# Nevada Environmental Response Trust Site Fact Sheet for Summer 2011

The Nevada Environmental Response Trust ("NERT") Site, which was previously known as the Tronox LLC ("Tronox"), formerly Kerr-McGee Chemical LLC, Henderson Facility, is located within the Black Mountain Industrial ("BMI") complex near Henderson, Nevada. The Site is approximately 450 acres in size and is located 13 miles southeast of Las Vegas, Nevada in an unincorporated section of Clark County, Nevada. It is completely surrounded by the incorporated area comprising the City of Henderson ("COH").

Site Location

## 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, and in 2009 Tronox filed for bankruptcy. The NERT was established as part of Tronox's reorganization and in February, 2011 became the owner of the property that was previously owned by Tronox. Tronox leases back a portion of the site from the NERT for production of manganese dioxide, boron trichloride and elemental boron. Tronox has also recently renovated Unit Building 4 for its Advanced Battery Material ("ABM") production process, which is anticipated to begin operation in the near future.

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, required additional groundwater characterization and the implementation of response 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 although the injection trenches are not currently utilized.

In April 1991, Tronox was one of six companies that entered into a Consent Agreement with NDEP to conduct environmental studies to assess site-specific environmental conditions resulting from 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 ECA 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, 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 data gaps identified in the LOU. This was done by investigating past operator records as well as through field sampling. Results of this work are described in a Phase II Written Response to the LOU, a Phase II ECA, and a Supplemental Phase II ECA, the latter 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 response fast-track. Impact characterization and treatment methodology evaluation were on-going in the late 1990s, along with the installation of a seep water collection system adjacent to the Las Vegas Wash to mitigate the discharge of perchlorate and a temporary ion exchange ("IX") treatment system to treat perchlorate-impacted groundwater.

This environmental response process began operation in November 1999. Tronox and NDEP entered into a 1999 Consent Agreement, which defined additional response requirements and looked forward to a treatment process that would replace the

temporary IX treatment system. After considerable research and process development, a replacement treatment technology was developed. In October, 2001 Tronox and NDEP entered into an Administrative Order on Consent ("AOC") that defined the replacement treatment process, which required Tronox to install additional extraction well systems and construct an on-site groundwater treatment facility. The current groundwater treatment facility includes granular activated, biological fluidized bed reactors, as well as a ferrous sulfate system. Following treatment, all extracted water is discharged to Las Vegas Wash under a National Pollutant Discharge Elimination System permit. A semi-annual remedial performance report covering performance data for both the chromium and perchlorate remediation programs during the period from July, 2010 through December, 2010 was submitted to NDEP in March, 2011. An Annual Remedial Performance Report was submitted to NDEP on August 26, 2011.

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, and 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 regarding environmental impact, both known and potential.

Tronox implemented two soil sampling programs (known as Phase A and B Source Investigations) that were completed in 2006 and 2009, respectively. These investigations identified a number of constituents in excess of state Basic Comparison Level ("BCL") criteria within the upper 10 feet of soil, including dioxin TEQ, hexachlorobenzene, other semivolatile organic compounds, PCBs, asbestos, metals, organochlorine pesticides, and perchlorate. In an order dated December 14, 2009, NDEP directed Tronox to remove all soil containing chemicals of potential concern in excess of worker BCLs (or modified risk-based goals agreed upon by NDEP) from the site by the end of 2010. NERT is not regulated under any of the Kerr-McGee/Tronox consent agreements or administrative orders on consent, and is completing the soil removal program consistent with an Interim Consent Agreement.

For the purposes of soil remediation activities, the main contaminated portions of the Site were divided into the five separate remediation zones ("RZ") listed below:

- RZ-A: an area on the southern portion of the Site
- RZ-B: the area around the Unit buildings
- RZ-C: the ammonia perchlorate production area, Koch Materials area, pond and diesel storage tank area, and manganese tailings area
- RZ-D: the Trade Effluent ponds and ammonium perchlorate pad/drum recycling area (including the hazardous waste landfill)
- RZ-E: the Beta Ditch

Soil sampling in RZ-A did not identify soils exceeding NDEP cleanup criteria, and therefore excavation activities were not planned in this area. A Human Health Risk Assessment prepared for RZ-A concluded that COPC concentrations remaining in soil did not result in unacceptable risks and has been approved by NDEP. Tronox's consultant prepared a workplan describing a strategy for excavating chemically impacted soil within the upper 10 feet of soil in areas RZ-B through E, to the extent such

soils were accessible. These response activities commenced during 2010. As of November 7, 2011, approximately 930,000 tons of contaminated soil had been excavated. Upon completion of these removal activities, a completion report will be prepared for all five remediation zones. Certain impacted soils within the remediation zones that cannot be excavated due to physical constraints or other access issues will be addressed through institutional controls, such as environmental covenants that will run with the land.

A project milestone schedule covering the overall progress of current and future site activities is available on the NDEP web site (http://ndep.nv.gov/bmi/tronox.htm).