

Tronox LLC Henderson Facility Fact Sheet

The Tronox LLC (Tronox), formerly Kerr-McGee Chemical LLC, Henderson facility is located within the Black Mountain Industrial (BMI) complex. The facility is approximately 450 acres in size and is located 13 miles southeast of Las Vegas in an unincorporated section of Clark County, Nevada. It is completely surrounded by the incorporated area comprising the City of Henderson (COH).

Site History

The BMI complex has been the site of industrial operations since 1942 and was originally sited and operated by the U.S. government as a magnesium production plant in support of the World War II effort. Following the war, a portion of the complex was leased by Western Electrochemical Company (WECCO). By August 1952, WECCO had purchased several portions of the complex, including six of the large unit buildings, and produced manganese dioxide, sodium chlorate and various perchlorates. In addition, in the early 1950s, pursuant to a contract with the U.S. Navy, WECCO constructed and operated a plant to produce ammonium perchlorate on land purchased by the Navy. In 1956, WECCO merged with American Potash and Chemical Company (AP&CC) and continued to operate the processes, with the Navy's continued involvement in the ammonium perchlorate process. In 1962, AP&CC purchased the ammonium perchlorate plant from the Navy, but continued to supply the Navy, and its contractors, material from the operating process. AP&CC merged with Kerr-McGee Corporation (Kerr-McGee) in 1967. This merger included boron production processes in California, which were moved to Henderson and began operation in the early 1970s. These included elemental boron, boron trichloride and boron tribromide. In 1994, the boron tribromide process was shut down and dismantled. In 1997, the sodium chlorate process was shut down and in 1998, production of commercial ammonium perchlorate ended as well. The ammonium perchlorate production equipment was used to reclaim perchlorate from on-site materials until early 2002, when the equipment was permanently shut down. In 2005, Kerr-McGee Chemical LLC's name was changed to Tronox LLC. Processes currently operated by Tronox at the Henderson facility are for production of manganese dioxide, boron trichloride and elemental boron.



Site Location



Air Photo of Tronox LLC Site

Site Investigation and Remediation

A groundwater investigation was initiated by Tronox in July 1981 to comply with the federal Resource Conservation and Recovery Act (RCRA) standards for monitoring the existing on-site impoundments. In December 1983, the Nevada Division of Environmental Protection (NDEP) requested that Tronox investigate the extent of chromium impact in the groundwater beneath the facility.

A Consent Order between Tronox and NDEP, prepared in September 1986, stipulated additional groundwater characterization and the implementation of remedial activities to address chromium in the groundwater. As a result of the 1986 Consent Order, monitor wells, groundwater interceptor wells, a

groundwater treatment system for chromium reduction and two treated-groundwater injection trenches were installed and the treatment of groundwater began in mid-1987. This treatment is on-going today.

In April 1991, Tronox was one of six companies entering into a Consent Agreement with the NDEP to conduct environmental studies to assess site-specific environmental conditions, which are the result of past and present industrial operations and waste disposal practices. The six companies that entered into the Consent Agreement included those past or present entities that conducted business within the BMI complex. The Consent Agreement specified that, among other things, the companies identify, document or address soil, surface water, groundwater or air impacts and document measures that have been taken to address environmental impacts from their respective sites.

In April 1993, in compliance with the 1991 Consent Agreement, Tronox submitted the Phase I Environmental Conditions Assessment (ECA) to NDEP. The purpose of the report was to identify and document site-specific environmental impacts resulting from past or present industrial activities. The Phase I ECA included an assessment of the geologic and hydrologic setting, as well as historical manufacturing activities. In 1994, the NDEP issued a letter of understanding (LOU) that identified 69 data gap areas which needed additional information, either in the form of additional document research or field sampling of site conditions.

During the mid to late 1990s, Tronox collected additional data to fill the LOU identified data gaps. This was done by investigating past operator records as well as through field sampling. Results of this work are described in the Phase II Written Response to the LOU, the Phase II ECA and the Supplemental Phase II ECA, the later two of which were reports describing the results of field sampling of groundwater and soils. Through this effort, potential environmental impacts associated with the 69 LOU areas were evaluated.

In 1997, perchlorate was discovered in the Las Vegas Wash vicinity and this aspect of the ECA was placed on a remedial fast-track. Impact characterization and treatment methodology evaluation was on-going in the late 1990s with installation of a water collection system and temporary ion exchange (IX) process for perchlorate removal. This remedial process began operation in November 1999. Tronox and NDEP entered into a 1999 Consent Agreement, which defined remedial requirements and looked forward to a more permanent treatment process that would replace the temporary IX. After considerable research and process development, a permanent treatment technology was developed. Tronox and NDEP entered into an October 2001 Administrative Order on Consent (AOC) defining the more permanent remedial requirements, which were installed and are operating today. To date, perchlorate remediation efforts have included the design, installation and operation of groundwater extraction as well as surface water collection systems, along with development, design, installation and operation of a permanent treatment process. These activities include:

- 1) The on-site groundwater barrier wall together with an upgradient collection well field,
- 2) The Athens Road groundwater collection well field,
- 3) The seep area collection well field as well as a sump for collection of water in the area where groundwater surfaced, and
- 4) A treatment process that removes chromium and perchlorate from the collected groundwater then discharges the water in accordance with the limits set forth in the existing National Pollutant Discharge Elimination System (NPDES) permit.



Biological Treatment Plant for Groundwater

The groundwater remediation systems will continue to operate under the direction of NDEP.

In 2004, a list of site-related chemicals was developed based upon investigations associated with operations at the site. This list included raw materials, process chemicals, intermediates, as well as products of all current and previous manufacturers at the site. In 2005, a Conceptual Site Model (CSM) was prepared for the site which consolidated information gathered about environmental impact, both known and potential. Concentrations of the site-related chemicals in both soil and groundwater upgradient of the Tronox site were investigated in 2006. On-site investigation of the site-related chemicals in soil and groundwater continued in 2006 and 2007 with the Phase A Site Investigation. The purpose of the Phase A work was first, to gather extensive data from 27 locations on the site; and second, to determine which of the site-related chemicals were adequately characterized for a future risk assessment and which would require additional characterization. A proposal for a subsequent Phase B Site Investigation to complete characterization of the site was submitted to NDEP as part of the Phase A report.

Future Activities

While much has been learned about site-related chemicals, Tronox, under the supervision of NDEP, will continue to define the nature and extent of impacts to soil and groundwater from its operations. The proposed Phase B Site Investigation, designed to fill data gaps identified in the CSM and the Phase A studies, will be followed by a site-wide human health risk assessment. The risk assessment, planned for the second half 2008, will establish site-specific risk-based action levels and identify additional remedial requirements if any.

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