
Bioventing system design (Indio, California)

Lindmark Engineering designed, specified, and provided a complete bid package for a bioventing system to remediate a stockpile containing 40,000 cubic yards of diesel-impacted soil for the City of Indio. (The City had selected bioventing based on a feasibility study performed by another consultant.)

Our design included a piping layout and blower package, as well as specifications for adding nutrients and moisture to the soil. In addition, we prepared a monitoring and sampling plan. The design was complicated by the very dense and compacted state of the stockpile and by considerations related to the desert climate. We also assisted the City with the process of obtaining the necessary permits from the South Coast Air Quality Management District.

The piping layout for this project included horizontal pipe runs near the bottom and transverse runs in the midsection of the stockpile. We recommended vertical monitoring probes at various depths to sample and monitor the progress of remediation.

We also recommended adding moisture to the stockpile via a metering pump, which would be controlled by the relative humidity at the monitoring wells. In addition, we calculated the amount of nutrients needed to enhance bioremediation, based on a pilot study that showed the optimum nitrogen (urea) to phosphorus (di-ammonium phosphate) ratio to be ten to one. We provided engineering and technical support to the client during the entire bidding process and initial construction. *Client: City of Indio*

For more information on this project, please contact Lindmark Engineering at (818) 707-6100 or ulf.lindmark@efiglobal.com.