

APPENDIX K:

Environmental Report

Summary of Site Environmental and Physical Conditions
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WHAT WE KNOW

Introduction

- In 2007 the City of Albuquerque purchased approximately 27.3 acres known as the former AT&SF Railway Locomotive Shops/Centralized Work Equipment (CWE) site,
- The Locomotive Shops were built between 1915 and 1925, according to unpublished narratives (1986) by Chris Wilson, historian, for the City of Albuquerque.
- Initially the CWE site was used to service and overhaul steam locomotives, and then was used as a central distribution and storage site for track vegetation control equipment and herbicide (Wilson, 1986).
- Previous owners used the property or intended to use the property for commercial/industrial applications; therefore, the site has been environmentally characterized and investigated to EPA commercial/industrial cleanup standards only.

Physical layout

- An assortment of large and small buildings dominates the physical layout of the site.
 - The largest enclosed site buildings are the machine shop, boiler shop, and the CWE shop. These shops have combined floor area of nearly 248,000 square feet (5.6 acres).
 - Generally, enclosed buildings have concrete floors. Several large outdoor areas are paved in concrete, and others have gravel or earthen surfaces.
 - Flooring material in both the main machine shop and the boiler shop consists of a six-inch-thick concrete slab with an engineered wood block surface (each block is 6 inches by 4 inches by 4 inches). According to Wilson, the wood block floors were manufactured at the tie-treatment plant located in Albuquerque's South Valley.
- Eight water sampling wells exist, within the property boundary, four in the southern area (MW-1, MW-3, MW-4 and MW5) and four in the northern area (MW6 thru MW9).
- Energized overhead electric wires, energized buried 24,000 volt electric cables and 2 energized pad constructed transformers exist on the west side of the site.
 - Above ground, energized electric wires, are supported on wooden power poles along the entire west side of the property.
 - The southern transformer cable daylight and extends south on overhead wooden power poles to Burlington Northern Santa Fe Railway Company (BNSF) property.
 - The northern transformer cable daylights in the boiler shop and continues north

on overhead poles to the New Mexico Rail Runner Express facilities.

- Fire Hydrants (not NFPA approved) are charged and connected to an active BNSF water main metered at Coal Street, the routing of the water line needs to be determined.
- BNSF is expected to abandon water and power to the site by the summer of 2010. The City is in the process of establishing utilities to the Storehouse building located along Second Street.

Septic and Sewer Systems

- Septic systems were used in some areas of the facility although; from 1923 to 1960 most of the facility was connected to a BNSF on site sewer and on site water treatment system.
- In 1960, the City of Albuquerque extended a sanitary sewer line and a water line into the facility from 2nd Street.

Environmental Investigations,

**Albuquerque Locomotive Shops (Former BNSF CWE Facility),
Albuquerque, New Mexico**

Report Description	Year	Referenced Information	Consultant
UST and vault closures	1991	UST closures	Enviroklean
Phase I ESA	1995	Phase I	Daniel B. Stephens & Associates, Inc. (DBS&A)
Phase II ESA	1995	Phase II	DBS&A
Stage I Abatement Plan	1996	Abatement Action	DBS&A
Report: Stage 1 Abatement Activities	1996	Well water sampling	DBS&A
Final Investigation Report Stage 1 Abatement and Phase II Investigation Activities	1997	Phase II, Well water inventory	DBS&A
Phase II ESA	2000	Phase II, Site hydrology	Dames and Moore (URS Corporation)
Preliminary Work Plan VR Agreement (VRA)	2000	History & Site Conditions	DBS&A
Work Plans (Old Locomotive Shops and Union Development Corporation Options)	2005	Site History & Site Conditions	Terracon

VR Interim Report Additional Site Characterization and Excavation Activities	2005	Site Conditions, Characterization, and Excavation Activities	Terracon
Limited Asbestos Survey	2005	Window glazing non-friable, interior fire house plaster friable	Terracon
Voluntary Remediation Program Site Investigation and Remediation Activities DRAFT work plan	2008	Site hydrological and geological characteristics	INTERA

Previous Environmental Assessment and Remediation Findings

UST and vault closure program

- In 1991 a UST and associated vault closure program was conducted at the CWE facility by Enviroklean of Kansas City, Kansas for BNSF. The report on closure activities indicated no evidence of releases from the UST systems (Enviroklean, 1991)

Surface Soils

- In August 1995, 32 surface soil samples (typically between 12 to 18 inches below surface) were collected from areas both within the shop buildings and throughout the facility grounds.
 - TRPH concentrations in surface soils ranged from 26 milligrams per kilogram (mg/kg) to 4,500 mg/kg. These samples were collected beneath the flooring of the boiler shop and the main machine shop, respectively.
 - VOC analyses indicated that trace concentrations of methylene chloride, toluene, and xylene were detected, although all were below NMED Soil Screen action levels.
 - SVOC analyses indicated that only minor concentrations of PAHs were present in surface soils. However, benzo(a)pyrene (BAP) concentrations were detected ranging from: less than detection limit to 7 mg/kg.
 - The EPA's Preliminary Remediation Goal (PRGs), for Residential soil is .062 mg/kg and industrial soil is .21mg/kg.
 - No pesticides, chlorinated herbicides, or PCBs were detected in any

surface soil samples.

- Lead concentrations in surface soils ranged from 46 to 960 mg/kg.
 - NMED soil screening level for residential soil is 400 mg/kg and industrial/occupational soil is 750 mg/kg and residential soil.
- Copper concentrations ranged from 58 to 806 mg/kg.
 - NMED soil screening level for copper residential soil is 3,130 mg/kg, and industrial/occupational soil is 45,400 mg/kg.

Subsurface Soils Investigation

- A Phase II subsurface soil investigation was conducted in August 1995 and consisted of drilling 15 shallow soil borings.
 - Four borings were drilled inside the CWE facility buildings and the remaining borings were drilled outside of the shop buildings.
 - Bore soil samples were analyzed for: total recoverable petroleum hydrocarbons (TRPH), volatile compounds (VOCs), semi-volatile organic compounds (SVOCs), and PAH, pesticides, and metals.
 - Trace concentrations of other PAHs were detected.
 - No groundwater PAH's impacts were observed.
 - TRPH concentrations in subsurface soils are present throughout the facility. Concentrations appear to be greater in shallower soils and decrease with depth.

Groundwater Investigation

- Surface soils, outside of the building, consist of undocumented fill primarily comprised of sand and gravel interspersed with debris
- Ground water depth approximately 32 feet bgs
- No actionable items were reported

Lead (Pb) Impacted Areas

Nature and Extent of Contamination

The lead impacted areas are limited to shallow subsurface soils. The total lead impacts to soils appear to have resulted primarily from particulates (e.g., paint from sand blasting). Results of TCLP analysis indicate that the lead is not leachable. The total lead in the roundhouse area is most likely tied up in the clinker materials.

So far surface soil lead impacts have been identified at the former sandblasting area on the northeast portion of the site, in the battery storage area directly adjacent to the machine shop, and in the roundhouse area. Available data do not indicate that impacts extend to depths greater than five feet below ground surface (and appear to be generally less than three feet below ground surface), and the lateral extent has not been investigated.

Characterizations by excavation strategies were applied to investigate soil conditions in the three identified lead impacted areas. Soil samples were collected.

- **Roundhouse**

The roundhouse excavation extends approximately 15 feet (east to west) by 25 feet (north to south), comprising an approximate total area of 375 square feet. The depth of the excavation averages 3 feet, resulting in an initial soil excavation volume of approximately 40 cubic yards. Lead concentrations in this area are still greater than the commercial/industrial SSL, it is estimated that the final excavation area to achieve residential SSL will be 900 square feet and 5 feet deep resulting in a total soil excavation volume of approximately 170 cubic yards.

- **Sandblasting Area**

The sandblasting excavation area is generally rectangular in shape and extends an average of 25 feet (east to west) by an average 60 feet (north to south), comprising an approximate total area of 1,500 square feet. The excavation is approximately 2.5 feet in depth, resulting in an initial soil excavation volume of approximately 140 cubic yards. Confirmation soil testing indicated that soils with lead concentrations above commercial/industrial SSLs have been excavated from this location. The data indicates that the final excavation to achieve residential SSL would be approximately 2000 square feet and approximately 3 feet deep resulting in additional soil excavation of 50 cubic yards

- **Battery storage Area**

The battery storage excavation area is L-shaped and extends approximately 85 feet (east to west) by approximately 85 feet (north to south), comprising an approximate total area of 5,045 square feet. The excavation approximate depth is 1.5 feet, resulting in an initial soil excavation volume of approximately 280 cubic yards.

Lead concentrations in this area are still greater than the commercial/industrial SSL, and is estimated that an additional excavation will be required to achieve commercial standards. The final excavation to reach commercial SSL will require the current excavation area to be extended 3.5 feet down with approximately the same lateral dimensions, resulting in a total soil excavation volume of approximately 400 cubic yards. To reach residential SSL the approximate same amount of material will have to be excavated.

- **Lead Based Paint (LBP)**

Paint in the interior sections of the buildings proposed for revitalization was assessed. LBP testing was conducted in interior portions of the buildings using Lead Check™. Ten of 26 paint samples tested positive for lead.

Petroleum Impacted Areas

- **Outside Petroleum Impacted Areas**

Test pit and material excavation were used to determine the limits of the hydrocarbon affected soils and estimate the total volume of impacted soils. Heavy hydrocarbons concentrations were detected at the roundhouse and fueling area excavations. The impacted areas appear to be the result of many small leaks over time from former oil cellars, the former fuel AST, and spills. Soils saturated by diesel and motor oil are present in the area directly south southeast of the former roundhouse. The petroleum appears to be confined by intermittent clay layers.

Previous assessment activities identified significant TPH concentrations of PAHs two soil samples collected from subsurface soils beneath the main machine shop and the boiler shop, but are confined by surface cement. High concentrations of TPH were also found in the area of the old fuel oil cellar located northeast of the CWE shop.

- **Former oil cellar**

The former southern oil cellar, southern above-ground storage tank area, and the northern former oil cellar were sampled and excavated. The southern excavation extended approximately 18 feet east to west and 20 feet north to south. The excavation was extended to a general depth of 6 feet. Concentrations of TPH in the resultant stockpiles, for the southeast excavation range, from 11,000 to 44,000 mg/kg and the test pits developed pools of free product. Soil sample concentrations collected from the northern former oil cellar excavation were below laboratory detection limits for PAHs and TPH.

- **Interior Petroleum Impacted Areas**

The Main machine shop and Boiler shop have localized areas of hydrocarbon impacted soils most likely the result of small leaks from locomotives being serviced, and probably will not require significant remediation.

- **PCBs / Transformer Oils investigation**

Several “used” electric transformers were stockpiled in the area west, northwest of the former roundhouse, and the western portion of the site, and in a fenced area directly north of the existing pad mounted transformer. PCBs were not detected in site soils. Anecdotal information, from BNSF, indicates that BNSF conducted a PCB abatement program and removed all PCB transformers and contaminated soils and materials.

- **Wood-Block Floor of the Main Machine Shop and Boiler Shop**

The wood-block floor in the main machine and boiler shops were tested for chlordane, pentachlorophenol, and/or similar compounds for pest control, and Toxicity characteristic leaching procedure (TCLP) the wood block material is determined to be non hazardous and no chlordane or pentachlorophenol or pest control material was found.

- **Oil/Water Separator**

An on-site oil water separator is located west of the warehouse. It is believed that the separator is a drain for the round table. The condition of the In-let pipes, Outlet pipes and separator are unknown. Anecdotal data indicates that SB -1 soil sampling boring ruptured the outlet pipe south of the 2nd street storehouse.

- **Asbestos**

Friable Asbestos has not been found any areas of the site, except for the Fire House interior plaster.

WHAT WE DON'T KNOW

- The southern portion of the property has not been environmentally assessed or characterized nor physically assessed and inventoried adequately.
 - The location and condition of underground utilities, sewers pipes, and communication cables has not been established.
 - An enclosed concrete “water” reservoir with associated above and below ground piping, pump houses and disconnected uncapped 10 inch metal pipes has not been assessed.
 - The extent of contamination at the southern oil sump near MW-3 is unknown.
 - An underground, fenced “oil water separator” and associated piping and valves has not been environmentally assessed and determined if it is active.
 - A recessed concrete train turnaround table area, has not been environmentally assessed.
 - A oil/fuel cellar, adjoined to the south wall of the storehouse/office building along 2nd Street and contiguous with the elevated cement loading platform has not been environmentally assessed.
- The site has two pad mounted, in-service, 24,000 volt electric transformers; one transformer (southern) is east of the storehouse, adjacent to 2nd street, and the other (northern) is located inside the Boiler shop, adjacent to the west wall.
 - The routing of the buried 24,000 volt cable connecting the transformers is unknown.

Remediation

EPA conducted additional assessment activities in the northern portion of the property in February 2010. A report is expected in July 2010. EPA has also agreed to use targeted/stimulus funds to assess the southern area. EPA is finalizing the scope of work and a final report is expected in March 2011.

The assessments provided by EPA will include recommendations for remediation and/or further assessments and cost estimates to remediate the known environmental conditions. The City will explore all options to secure funding for clean-up efforts at the site.