

MARRA Environmental Remediation Strategy
May 15, 2009

High Priority:

Priority remediation actions include property that might be transferred to MARRA before base closure, property at or adjacent to our new “front door” Professional Office and Community Mixed Use Districts, and areas (such as the Eastern Plume) that may require a long lead time for investigation and remediation.

Land Use District	Site Name/Issue	Principal Contaminants	Description/Sources	Current Clean-Up Remedy	Potential Future Remedy
Professional Office/Mixed Use	POL1: Old Navy Fuel Farm	Elevated levels of petroleum hydrocarbons	POL: Petroleum, oil and lubricants. The site operated from 1943 to 1993 and included nine USTs within two separate petroleum bulk storage tank farms.	Removal action was completed (impacted soil removed) but petroleum hydrocarbons have been identified in the groundwater. The Navy has been doing monitored natural attenuation and intends to install several monitoring wells within the source area to determine if further action is warranted.	Needs further investigation to define downgradient extent of contamination. Source removal may be needed.
Professional Office/Mixed Use	Current Fuel Farm	Unknown	Navy’s current active fuel farm.	N/A	Soil and groundwater contamination study needed, followed by removal of fuel farm and clean-up of site. The Navy does not plan on removing the fuel farm. The tanks will be closed in accordance with MEDEP UST regulations.
Professional Office/Mixed Use	Site 7: Old Acid Caustic Pit	Cadmium, pesticides, and PAHs	Site 7 is the former location for acid and caustic liquid waste disposal. Used from 1952-1969 for disposal of transformer oils, battery acids, caustics, solvents, and miscellaneous liquids.	An attempt to remove the source of cadmium in 2001 was not successful. The 2002 Record of Decision calls for institutional controls with ongoing groundwater monitoring.	Further characterization of site is needed and likely removal of contaminated soils. Institutional controls are not appropriate for this site. The Navy is doing additional soil sampling during spring 2009 to assess if any additional soil removals should be carried out.
Mixed Use	Site 17: Former Building 95	DDT, DDE, DDD, dieldrin, chlordane, others	Building 95 and surrounding structures comprised the pesticide/herbicide storage area and distribution center for NASB until 1985.	No ROD has been developed for this site but the Navy intends to sign one. Significant soil removal was performed at this site during the 1990s.	A remedial investigation (RI) was completed in fall 2008 to determine the extent of soil and groundwater impact. Additional soil removal may be needed.

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Mixed Use	POL 2: Service Station (NEX)	Petroleum, oil and lubricant site	Has been used as a service station since 1957.	There is currently a bioremediation program to treat the petroleum contamination in the source area.	Additional characterization is needed and soil removal or some other technology to remove contaminants. The Navy and MEDEP are currently negotiating a clean-up goal, but it is anticipated that regardless of the agreed-to clean-up, ICs will be needed.
Mixed Use/Business and Technology Industries	Site 9: Neptune Drive Disposal Area	Vinyl chloride, dissolved-phase chlorinated volatile organic compounds, lead, and trichlorethene	Site 9 was a former incinerator, ash landfill, and disposal area. The incinerator operated from 1943 to 1953.	The remedy in the ROD was monitored natural attenuation with groundwater monitoring and institutional controls. The Navy decided to remove the ash landfill when they removed the barrack buildings. The Navy has removed most of the ash landfill. The area north is anticipated to be evaluated in late 2008.	The ash landfill was removed. The Navy undertook more direct push work to define remaining cleanup areas north and south of Site 9. We need to ensure that remediation completely cleans up soil.
Business and Technology; Open Space and Recreation; Natural Areas	Eastern Plume Basewide Groundwater Model	Metals, tetrachlorethene, trichlorethene; other VOCs, 1,4 dioxane	The Eastern Plume is the groundwater contamination from three sites: 4, 11, and 13.	2005 pore water investigation shows groundwater is upwelling into Mere Brook. In 1995, the Navy installed five wells and a treatment plant (“pump and treat”) for treatment of contaminated groundwater. Since 2000, the plant uses an air stripper/carbon polisher, and water is discharged to an infiltration gallery.	The nature and extent of the Eastern Plume continue to be defined. This will be a long-term challenge. A base-wide groundwater model is recommended so there is more understanding of the hydrology of the area, but the Navy has said they will only prepare a groundwater map. Existing ICs and LUCs must be modified for intended land use.

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Medium Priority:

The following areas are not as high of a priority given their location and/or the planned reuse of that site. A few of the sites will need extensive remediation if future land or property uses change.

Land Use District	Site Name/Issue	Principal Contaminants	Description/Sources	Current Clean-Up Remedy	Potential Future Remedy
Business and Technology	Sites 1 & 3	Solvents, benzene, mercury, PAHs	Used for disposing of garbage and industrial wastes. Site 1 was used from 1955 to 1975 and Site 3 was operated from 1960 to 1973. Contaminants impacted surface water, sediments, and groundwater.	In 1992, a ROD was finalized and the remedy included construction of a landfill cap and slurry wall.	If we reuse the landfill (e.g. solar panels) the landfill cap will need to be upgraded. Land use controls are appropriate until that time. The Navy has no intention of upgrading the landfill cap, unless it is determined that the existing cap fails to meet ROD requirements as determined during the CERCLA five-year review process.
Business and Technology	Site 4: Acid Caustic Pit	Trichlorethene	The pit was used for the disposal of liquid wastes between 1969 and 1974. The site underlies Building 584. It is one of three sources of groundwater contamination of the Eastern Plume.	This site has a “No Further Action” because “no direct contact pathway exists.”	If a barrier level (e.g. Building 584 and pavement) is removed, there may be contamination concentrations greater than industrial standards. Remedy must be reevaluated if the use changes.
Business and Technology	Site 13: Defense Reuse and Marketing Office (DRMO)	DDT, SVOCs, VOCs	Site 13 consisted of three USTs: one for diesel fuel, the other two for storing waste fuels, oils, and degreasing solvent.	The Navy conducted an investigation and a risk assessment to evaluate the potential effects on human health and the environment. Like Site 4, has been classified as NFA.	Like with Site 4, if a barrier level is removed, there may be contamination concentrations greater than industrial standards.
Business and Technology	Site 11: Fire Training Area	PAHs, SVOCs, 1,1 dichlorethane, trichlorethene, 1,1,1 trichlor.	The former Fire Training Area was used regularly for 30 years. Waste liquids (fuels, oils, degreasing solvents) were used as fuel for fire training exercises.	Groundwater and soil were polluted with VODs as a result of fire training activities. There were two soil removal activities. The groundwater is being treated with pump and treat.	Has No Further Action (NFA) determination following 1995 soil removal, but there is currently a dig restriction. If the use changes, this will need to be cleaned up to a different standard.
Base-Wide	Munitions of		BNAS has stored, trained with and	The DoD established the Military	Three MEC sites, including Site 12

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	Concern/Munitions of Explosive Contamination: Includes former skeet ranges, old quarry sites, machine gun boresight ranges.		used various types of Naval munitions, including aircraft cannons, bombs, hand grenades, small arms, and pyrotechnics.	Munitions Response Program (MMRP) to address munitions and explosives of concern (MEC) and munitions constituents.	(Explosive Ordnance Disposal Area - EOD) were investigated this summer. All potential MC/MEC sites must be investigated.
Sitewide	IRP Site 10: Harpswell Fuel Line	Possible petroleum releases; pipe wrapped in asbestos containing material (ACM)	The Harpswell Fuel Line consists of two carbon steel pipelines of 8" and 12" diameters with welded joints, tar exterior coating, and an asbestos felt wrapping. There are three miles of pipeline on base.	An Environmental Baseline Survey (EBS) was completed in 1997. According to the EBS, the pipeline has been inactive since 1991, at which time the lines were drained, cleaned and pressurized with nitrogen. The present integrity of the pipeline is unknown and it appears that the Transient Quarters were constructed above a section of the fuel lines.	In the event that this line is unearthed during construction activities, the ACM may require special handling and offsite disposal.
Sitewide	Underground steam lines	These lines are wrapped with asbestos insulation	Approximately 20,500 linear feet of up to 14" diameter asbestos-wrapped steam lines have been left in place in 2' x 2' concrete underground trenches.	None	If the asbestos insulation is disturbed during redevelopment construction activities, it would require special handling procedures and offsite disposal.

Low Priority:

Land Use District	Site Name/Issue	Principal Contaminants	Description/Sources	Current Clean-Up Remedy	Potential Future Remedy
Business and Technology	Site 2: Orion Street Landfill South	Metals, DDT, and VOCs	Site 2 was the Base's primary landfill from 1945 to 1955. Wastes were reportedly incinerated before being placed in the landfill and covered with soil. The 2-acre site is adjacent to Mere Brook.	The remedy for this site in the ROD is "minimal action" and institutional controls. The nature and extent of contamination north of Site 2 need to be defined; the Navy investigated the area north of Site 2 during fall 2008.	Remedial investigation of the area north of Site 2 is expected to happen this year. We would eventually like this landfill to be completely removed; the Navy has no intention of removing it.

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No Further Action/Monitor:

Land Use District	Site Name/Issue	Principal Contaminants	Description/Sources	Current Clean-Up Remedy	Potential Future Remedy
Open Space and Recreation	Site 5: Orion Street Disposal Site	Asbestos	In 1979, Site 5 was reportedly used to dispose of asbestos-lined pipes from a demolished building. A total of 14 pipes were found in two trenches.	A RI in the early 1990s included geophysical survey, sampling of soils and a site inspection. As per 1993 ROD, the asbestos-containing pipes were wrapped in polyethylene, then soil, construction debris, and pipes were transported to Sites 1 and 3.	No further action is planned for Site 5. MDEP recently noted that area may require additional sampling and investigation for pesticides.
Open Space and Recreation	Site 16: Swampy Road Debris Site	Lead	The site was brought to the Navy's attention in 1990 by a NAS employee who observed surface debris and refuse along banks of a stream in the golf course.	A site investigation was conducted in 1992. The Navy used a magnetometer to locate and remove surface debris and disposed of the material off site.	No further action planned for Site 16. EPA notes that additional debris was found during CERFA walkover and may request additional investigation.
Natural Areas	Site 15: Merriconeag Extension Debris Site	Asbestos	The Debris Area was reported in 1990 by a NAS employee. Debris was found on and near a concrete rubble and soil dam that created a 0.75-acre pond on a small, unnamed stream.	Asbestos pipe and scrap metal removed. During site inspection in 1992, test pits encountered few or no debris items. A magnetometer survey in 1999 confirmed that no metal debris remained.	No further action planned for Site 15. EPA notes that additional debris was found during CERFA walkover and may request additional investigation.
Airport Operations	Site 14: Old Dump #3		The Old Dump #3, used during World War II, is surrounded by the active runways constructed in 1951.	The Navy conducted a remedial investigation. No unexplained anomalies were detected in magnetometer survey.	Removed from Active Site List in 2001. Likely suitable for unrestricted use.
Airport Operations	Site 18: West Runway Study Area		This area is a seep is near the former location of an ordnance bunker that was dismantled some time in the mid-1970s.	In 1993, a Site Evaluation revealed a small number of anomalous areas and innocuous buried debris was found.	Removed from Active Site List in 2001. Likely suitable for unrestricted use.