

# Fact Sheet

## Nevada Environmental Response Trust Site Henderson, Nevada

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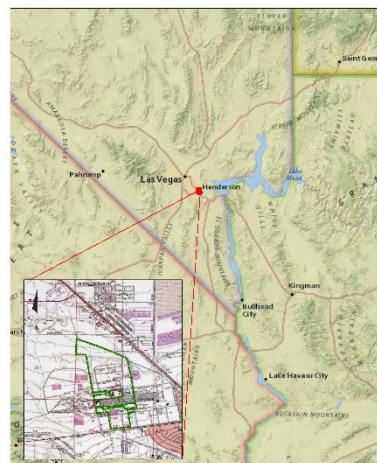
The Nevada Environmental Response Trust (NERT) Site is located within the Black Mountain Industrial (BMI) complex near Henderson, Nevada. The Site, which was previously owned by Tronox LLC (formerly known as Kerr-McGee Chemical LLC), is approximately 346 acres in size and is located 13 miles southeast 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 History

The BMI complex has been the site of industrial operations since 1942 and was originally developed 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 (Tronox), and in 2009 Tronox filed for bankruptcy. 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 currently leases back a portion of the Site from NERT for production of manganese dioxide, boron trichloride and elemental boron. Tronox also operates an Advanced Battery Material (ABM) production process on the Site.



SITE LOCATION

## Prior Site Investigation and Remediation Activities

In December 1983, the Nevada Division of Environmental Protection (NDEP) requested that Kerr-McGee investigate the extent of chromium impact in the groundwater beneath the facility. A Consent Order between Kerr-McGee 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, the treatment of hexavalent chromium in groundwater began in mid-1987. This treatment is on-going today.

In April 1991, Kerr-McGee 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 industrial operations and waste disposal practices 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, Kerr-McGee submitted the Phase I Environmental Conditions Assessment report to NDEP, which identified areas of environmental impacts resulting from historical manufacturing activities, as well as assessed the geologic and hydrologic setting of the Site. During the mid to late 1990s, Kerr-McGee collected additional data to fill identified data gaps by investigating past operator records as well as through field sampling.

In 1997, perchlorate was discovered in the vicinity of the Las Vegas Wash and this aspect of the environmental response was placed on a fast-track. An investigation and engineering evaluation was 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. In November 1999, Kerr-McGee began operation of a temporary ion exchange (IX) treatment system to treat perchlorate-impacted groundwater. Also in 1999, Kerr-McGee and NDEP entered into a 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, Kerr-McGee and NDEP entered into an Administrative Order on Consent (AOC) that defined the replacement treatment process, which required Kerr-McGee to install additional extraction well fields and construct an on-site groundwater treatment facility. The groundwater extraction and treatment system (GWETS) for treatment of perchlorate has operated continuously at the Site since 2002. The current groundwater treatment facility includes granular activated carbon and biological fluidized bed reactors. Following treatment, the treated groundwater is discharged to Las Vegas Wash under a National Pollutant Discharge Elimination System (NPDES) permit. Semi-annual and annual remedial performance reports covering performance data for both the chromium and perchlorate remediation programs are submitted to NDEP each year.

In 2004, lists of Site-related raw materials, process chemicals, intermediates, and products from current and previous manufacturers was developed and in 2005, a Conceptual Site Model ("CSM") was prepared for the Site, which consolidated information gathered regarding environmental impact, both known and potential.

Based on the CSM, Tronox (formerly Kerr-McGee) designed and 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 NDEP Basic Comparison Level (BCL) criteria within the upper 10 feet of soil, including dioxin toxic equivalents (TEQ), hexachlorobenzene, other

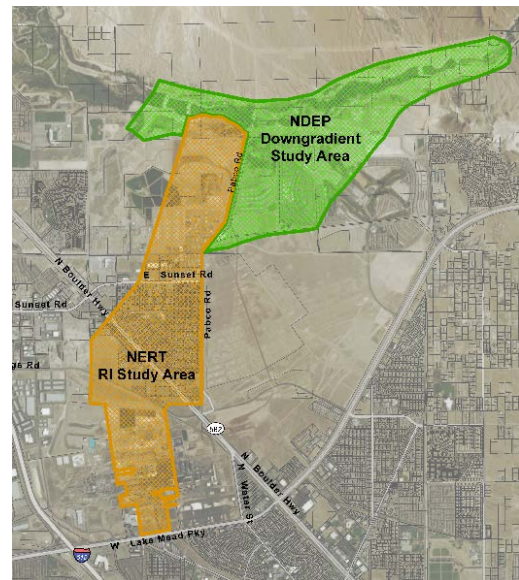
semivolatile organic compounds, polychlorinated biphenyls (PCBs), asbestos, metals, organochlorine pesticides, and perchlorate. In an order dated December 14, 2009, NDEP directed Tronox to remove all soil containing chemicals of potential concern in excess of worker BCLs (or site-specific goals agreed upon by NDEP) from the Site by the end of 2010. Tronox began the soil removal project in August 2010, but it was not completed when the Site was transferred to NERT on February 14, 2011 as part of the Tronox bankruptcy proceedings. Although the Kerr-McGee/Tronox consent agreements and AOCs were terminated as a result of the bankruptcy proceedings, NERT completed the interim soil removal program in November 2011, consistent with an Interim Consent Agreement between NDEP and NERT effective as of February 14, 2011.

As of January 1, 2012, approximately 930,000 tons of contaminated soil had been excavated. An interim soil removal action completion report was prepared in January 2012 and revised in September 2012. Certain impacted soils within the remediation zones that could not be excavated due to physical constraints or other access issues were designated as Excavation Control Areas (ECAs) and are addressed through the Site Management Plan (SMP), Revision 1, dated October 2013. The SMP describes procedures to address the known remaining environmental conditions at the Site, as well as contingency actions to be taken if previously unknown environmental conditions are encountered.

Recent groundwater monitoring results indicate significant capture and ongoing reduction of the perchlorate and hexavalent chromium plumes. Since 2000, perchlorate concentrations in Las Vegas Wash have declined by more than 90% due in part to the groundwater capture system operation. The GWETS continues to operate.

### Current Activities – NERT Remedial Investigation

In accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and pursuant to the Interim Consent Agreement, NERT initiated a Remedial Investigation (RI) in 2014. The NERT RI Study Area is shown on the figure to the right. Chromium and perchlorate found in groundwater in this area appears to have originated from the NERT Site where the chemicals seeped into the ground, leached through the soil to groundwater, and then flowed with groundwater through the NERT RI Study Area. The objectives of the RI are to characterize the NERT RI Study Area conditions and the nature and extent of environmental impacts, assess potential risks to human health and the environment, and to evaluate potential performance and cost effectiveness of various treatment or clean-up technologies. The RI is currently being conducted and will support the upcoming Feasibility Study (FS). The objectives of the FS are to develop, compare, and evaluate clean-up options and technologies for the NERT RI Study Area prior to the selection of a preferred clean-up alternative.



To implement the RI/FS, NERT developed a draft RI/FS Work Plan describing the proposed actions to meet the RI/FS objectives. The Work Plan was submitted to NDEP on January 10, 2014 and reviewed by NDEP, the U.S. Environmental Protection Agency (USEPA), and the Stakeholders, including the Las Vegas Valley Water District, Southern Nevada Water Authority, City of Henderson, Central Arizona Project, and the



Metropolitan Water District of Southern California. NDEP and Stakeholder comments were compiled by NDEP and provided to NERT, which were addressed in a revised RI/FS Work Plan submitted to NDEP on June 19, 2014. The revised Work Plan was approved by NDEP on July 2, 2014 and the RI was initiated in October 2014. The RI activities currently underway include performing soil and groundwater sampling, compilation and analysis of environmental data, evaluation of potential risks to human health and the environment, quantifying the movement and behavior of chemicals in groundwater through the development of a groundwater model, and the implementation of pilot studies of environmental clean-up technologies. The RI is anticipated to be performed during 2015 and the first half of 2016, with the FS being performed throughout 2016 and into 2017.

### **Current Activities – NDEP Downgradient Investigation**

Concurrent with NERT's RI, NDEP is leading an investigation to evaluate potential NERT Site-related perchlorate impact to the subsurface and Las Vegas Wash in an area to the north and east of the NERT RI Study Area. This area is known as the NDEP Downgradient Study Area and is shown on the figure on the previous page. Perchlorate found in groundwater in this area may have come from the NERT Site either 1) by leaching through the soil column and then flowing with groundwater into the NDEP Downgradient Study Area, or 2) by being transported through former facility ditches to former unlined waste disposal ponds located near and within the NDEP Downgradient Study Area before seeping into the ground, leaching through soil, and flowing with groundwater. The purpose of the NDEP Downgradient Study Area investigation is to collect additional data to evaluate the nature and extent of perchlorate in groundwater in this expanded area. Currently (May 2015), NDEP is in the process of preparing a request for proposal (RFP) for contractors to submit proposals to conduct the investigation scope of work later in 2015 and 2016.

### **Project Documentation**

In accordance with the approved Community Involvement Plan (CIP), project documents are available to the public in a document repository at the NDEP office located at 2030 E. Flamingo Road, Suite 230, Las Vegas, Nevada. A project document repository is also accessible on the internet at <http://www.nert-trust.com/>, which can be accessed from any internet access location including at the James I. Gibson Library at 100 W. Lake Mead Parkway in Henderson, Nevada.

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

### **For More Information**

If you have questions regarding the activities at the NERT Site, please contact the Community Involvement Coordinator at NDEP:

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