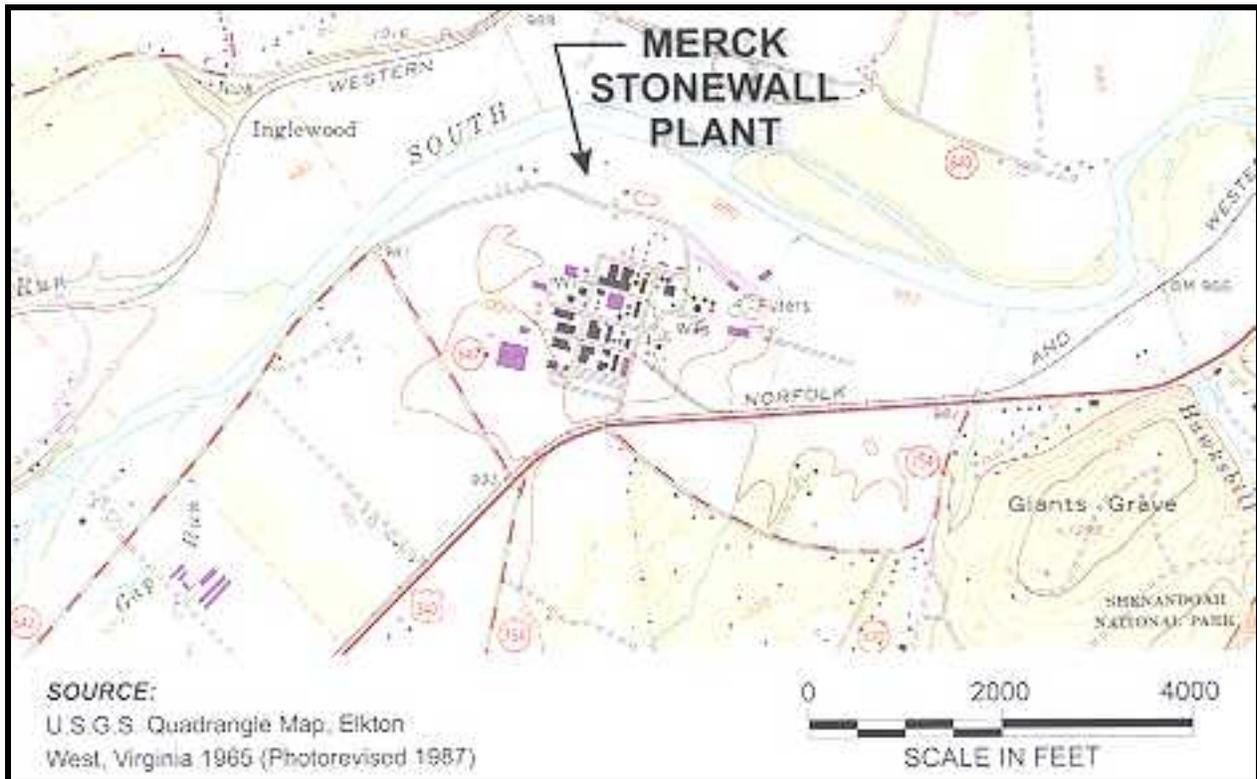
Highway 340 South

Elkton, VA 22827

Congressional District 6

EPA ID #: VAD001705110

Last Updated: 07/07/2008



Current RCRA CA Activities

The Virginia Department of Environmental Quality (DEQ) is the lead agency for oversight of RCRA Corrective Action (CA) work at the facility. The CA investigations and any necessary clean up activities at the facility are being implemented in accordance with the conditions and requirements of the Hazardous Waste Management Permit (Permit) issued to the facility.

The above Permit, effective on April 5, 2002, includes site-wide CA requirements of the Hazardous and Solid Waste Amendments (HSWA) of the Resource Conservation and Recovery Act (RCRA) of 1984. The above Permit remains in effect until April 5, 2012.

The DEQ conditionally approved the Corrective Measures Implementation (CMI) Work Plan on September 8, 2004. In order to meet the conditions of approval, Merck submitted a Corrective Action Plan (CAP) for Area of Concern (AOC) North of the Landfill (November 2005). The DEQ reviewed this CAP and found it to be technically adequate and complete. Therefore, on May 20, 2006, the DEQ sent Merck correspondence confirming that the conditions of approval for the CMI Workplan were met.

On May 26, 2006 Merck submitted a Class 3 permit modification request to include the CAP for AOC North of the Landfill into Merck's Permit. The DEQ reviewed the Class 3 permit modification request and held a public hearing on September 5, 2006, to address public concerns and comments in regards to the permit modification. No comments were received during the public hearing and the Class 3 permit modification was approved on September 27, 2006.

On September 2, 2005, Merck submitted a 90% Design Project Report for AOC North and AOC South. The DEQ concurred with the remediation technologies identified in the 90% Design Reports and informed Merck to precede with the 100% Final Design Report for AOC North and South.

The 100% Final Design Report was received by the DEQ on June 26, 2006, and was determined to be technically adequate and complete. In a September 7, 2006, letter from the DEQ to Merck, the DEQ concurred with the 100% Final Design and informed Merck to proceed with the Corrective Measure Construction Phase in accordance with Merck's Permit.

Merck conducted several sampling and monitoring events during the first and second quarter 2008. These events included quarterly landfill gas monitoring, annual monitoring natural attenuation (MNA) Groundwater (GW) sampling, site-wide groundwater sampling, and semiannual surface water monitoring. The data collected during these events will be summarized in various reports, which are to be submitted to the DEQ during the second and third quarters of 2008.

The DEQ gave authorization to proceed with Merck's proposed biosparging pilot study under an interim measure (IM) for the area north of the landfill on February 3, 2005. The 2-month pilot study began in May 2005, and resulting data was used to design the full-scale system for north of the landfill. Construction of the system was completed in July 2007, and initial testing was conducted during the week of July 16, 2007. The system was started for continuous operation on August 30, 2007. Merck submitted to the DEQ an Operation and Maintenance (O&M) Program for the Landfill Biosparging System on September 28, 2007. Quarterly groundwater monitoring was performed on February 18-19, 2008. There is not enough data available at this point to provide a definitive estimate of the volume of contaminants degraded during system operation.

Merck has already begun the implementation phase of the approved remediation design for the area of concern (AOC) South and AOC North. Baseline soil gas sampling was performed between June 25 and July 20, 2007, for AOC South. Construction of the AOC South soil vapor extraction (SVE)/VOC abatement/bioventing systems was substantially complete and prepared for system shakedown. The DEQ's Office of Hazardous Waste and the Office of Waste Technical Support, and the Valley Regional Office – Air Division are currently evaluating the air

emissions from AOC South's SVE system to determine the potential risk from the SVE air emissions and whether modifications to Merck's existing Air Permit and/or the Hazardous Waste Management Permit will be required, respectively.

As for the bioventing system, Merck performed pressure testing of Phase I vertical bioventing wells in January and February 2008. The bioventing system began operation in these wells on March 24, 2008 and has operated continuously since that date. First quarter 2008 results show that approximately 6,012 kilograms of contaminants have been degraded through the operation of the bioventing system in the AOC South Area. Merck will perform monthly and quarterly performance monitoring of the AOC North bioventing system. However, routine operation of the SVE system in the AOC South Area will not begin until the above-referenced air emission and related Air Permitting issues have been resolved.

The AOC North bioventing system shakedown and equipment commissioning was completed the week of July 23, 2007; normal operation of the system began the week of July 30, 2007, and system optimization was performed in August through mid-October 2007. The bioventing system has operated continuously in the AOC North Area, without shutdown, since system optimization in October 2007.

First quarter 2008 results show that approximately 6,222 kilograms of contaminants have been degraded through the operation of the bioventing system in the AOC North Area. Merck will perform monthly and quarterly performance monitoring of the AOC North bioventing system.

On-site groundwater flow is controlled by continuous production well pumping at the facility. Merck estimates that approximately 95% of the CMI activities are complete at the Stonewall site through the first quarter of 2008.

Site Description

The Merck facility is located in northwestern Virginia, approximately 2 miles southwest of Elkton. The facility plant or site lies in the Shenandoah Valley, just SE of the South Fork of the Shenandoah River. The facility site occupies approximately 1,300 acres; however, active operations occur on only 89 acres.

The facility began operation in 1941. Prior to that, the land was undeveloped. The facility includes a pharmaceutical laboratory and manufacturing facilities, which produce animal and human health care products (pharmaceuticals).

The facility is supported by a wastewater treatment plant, a solvent recovery operation, and a power plant with co-generation facilities. Additionally there is an onsite, permitted, industrial landfill. The landfill occupies 7 acres located in the northeastern corner of the property. Prior to 1980, various production wastes, including organic and inorganic chemicals from the plant operations were disposed of in the landfill. Merck property borders the landfill on all sides. The landfill was capped in 2000 as one of the corrective measures that was required to be implemented.

The current Hazardous Waste Management Permit became effective on April 5, 2002, and shall remain in effect until April 5, 2012. The facility is permitted to store hazardous wastes in containers and the Permit contains site-wide CA requirements of the HSWA of the RCRA of 1984.

The Corrective Measures Study (CMS) Report was approved by EPA on May 7, 1999. The facility is currently in the Corrective Measures Implementation (CMI) phase of RCRA Corrective Action.

RCRA CA Milestones

To date the following RCRA CA milestones have been completed at this facility:

- In October 1989, EPA issued a RCRA Administrative Order to Merck.
- EPA issued the Statement of Basis on July 2, 1999. A public meeting was held in September 1999. The Final Decision and Response to Comments (FDRTC) was issued in March 2001.
- The Corrective Measures Study Report was approved by EPA on May 7, 1999.
- The current Hazardous Waste Management Permit (Permit) was issued by the DEQ and the Permit became effective on April 5, 2002, and shall remain in effect until April 5, 2012. The facility is permitted to store hazardous wastes in containers and the Permit contains site-wide CA requirements of the HSWA of the RCRA of 1984.

The DEQ has incorporated the requirements of the FDRTC, dated March 2001, and the previously issued Solid Waste Management Permit into the facility's Hazardous Waste Management Permit (RCRA Operating Permit) along with the HSWA CA requirements.

- The facility is currently in the Corrective Measures Implementation (CMI) phase of RCRA Corrective Action. The CMI was conditionally approved by the DEQ on September 8, 2004. On May 20, 2006, the DEQ sent Merck correspondence confirming that the conditions of approval for the CMI Workplan have been met in accordance with the DEQ's September 8, 2004, letter.
- The DEQ concurred with the facility's 100% Final Design Report for AOC North and AOC South on September 7, 2006.
- On May 26, 2006 Merck submitted a Class 3 permit modification request to include the CAP for AOC North of the Landfill into Merck's Permit. The DEQ reviewed the Class 3 permit modification request and held a public hearing on September 5, 2006, to address public concerns and comments in regards to the permit modification. No comments were received during the public hearing and the Class 3 permit modification was approved on September

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27, 2006.

- The biosparging system for AOC North of the Landfill was started for full-scale operations on August 30, 2007. Normal operation of the biosparging system will continue.
- The bioventing system began operation in the Phase I vertical bioventing wells on March 24, 2008 and has operated continuously since that date. First quarter 2008 results show that approximately 6,012 kilograms of contaminants have been degraded through the operation of the bioventing system.
- The bioventing system has operated continuously, without shutdown, since system optimization in October 2007. First quarter 2008 results show that approximately 6,222 kilograms of contaminants have been degraded through the operation of the bioventing system.

Environmental Indicator Status

Under the Government Performance and Results Act (GPRA), EPA has set national goals to address high priority RCRA Corrective Action facilities by the year 2005. EPA is evaluating two key Environmental Indicators (EIs) for each facility: Current Human Exposures Under Control and Migration of Contaminated Groundwater Under Control. This facility is one of EPA Region III's high priority facilities and falls under this GPRA initiative. Virginia's current evaluation of Environmental Indicators for this facility is as follows:

- *Human Exposures Controlled Determination:* The DEQ has made the EI determination of "yes, that current human exposures are under control." The above determination is based upon the DEQ's Current Human Health Environmental Indicator (HHEI) Determination Report, dated September 26, 2005. This above HHEI determination is considered current, effective July 7, 2008.
- *Release to Groundwater Controlled Determination:* The DEQ has made the EI determination of "yes, that migration of contaminated groundwater is under control," based upon the review of CA information for the CCP site contained in the EI determination Report, dated September 26, 2005. The above EI determination indicates that the migration of "contaminated" groundwater is believed to be under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater." This EI determination is considered current, effective July 7, 2008.

Contaminants

The primary contaminants of concern (COCs) in the groundwater include benzene, chlorobenzene, chloroform, methylene chloride, naphthalene, trichloroethene, vinyl chloride, and

vanadium. The COCs in surface and subsurface soils include several VOCs and SVOCs.

Institutional Controls

The current Hazardous Waste Management Permit (Permit) was issued by the DEQ and the Permit became effective on April 5, 2002, and shall remain in effect until April 5, 2012. The facility is permitted to store hazardous wastes in containers and the Permit contains site-wide CA requirements of the HSWA of the RCRA of 1984. The DEQ has incorporated the requirements of the FDRTC, dated March 2001, and the previously issued Solid Waste Management Permit into the facility's Hazardous Waste Management Permit (RCRA Operating Permit) along with the HSWA CA requirements. The above Permit requires post-closure care and groundwater monitoring.

A Deed Notice is in place identifying the location of the closed solid waste landfill.

Community Involvement

Citizens' questions and concerns have been addressed throughout the RCRA Corrective Action process. As part of their Community Relations Plan, Merck hosted its annual community information sharing session on August 8, 2007, at Elkton Elementary School. Four community citizens attended. The next community information sharing session is scheduled for August 12, 2008. In addition, Merck issued a community newsletter in April 2008 highlighting the remediation progress to date.

Additionally, the Administrative Record has been made available at the repository listed below to give the community immediate access to the RFI Report, the CMS Report, and other CA related documentation. The Administrative Record containing relevant information is available for public review at the following location:

Massanutten Regional Library
174 South Main Street
Harrisonburg, VA 22801
Phone: (540) 434-4475

The Administrative Record may be accessed during normal library hours, 9am-9pm Monday-Thursday, 9am-6pm Friday, and 9am-5pm Saturday. Additional information concerning the library may be found at the website <http://www.mrlib.org/mainlibrary.htm>.

Government Contacts

The Commonwealth of Virginia DEQ is the lead CA authority for this project. Please contact the DEQ project manager listed below for details on this project or the contents of this fact sheet.

DEQ Project Manager

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For more information about EPA's corrective action program, including Environmental Indicators, please visit EPA's web site at: www.epa.gov/reg3wcmd/correctiveaction.htm.

Facility Contact

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Fact Sheet Update

The previous fact sheet was updated January 2008. The next fact sheet update is scheduled for January 2009. Previous fact sheets may be obtained through the listed DEQ contact.