

TECHNICAL MEMORANDUM



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EBA Project No. 08-1542

FROM: François Bush, P.G.
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RE: Analysis of Brownfield Cleanup Alternatives (ABCA)
Airfield Neighborhood Park
Santa Rosa, CA

EBA is pleased to present this Technical Memorandum presenting the Analysis of Brownfield Cleanup Alternatives (ABCA) for the Airfield Neighborhood Park (project site) cleanup and development. It is EBA's understanding that this ABCA memorandum will be used by the City of Santa Rosa in the public participation process for the remediation of Airfield Neighborhood Park.

This Technical Memorandum is not intended to be a stand-alone document but is intended to provide additional information regarding the preferred cleanup alternative at the project site set forth in EBA's June 2007 document titled *Report of Investigation and Soil Management Plan and Excavation Work Plan (ROI & Work Plan)*. Full descriptions of previous environmental investigation activities, conclusions from the investigations, and the scope of work for soil remediation activities proposed for the project site are included in the *ROI & Work Plan* document. Project site illustrations (Figures), summary tables of investigation analytical results, Analytical Laboratory Reports, and soil boring logs of encountered soil conditions are presented in Appendices A through D, respectively, of the *ROI & Work Plan* document.

BACKGROUND

The proposed Airfield Neighborhood Park is an approximately 3.02-acre parcel of land located at the southwest corner of Fresno Avenue and Northpoint Parkway in southwest Santa Rosa, California (Figure 1, *ROI & Work Plan*). The project site is located within the boundaries of the former Santa Rosa Naval Auxiliary Air Station (SRNAAS), which is a Formerly Used Defense Site (FUDS) and a current active site under the Regional Water Quality Control Board - North Coast Region's (NCRWQCB) Cleanups program (NCRWQCB Case No. 1TSO547). The location of the proposed park is at the former intersection of the north-south and east-west runways of the SRNAAS.

Historical records indicate that the SRNAAS was constructed in 1942 and commissioned in 1943. The east-west and north-south runways were constructed by the time the SRNAAS was commissioned. The SRNAAS was later utilized as a civilian airport called the Santa Rosa Air Center from the mid-1960s through approximately 1991. The runways remained at the project site through this timeframe. The southern half of the north-south runway and most of the east-west runway were demolished and removed to make way for site redevelopment in the 1990s.

The northern half of the north-south runway is still present to the north of Northpoint Parkway, north of the project site. A review of aerial photographs on file at the Sonoma County Water Agency (SCWA) and of aerial photographs of the project site accessed through the City of Santa Rosa's Geographic Information System's internet web-site did not indicate evidence of former above-ground fueling facilities at or near the location of the project site.

As discussed above, the former SRNAAS is a current active site under NCRWQCB oversight of environmental investigations. However, the location of the proposed park does not lie within or adjacent to any sites identified as an Area of Concern (AOC) by the NCRWQCB, thus no environmental sampling of the project site was previously conducted.

Project Site Environmental Investigations

The Santa Rosa Recreation and Parks Department (SRRPD) contracted with EBA in February 2006 to conduct a soil and groundwater investigation of the project site to evaluate the environmental condition of the site prior to construction of the Airfield Neighborhood Park. EBA conducted two phases of soil and groundwater sampling at the project site in July and August 2006. The results of the soil and groundwater investigations indicated that shallow soil on the project site has been affected by varying concentrations of total petroleum hydrocarbons as diesel (TPH-d) and TPH as motor oil (TPH-mo). EBA presented the results of the two phases of project site investigation the *ROI and Work Plan* in June 2007. This document also provided a plan for removal of petroleum hydrocarbon-affected soil from the project site prior to construction of the park.

Pertinent conclusions of the soil and groundwater investigation directly related to the proposed soil remediation activities proposed for the project site are as follows:

- Shallow soil across the project site has been affected by petroleum hydrocarbons consisting primarily of TPH-d and TPH-mo range constituents at varying concentrations

ranging up to 2,000 milligrams per kilogram (mg/kg) for TPH-d and up to 4,000 mg/kg for TPH-mo (Table 2, *ROI & Work Plan*).

- The majority of elevated concentrations of TPH-d and TPH-mo were detected at varying depths from 1 to 3 feet below ground surface (BGS) and were not generally associated with visually stained soil or soil with notable petroleum hydrocarbon odors. In addition, the elevated TPH-d and TPH-mo range petroleum hydrocarbons concentrations did not generally follow a distinct pattern across the project site.
- As the detected petroleum hydrocarbons appeared to be relatively ubiquitous both in aerial extent and in depth across the project site, it was speculated that the majority of petroleum hydrocarbons may have originated from fill material placed at the project site either during construction of the SRNAAS runways or at a later date, after the runways had been removed. Based on a review of the hydrocarbon chromatograms from the analytical laboratory, it was not possible to determine the source of the petroleum hydrocarbons from the analyses performed.
- The one area of the project site where visual and olfactory evidence of petroleum hydrocarbon impacts was noted was from one soil sampling location, SB-B3 (Figure 2, *ROI & Work Plan*). Analytical results of samples collected from this soil boring revealed the highest level of TPH-d soil impacts of the investigation, with detected TPH-d concentrations of 1,500 and 2,000 mg/kg (Table 2, *ROI & Work Plan*).
- Based on the analytical results from the two groundwater grab samples collected at project site, it appears that TPH-mo has not migrated from petroleum hydrocarbon affected soil into groundwater. In addition, groundwater has only been slightly affected by TPH-d in the vicinity of the obviously impacted soil encountered at sampling location SB-B3. TPH-d was detected in the groundwater grab sample collected from SB-B3 at a concentration of 110 micrograms per liter ($\mu\text{g/L}$), which is just 10 $\mu\text{g/L}$ higher than the laboratory reporting limit for TPH-d (Table 3, *ROI & Work Plan*).
- The one area of the project site that may present a threat to groundwater is in the vicinity of previous sampling location SB-B3. However, based on soil analytical results from four surrounding soil borings (SB-B3-North, SB-B3-West, SB-9, and SB-10), the lateral extent of petroleum hydrocarbon affected soil in this area of the project site appears to be limited and is likely on the order of 400 square feet (Figure 2 and Tables 1 and 2, *ROI & Work Plan*).

Based on these conclusions, EBA prepared a Soil Management Plan and Excavation Work Plan presented as Section 6.0 of the *ROI & Work Plan*. In addition, EBA recommended performing an additional groundwater investigation to further evaluate the lateral extent of TPH-d detected in groundwater collected at SB-B3. EBA prepared and submitted a *Groundwater Investigation Work Plan (GIWP)* to the NCRWQCB and the Santa Rosa Fire Department (SRFD) on May 29, 2007. It is EBA's understanding that implementation of the *GIWP* will be conducted following implementation of the soil excavation activities proposed in the *ROI & Work Plan*.