

# Kansas Department of Health and Environment

## Bureau of Environmental Remediation, Remedial Section

### State Cooperative Program



## Northrup King - Soil Removal

### Background:

The Northrup King site is a former seed conditioning facility located in Marienthal, Wichita County, Kansas. The subject property consists of three metal buildings and 17 grain storage bins. An environmental consulting firm identified three areas of contaminated soil at the facility during an investigation in 1991. Soil sampling locations were based on visible staining associated with dyes used with seed treatment fungicides and insecticides to identify the seed as inedible. During a follow-up investigation in April 1993, the contamination was determined to be much more widespread than initially identified. The distribution of contamination was related to windblown dispersion of dust from facility operations, periodic washdown procedures in the process buildings, and burning of facility wastes in a burn barrel. The pesticides captan, 4,4-DDT, dieldrin, methoxychlor, and cyclodiene were identified in soil samples at concentrations of up to 350.0 parts per million (ppm), 0.023 ppm, 1.164 (ppm), 1000.0 ppm, and 22839 ppm, respectively. Of these compounds, dieldrin was the most widespread and significant contaminant at the site. No pesticide compounds were detected in the on-site water well, and ground water quality was determined not to be threatened based on the significant depth to ground water (greater than 160 feet) and the very low solubilities of the chemicals of concern.



*Rail cars covered in plastic and weighted down with clean soil.*

### Solution:

In October 1994, 740 cubic yards of contaminated soil from five areas of the facility were excavated and loaded into railroad cars. Soil sampling completed at the same time identified additional areas of contamination at the facility. During a November 1994 site visit, the majority of the remaining contamination at the facility was identified, and approximately 650 additional cubic yards were excavated and stockpiled. An additional phase of corrective action, involving removal of soil in six areas of the facility that still contained dieldrin contamination above the 0.360 ppm cleanup goal, was approved by KDHE in April 1995. Northrup King removed contaminated soil from the six remaining areas followed by inversion of the soil with a disk plow to a depth of 12 to 22 inches to prevent human contact with trace pesticide residues remaining in the soil. Approximately 100 cubic yards of soil was removed during the September 1995 excavation. The concentrations of dieldrin in the soil were reduced to less than 0.360 ppm, as confirmed by verification testing. A total of approximately 1,500 cubic yards of contaminated soil was excavated from the facility and disposed at a permitted hazardous waste landfill in Minnesota.



*Stained soil prior to excavation.*

### Benefits:

- 1,490 cubic yards of stained soil removed and excavated.
- Former operational areas decontaminated to allow re-use of those areas.
- Potential for future exposure to contaminated soils reduced.