Rotary Kiln
R-00-01 / BUFFALO AIRPORT

THERMAL DESORPTION OF 35,000 TONS OF CREOSOTE CONTAMINATED SOIL BY MEANS OF MOBILE THERMAL DESORPTION

Context

Low Temperature Thermal Desorption of VOC's, Cresol, and Vinyl Chloride;

The site was developed in the early 1940s by the US Government for the manufacture of military aircraft. In 1946, Westinghouse Corporation purchased the site for the manufacture of electric motors and related electrical components.

Over the years portions of the site were sold to other parties including the Buffalo Airport Center Associates. Up until 1991, Westinghouse continued to manufacture electric motors and components with various manufacturing and warehousing operations being conducted on the other parcels. Due to expansion of the airport, NFTA purchased the remainder of the property for construction of taxi-ways and runway clear zones.

Phase I site investigations triggered a series of assessments and evaluations that led to the ROD and subsequent clean-up.

The soil was already excavated and sieved by a previous unsuccessful contractor. Haemers technologies has contracted the thermal desorption part of the contract for the PAH contaminated soil.

Equipment

Contaminated soils were processed by a counter flow, direct fired LTDU (Low Temperature Desorption Unit) with nominal capacity of 40 tons (US) per hour. The equipment train included a pre-screener, belt scale conveyor, rotary dryer, fabric filter baghouse, thermal oxidizer, soil moisturizer, and radial stacker.

LPG (Propane) was used as process fuel from a portable tank. Electricity was supplied by a portable diesel generator. Two (2), three (3) cubic yard rubber tire front end loaders were used for screening, feeding, and removal of soils.

Key facts

Contaminants
CVOC

Max. Concentration
15000

Volume
18035

Tonnage
28854

Number of Heating Tubes

Temperature Target

Heating duration

Treatment Targets
<500

Location

Future Use
Industrial

Client

Partner

Consultant

This project was designed and executed by the current Haemers technologies team, when they worked within the legal entity TPS Technologies Inc., which belongs to the Haemers technologies group.

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Treatment/Clean Up Targets

The soil to be treated contained TCA, TCE, Toluene, Ethyl benzene, Vinyl Chloride, Cresol, and other hydrocarbons. Concentrations and Clean-Up levels are shown in the table below. Despite high moisture (>20%) and clay content, all soils tested clean after initial treatment.

A successful stack test was performed in the early stages of the project and continuous emission monitoring was conducted during the entire project.
All processed soils were used on site for excavation backfill. Rock and debris were disposed of off-site.

This project was completed during the winter season in a very cold (as low as -4 F) and harsh (rainy, windy) climate without a single sample failure. Hours of operation were 24 hours/day, 6 days/week.

Analyses results

Concentration level of COC's (mg/kg) in Soil

COC	Untreated	Treated
1,1,1-Trichloroethane (TCA)	84	1.14
Trichloroethylene (TCE)	120	1.05
Toluene	29	2.25
Ethyl benaene	480	8.25
Total Xylenes	2900	1.80
Vinyl Chloride	< 5	0.20
4-methylphenol	42	1.35

Notes:
COC - Chemical of Concern
mg/kg-milligrams per kilogram, or parts per million