

Remedial Investigation Report NEX Garage Waste Oil Tank

Naval Activities (NAVACTS)
Apra Harbor, Guam

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EXECUTIVE SUMMARY

This document serves as the Remedial Investigation (RI) report for four sites located within Naval Activities (NAVACTS) on the island of Guam, Mariana Islands. This report has been prepared for the Pacific Division, Naval Facilities Engineering Command (PACNAVFACENGCOM) under Comprehensive Long-term Environmental Action Navy (CLEAN) Contract No. N62742-90-D-0019, Contract Task Order (CTO) No. 0047.

The four study sites included in this document are the Dry Cleaning Shop Site, Naval Exchange (NEX) Garage Waste Oil Tank Site, U.S.S. Proteus Fire Fighting Training Area Site, and Orote Landfill Site.

DRY CLEANING SHOP SITE

Site Background

The Dry Cleaning Shop Site is located within NAVACTS Guam on Bright Road east of the Commissary and other NEX buildings. The Dry Cleaning Shop was originally part of the Central Laundry Facility once located in Building 256. This building is currently used as a furniture store and warehouse. Wetlands to the north, east, and south have been identified as habitat for the endangered Mariana common moorhen (*Gallinula chloropus guami*).

Six underground storage tanks (USTs) and two concrete sumps were used in conjunction with the dry cleaning operation. Three USTs located north of Building 256 were used for dry cleaning solvent storage, and three USTs located south of Building 256 were used for fuel oil storage. The concrete sumps located southeast of Building 256 were used as brine and backwash water sumps. All the USTs and sumps were removed in April 1994 under the Navy's UST program.

Potential contaminant sources investigated within this RI include solvents and fuels that might have leaked or spilled from the USTs and sumps, and the reported dumping of solvent tank "sludge" from tank cleaning operations in the northwest corner of the Dry Cleaning Shop Site.

RI Activities

The RI field activities at the Dry Cleaning Shop Site were conducted between March 1993 and May 1994. RI field activities included a biological investigation, geophysical utility survey, surface and subsurface soil investigation, geotechnical testing, ground-water investigation, aquifer testing, and laboratory analysis.

Data collection, evaluation, and interpretation conducted as part of this RI were used to characterize the nature and extent of contamination, support a contaminant fate and transport assessment, conduct a human health and ecological risk assessment, and make recommendations.

Nature and Extent of Contamination

Contamination at the Dry Cleaning Shop Site is primarily confined to two areas, the fuel UST area and the solvent UST area. The solvent USTs on the north side of Building 256 were found to contain "stoddard solvent," a common dry cleaning agent. This solvent was found to have been leaking into soils underlying the USTs. Consequently, a thin 6- to 12-inch lens of stoddard solvent was found just above the water table in the capillary fringe (a zone where air and water intermix but are not fully saturated). No stoddard solvent, however, was found within the ground-water samples collected from monitoring wells next to the solvent USTs.

Elevated levels of total fuel hydrocarbons (TFHs) and polynuclear aromatic hydrocarbons (PAHs), common components of many fuels, were found in soils associated with the fuel UST area. These were primarily found near a fuel filling box and associated piping; they are presumed to be caused by overfilling and spillage because no noticeable leaks were observed in the USTs during removal.

Some samples collected from the wetlands outside the Building 256 fenced compound were found to have higher concentrations of TFHs, PAHs, and metals than samples collected around Building 256. Additionally, detections of some pesticides and polychlorinated biphenyls (PCBs) (contaminants not expected to occur at the Dry Cleaning Shop Site) were found in the adjacent wetland areas. It is therefore believed that these contaminants may have originated from the NAVACTS parking lots, roadways, and other sources that drain into the wetlands. The Dry Cleaning Shop Site contributes very little surface water to the wetlands when compared to these offsite areas.

Contaminant Transport Pathways

An evaluation of the potential for contaminants to migrate from the source area through air, soil, surface water runoff, and ground water was completed for the Dry Cleaning Shop Site. The evaluation concluded that transport of contaminants is not significant because of their insignificant concentrations, immobility in soil, or lack of effective transporting mechanism. Stoddard solvent from USTs on the north side of Building 256 has migrated to the area just above the water table, but it has not become soluble in the ground water. Contaminants in the wetlands are presumed to have been transported there by runoff water from other areas of NAVACTS and not from the site.

Human Health Risk Assessment

The human health risk assessment (HHRA) calculated both carcinogenic and noncarcinogenic risks to onsite workers via contact with soil and soil ingestion. Based upon the results of the risk assessment, site-related contamination does not appear to pose a significant risk to human health for onsite workers under the current land use.

Ecological Risk Assessment

Ecological risk assessment (ERA) was evaluated based on the type of habitat, levels of contamination, and on the potential for contaminated sediment to be toxic to organisms or for contaminants to bioaccumulate in organisms. Site-related contamination does not appear to pose

a significant ecological risk.

Recommendations

Recommendations of the RI report are that no further action occur at the Dry Cleaning Shop Site based on current land use, and that the site be closed based on the results of the ecological and human health risk assessments. Should the land use change in the future, an evaluation assessing human health and/or ecological risk based on future land use will be conducted. The primary sources of contamination (the USTs) at the site have already been removed as part of the Navy's UST program. Additionally, existing levels of the contaminants at the Dry Cleaning Shop Site do not pose a significant risk for offsite migration, nor do they pose significant risk to human health or the environment.

NEX GARAGE WASTE OIL TANK SITE

Site Background

The NEX Garage Waste Oil Tank Site is located within NAVACTS approximately 1,000 feet east of Agat Bay and south of the existing NEX Garage. The area of investigation includes a removed waste oil tank: a concrete septic tank; and a 1,000-footlong, 12-inch pipeline that connects the waste oil tank area, the septic tank, and an outfall pipe in Agat Bay.

Potential contaminant sources investigated during this RI include waste oils, automotive fluids, and cleaning solvents that were generated at the NEX Garage Waste Oil Tank Site and disposed of in the waste oil tank. Wastes disposed of in the waste oil tank may have flowed into the septic tank via the pipeline. Additionally, the septic tank is connected to Agat Bay by a smaller pipeline.

RI Activities

The RI field activities at the NEX Garage Waste Oil Tank Site were conducted between March 1993 and May 1994. RI field activities included a biological investigation, geophysical utility survey, surface and subsurface soil investigation, geotechnical testing, ground-water investigation, aquifer testing, marine investigation, and laboratory analysis. Data collection, evaluation, and interpretation conducted as part of this RI were used to characterize the nature and extent of contamination, support a contaminant fate and transport assessment, conduct a human health and ecological risk assessment, and make recommendations for further action.

Nature and Extent of Contamination

Sampling at the NEX Garage Waste Oil Tank Site targeted three primary areas: (1) the former waste oil tank area, (2) the pipeline and bay outfall, and (3) the septic tank area. Low levels of TFHs and PCBs were found in the former waste oil tank area. Low levels of TFHs, PAHs, and some pesticides were found within the pipeline through a manhole access, but no significant levels were found outside the sewer pipeline. Although a previous investigation found petroleum sludge within the concrete septic tank, no significant releases were found to have occurred outside the septic tank. Low concentrations of PAHs and metals were detected in the area of the Agat Bay outfall.

No significant evidence of contaminant bioaccumulation or sediment toxicity to organisms was indicated in the vicinity of the NEX Garage Waste Oil Tank Site.

No ground-water contamination was found associated with the pipelines, former waste oil tank, or septic tank. Low levels of volatile organic compounds (VOCs) and PAHs, however, were found in

the ground water upgradient of the NEX Garage Waste Oil Tank Site and have distributions consistent with an offsite source.

Contaminant Transport Pathways

An evaluation of the potential for contaminants to migrate from the source area through air, soil, surface water runoff, and ground water was completed for the NEX Garage Waste Oil Tank Site. The evaluation concluded that transport of contaminants is not significant because of their insignificant concentrations, immobility in soil, or lack of effective transporting mechanism.

Human Health Risk Assessment

The HHRA evaluated the types of exposure pathways. Although the fish ingestion exposure pathway was found to be complete, it was determined to be insignificant based on levels of contamination. The risk assessment concluded that site-related contamination does not appear to pose a significant risk to human health.

Ecological Risk Assessment

ERA was based on type of habitat, levels of contamination, and on the potential for contaminated sediment to be toxic to organisms or for contamination to bioaccumulate in organisms. Site-related contamination does not appear to pose a significant ecological risk.

Recommendations

The results of this RI indicate that contaminants at the NEX Garage Waste Oil Tank Site do not pose a significant threat to human health and the environment. Recommendations of the RI report, however, include two actions that would further reduce the potential for contaminant release. These actions are as follows: (1) removal or cleaning and abandonment of the concrete septic tank in the southern portion of the site, and (2) sealing of the storm sewer and pipeline system associated with the sump. Although no significant risk to human or ecological receptors was found at the NEX Garage Waste Oil Tank Site, the removal or cleaning of the septic tank would ensure that the high concentration TFH oil sludge contained within the septic tank is not released into the environment. Additionally, sealing and properly abandoning the pipeline would remove the possibility for the pipeline to become a conduit for contamination.



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