

**Category 2:** Meeting the Challenge of a Difficult Job – Specialty Contractor  
**Specialty Contractor:** Colorado Cleanup Corporation  
**Project Name:** EVRAZ Project Palmer

### **Cleaning Up for the Next Generation**

Often the first obstacle to upgrading infrastructure or facilities is ensuring that past contamination will not pose potential risk to human health and the environment. In late 2020, Colorado Cleanup Corporation (CCC) was contracted by the EVRAZ Steel in Pueblo, Colorado to conduct soil remediation and provide demolition services. EVRAZ will construct the Palmer Rail Plant providing rail for the entire country and several Canadian provinces while creating 500 to 800 local jobs. EVRAZ worked with local authorities to select the location for the project. After consideration, a former coke production facility on the EVRAZ campus was selected. Coke is a product made by heating coal in an oxygen-free environment to remove impurities resulting in a fuel that burns at a temperature higher than coal to use in blast furnaces, and acts as a reducing agent in the production of steel. The impurities removed from the coal during this process are collected and further refined into other useful petroleum products which include petroleum distillates such as benzene, toluene, and naphthalene.

The former coke plant was built in 1915 and operated into the 1960s. At the end of its lifespan, the above grade features were demolished. The site was capped with aggregate and used as surface storage for many years. Before EVRAZ can build a new mill, CCC needed to clear longstanding infrastructure and remediate the surrounding soils containing asbestos, petroleum distillates, and coal tar. A site remediation plan was developed and approved by the Colorado Department of Public Health and Environment (CDPHE). The plan set the parameters that detailed the necessary remediation, including specified depths of removal, and suitable concentrations of contaminants that may remain on the site.

### **The Challenge**

The main challenge CCC faced with this project was ensuring safety of employees and the surrounding community while removing complex contaminated soils according to the disposal requirements of the CDPHE. The contaminated soils at the site were comprised of two types: regulated asbestos contaminated soils (RACS) (soil containing friable asbestos material) and petroleum/coal tar impacted soils (soils containing volatile organic compounds (VOCs),

semi-volatile organic compounds (SVOCs), and heavy metals), both of which have separate handling and disposal requirements. Because of the historic contamination, the site was deemed a Hazardous Waste Operations and Emergency Response (HAZWOPER) area. The HAZWOPER standard requires specialized training for remediation employees who work in areas where they could be exposed to carcinogens during their workday. The Materials Management Plan (MMP) required extensive dust control measures to prevent airborne emissions of asbestos. Safe removal and disposal of asbestos-contaminated soils required an innovative approach for efficiently lining and wrapping excavated material during challenging winter conditions.

Beyond the challenge of safely removing the contaminated soils from the site, several other obstacles were overcome throughout the project. Intricate excavation around existing foundation elements required experienced equipment operators to avoid risk of accidents or damage. Also, with a project scheduled in winter months, inevitable delays caused by snowy conditions and high winds made scheduling and logistics critical.

## **Planning the Approach**

### *Staffing and Training*

CCC assigned a project manager experienced with HAZWOPER sites, asbestos abatement, and remediation regulations. CCC hired a Certified Industrial Hygienist to work onsite and ensure environmental efforts were effective and that appropriate respiratory personal protective equipment (PPE) was adequate. CCC assigned a full-time quality assurance/quality control manager to track, compile, and present data to project managers. CCC confirmed each employee was up to date with the 40-hour HAZWOPER training, as well as asbestos training. Every employee was equipped and trained with their PPE, including Tyvek suits, full- and half-face respirators with appropriate filters, booties, and gloves. Each employee completed a physical and a fit test for their respirator to be certified for working with air borne contaminants.

### *Disposal of Soils*

CCC planned for safe transportation and proper disposal of the contaminated soils. All the RACS waste was loaded into tractor trailers and shipped to a certified asbestos landfill. Because each load of RACS was required to be sealed in leak-tight liners, CCC engineered state-of-the-art lining and wrapping stations (Figures 1 through 4). These stations allowed technicians

to safely install plastic liners in the trailers, and seal liners after the RACS was placed into the trailers. The lining station consisted of a shipping container with protective rails installed on the top to give workers access to the trucks. A ladder on a hinge could be dropped into the bed of the truck allowing workers to climb and begin lining the truck. A rotatable arm held a roll of plastic at the end of the trucks for workers to pull the sheets over the truck beds. The workers inside the truck draped the plastic over the sides of the truck. Workers on the ground pulled the plastic tight and secured it against wind with clips to the sides of the truck (Figures 1 and 2). At the loading stations a drop cloth of 10 mil plastic sheeting was placed on the haul road to prevent any spillage from contaminating the clean road (Figure 3).

Planning for removal of hydrocarbon- and coal tar-contaminated soils proceeded after the removal of RACS. The environmental consultant determined where the contaminated soils would intersect the planned foundation of the new Palmer Plant, designating where soils needed to be removed to a certain depth beneath and around the foundations.

### **Executing the Plan**

The site was broken down into a grid designed to designate the level of asbestos contamination in each sector. There were three separate levels of remediation identified: 1) surface contamination 2) subsurface to one foot 3) subsurface until visual clearance by inspection. All visual inspections were conducted by a Certified Asbestos Building Inspector (CABI).

The first step in the RACS remediation was to clear each grid of surface contamination, with each grid being inspected by the CABI. Pieces of suspected asbestos debris were marked and asbestos technicians went grid by grid to each spot identified by the CABI removing whatever object was identified as asbestos containing material as well as a foot of soil in all directions from where the object was located (Figure 5). The asbestos containing material was put in an asbestos disposal bag and transported to the landfill for disposal.

During the RACS remediation, CCC kept all trucks on clean haul roads strategically placed to maximize safe workflow. The haul roads were constructed of four inches of clean materials placed over any areas of contamination. Overall, the project had an average of 12 trucks running through the site for approximately 70-100 loads a day which far exceeds industry standard production.

During the first week of excavation, two separate perimeter air samples detected a single asbestos fiber. EVRAZ and CCC stopped all work to evaluate dust control. The entire area was covered with a magnesium chloride solution to suppress any potential asbestos fibers that may be released. CCC installed water tanks on each excavator. Mister bars were mounted to the excavator buckets, constantly spraying water during excavation. A worker at every active pile sprayed soils with a fire hose (Figure 6) Management rapidly designed a new monitoring plan with input from environmental consultants and CDPHE. Additional monitoring demonstrated no asbestos emissions during the remainder of the project.

Once the contaminated soils were removed, concrete foundations were demolished (Figures 7 and 8) Concrete foundations were hauled to a different location to be processed and reused as structural fill. Before demobilizing from the site, all equipment required thorough decontamination. A leach pad was constructed in a contaminated area before the addition of the clean cap. Each piece of equipment was sprayed with firehoses and inspected by the CABI before it was permitted to leave the site.

### **Resounding Success**

The project was completed while exceeding the standards of EVRAZ and the CDPHE. A total of 4,576 truck loads of contaminated soil was transported to the landfill. The project team received a letter of appreciation from the CDPHE for excellence in safely remediating the contaminated soils. David Walker, the CDPHE Hazardous Materials and Waste Management Division's Project Manager said, "The personnel from Colorado Cleanup Corporation did an outstanding job under very difficult conditions to excavate and dispose of a large volume of asbestos and chemically contaminated soil in support of a major construction project at the EVRAZ Rocky Mountain Steel Mill in Pueblo, Colorado. The work was performed under very strict controls to prevent dust generation and tracking of contaminated soil into clean areas. The Colorado Cleanup team was dedicated to doing the work right and safely and were always willing to adjust their procedures to address weather conditions and resolve any problems encountered." During the project CCC and subcontractors work at total of 37,334 hours without any injuries or lost time.

CCC's successful completion of this project will allow EVRAZ to install the Palmer Plant, helping to enrich the economy and job market in Pueblo, Colorado.

Figure 1: Lining Station



Figure 2: Truck Ready to Proceed to Loading Station



Figure 3: Loading Station



Figure 4: Wrapping Station



Figure 5: Workers Remove Asbestos Containing Materials in Limited Hand Removal Zones



Figure 6: Dust Mitigation Techniques



Figure 7: Exposed Foundation Elements to Remove



Figure 8: Removal of Foundation Elements

