

US EPA ARCHIVE DOCUMENT

**STATEMENT OF BASIS/FINAL DECISION AND
RESPONSE TO COMMENTS SUMMARY**

REGION VII
ID# 9754

UNION PACIFIC RAILROAD

Omaha, Nebraska
(Signature Date: March 23, 2000)

Facility/Unit Type:	Railroad fueling facility, repair shop, paint shop and car body repair shop for the locomotive and car fleet
Contaminants:	PolyChlorinated Biphenyls (PCBs), Benzene, Ethyl Benzene, Toluene, Xylenes, Arsenic, and Lead
Media:	Surface and subsurface soil
Remedy:	Removal of subsurface and surface soil; use of institutional controls, including deed restrictions and local zoning requirements; long-term monitoring to determine the effectiveness of the institutional controls; and maintenance of the on-site soil repository.

FACILITY DESCRIPTION

Union Pacific Railroad (UPRR) is located at 9th and Webster Streets in Omaha, Nebraska. The facility encompasses approximately 210 acres and is just west of the Missouri River.

UPRR used the facility for approximately 100 years with its principal functions as a railroad fueling facility, repair shop, paint shop and car body repair shop for the locomotive and car fleet. UPRR used steam engines from the 1860s until the mid-1950s. Steam engines were fueled by burning wood, coal, fuel oil, and petroleum-based fuels. The engines required little lubrication and had no electrical components. In the mid-1950s, diesel powered locomotives began to predominate. During that time, the entire facility was converted from the maintenance of steam engines to diesel engines.

From the 1950s to 1988 the facility was a major overhaul and maintenance facility. In 1988, most of the operations, except the Print Shop and the Car Shop, moved to Little Rock, Arkansas. After the operations were moved, demolition of the facility began.

Maintenance and repair activities involved various hazardous substances, principally paints, paint solvents, caustic cleaning chemicals and degreasing solvents. Wastes generated from maintenance and repair included paint wastes, spent solvents and asbestos containing materials. Some of those wastes have been disposed of on-site and have resulted in contamination of soil and ground water. For a more detailed discussion of the historical operation of the facility and of solid waste management, please review Section 3 of the RCRA Facility Investigation (RFI) Report.

In August 1980, UPRR submitted notification of hazardous waste activity to obtain interim status for the storage of hazardous wastes in containers. UPRR no longer stores hazardous wastes for longer than 90 days and is proceeding to close the area where containers were previously stored. EPA conducted a study of the UPRR facility to identify solid waste management units (SWMUs) and areas of concern (AOCs) which may have released hazardous wastes or hazardous constituents to the environment. A total of 31 SWMUs and 18 AOCs were identified in the RCRA Facility Assessment (RFA). EPA subsequently identified another SWMU, for a total of 32 SWMUs. For more details on the SWMUs

and AOCs see the RFA Report (June 16, 1998). EPA also conducted sampling and analysis to determine the presence of hazardous constituents; results are presented in the Final Sampling Strategy Report (September 25, 1998).

About 100 acres of the site has been proposed for acquisition by the City of Omaha to develop a public-use building project. For the purposes of this Statement of Basis, that building project will be assumed to be a convention center. The portion of the site proposed for redevelopment is being called "Operable Unit No. 1" (OU1) and consists of both surface and subsurface soil above the normal high water table. Twenty SWMUs and fourteen AOCs are within or partially within OU1. "Operable Unit No. 2" (OU2) consists of both surface and subsurface soil above the normal high water table in the remainder of the site. "Operable Unit No. 3" (OU3) is the ground water beneath the site. This Statement of Basis covers only the SWMUs and AOCs in OU1.

EXPOSURE PATHWAYS

A baseline risk assessment was conducted as part of the RFI for OU1 to address the potential for adverse human health effects from exposure to chemicals, lead and asbestos in soil. The risks from exposure to ground water will be evaluated as part of the RFI for OU3 and are not included in the OU1 risk assessment. The following exposure scenarios were evaluated in the baseline risk assessment:

- Construction workers exposed to chemicals in the surface and subsurface soil from ingestion, dermal contact, and inhalation of contaminated soil and chemical vapors.
- On-site workers exposed to chemicals in the surface soil from

ingestion, dermal contact, and inhalation of contaminated soil.

- Recreational users exposed to chemicals in the surface and subsurface soil from ingestion, dermal contact, and inhalation of contaminated soil.

Although many contaminants have been detected at OU1, only certain contaminants were evaluated in the risk assessment. These contaminants are called "Contaminants of Potential Concern" (COPCs). A contaminant was included in the risk assessment as a COPC if it was detected in more than five percent of samples collected in the RFI. But, if the contaminants were inorganic chemicals (arsenic for example), they were evaluated in the risk assessment only if present above naturally occurring levels. Naturally occurring levels are called "background" levels and are found in areas that have not been contaminated by activities of the facility.

Health risks from the COPCs are evaluated on either their potential to cause cancer or their toxicity. Estimates of cancer risk are developed only for those contaminants that have been identified as possible, probable, or known carcinogens in animal studies or other human health information. This cancer risk is the probability of an individual developing cancer over a lifetime as a result of exposure to a carcinogenic contaminant. Cleanup is required if the estimated cancer risk is greater than 1 cancer case out of 10,000 people (referred to as a 1×10^{-4} risk). Cleanup is not necessary if the cancer risk is less than 1 in 1,000,000 (referred to as a 1×10^{-6} risk).

Estimates of health risks from contaminant toxicity are developed for those contaminants that are not carcinogens. This estimate is called a "hazard index" and is the

ratio of estimated daily intake of a contaminant to a reference dose which has no observed health effects. A hazard index of 1 (or less than 1) is considered to be safe.

The risks from exposure to lead were evaluated separately. Exposure to lead may cause adverse systemic (non-cancer) effects when blood lead levels exceed 10 micrograms per deciliter. EPA has developed models to predict when soil concentrations of lead will cause blood lead levels to exceed that level.

EPA does not have a reference dose for lead so its corrective action objective for non-residential soil is based upon a model that predicts potential blood lead levels in the fetus of a pregnant on-site worker. The corrective action objective determined using EPA's model is 1,218 milligrams per kilogram of lead in soil. This corrective action objective is for all surface soil and subsurface soil where subsurface construction will occur.

An ecological risk assessment was not conducted for OU1. The facility is located in an urban area and the proposed redevelopment of the facility is for

commercial use. Long term monitoring will be included as part of the corrective measure to determine if contaminants are being released to nearby wildlife habitat. If ongoing releases are found after implementation of the corrective measure, an ecological risk assessment will be required to determine what additional corrective measures may be necessary.

The risk assessment did not evaluate the SWMUs and AOCs in OU1 on an individual basis. Instead, each contaminant of concern was evaluated throughout OU1. The risk assessment shows that only certain contaminants at the SWMUs are a potential health risk. Using the information in the human health risk assessment, corrective action objectives are proposed for those contaminants. These corrective action objectives are levels of contaminants that are calculated to prevent potential health risks and allow for redevelopment of the facility.

The following table summarizes the corrective action objectives for surface and subsurface soil (where excavations are necessary for construction) in OU1:

CONTAMINATION DETECTED AND CLEANUP GOALS

Media	Estimated Volume	Contaminants of Concern	Maximum Concentration (ppm)	Action Level (ppm)	Cleanup Goal (mg/kg)	Point of Compliance
Soil		PCBs Benzene Ethyl Benzene Toluene Xylenes Arsenic Lead		not applicable	14 24 6000 2000 4500 440 1218	

* Cleanup goals, also termed corrective action objectives, are based on a cancer risk of 1×10^{-6} for benzene. Cleanup goals for the other, non-carcinogenic contaminants, with the exception of lead, are based on a hazard quotient of 1. For the lead cleanup goal, a model was used that predicts blood lead levels in the fetus of a pregnant worker. The goals assume the facility will be redeveloped as a convention center and arena complex following cleanup.

SELECTED REMEDY

The corrective measures identified in the Corrective Measures Study (CMS) for the SWMUs were: no action; natural attenuation; institutional controls; long-term monitoring and maintenance; excavation and off-site disposal; soil cover; and excavation and on-site disposal.

Excavation followed by on-site disposal was chosen as the proposed corrective measure. It provides the best balance of the selection factors of long-term reliability and effectiveness, reduction of toxicity, mobility, or volume of waste, short-term effectiveness, implementability, and cost.

Contaminated soil above the corrective action objectives will be covered with a minimum of 12 inches of clean soil. A layer of colored woven material will be placed under this cover as a permanent marker to alert persons that they are digging in an area of contaminated soil.

A minimum of 12 inches soil will be excavated where surface soil does not meet the corrective action objectives and will be backfilled with clean soil. A layer of colored woven material will be placed under the clean soil backfill as a permanent marker of remaining soil contamination above the corrective action objectives. Contaminated soil in areas that will have subsurface construction will be excavated to achieve the corrective action objectives and backfilled with clean soil. The excavated soil will remain on-site as part of a new embankment for the connection of Cuming Street with Abbott Drive.

The cost for the soil cover is estimated to be \$952,767. The cost for the excavation and on-site disposal is estimated to be \$499,167.

The proposed remedy is protective of public health and the environment, as based upon the City of Omaha's proposed redevelopment of OU1. The remedy will require the use of institutional controls including deed restrictions and local zoning requirements ensure future use is consistent with risk assessment and corrective action objectives for protection of public health. Long-term monitoring will be used to determine the effectiveness of the institutional controls and maintenance of the on-site soil repository.

Ground water monitoring is not required as a part of the corrective measure at OU1. Long-term ground water monitoring or corrective measures to remediate ground water will be evaluated in the CMS for OU3, on a site-wide basis.

INNOVATIVE TECHNOLOGIES CONSIDERED

None.

PUBLIC PARTICIPATION

EPA conducted a formal public comment period on all corrective measures considered from April 1, 2000 to May 5, 2000. The response to comments document will be placed in the administrative record when it is completed.

An information repository has been established at the W. Dale Clarke Branch of the Omaha Public Library at 215 S. 15th St., and is available during normal library hours. The administrative record titled "Administrative Record for Corrective Measures at OU1" is at the library and at the EPA Region 7 Information Resource Center, 901 N. 5th St., Kansas City, Kansas which is open from 9 a.m. to 3 p.m. weekdays (excluding holidays).

NEXT STEPS

Written comments received by EPA and comments received during the hearing will be documented in a Response to Comments. EPA will make a Final Corrective Measures Decision after responding to all comments.

In developing the risk assessment and this statement of basis, it was assumed that OU1 would be redeveloped as proposed by the City of Omaha into a convention center and arena complex. The corrective measure was designed to ensure adequate protection of workers during construction

and protection of the on-site workers and the patrons who will use the facility.

If the proposed redevelopment does not occur, new corrective measure objectives may need to be established. This may also require modification of the corrective measure or selection of a new corrective measure. Selection of new corrective action objectives, changes to the corrective measure, or selection of a new corrective measure will require a new public comment period to allow the public to review and comment on any changes from this Statement of Basis.

KEY WORDS:

soil, groundwater, inhalation, dermal contact; PCBs, benzene, ethyl benzene, toluene, xylenes, arsenic, lead; excavation

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