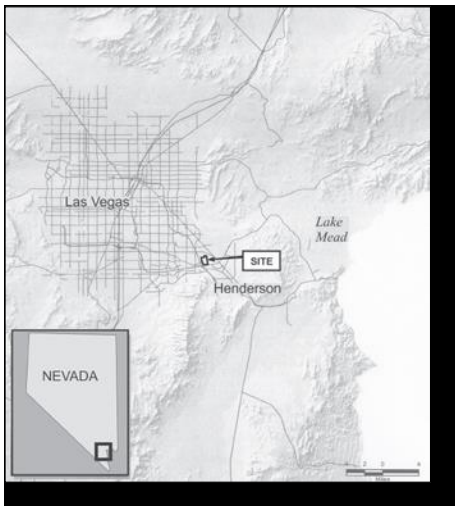
Updated October 2016

FACT SHEET

Environmental Investigation and Cleanup at the Former Stauffer Chemical Company Facility

Henderson, Nevada

Stauffer Chemical Company formerly operated a chemical manufacturing facility at the property (i.e., "the Site") which is now occupied by Olin Chlor Alkali Products at the western end of the Black Mountain Industrial Complex (formerly known as the BMI Complex), in an unincorporated area of Clark County, near Henderson, Nevada. Stauffer ceased operations at the property in 1988 when the property was purchased by Pioneer Chlor Alkali, Inc. (Pioneer). Olin Corporation (Olin) purchased the property from Pioneer Americas LLC (Pioneer) in 2007. Pioneer, Stauffer Management Company LLC (SMC), and Syngenta Crop Protection, Inc. (Syngenta) are working in cooperation with the Nevada

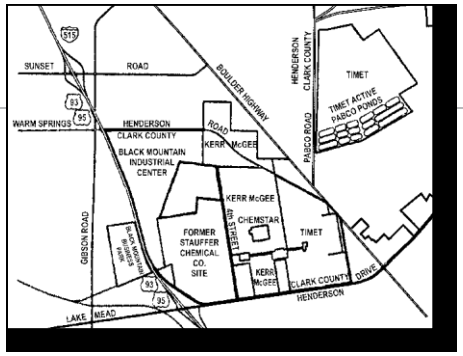


Division of Environmental Protection (NDEP) on continuing environmental investigation and cleanup activities at the Site. This Fact Sheet, prepared on behalf of Pioneer and SMC/Syngenta, is intended to keep community members informed about the status of the environmental investigation and cleanup. Other companies at neighboring properties within the BMI Complex are also performing environmental work. These companies include: Nevada Environmental Response Trust (previously known as Tronox LLC; formerly Kerr-McGee Chemical Company), Titanium Metals Corporation and Basic Remediation Company. Montrose Chemical Corporation of California (Montrose) is also performing environmental work at the Site in areas associated with their former operations. All of these companies have developed separate Fact Sheets related to their environmental work.

History

In 1941, approximately 5,000 acres of desert in the southwest portion of the Las Vegas Valley was deeded by the United States for use as what was to become the world's largest magnesium plant (BMI Complex), a plant constructed for the U.S. Government that would play a critical role in World War II. The location was selected in part based on its proximity to magnesite ore and an adequate power supply (then recently completed Hoover Dam).

The western end of the original BMI Complex included a chlorine-



caustic plant which was necessary to support the U.S. Government's production of magnesium. In 1945, Stauffer Chemical Company leased the chlorine-caustic plant from the U.S. government, and later purchased the property in 1952.

The property was ultimately sold to Pioneer in 1988. During Stauffer Chemical Company occupancy, the manufactured products included chlorine and caustic, and later, agricultural chemicals. Additionally, portions of the property were leased to Montrose for their manufacture of chemicals.

Today, the Site is operated by Olin Chlor Alkali Products for the production of bleach, as well as handling of chlorine, caustic soda, and hydrochloric acid; all other chemical production ceased prior to 1988.

Environmental Work

As part of the 1983 Consent Order entered into between the NDEP, Stauffer and Montrose, a groundwater pump and treatment system was installed to address impacted groundwater identified at the Site. The groundwater pump and treatment system at the Site continues to effectively operate, as do other groundwater pump and treatment systems being operated by other nearby companies to address impacted groundwater.

In 1991, Pioneer and SMC entered into a Consent Agreement with the NDEP to jointly conduct a Phase I Environmental Conditions Assessment (ECA) of the Site. The purpose of the ECA was to identify areas of potential environmental concern. Pioneer and SMC submitted their ECA report to the NDEP in 1993 and thereafter agreed to the terms of the 1994 Phase II Letter of Understanding (LOU) with the NDEP. The LOU identified issues of potential environmental concern (Study Items) to be addressed in the next phase of investigation. In 1996, Pioneer and SMC entered into a subsequent Consent Agreement with NDEP requiring them to jointly conduct a Phase II Environmental Conditions Investigation (ECI) and to prepare Remedial Alternative Study (RAS) work plans for those Study Items, as necessary. Since 1996, several phases of environmental characterization and a series of reports have been completed by Pioneer and SMC to assess soil and groundwater conditions, and RAS work plans have been prepared and remedial actions implemented, including the construction of asphalt caps (in 2003 and 2004) over the former agricultural chemical manufacturing plant areas.

The focus of recent environmental work activities has been developed based upon the review of historical Site operations, submittal of additional work plans, preparation of reports and correspondence with the NDEP, and development of a list of Site related chemicals (SRCs) to assist in additional sampling activities. Additionally, annual groundwater monitoring is performed to assess the occurrence of chemicals in groundwater at the Site and areas downgradient of the existing groundwater pump and treatment system, and to demonstrate compliance for operation of the groundwater pump and treatment system in accordance with the terms of the 1983 Consent Order. The information and data from previous reports and investigations have been integrated into a comprehensive Conceptual Site Model (CSM) that was prepared by Pioneer, SMC/Syngenta and Montrose in July 2008. The CSM presents the current understanding of Site conditions, describes potential exposure pathways related to soil and groundwater conditions, and identifies areas where future environmental characterization may be appropriate. The companies are currently in the process of completing a Groundwater Remedial Alternatives Study for the evaluation of possible remedial actions.

Future Work

Pioneer and SMC/Syngenta will continue to perform environmental investigations as described above in cooperation with the NDEP. Additional environmental cleanup work will be conducted as appropriate based on the results of these investigations and the CSM. The groundwater pump and treatment system will continue to be operated and monitored to maintain its effectiveness.

Additional Information and Community Involvement

The NDEP oversees all aspects of the environmental work at the Site.
Additional information from the NDEP can be obtained by contacting Chad R. Schoop, at 702-486-2850 x 248 or cschoop@ndep.nv.gov.

The companies welcome community input for this project and recognize the need to respond to community concerns.
Previous reports related to the environmental work at the Site can be obtained from NDEP's offices in Las Vegas or Carson City.

Selected Site Assessment Areas Status Update

Updated October 2016

Area Description	LOU Item No.	Background Documents	Current Status
Inactive CAPD Ponds 1,3,4 and Associated Process Piping	**17**	5,8	**Completed:** Implementation of NDEP approved Work Plan for Vadose Zone characterization (January 2016). **Projected Activity:** Multiple-Milestone Report [Fourth Quarter, 2016]
Inactive CAPD Pond 6	**20**		
Inactive CAPD Pond 2 and Associated Process Piping	**18**	5	**Projected Activity:** Remedial Alternative Study (RAS)
CAPD Pond 5	**19**	5	**Projected Activity:** RI SAP & CSM Note: Active ponds; Subject to NPDES Permit
CAPD Ponds 6A and 9	**Non-LOU**		
ACD Drum Burial Waste Management Area	**5**	1,2,5,6,7	**Completed:** DVSR & EDD approved by NDEP (April 2014). Vadose Zone Data Gap Analysis and Characterization Completed. Revised CSM/DUE (June 23, 2015) accepted by NDEP (Oct 9, 2015). **Projected Activity:** RAS Fourth Quarter 2016
Phosphoric Acid Pond, Three Trenches (LOU 4), Leach Beds (LOU 9) and Associated Conveyance	**4 and 9**	1,2,5,6,7	**Completed**: DVSR & EDD approved by NDEP (April 2014). Vadose Zone Data Gap Analysis and Characterization Completed. CSM (Feb 3, 2015) accepted by NDEP letter (August 27, 2016). Revised DUE (September 25, 2015) accepted by NDEP letter January 7, 2016. **Projected Activity:** RAS Fourth Quarter 2016

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Area Description	LOU Item No.	Background Documents	Current Status
Subsidence Areas	**(LOU 5/9)**		**Completed:** Data Transmittal Report Evaluation of Subsidence Locations Vicinity LOUs 5 and 9 (February 25, 2016) accepted by NDEP letter April 28, 2016. Letter Report, Maintenance of Subsidence Features in Vicinity of LOU Nos. 5 and 9 (June 2, 2016) submitted to NDEP. **Projected Activity:** Integrate w/ RAS LOU No. 9
Geophysical Anomaly South of Phosphoric Acid Pond	**Non-LOU**		**Completed:** Vadose Zone Data Gap Analysis and Characterization Completed (SRCs <BCLs) **Projected Activity**: CSM & NDEP Request for NFAD Vadose Zone to 10 ft (Fourth Quarter 2016)
Former ACD Plant Area (Asphalt-Concrete Cap Covered Area) Including: Former ACD Plant Site (LOU 8), Former Lindane Plant Area (LOU 10), Former BHC Cake Piles 1 & 2 and Capped Area of Former BHC Loader Haul Route (LOU 12) and Former Vapor Incinerator Area (LOU 14)	**8,10, 12 and 14**	1,3,5	**Completed**: DVSR & EDD approved by NDEP (April 2014). Vadose Zone Data Gap Analysis and Characterization Completed. Comprehensive CSM/DUE submitted to NDEP March 31, 2016. **Projected Activity**: Awaiting NDEP response on CSM/DUESR

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BHC Cake Pile 3 and Non-Capped Area Former BHC Haul Route (LOU 12)	**12**	1,4,5,6	**Completed**: DVSR & EDD approved by NDEP (April 2014). Vadose Zone Data Gap Analysis and Characterization Completed. Revised CSM/DUE (February 12, 2016) accepted by NDEP with general administrative comments letter April 28, 2016. Design Report, BHC Cake Pile 3 Cover System (April 7, 2016) accepted by NDEP letter May 24, 2016. **Projected Activity:** Construct Cap at BHC Cake Pile 3/Prepare RAS
Former HCL/BCME Release Area (LOU 29)	**29**	1,2,5	**Completed**: Vadose Zone Data Gap Analysis and Characterization Completed (SRCs <BCLs) **Projected Activity**: CSM & NDEP Request for NFAD Vadose Zone Soil to 10 ft (Fourth Quarter 2016/First Quarter 2017)
Inactive Trithion USTs	**Non-LOU**	6,7	**Completed:** A Work Plan for Assessment of Underground Trithion Waste Treatment Tanks submitted to NDEP September 13, 2016. **Projected Activity**: Awaiting NDEP response on the Work Plan
Inactive ACD Ponds 1 and 2	**7**	1,2,5,6,7	**Projected Activity**: RI SAP
Former Wastewater Ponds 1 & 2 and CAPD Ponds 7 and 8	**6, 21 & 22**	1,5	**Completed:** Revised Work Plan for Vadose Zone Characterization (accepted by NDEP January 2013). Revised EDD and DVSR (accepted by NDEP November 2013). Submitted Recommendation for Project Closeout Process September 4, 2014 (accepted by NDEP September 12, 2014).
Former Cell Renewal Building and Associated Conveyance Facilities	**11**	5	**Projected Activity:** RAS Note: Building actively used as a maintenance shop

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Area Description	LOU Item No.	Background Documents	Current Status
Site-Wide Groundwater	**Non-LOU**	1	**Completed:** Draft RAS submitted on May 9, 2014. NDEP comments on Draft RAS received June 16, 2014. Submitted Response to Comments on August 5, 2014. NDEP's additional comments on RAS received December 10, 2014. Most of NDEP comments resolved during a meeting on February 18, 2015. NDEP circulated an unapproved East-Side Chloroform Technical Memo (prepared by NERT) on July 13, 2015. OSSM Companies submitted a response to NERT's memorandum (July 11, 2016). Based on the response submittal and subsequent discussions with NDEP, it is the understanding of the OSSM Companies that NDEP doesn't plan on approving the NERT Report. With this understanding, the OSSM Companies will finalize the Groundwater RAS. **Projected Activity:** Revised RAS submittal [Fourth Quarter, 2016]; Submit 2016 Site-wide Groundwater Data Evaluation Report (Fourth Quarter, 2016).

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Area Description	LOU Item No.	Background Documents	Current Status

Notes:

1- Hargis + Associates, Inc. (2008). Conceptual Site Model, Former Montrose and Stauffer Facilities and Downgradient Areas to Las Vegas Wash. Henderson, Clark County, Nevada. September 21.

2- PES Environmental, Inc. (2008). Area-Specific Conceptual Site Models: BHC Cake Pile 2 (Component of LOU No. 12); ACD Drum Burial Waste Management Area (LOU No. 5); Former Leach Beds and Phosphoric Acid Pond (LOU No. 4) and Trenches (LOU NO. 9); Inactive ACD Ponds 1 & 2 (LOU No. 7); and Former HCL/BCME Release Area (LOU No. 29). Former Stauffer Chemical Company Facility. Henderson, Nevada. April 11.

3- PES Environmental, Inc. (2008). Area-Specific Conceptual Site Models: Former ACD Plant (LOU No. 8); Former Lindane Plant (LOU No. 10); and Former BHC Cake Piles 1 and 2 and Former BHC Loader Haul Route (LOU No. 12). Former Stauffer Chemical Company Facility. Henderson, Nevada. June 12.

4- PES Environmental, Inc. (2008). Area-Specific Conceptual Site Model for Shallow Soil. Former Stauffer Chemical Company Facility. Henderson, Nevada. July 1.

5- Stauffer Management Company, Pioneer Chlor Alkali Company, Inc. (1997). Response to LOU Information Request. August 8.

6- PES Environmental, Inc. (2009). Field Activities Summary Report, Subsurface Reconnaissance and Collection of Waste Characterization Samples, Former Stauffer Chemical Company Facility. Henderson, Nevada. July 1.

7- PES Environmental, Inc. (2010). Waste Analysis Plan, Corrective Action Management Unit (CAMU), Former Stauffer Chemical Company Facility. Henderson, Nevada. July 19.

8 - AMEC FW, with transmittal letter from Olin (2015). Vadose Zone Characterization Work Plan, Inactive CAPD Ponds 1,3,4 (LOU 17) and 6 (LOU 20), Former Stauffer Chemical Company Facility, Henderson, Nevada. October 15.

Acronyms:

ACD - Agricultural Chemical Division
BCME - Bischloromethylether
BHC - Benzene Hexachloride
CAPD - Chlor Alkali Products Division
Companies - Pioneer Americas, LLC, Stauffer Management Company, LLC/Syngenta Crop Protection, Inc., and Montrose Chemical Corporation of California
CSM - Conceptual Site Model
DUE - Data Usability Evaluation
Geosyntec - Geosyntec Consultants, Inc.
Hargis - Hargis + Associates, Inc.
HCL - Hydrochloric Acid
LOU - Letter of Understanding
MACTEC - MACTEC, Inc.
NDEP - Nevada Division of Environmental Protection
NFA - No Further Action
PES - PES Environmental, Inc.
RAS - Remedial Alternative Study
RI - Remedial Investigation
SAP - Sampling & Analysis Plan
USTs - Underground Storage Tanks
WP - Work Plan