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**ATSDR**

Department of Health and Human Services

Agency for Toxic Substances &amp; Disease Registry

ATSDR &gt; Public Health Assessments &amp; Consultations

**PUBLIC HEALTH ASSESSMENT****ANDERSEN AIR FORCE BASE  
YIGO, GUAM****APPENDIX A: EVALUATION OF POTENTIAL IRP SITES AT ANDERSON AFB**

Site	Site Description/Waste Disposal History	Investigation Results/ Environmental Monitoring Results*	Corrective Activities and/or Current Status	Evaluation of Public Health Hazards
Site No. 1  Landfill No. 1 (LF-1)  (Operable Unit (OU): Main Base)	LF-1 opened in 1945 and continues to be used today as the base's only active landfill. Materials disposed of include sanitary trash, waste petroleum, oil, and lubricants (POL), solvents, ferrous metal, construction debris, and pesticides.	<b>Groundwater:</b> Trichloroethylene (TCE), tetrachloroethylene (PCE), chloroform, toluene, lead, and other organics were detected. Only lead was detected above Agency for Toxic Substances and Disease Registry (ATSDR) drinking water comparison values (CVs). <b>Soil:</b> Total petroleum hydrocarbons (TPH) and metals were detected.	<b>Corrective Activities:</b> The Air Force places soil cover on LF-1 daily. <b>Current Status:</b> LF-1 is still active and has been transferred to Resource Conservation and Recovery Act (RCRA) program.	<b>Groundwater:</b> No public health hazards are associated with LF-1. No drinking water wells are located in this area and none will be installed in the future. <b>Soil:</b> LF-1 is located in an industrial area not generally accessed by base personnel. Furthermore, a fence surrounds Andersen AFB and a gated entrance restricts access to the landfill; therefore, past, current, and future exposures to the general public are not expected.
Site No. 2  Landfill No. 2 (LF-2)  Landfill No. 4 (LF-4)	LF-4 and LF-5 are contained within LF-2. LF-2 was used from 1947 to 1975, with a small area remaining active until 1982. Materials disposed of at this site include sanitary	<b>Groundwater:</b> TCE, PCE, toluene, lead, and other organics were detected. TCE was detected above the ATSDR CV. <b>Soil:</b> TPH, volatile organic compounds (VOC), and metals were detected.	<b>Corrective Activities:</b> Small area of LF-2 (all of LF-5) was capped as Remedial Action. <b>Current Status:</b> All other site areas in RI/FS process. LF-2 is inactive and currently being	<b>Groundwater:</b> No public health hazards are associated with LF-2. No drinking water wells are located in this area and none will be installed in the future. <b>Soil:</b> LF-2 is located in an industrial area

Landfill No. 5 (LF-5)  (OU: Main Base)	trash, waste POL, solvents, pesticides, ferrous metal, construction debris, and unexploded ordinance (UXO).	Dioxins have also been detected at LF-2.	remediated in conjunction with the lead stabilization of soils from MARBO and other asphaltic debris. The linear trenches will be covered with stabilized soil.	not generally accessed by base personnel. Furthermore, a fence surrounds Andersen AFB and a gated entrance restricts access to the landfill. Currently, the site is overgrown with vegetation; therefore, past, current, and future exposures to the general public are not expected.
Site No. 3  Waste Pile No. 3 (WP-3)  (OU: Main Base)	WP-3 was in use from 1947 to 1977. Materials disposed of include waste POL, solvents, industrial wastes, pesticides, sanitary trash, scrap metal, and construction debris.	<b>Groundwater:</b> TCE, chloroform, toluene, lead, and other organics were detected. No contaminants were detected above ATSDR CVs. <b>Soil:</b> TPH, VOCs, and metals were detected below ATSDR CVs for soil.	<b>Current Status:</b> WP-3 is a no further response action planned (NFRAP) site. The results of a risk assessment indicated that the levels of contaminants do not pose a threat to humans under industrial uses. Furthermore, the site has restricted access. Based on these factors, no further actions were recommended.	<b>Groundwater:</b> No public health hazards are associated with WP-3. No drinking water wells are located in this area and none will be installed in the future. <b>Soil:</b> No public health hazard is associated with soil at this site. The site has restricted access (and is considered as an industrial use site) and contaminants were detected at levels below health guidelines.
Site No. 4  Landfill No. 6 (LF-6)  (OU: Main Base)	From 1953 to 1954, sanitary trash was disposed in LF-6.	<b>Groundwater:</b> No accessible groundwater flows beneath the site due to volcanic topography and no contaminants exceed EPA's MCLs in groundwater samples taken from a well located in a 0.5 mile radius of this site. <b>Soil:</b> Twenty surface soil samples were analyzed for VOCs, SVOCs, PAHs, and metals. Draft results indicate that aluminum, arsenic, manganese, and vanadium were detected at levels above CVs for a child but below CVs for an	<b>Current Status:</b> NFRAP has been recommended for LF-6. A risk assessment indicated that levels of aluminum and manganese might pose concern for young children. The levels are consistent with background concentrations; therefore no further actions were recommended.	<b>Groundwater:</b> No public health hazard is associated with this site. No contaminants were detected above background concentrations. <b>Soil:</b> Access to LF-6 is restricted; therefore, past, current, and future exposures to the general public are not expected.



		adult.		
Site No. 5  Landfill No. 7 (LF-7)  (OU: Main Base)	From 1956 to 1958, sanitary trash was disposed in LF-7.	<b>Groundwater:</b> No groundwater contamination has been associated with LF-7. <b>Soil:</b> Dioxin was detected at concentrations above CVs in surface soil. Elevated levels of lead were measured in subsurface soil.	<b>Current Status:</b> In RI/FS process. LF-7 will be cleaned to remove "hot spots" of lead and dioxin.	<b>Groundwater:</b> No public health hazard is associated with this site. <b>Soil:</b> Site No. 5 is not fenced and lies in the Cape Heart Housing Area built over LF-7, which was covered with clean surface fill material. Two or three houses might overlie the contaminated trenches. No public health hazards are associated with exposure to contaminated surface soil. No harmful exposures should occur in the future as lead-contaminated subsurface soil will be removed.
Site No. 6  Landfill No. 8 (LF-8)  (OU: Main Base)	From 1946 to 1955, asphalt debris was disposed in LF-8.	<b>Groundwater:</b> Pesticides were detected in trace amounts. <b>Soil:</b> Semi-volatile organic compounds (SVOC) and pesticides were detected.	<b>Current Status:</b> LF-8 will be cleaned to remove residual PAHs that remained following the removal of asphalt in 1998.	<b>Groundwater:</b> No public health hazard is associated with this site. Contaminants were detected below ATSDR's drinking water CVs. <b>Soil:</b> Access to LF-8 is restricted; therefore, past, current, and future exposures to the general public are not expected.
Site No. 7  Landfill No. 9 (LF-9)  (OU: Northwest Field)	From 1949 to 1955, sanitary trash and concrete construction debris were disposed in LF-9. No areas of fill have been identified nor have areas of storage, release, or disposal of hazardous substances or petroleum products been known to have occurred at this site.	<b>Groundwater:</b> PCE, chloroform, toluene, xylene, and lead were detected in trace amounts. <b>Soil:</b> No evidence of past landfill activities were found during the initial site reconnaissance. No areas of fill were identified. Only a few areas of minor surface debris (none of it hazardous) were discovered.	<b>Current Status:</b> A NFRAP decision was recommended for this site based on the lack of data supporting the presence of a landfill at this location.	<b>Groundwater:</b> No public health hazard is associated with this site. Contaminants were detected below ATSDR's drinking water CVs. <b>Soil:</b> Quantitative data are limited, but no evidence of soil contamination was found at this site.
Site No. 8	LF-10 operated from the early to	<b>Groundwater:</b> TCE, PCE, lead, and other	<b>Current Status:</b> LF10 (a,b,c) is under	<b>Groundwater:</b> No public health hazard

Landfill No. 10 (LF-10)	mid-1950s. Materials disposed of included asphalt wastes, scrap metals, empty 55-gallon drums, sanitary wastes, construction debris, occasional waste POL, and solvents. LF-11 was used in the early 1950s as a disposal area for asphaltic material, empty 55-gallon drums, and construction debris. LF-12 was used in the late 1950s to dispose of sanitary trash and small quantities of asphaltic wastes.	organics were detected. PCE concentrations slightly exceeded the ATSDR drinking water CV. <b>Soil:</b> SVOCs (up to 50 ppm) and pesticides were detected.	review. Remediation measures include capping, solidification, and soil removal.	is associated with this site. No production wells exist downgradient from the site and detected contaminants occurred outside the groundwater protection zone (GPZ). <b>Soil:</b> Access to this site is restricted; therefore, past, current, and future exposures to the general public are not expected. The site will continue to be used for industrial purposes in the future.
Landfill No. 11 (LF-11)				
Landfill No. 12 (LF-12)				
(OU: Main Base)				
Site No. 9	From 1951 to 1956, sanitary trash, equipment waste, POL, and unknown chemical wastes were discarded in LF-13.	<b>Groundwater:</b> No groundwater contamination has been associated with LF-13. <b>Soil:</b> ATSDR requested soil data, however data were not available for ATSDR's review.	<b>Current Status:</b> In RI/FS process.	<b>Groundwater:</b> No public health hazard is associated with this site. No contaminants were detected above background concentrations. <b>Soil:</b> No public health hazard is associated with this site. Due to access restrictions no completed exposure pathway to site contaminants exists. The site will continue to be used for industrial purposes in the future.
Landfill No. 13 (LF-13)				
(OU: Main Base)				
Site No. 10	During 1976, concrete debris and construction debris were disposed in LF-14.	<b>Groundwater:</b> No groundwater contamination has been associated with LF-14. <b>Soil:</b> SVOCs were detected below ATSDR CVs for soil. Lead was detected at levels up to 40,000 ppm.	<b>Current Status:</b> LF-14 is still being cleaned up but will still require additional characterization and most likely remediation of a subsurface waste pile.	<b>Groundwater:</b> No public health hazard is associated with this site. No contaminants were detected above background concentrations. <b>Soil:</b> No public health hazard is associated with this site. Due to access restrictions no completed exposure pathway to site contaminants exists. The site will continue to be used for industrial purposes in
Landfill No. 14 (LF-14)				
(OU: Main Base)				

				the future.
Site No. 11  Landfill 15A  Landfill 15B  (OU: Main Base)	LF-15A was reportedly used in the late 1950s and early 1960s for sanitary trash and construction debris disposal. LF-15B was used in the 1960s for sanitary trash and debris. In the 1970s, solvents were disposed of in LF-15A. Drums of lead-based paint and solvents were discovered in LF-15B in 1981.	<b>Groundwater:</b> No groundwater contamination has been associated with LF-15 or LF-16. <b>Soil:</b> SVOCs and metals were detected below ATSDR CVs for soil.	<b>Corrective Activities:</b> In 1982, drums of paint and solvents were removed. <b>Current Status:</b> LF-15 is a NFRAP site. Based on the results of a risk assessment that indicated no threats to human health and the lack of evidence to support the presence of a "landfill" or hazardous waste, no further actions were proposed for this site.	<b>Groundwater:</b> No public health hazard is associated with this site. concentrations. <b>Soil:</b> No public health hazards are associated with soil at this site because contaminants were detected at levels below CVs.
Site No. 12  Landfill No. 17 (LF-17)  Pati Point Dump  (OU: Main Base)	From 1945 to 1949, LF-17 was used as a disposal area for sanitary trash and excess equipment (including trucks and airplane parts). Pati Point Dump contains trash, office furniture, NiCad batteries, and UXO. It is not known when Pati Point Dump was in use.	<b>Groundwater:</b> No groundwater contamination has been associated with LF-17. <b>Soil:</b> ATSDR requested soil data, however data were not available for ATSDR's review.	<b>Current Status:</b> In RI/FS process.	<b>Groundwater:</b> No public health hazard is associated with this site. concentrations. <b>Soil:</b> No public health hazard is associated with this site. Due to access restrictions no completed exposure pathway to site contaminants exists. The site will continue to be used for industrial purposes in the future.
Site No. 13  Landfill No. 18 (LF-18)  (OU: Main Base)	From 1967 to 1968, asphaltic waste and waste liquids were discarded in LF-18.	<b>Groundwater:</b> Pesticides were detected. <b>Soil:</b> Soil sampling is underway; therefore, the results are not yet available.	<b>Current Status:</b> In RI/FS process.	<b>Groundwater:</b> No public health hazard is associated with this site. No production wells exist downgradient from the site and detected contaminants occurred outside the GPZ. <b>Soil:</b> No public health hazard is associated with this site. Due to access restrictions no completed exposure pathway to site contaminants exists. The site will continue to be used for industrial purposes in the future.
Site No. 14	In 1955, approximately 50 to	<b>Groundwater:</b> No groundwater	<b>Current Status:</b> In RI/FS process.	<b>Groundwater:</b> No public health hazard

Landfill No. 19 (LF-19)  (OU: Main Base)	70 drums of asphalt were disposed in LF-19.	contamination has been associated with LF-19. <b>Soil:</b> Soil sampling is underway; therefore, the results are not yet available.		is associated with this site. <b>Soil:</b> No public health hazard is associated with this site. Due to access restrictions no completed exposure pathway to site contaminants exists. The site will continue to be used for industrial purposes in the future.
Site No. 15  Landfill No. 20 (LF-20)  (OU: Main Base)	LF-20 contains sanitary trash from 1968.	<b>Groundwater:</b> No groundwater contamination has been associated with LF-20. <b>Soil:</b> ATSDR requested soil data, however data were not available for ATSDR's review.	<b>Current Status:</b> In RI/FS process.	<b>Groundwater:</b> No public health hazard is associated with this site. No contaminants were detected above background concentrations. <b>Soil:</b> No public health hazard is associated with this site. Due to access restrictions no completed exposure pathway to site contaminants exists. The site will continue to be used for industrial purposes in the future.
Site No. 16  Landfill No. 21 (LF-21)  (OU: Northwest Field)	From the mid-1950s to 1963, LF-21 operated as a sanitary trash disposal site.	<b>Groundwater:</b> No groundwater contamination has been associated with LF-21. <b>Soil:</b> VOCs and SVOCs were detected below ATSDR CVs for soil. Soil metals included cadmium (up to 240 ppm), chromium (up to 6,500 ppm), and lead (up to 16,000 ppm).	<b>Current Status:</b> Cleanup is in progress at LF-21. Further remediation includes the removal of additional hotspots of PAH- and metal-contaminated soil, testing of excavated area, and disposal either at the base landfill or an off island location.	<b>Groundwater:</b> No public health hazard is associated with this site. <b>Soil:</b> No public health hazard is associated with this site. Due to access restrictions no completed exposure pathway to site contaminants exists. The site will continue to be used for industrial purposes in the future.
Site No. 17  Landfill No. 22 (LF-22)  (OU: Northwest Field)	During the 1950s, sanitary trash and unknown quantities of UXO and black powder were discarded in LF-22.	<b>Groundwater:</b> No groundwater contamination has been associated with LF-22. <b>Soil:</b> Sixteen surface soil samples were analyzed for SVOCs, PAHs, metals, and cyanide. Draft results indicate that aluminum, cadmium,	<b>Current Status:</b> LF-22 is a NFRAP site. Based on the results of a risk assessment that indicated none of the soil contaminant level posed unacceptable risks to human health, no further actions were proposed for this site.	<b>Groundwater:</b> No public health hazard is associated with this site. <b>Soil:</b> No public health hazard is associated with this site. Due to access restrictions no completed exposure pathway to site contaminants exists. The site will continue



		and manganese exceeded CVs for a child, but were below CVs for adults.		to be used for industrial purposes in the future.
Site No. 18  Landfill No. 23 (LF-23)  (OU: Harmon)	LF-23 holds sanitary trash from operations in the late 1950s. No storage, release, or disposal of hazardous substances or petroleum products is known to have occurred at this site.	<b>Groundwater:</b> No groundwater contamination has been associated with LF-23. <b>Soil:</b> SVOCs and metals were detected below ATSDR CVs for soil.	<b>Current Status:</b> LF-23 is a NFRAP site. Based on the lack of evidence to support the presence of a "landfill" or hazardous waste, no further actions were recommended for this site.	<b>Groundwater:</b> No public health hazard is associated with this site. <b>Soil:</b> No public health hazards are associated with soil at this site. The site is generally inaccessible to the public and only low levels of contaminants were detected in soil.
Site No. 19  Landfill No. 24 (LF-24)  (OU: Harmon)	LF-24 holds sanitary trash and possibly other types of debris from the 1950s.	<b>Groundwater:</b> No groundwater contamination has been associated with LF-24. <b>Soil:</b> SVOCs (up to 230 ppm), metals, and trace amounts of dioxins were detected. Only SVOC concentrations exceeded ATSDR CVs for soil.	<b>Current Status:</b> Cleanup is complete at LF-24.	<b>Groundwater:</b> No public health hazard is associated with this site. <b>Soil:</b> Access to this site was restricted; therefore, past exposures to the general public were not expected.
Site No. 20  Waste Pile No. 7 (WP-7) (formerly known as Landfill No. 25)  (OU: MARBO Annex)	WP-7 was in use from 1945 to 1962. It contains sanitary trash, waste POL, solvents, scrap vehicles, and equipment, construction debris, and waste dry cleaning fluids.	<b>Groundwater:</b> TCE, PCE, 1,1,1-trichloroethane (TCA), carbon tetrachloride (CCl <sub>4</sub> ), toluene, xylene, lead, pesticides, and other organics were detected. TCE was detected slightly above the ATSDR drinking water CV. <b>Soil:</b> TPH and metals were detected in surface soil at levels below ATSDR CVs.	<b>Current Status:</b> As recommended in the ROD, the area was covered with clean fill to reduce the risk of exposure to contaminated soil.	<b>Groundwater:</b> No public health hazard is associated with WP-7 because no on-site production wells exist. WP-7 appears to be the source of TCE-contaminated groundwater in YU-2. <b>Soil:</b> No public health hazard is associated with soil at this site. The area is generally inaccessible to the public, only low levels of contaminants were detected, and the area has been covered with soil and vegetation.
Site No. 21  Landfill No. 26 (LF-26)	LF-26 is filled with sanitary trash and construction debris from 1966.	<b>Groundwater:</b> Groundwater monitored at wells located 0.5 miles away indicate that no site contaminants exceeded CVs or	<b>Current Status:</b> LF-26 is a NFRAP site. Based on the results of a human health risk assessment indicating that exposure to	<b>Groundwater:</b> No public health hazard is associated with this site because no on-site production wells exist. <b>Soil:</b> Access to LF-26



(OU: Northwest Field)		MCLs. <b>Soil:</b> SVOCs (up to 42 ppm), metals, and dioxins were detected.	surface soil would not increase the likelihood of cancer for residents, no further response actions were recommended.	is restricted; therefore, past, current, and future exposures to the general public are not expected. No completed exposure pathway to site contaminants exists and no public health hazard is associated with this site.
Site No. 22 Waste Pile No. 6 (WP-6) (formerly known as Landfill No. 27)  (OU: MARBO Annex)	WP-6 contains construction debris. Dates of operation are unknown.	<b>Groundwater:</b> PCE, toluene, lead, pesticides, and other organics were detected. Only PCE was detected above its respective ATSDR drinking water CV. <b>Soil:</b> TPH, VOCs, and metals (lead levels up to 6,500 ppm) were detected at levels above CVs.	<b>Current Status:</b> Cleanup at WP-6 is in progress. The ROD selected soil removal as the preferred remedial alternative. Soil removal includes removal of asphalt drums, roofing material, and metal debris.	<b>Groundwater:</b> No public health hazard is associated with this site because no on-site production wells exist. WP-6 contributes to the PCE-contamination detected in YU-1 groundwater. <b>Soil:</b> Access to this site is restricted; therefore, past, current, and future exposures to the general public are not expected. Furthermore, no exposure to contaminated soil should occur in the future following the proposed soil removal measures, as recommended in the ROD.
Site No. 23 Waste Pile No. 5 (WP-5) (formerly known as Landfill No. 28)  (OU: MARBO Annex)	WP-5 holds construction debris and auto bodies from unknown dates of operation.	<b>Groundwater:</b> PCE, toluene, lead, pesticides, and other organics were detected at levels below ATSDR's drinking water CVs. <b>Soil:</b> TPH and metals were detected below ATSDR CVs for soil.	<b>Current Status:</b> No health risks were found at WP-5; therefore no further action was recommended in the 1998 ROD for the MARBO Annex.	<b>Groundwater:</b> No public health hazard is associated with WP-5. All detected contaminants are below ATSDR's drinking water CVs. <b>Soil:</b> No public health hazard is associated with soil at WP-5. The site is inaccessible to the public and contaminants were detected in soil at levels below CVs.
Site No. 24	LF-29 is littered with household debris and	<b>Groundwater:</b> Lead, pesticides, and other organics were	<b>Current Status:</b> LF-29 was covered with a uniform 2-foot	<b>Groundwater:</b> No public health hazard is associated with LF-