Kansas Department of Health and Environment

Bureau of Environmental Remediation, Remedial Section

State Cooperative Program

Interim Measures Installed at 1112 N . Halstead Road, Salina

Fifteen extraction wells (blue dots) pump contaminated groundwater to an air stripper (orange square) for treatment.

Background

The former Bunge grain elevator is located at 1112 N. Halstead Road, Salina, Kansas. Built in the 1950s, the elevator used a grain fumigant containing 80% carbon tetrachloride and 20% carbon disulfide for many years, resulting in contamination to soil and groundwater. Investigations identified the area where the fumigant had been released, and that groundwater contamination had migrated beyond the property boundaries to impact private drinking water wells. Impacted residences were connected to a rural water district in 2004.

Solution

To contain the off-site contamination migration, a half mile long Groundwater Containment System (GCS) was completed in June 2013. This interim remedial measure captures contaminated groundwater coming from the grain elevator in order to maintain hydraulic control of the groundwater plume through active extraction, treatment, and discharge.

The interim measure included installing 15 groundwater extraction wells aligned along the southern elevator property boundary. Groundwater is pumped from each extraction well and transferred to an air stripper located inside a specially constructed groundwater treatment building, where it is mixed with a pre-treatment to prevent calcium scale from accumulating in the stripper. The air stripper consists of six perforated trays that churn the groundwater allowing volatile organic compounds, such as carbon tetrachloride and chloroform, to evaporate. The decontaminated groundwater is piped to a discharge outfall on Mulberry Creek.

The GCS has operated continuously since going live in June of 2013. Initial performance data indicates the system is successfully cleansing the contaminated groundwater and preventing it from migrating off site. Furthermore, contaminated groundwater that has already migrated off site is monitored to ensure it continues to naturally degrade until it no longer poses a threat to human health or the environment.

Benefits

- **Nearby households have been provided with a source of safe drinking water.**
- **The GAC contains and treats contaminated groundwater, eventually restoring the aquifer to drinking water standards.**