

SITE REMEDIATION

Molycorp Site in Canton Township, PA

Project Summary

The Molycorp site, located in Canton Township (bordering Chartiers Creek), contained hazardous and radioactive materials left over from early industrial operations. Cleanup and disposal of these materials, in accordance with regulations of the Nuclear Regulatory Commission, have been an essential prelude to redevelopment of the area. The Nuclear Regulatory Commission determined Molycorp needed to move the radioactive waste to an off-site facility as opposed to storing the radioactive material in the middle of Canton Township neighborhoods.

Project Background

On December 19, 1963, the Molybdenum Corporation of America obtained a source materials license (License SMB-744 from the Atomic Energy Commission [AEC, later NRC]) because of the processing of concentrates that contained 0.05 percent (or higher) of uranium and/or thorium. The current Source Materials License is SMB-1393 (Docket 4008778).

Between 1964 and 1970, Molycorp produced ferrocolumbium alloy from concentrate produced from pyrochlore ore, which originated from the Companhia Brasileira de Metalurgia e Mineracao's Araxa mine, in Araxa, Brazil. This slag was initially segregated and retained on site, and continued to be generated on-site through 1970.¹ In 1972, Molycorp excavated soil containing relatively high concentrations of thorium-bearing slag, and shipped approximately 14 truckloads of this soil/slag material to a disposal facility in West Valley, New York. The remaining slag from the production of the ferrocolumbium alloy was in the form of refractory and glass/ceramic slag containing thorium. This material was stored in a 22,700 cubic yard pile with average concentrations of thorium 232 (TH- 232) in the slag was 1,250 pCi/g with exposures within the 0.2 mR/hr, the maximum level of exposure allowed at the time.²

In 1996, Molycorp excavated approximately 4,000 cubic yards of material that was located along its northern boundary from the Findlay Clay Refractories property and placed the contaminants into roll-off boxes. As part of the decommissioning plan, in the year 2000-2001, Molycorp removed 194 roll-off boxes of remediated material from the former Findlay Clay Refractories site and the 10,000 cubic yard slag pile to the Envirocare facility in Utah, an NRC sanctioned site.³

As part of the decommissioning action, Molycorp unearthed the former water line that was under the thoriated evaporation pond and the above-mentioned slag pile. Following the voluminous report of several thousand pages submitted by the NRC Site Specific Advisory Board in July of 2000, Molycorp announced on January 4, 2001 that they were seeking to withdraw its request for License Amendment for the Washington Plant located in Canton

Township, which had been submitted on July 14, 2000. The withdrawal action of the request for License Amendment effectively terminated Molycorp's previous proposal to build an on-site storage cell to contain all of the slag and soil at the facility. The company, being aware of the community concerns about the cell's location, and in response to those concerns and those expressed in the Site Specific Advisory Board Report (SSAB), the company decided to remove the soil and slag from the property.

As a consequence of these actions, 21 plant buildings have been demolished and decommissioned, as contracted for through MACTEC, and the site is being re-characterized based upon the experience at the York, PA facility. The six principal remedial actions taking place at the site include:

- Excavation of buried Thorium - bearing soils
- Manufactured Gas Plant Tar Ponds Remediation
- Impoundment Closure
- Northern Property Boundary Remediation
- Slag Pile Removal
- Building Demolition

The Nuclear Regulatory Commission forced Molycorp and its parent company Unocal—and subsequent parent, Chevron Corporation—to remediate the site, along with remediating, through the PADEP, the coal tar from a former gas manufacturing plant. Reports from the Nuclear Regulatory Commission (NRC) Site-Specific Advisory Board were sent to the NRC in May of 2000 and the final Addendum Report and Exhibits were sent to the NRC on or about July 6, 2000. The Nuclear Regulatory Commission, Atomic Safety and Licensing Board Final Memorandum and Order (approving stipulation and terminating proceeding) was signed April 20, 2001 by Judge Charles Bechhorfer, Administrative Law Judge, Nuclear Regulatory Commission.

The Department of Environmental Protection has fined Molycorp \$250,000 for water violations and charged the company an additional \$225,000 for oversight costs incurred by DEP to monitor and supervise the remediation of a former metallurgical processing facility in Canton Township, Washington County. (source: PA DEP) The \$475,000 was to be paid to the state's Clean Water Fund, which finances projects to improve water quality across Pennsylvania.

Table 6. Environmentally Significant Events in the History of the Molycorp Site

Date	Event
1902	Main plant purchased by the Railway Spring and Manufacturing Company
1916	Electric Reduction Company purchased the site
1920	Molybdenum Corporation of America formed from the Electric Reduction Company (in 1974 the name was changed to Molycorp, Incorporated)
1963	NRC license obtained to produce ferrocolumbium
1966	Eight surface impoundments installed
1969	Ferrocolumbium slag used as fill over large area of the site
1970	NPDES permit obtained
1971	NRC requests site cleanup
1976	Area 5 and 7A purchased - coal tar present
1976	Morris farm purchased
1976 – 1981	Slag fill in Morris Farm part of area 5
1978	Ferrocolumbium slag cleanup completed
1980	Building demolition and reconstruction completed
1980	Resource Conservation and Reclamation Act, Part A permit application filed
1981 –1986	Slag filled in Area 5E
1982	Sulfuric acid plant on line
1985	Tar pond remediation conducted-RCRA Part B permit denied
1991	Facility placed on stand by
1992	NRC requests decommissioning
1994	Site characterization conducted
1995	Surface impoundments Phase I closure completed
2001	Slag pile excavated and shipped off site for disposal
2002	Building demolition completed
2003+	Site re-characterization core borings conducted 1st qtr 2003 ⁴

Remediation Efforts by PA DEP

Currently, Molycorp is working diligently and constructively with the PADEP and the U.S. Nuclear Regulatory Commission (NRC) to remove the radioactive soil and slag through a re-site characterization process and a coal tar remediation and removal project. These constructive remediation processes will achieve the goal of remediating the site to a reusable state for both the NRC license termination and PADEP clearance for coal tar removal of the former Pennsylvania Atlas Chemical Company and associated tar ponds.

The Pennsylvania Atlas Chemical Company produced a coal-based natural gas from a facility that may have been a factory where coal was cooked in a vat to generate gas circa 1925-1947. The 1896 Sanborn Maps showed a manufactured gas plant (MGP) on the north side of East Maiden between Lincoln and East Ave. It was called the Washington Gas Company and is present on the 1900 Sanborn Map, but not the 1904 Sanborn Map. This Manufactured Gas Plant is thousands of feet east of the affected area.

Between 1914 and 1925 the Pennsylvania Atlas Chemical Company was built. The 1925 Sanborn map shows the facility to the west of the Hazel No.2 facility, east of Chartiers Creek, and north of the Baltimore and Ohio Railroad. The meeting minutes from the Hazel-Atlas board indicate that building a Manufactured Gas Plant to supply gas to the Hazel No. 2 was discussed on November 27, 1915. The minutes of June 27, 1916 indicate the board approved a contract with Smith Gas Engineering Company of Lexington, Ohio to design and build a "gas producer plant to supply clean gas to the Hazel No. 2 Factory." The minutes of February 13, 1917 indicate that gas production had started at Hazel No. 2.⁵ The gas was transported to a below-grade gasholder as shown on the 1925 Sanborn Maps.

An internal Molycorp document entitled "Project History" indicates that a coal gasification plant was operated in the vicinity of the foundation from around 1900 through possibly 1950. Tar from this facility "flowed downhill from the plant through wooden trenches and pipes to one of three unlined tar ponds."⁶ One explanation of the below-ground gas holder was that it may have been built earlier by Hazel Atlas (around 1900) and used to store natural gas in order to level out pressure fluctuations in the gas supplied to the Hazel No. 2 Glass facility. This gas holder had a 200,000 cu. ft. capacity and was located about 300 feet to the west of the nearest building at the former Hazel No. 2 facility. It may have been considered too far away to constitute a fire hazard and therefore not be shown on the earlier Sanborn Maps.⁷

The Association has been supportive of the decommissioning process so that this important former industrial site can become a keystone gateway site for the Commonwealth of Pennsylvania as indicated in the Canton Township Comprehensive Plan Amendment Ch 28. The site is in a Special Development District which is within a day's drive (500 miles) of:

- 63% of the national industrial output.
- More than 53% of the U. S. Buying Income.
- 20 Metropolitan areas each exceeding 1 million people.

- 49% of the U. S. Population

The Molycorp site, through the Canton Township Comprehensive Plan, is capable of creating over 1,000 family sustaining jobs. It is an important flood retention area (which will help smooth the flow of water during heavy rain storms), as well as a bio-enhancement zone for the future of the watershed, providing the best in land use for economic development and watershed management.

For more information about the site remediation project as of Dec 14, 2016, and a map of the area involved, visit the [U.S. Environmental Protection Agency website](#).

¹ *Molycorp Site Characterization Report for License Termination Vol 1 of 3 January 1995, Foster Wheeler, page 2-14*

² *Molycorp, Draft Supplemental Site Characterization Plan for the Washington, Pennsylvania Site, Malcolm Pirnie, August 2003 and Decommissioning Plan Part 1, Part 1 Revision, June 30, 1999 and Molycorp Site characterization Report for License Termination, January 1995 Vol 1 of 3.*

³ *Molycorp, Draft Supplemental Site Characterization Plan for the Washington, Pennsylvania Site, August 2003, Malcolm Pirnie pg 1-17*

⁴ *Molycorp, Draft Supplemental Site Characterization Plan for the Washington, Pennsylvania Site, August 2003, Malcolm Pirnie pg 1-18-19*

⁵ *Molycorp, Draft Supplemental Site Characterization Plan for the Washington, Pennsylvania Site, August 2003, Malcolm Pirnie pg 1-20*

⁶ *Molycorp, Draft Supplemental Site Characterization Plan for the Washington, Pennsylvania Site, August 2003, Malcolm Pirnie pg 1-20*

⁷ *Molycorp Draft - Supplemental Site Characterization Plan for the Washington, Pennsylvania Site August 2003, pages 1-7-8, 1-20*