Installation Narrative Summaries

Appendix A contains narratives describing environmental restoration progress and funding at 216 Department of Defense (DoD) installations and former properties. These narratives summarize Defense Environmental Restoration Program (DERP) activities at (1) active DoD installations and formerly used defense sites (FUDS) that are on, or proposed for, the U.S. Environmental Protection Agency's National Priorities List (NPL), and (2) a majority of the installations slated for Base Realignment and Closure (BRAC) as of September 30, 2001. Appendix A fulfills the statutory reporting requirements of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §120(e)(5) and Superfund Amendments and Reauthorization Act §211. Required elements of these installation narratives include interagency agreement and federal facility agreement status, a description of any hazards presented at each facility, plans and schedules for completing response actions, and an explanation of any postponements or failures to complete response actions as planned.

Each narrative provides a brief description of the installation's restoration activities and plan of action. Final remedy in place (RIP) or response complete (RC) date, funding to date, and cost-to-complete information is provided at the beginning of each narrative. An installation's 5-year review status is also provided. Reviews of the remedial action no less than every five years after initiating the remedy may be required for specific sites, not necessarily for all sites at an installation. Additional information about site status and program costs for each installation can be found in Appendix B, the Installation Restoration program (IRP) Status Tables, and Appendix C, the Military Munitions Response program (MMRP) Status Tables.

An installation may need to change its funding projections from year to year. Installations that have an estimated cost of completion greater than $1 million and have more than two sites must include an explanation for environmental cleanup cost estimate differences of greater than 10 percent from year to year. There are three explanation categories: technical issues (including, but not limited to, additional sites found, incomplete site data, and additional or extended remedial action operations); regulatory issues (including, but not limited to, lowering an existing cleanup requirement, creating new regulations); and estimating criteria (including, but not limited to, addition of cost data that were overlooked or previously unknown, database updates, and corrections).

In accordance with requirements in the FY02 Defense Authorization Act and DERP Management Guidance to report MMRP activities, installation narratives now include a paragraph dedicated to the MMRP. Because this program is new in Fiscal Year 2001 (FY01), the narratives discuss only installation progress achieved this year, and actions planned for the future. Munitions response actions that occurred prior to FY01 for non-BRAC sites fall under the IRP; therefore, information regarding them remains in the IRP Progress to Date section of the narratives. Site-level data is not available for all installations that have military munitions response actions. As the MMRP matures, additional data will be included to more accurately

reflect the work completed or under way at these sites. The Defense Logistics Agency (DLA) has not discovered any military munitions at its installations to date.

As environmental restoration progresses, some installations previously included in this appendix no longer require a narrative. A narrative may no longer be needed for many reasons, including the installation's deletion from the NPL or a DoD determination of No Further Action Required for the property. For installations that do not require narratives after FY01, these narratives note a "last narrative" status in the Plan of Action section. In addition, Table A-3 includes a list of installations that previously had narratives in this appendix, the reason for each installation's removal from the appendix, and the year of the last Annual Report in which a full-text narrative for the installation appears. The on-line version of the DERP Annual Report contains links to narratives from previous years.

Acronyms are defined in Appendix G of this report, as well as in the individual installation narratives. Each installation narrative also presents key information in graphic form, which varies depending on whether the installation is an NPL or a BRAC installation. The following sections of this introduction provide background information on the program terms and graphs found in the installation narratives.

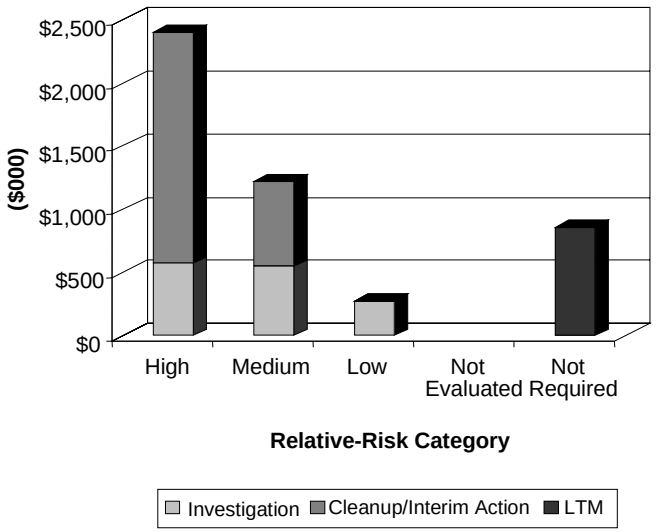
Environmental Restoration at Active Installations and FUDS Properties

Investigative actions and cleanup at contaminated sites are governed primarily by CERCLA, although in some cases activities are addressed under the Resource Conservation and Recovery Act (RCRA). For a brief description of RCRA and CERCLA, refer to the Glossary in Appendix G.

Each narrative for an active installation or a FUDS property (NPL and proposed NPL) contains a graph depicting FY01 funding by phase and relative-risk. Data for IRP and for MMRP have not been separated, in order to illustrate a complete picture of funding expenditures. Phase categories include investigation, cleanup and interim action, and long-term management (LTM). Relative-risk categories are high, medium, low, not evaluated, and risk assessment not required. The Not Required Relative-Risk Site Evaluation category includes sites that have achieved RIP, RC, or No Further Action Required designations. These sites do not require relative-risk evaluation because DoD has already committed to funding remedial action operations and LTM requirements for the sites.

Figure A-1 presents an example of a graph for an installation that is on the NPL or proposed to the NPL.

Figure A-1
NPL Installation and FUDS Property Graph Example



Environmental Restoration at BRAC Installations

Environmental restoration efforts at BRAC installations are conducted in a manner similar to that used at active installations; however, the BRAC restoration process also involves economic considerations related to reuse and transfer of property.

The BRAC program uses several processes and planning documents that focus cleanup efforts on making property quickly available for transfer. Among these processes and documents are the BRAC cleanup plan, the environmental baseline survey, the finding of suitability to transfer, the finding of suitability to lease, the Restoration Advisory Board, the community redevelopment plan, and National Environmental Policy Act analyses. These terms are thoroughly defined in Appendix G.

Each BRAC installation narrative contains a graph showing the cumulative percentage of BRAC sites achieving, or expecting to achieve, final RIP or RC status through the end of FY01, FY05, and the year in which all BRAC sites at the installation reach RIP or RC (installations that achieved, or will achieve, final RIP or RC at all BRAC sites in FY01 or FY05 will have graphs with only two bars). MMRP sites are not included in the BRAC graphs because the MMRP does not yet have a corollary milestone structure in place.

An example of a graph for a BRAC installation is shown in Figure A-2.

❑ ❑ ❑

Table A-1 provides a summary of the status of NPL, proposed NPL, or BRAC installations, organized by Component. An index to the Appendix A narratives (Table A-2) lists all of the installation narratives alphabetically, by Component. For each installation in this appendix, the index also includes the status of the installation (NPL, proposed NPL, or BRAC) and the page on which each restoration narrative is located. The installation narratives are arranged in alphabetic order by installation name.

Figure A-2
BRAC Installation Graph Example

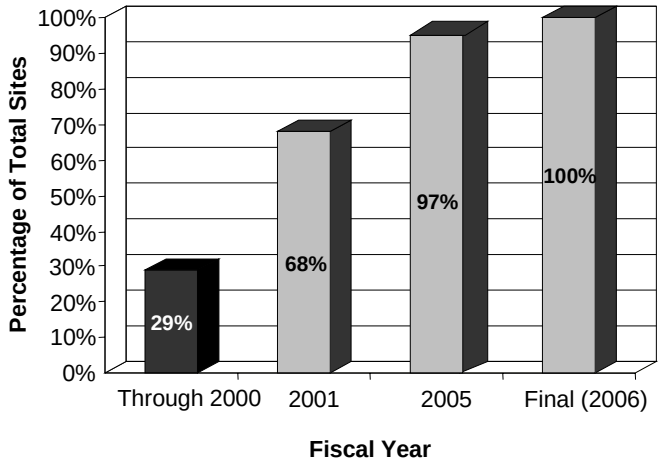


Table A-1
Status of Installations in Appendix A by Component

Component	NPL	Proposed NPL	BRAC
Army	35	1	37
Navy	49	0	29
Air Force	42	4	29
DLA	5	0	3
FUDS	19	0	0
Total*	150	5	98

*This report includes 216 installation narratives in Appendix A. The totals in the table above are higher, as some installations are both NPL and BRAC.

Table A-2
Appendix A Index

	Installation Name	State	Status	Page
ARMY				
Army	Aberdeen Proving Ground	MD	NPL	A-1
Army	Alabama Army Ammunition Plant	AL	NPL/BRAC	A-8
Army	Anniston Army Depot	AL	NPL	A-14
Army	Army Research Laboratory – Watertown	MA	NPL/BRAC	A-15
Army	Army Research Laboratory – Woodbridge	VA	BRAC	A-16
Army	Army Research, Development, and Engineering Command	NJ	NPL	A-17
Army	Camp Bonneville	WA	BRAC	A-27
Army	Cornhusker Army Ammunition Plant	NE	NPL	A-37
Army	Detroit Arsenal and Tank Plant	MI	BRAC	A-47
Army	Fitzsimons Army Medical Center	CO	BRAC	A-61
Army	Fort Chaffee	AR	BRAC	A-64
Army	Fort Devens	MA	NPL/BRAC	A-66
Army	Fort Dix	NJ	NPL	A-67
Army	Fort Dix BRAC	NJ	BRAC	A-68
Army	Fort Eustis	VA	NPL	A-69
Army	Fort George G. Meade	MD	NPL/BRAC	A-70
Army	Fort Greely	AK	BRAC	A-71
Army	Fort Lewis	WA	NPL	A-72
Army	Fort McClellan	AL	BRAC	A-73
Army	Fort Monmouth	NJ	BRAC	A-74
Army	Fort Ord	CA	NPL/BRAC	A-75
Army	Fort Pickett	VA	BRAC	A-76

	Installation Name	State	Status	Page
ARMY				
Army	Fort Richardson	AK	NPL	A-77
Army	Fort Riley	KS	NPL	A-78
Army	Fort Ritchie	MD	BRAC	A-79
Army	Fort Sheridan	IL	BRAC	A-80
Army	Fort Totten	NY	BRAC	A-81
Army	Fort Wainwright	AK	NPL	A-82
Army	Fort Wingate	NM	BRAC	A-83
Army	Hamilton Army Airfield	CA	BRAC	A-92
Army	Hingham Annex	MA	BRAC	A-96
Army	Iowa Army Ammunition Plant	IA	NPL	A-101
Army	Jefferson Proving Ground	IN	BRAC	A-103
Army	Joliet Army Ammunition Plant	IL	NPL	A-105
Army	Lake City Army Ammunition Plant	MO	NPL	A-109
Army	Letterkenny Army Depot	PA	NPL/BRAC	A-112
Army	Lexington Facility, Lexington - Bluegrass Army Depot	KY	BRAC	A-113
Army	Lone Star Army Ammunition Plant	TX	NPL	A-114
Army	Longhorn Army Ammunition Plant	TX	NPL	A-116
Army	Louisiana Army Ammunition Plant	LA	NPL	A-118
Army	Milan Army Ammunition Plant	TN	NPL	A-131
Army	Military Ocean Terminal, Bayonne	NJ	BRAC	A-132
Army	Oakland Army Base	CA	BRAC	A-152
Army	Pueblo Chemical Depot	CO	BRAC	A-165

Table A-2 (continued)
Appendix A Index

Table A-2 (continued)
Appendix A Index

	Installation Name	State	Status	Page
NAVY				
Navy	Indian Head Naval Surface Warfare Center	MD	NPL	A-99
Navy	Indianapolis Naval Air Warfare Center	IN	BRAC	A-100
Navy	Jacksonville Naval Air Station	FL	NPL	A-102
Navy	Keyport Naval Undersea Warfare Center	WA	NPL	A-108
Navy	Lakehurst Naval Air Engineering Station	NJ	NPL	A-110
Navy	Long Beach Naval Complex	CA	BRAC	A-115
Navy	Louisville Naval Surface Warfare Center	KY	BRAC	A-119
Navy	Mare Island Naval Shipyard	CA	BRAC	A-123
Navy	Mechanicsburg Naval Inventory Control Point	PA	NPL	A-129
Navy	Midway Naval Air Facility	MQ	BRAC	A-130
Navy	Moffett Field Naval Air Station	CA	NPL/BRAC	A-133
Navy	Naval Amphibious Base Little Creek	VA	NPL	A-138
Navy	Naval Auxiliary Landing Field Crows Landing	CA	BRAC	A-139
Navy	Naval Computer and Telecommunications Area Master Station, Pacific	HI	NPL	A-140
Navy	Naval Fuel Depot, Point Molate	CA	BRAC	A-141
Navy	Naval Magazine Indian Island	WA	NPL	A-142
Navy	Naval Station Newport	RI	NPL	A-143
Navy	New London Naval Submarine Base	CT	NPL	A-147
Navy	Norfolk Naval Base	VA	NPL	A-149
Navy	Norfolk Naval Shipyard	VA	NPL	A-150
Navy	Orlando Naval Training Center	FL	BRAC	A-155
Navy	Parris Island Marine Corps Recruit Depot	SC	NPL	A-157

	Installation Name	State	Status	Page
NAVY				
Navy	Patuxent River Naval Air Station	MD	NPL	A-158
Navy	Pearl Harbor Naval Complex	HI	NPL	A-159
Navy	Pensacola Naval Air Station	FL	NPL	A-161
Navy	Philadelphia Naval Complex	PA	BRAC	A-162
Navy	Portsmouth Naval Shipyard	ME	NPL	A-164
Navy	Puget Sound Naval Shipyard	WA	NPL	A-166
Navy	Quantico Marine Corps Combat Development Command	VA	NPL	A-167
Navy	San Diego Naval Training Center	CA	BRAC	A-178
Navy	South Weymouth Naval Air Station	MA	NPL/BRAC	A-184
Navy	St. Juliens Creek Annex	VA	NPL	A-185
Navy	Treasure Island Naval Station	CA	BRAC	A-194
Navy	Trenton Naval Air Warfare Center Aircraft Division	NJ	BRAC	A-195
Navy	Tustin Marine Corps Air Station	CA	BRAC	A-197
Navy	Warminster Naval Air Warfare Center Aircraft Division	PA	NPL/BRAC	A-203
Navy	Washington Navy Yard	DC	NPL	A-204
Navy	Whidbey Island Naval Air Station	WA	NPL	A-206
Navy	White Oak Naval Surface Warfare Center	MD	BRAC	A-207
Navy	Whiting Field Naval Air Station	FL	NPL	A-208
Navy	Williamsburg FISC - Cheatham Annex	VA	NPL	A-210
Navy	Willow Grove Naval Air Station Joint Reserve Base	PA	NPL	A-212
Navy	Yorktown Naval Weapons Station	VA	NPL	A-215
Navy	Yuma Marine Corps Air Station	AZ	NPL	A-216

Table A-2 (continued)
Appendix A Index

Table A-2 (continued)
Appendix A Index

Table A-3
Appendix A Installations No Longer Requiring Narratives

Component	Installation	FFID	State	NPL/BRAC	Reason Narrative Archived	Last ARC Full Narrative Appeared	B-Table Reference
Army	Cameron Station	VA321022013900	VA	BRAC 1988	All remedies are in place at this installation and all property has been transferred.	FY00	B-2-17
	Fort Benjamin Harrison	IN521372040200	IN	BRAC 1991	The Army has completed all required actions at the installation. This installation has achieved remedy in place and response complete status and all property has been transferred.	FY00	B-3-11
	Presidio of San Francisco	CA921402079100	CA	BRAC 1988	The Army is no longer responsible for restoration activities at this installation. Subsequent activities will be conducted by the Presidio Trust.	FY99	B-3-4
	Schoefield Barracks	HI921452223900	HI	NPL	This installation has reached the construction complete milestone and has been delisted from the NPL.	FY00	B-1-58
Navy	Oakland Fleet and Industrial Supply Center	CA917002477600	CA	BRAC 1995	The transfer of all land and offshore property was completed and no further cleanup is required by Navy.	FY99	B-3-4
	Sabana Seca Naval Security Group Activity	PR217002753500	PR	NPL	This installation was delisted from the NPL and no further action is required for any sites.	FY99	B-3-29

Table A-3 (continued)
Appendix A Installations No Longer Requiring Narratives

Component	Installation	FFID	State	NPL/BRAC	Reason Narrative Archived	Last ARC Full Narrative Appeared	B-Table Reference
Air Force	Minneapolis-St. Paul Air Reserve Base	MN557122427500	MN	NPL	This installation was delisted from the NPL and no further action is required for any sites.	FY99	B-3-18
	Roslyn Air Guard Station	NY257282429600	NY	BRAC 1995	RC has been achieved for all sites and no long-term monitoring is required. The Air Force does not plan to spend additional restoration funds at this installation.	FY97	B-3-23
FUDS	Avco Lycoming Superfund Site	PA39799F145100	PA	NPL	A FUDS closeout report was submitted September 13, 1996, and the project has been closed. Avco Lycoming continued to operate a groundwater treatment system. No further action is required of DoD at this site.	FY96	B-3-29
	Fisher-Calo	IN59799F35700	IN	NPL	No further action is required by DoD; the U.S. Environmental Protection Agency (EPA) and the private potentially responsible parties are managing the site remediation.	FY99	B-1-68
	Malta Rocket Fuel Area	NY29799F128100	NY	NPL	DoD has no remaining liability at this property.	FY99	B-3-23
	Marathon Battery Corporation	NY29799F114200	NY	NPL	A settlement agreement was signed among the PRPs in FY96. No further action was required of DoD. This installation was delisted from the NPL in October 1996.	FY96	B-3-23
	Middletown Air Field	PA39799F144500	PA	NPL	In September 1996, EPA issued a final Record of Decision and began the process to delete the site from the NPL. This installation was delisted from the NPL in July 1997.	FY96	B-2-15

Aberdeen Proving Ground
Edgewood Area and Michaelsville Landfill

Edgewood and Aberdeen, Maryland **NPL**

FFID:	MD32138213550	**Contaminants:**	VOCs, SVOCs, metals, PCBs, explosives, petroleum products, pesticides, radiation, CWM and their degradation products, UXO, and potential biological warfare material
Size:	72,516 acres		
Mission:	Develop and test equipment and provide troop training		
HRS Score:	31.45 (Michaelsville Landfill); placed on NPL in October 1989 53.57 (Edgewood Area); placed on NPL in February 1990	**Media Affected:**	Groundwater, surface water, sediment, and soil
		Funding to Date:	$439.0 million
		Estimated Cost to Completion (Completion Year):	$301.9 million (FY2034)
IAG Status:	IAG signed in March 1990	**Final RIP/RC Date for ER Sites:**	FY2010
		Five-Year Review Status:	Completed/Under Way/ Planned

Progress to Date

Studies have identified many areas of contamination at this installation, including chemical munitions and manufacturing waste sites. RCRA facility assessments identified 319 solid waste management units, which were combined into 13 study areas. There are 234 sites in the Edgewood Area (EA) and 20 sites in the Aberdeen Area. Remedial investigations (RIs) identified high levels of organic contaminants in most study areas. Lower levels of contamination were detected in a few on-post tributaries of the Chesapeake Bay. Removal actions have included removal of soil contaminated with polychlorinated biphenyls (PCBs), petroleum hydrocarbons, trichloroethene, and DDT; removal of underground storage tanks (USTs); removal of unexploded ordnance (UXO) along the EA boundary; closure of Nike missile silos, an adamsite vault, and pilot plant sumps; and cleanup of open dump sites.

In FY93, the Army installed carbon adsorption units for part of the Harford County Perryman water supply. In FY95, the installation converted its technical review committee to a Restoration Advisory Board (RAB), began operation of the O-Field Groundwater Treatment Facility and completed Records of Decision (RODs) for Building 103 dump site and Building 503 burn sites. In FY97, the Army completed a final report on natural attenuation (NA) at the west branch of Canal Creek (CC) and completed the ROD and technical impracticability (TI) waiver for the Beach Point Test Site.

In FY98, the installation received Nuclear Regulatory Commission release for two radiological removal action sites. The Army installed a permeable infiltration unit at the O-Field Area landfill. At the Nike site, the installation capped a landfill. The soil remedy was implemented for the Building 503 burn sites. The installation completed the 5-year review of the White Phosphorus Underwater Munitions Burial Area, with no further work recommended. The installation began a focused feasibility study (FFS) at the Lauderick Creek Area and finished a feasibility study (FS) for the CC East Branch Groundwater Operable Unit (OU) and a FFS for the Bush River Area. The Army completed RIs at Carroll Island, Graces Quarters, and the J-Field Study Area. FSs began for the Westwood Area. The Army completed an engineering evaluation and cost analysis for the Lauderick Creek area and the chemical weapons and munitions (CWM) removal action. The proposed plan (PP) for the CC East Branch Groundwater OU and the ecological and human health risk assessments for the J-Field Study Area also were completed.

In FY99, the installation constructed a cap on the Building 103 dump. At the Nike site, the installation constructed a groundwater treatment facility. In the Western Boundary Study Area (WBSA), the Army completed the FS. In the Lauderick Creek Area, the installation completed two RIs and began bench-scale treatability studies. A ROD for the Old Bush River Road dump was signed. At Carroll Island and Graces Quarters, the Army completed sitewide PPs. The Army also completed the New O-Field draft final FS.

In FY00, the installation began the Lauderick Creek UXO/CWM interim removal action and completed the CC Study Area UST removal action. The Army completed interim remedial actions for mercury-contaminated soil in the Bush River Area and an abandoned sewage system at Carroll Island. The draft FFS for the Cluster 5 blast slab dump sites, remedial actions at the Carroll Island disposal pits (OU A), and a soil cover at the Old Bush River Road landfill were completed. The Army completed removal of CWM-related items at the J-Field Study Area and the RI for Cluster 13 and other Lauderick Creek clusters. The Army and regulators signed RODs for CC East Branch Groundwater and WBSA, OU 1.

FY01 Restoration Progress

The Army initiated the 5-year review for the entire EA. The installation began development of the final ROD and exit strategy for Old O-Field. Groundwater sampling was completed throughout other Edgewood areas. The Army completed the WBSA OU1 treatment facility design and provided military construction funds for construction of the CC treatment facility. Groundwater contamination sampling was conducted at Graces Quarters. The installation signed decision documents for two removal actions and prepared draft ecological risk assessments for the Westwood Study Area. The installation also conducted a boundary sweep to identify a potential UXO disposal site. The Army and regulators signed RODs for Carroll Island/Graces Quarters OU B and J-Field Overall (including a TI waiver).

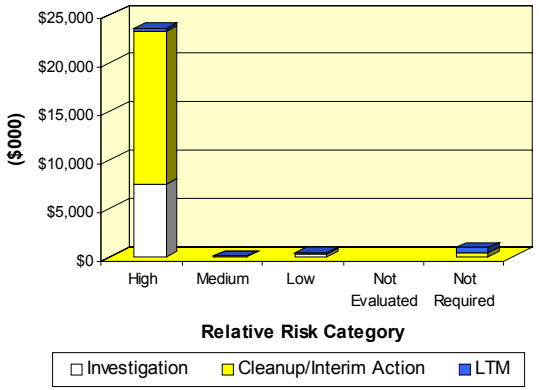
Military Munitions Response Program Progress

Previously, clearance of UXO has occurred in support of the restoration program. See Progress to Date and FY01 Restoration Progress for more information. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Begin construction of treatment facilities for CC and WBSA in FY02
- Submit 5-year reviews to EPA in FY02
- Pursue delisting of Michaelsville Landfill from the NPL in FY02
- Complete design and begin construction of shoreline stabilization for Carroll Island/Graces Quarters OU B in FY02
- Complete RI for other Edgewood areas within OU1 in FY02

FY02 Funding by Phase and Relative Risk



Adak Naval Air Facility

Adak, Alaska

NPL/BRAC 1995

FFID:	AK017002432300	**Funding to Date:**	$193.5 million
Size:	76,800 acres	**Estimated Cost to Completion (Completion Year):**	$83.1 million (FY2021)
Mission:	Provided services and materials to support aviation activities and operating forces of the Navy	**Final RIP/RC Date for BRAC-ER Sites:**	FY2004
		Five-Year Review Status:	Under Way
HRS Score:	51.37; placed on NPL in May 1994		
IAG Status:	Federal facility agreement signed in November 1993		
Contaminants:	UXO, heavy metals, PCBs, VOCs, and petroleum products		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

In September 1995, the BRAC Commission recommended closure of Adak Naval Air Facility. Operational naval forces departed the island on April 1, 1997, and command functions were assumed by the Engineering Field Activity Northwest. The installation closed in September 1997.

In FY86, a study identified 32 sites at the installation, including landfills, unexploded ordnance (UXO) areas, and polychlorinated biphenyl (PCB) spill sites, which have released contaminants into groundwater, soil, surface water, and sediment. Twenty sites were recommended for further investigation. In FY88, RCRA facility assessments identified 76 solid waste management units (SWMUs), 73 of which are managed as CERCLA sites under the federal facility agreement signed in 1993.

From FY90 to FY95, interim actions included disposal of PCB-contaminated water and sludge; bioremediation of 4,500 tons of petroleum-contaminated soil; removal of approximately 30 underground and aboveground storage tanks and associated pipelines. Removal and disposal of leaking incendiary bombs was conducted.

An interim Record of Decision (ROD) was signed in FY95 for two landfills. In FY96, the installation completed fieldwork for the basewide remedial investigation and feasibility study (RI/FS). Removal actions and interim remedial actions were completed for a number of SWMUs.

In FY97, remedial design (RD) work began for the areas around SWMU 17. SWMUs 19 and 25 were closed, and a non-time-critical removal action at SWMUs 16, 16A, and 67 was completed. Corrective actions at abandoned landfill sites were completed. A local redevelopment authority and a BRAC cleanup team were established.

In FY98, EPA confirmed that no further action (NFA) was required at SWMU 4 and SWMU 27 after completion of remedial actions (RAs) at both sites. OU B was formed to address UXO issues. The installation completed clearing of a World War II minefield at SWMU 2. Investigations concerning UXO in downtown Adak were also completed.

In FY99, RD and RA at Sweeper Creek estuary and SWMU 17 were completed. The installation completed investigations at potential minefields.

In FY00, UXO investigations were initiated for the remaining OU B sites. Several sites originally included in OU B were recommended for NFA. Regulatory agency signatures were received for the OU A ROD, and work began on the focused FS (FFS) for petroleum sites in the OU. Disposal operations at the Navy-operated landfill were discontinued as the Navy terminated its caretaker operations on the island. Petroleum cleanups were completed at nine sites.

The installation completed a community relations plan in FY90 and revised the plan in FY95 and FY99. In FY92, it formed a technical review committee, which was converted to a Restoration Advisory Board in FY96.

FY01 Restoration Progress

The draft institutional control management plan was completed. Work progressed on the selection of a final remedy for petroleum contamination, including an FFS and final RD. The draft 5-year review was completed. This review assessed all existing remedies in place as well as the status of environmental compliance programs. A comprehensive monitoring plan was completed. The Roberts Landfill was closed; however, a cell from the landfill will be opened to accommodate disposal of the cabin demolition debris in FY02. The final RI/FS and the draft ROD for OU B-1 were completed, addressing UXO contamination. The installation also completed RAs at the majority of the UXO sites in OU B-1. These sites will be part of the planned initial real estate transfer to the Department of Interior and The Aleut Corporation. A significant increase in the cost of completing environmental restoration resulted from technical issues.

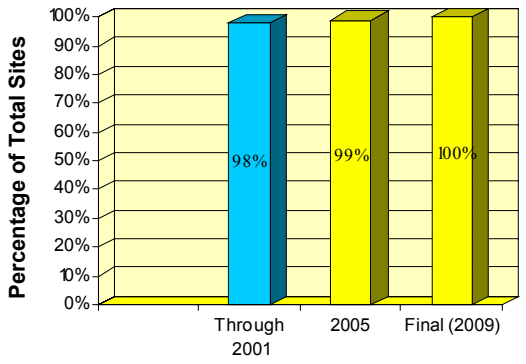
Military Munitions Response Program Progress

The installation has performed UXO response actions in support of the Installation Restoration program. See the Progress to Date and FY01 Restoration Progress for more information. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete RI/FS for OU B-2 sites in FY02
- Complete OU B-1 ROD in FY02
- Complete environmental baseline survey and finding of suitability to transfer for initial Adak land transfer in FY02
- Finalize remedy selection for Adak petroleum sites in FY02
- Complete RAs for remainder of transferring OU B-1 sites in FY02–FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Agana Naval Air Station

Agana, Guam

BRAC 1993

FFID:	GU917002755700	**Media Affected:**	Groundwater and soil
Size:	1,809 acres	**Funding to Date:**	$56.5 million
Mission:	Provided services and material support for transition of aircraft and tenant commands	**Estimated Cost to Completion (Completion Year):**	$4.3 million (FY2016)
		Final RIP/RC Date for BRAC-ER Sites:	FY2003
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	Asbestos, paint, solvents, POL liquids and sludges, and heavy metals		

Progress to Date

In July 1993, the BRAC Commission recommended the closure of the Agana Naval Air Station. The station was closed on March 31, 1995. A BRAC cleanup team (BCT) was established in FY93.

Twenty-nine sites were identified at the installation. In FY94, the final site inspection (SI) report revealed contamination in soil and groundwater at Sites 1 and 2. Fast-track actions were also initiated to investigate soil contamination at 17 other sites.

In FY95, one SI was completed for Site 10 and another started for Sites 3 through 9, 11 through 16, and 28. Perimeter fencing was installed at Sites 1 through 5, 7 through 23, and 26 to limit access. As part of the groundwater remedial investigation (RI), groundwater monitoring wells, heat pulse flow meters, and pumps were installed. Initial data from the groundwater monitoring wells showed trichloroethene and dichloroethane contamination. Findings of suitability to lease were completed for three parcels, along with an interim lease and a joint use agreement with the Guam International Airport Authority.

In FY96, a non-time-critical removal action (NTCRA) was initiated for Site 2. RI fieldwork began for Sites 20, 21, and 23. During FY97, all aboveground and underground storage tanks were closed and removed. In FY98, soil RIs were completed at Sites 2, 19, 20, and 23. At Site 29, the installation completed a time-critical removal action (TCRA). A groundwater activated-carbon treatment system at an on-site production well began operation. The Navy and regulatory agencies agreed that several sites required no further action, but that some sites required use restrictions. The installation's BRAC cleanup plan was updated in FY98.

In FY99, the removal site evaluation was completed. A soil RI for the remaining six sites was completed. An expanded ecological risk assessment continued for Site 7. A TCRA for Sites 16 and 23 was completed, and the regional groundwater RI, feasibility study (FS) report, and proposed plan were initiated. Site 22 was accepted by the BCT as a no further remedial action site.

In FY00, the installation transferred all five parcels of the former naval air station, totaling 1,979 acres, to the Government of Guam and Guam International Airport Authority. As part of the transfer agreement, an environmental services cooperative agreement was agreed to by the Navy and the Government of Guam. The agreement transferred groundwater remediation and closeout responsibilities to the Government of Guam. A NTCRA was implemented, and the engineering evaluation and cost analysis and the performance design were implemented for Site 1.

A community relations plan was published in FY92, and three information repositories were established. The installation formed a Restoration Advisory Board (RAB) in FY93.

FY01 Restoration Progress

The installation completed the NTCRA for the landfill at Site 1, and long-term management (LTM) began. Soil contaminated with petroleum and metal debris was consolidated into the NAS Agana landfill. The final round of groundwater sampling was conducted, and this responsibility was transferred to the Guam International Airport Authority. A 5-year review is planned. The BCT worked collaboratively on the early transfer of NAS Agana and two Guam land use plan properties. An environmental service agreement between the Navy and the Government of Guam on completing the groundwater investigation and remediation was also concluded with the early transfer.

The RAB meets regularly, conducts door-to-door visits with affected community members, and works closely with the mayor to distribute information of interest to the community. Both Guam EPA and EPA Region 9 have consistently agreed with the Navy on negotiated proposals.

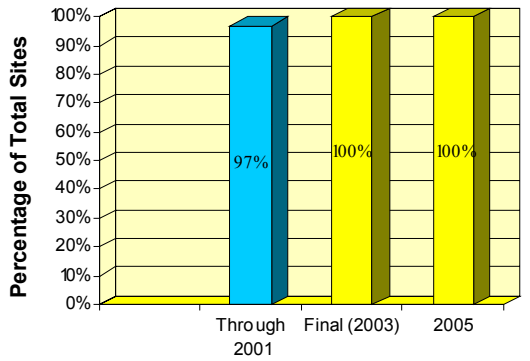
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Conduct post-construction geophysical and geological survey at NAS Agana landfill in FY02
- Continue LTM of NAS Agana landfill groundwater in FY02
- Prepare NAS Agana closure documents, such as focused FS and ROD, in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Air Force Plant No. 4
Lockheed Martin Tactical Aircraft Systems

Fort Worth, Texas **NPL**

FFID:	TX657172460500	**Funding to Date:**	$57.7 million
Size:	706 acres	**Estimated Cost to Completion (Completion Year):**	$23.0 million (FY2013)
Mission:	Manufacture aircraft and associated equipment	**Final RIP/RC Date for ER Sites:**	FY2003
HRS Score:	39.92; placed on NPL in August 1990	**Five-Year Review Status:**	Planned
IAG Status:	IAG signed in 1990		
Contaminants:	Solvents, paint residues, spent process chemicals, PCBs, waste oils and fuels, heavy metals, VOCs, and cyanide		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Air Force Plant No. 4 has been a primary manufacturer of military aircraft and related equipment since 1942. Since FY84, studies have identified 30 sites and confirmed groundwater, surface water, and soil contamination. Trichloroethene (TCE) was found in groundwater under six spill sites and four landfills.

In FY93, two interim remedial actions were implemented at Fuel Saturation Areas 1 and 3 to address contamination from two historical spill sites.

In FY94, the installation began constructing a vacuum-enhanced pumping system to treat groundwater and soil contamination at Landfill 3. In the East Parking Lot and near Carswell Air Force Base (AFB) Landfills 4 and 5, two additional carbon filtration groundwater treatment systems were installed to control the migration of a large TCE plume. Additional extraction wells were installed in the East Parking Lot to prevent TCE migration. A soil vapor extraction (SVE) pilot plant at Building 181 was expanded to a large-scale, dual-phase SVE system to treat both groundwater and soil vapors.

In FY95, a remedial investigation (RI) and feasibility study (FS) were completed with the preparation of an ecological risk assessment. During the RI, 28 of the 30 sites were recommended for no further action.

In FY96, a Record of Decision (ROD) proposed remedial actions (RAs) for the remaining two sites. The Air Force decided to integrate the restoration programs for the Carswell Field sites and the Air Force Plant No. 4 groundwater plume. In FY97, the installation completed a long-term management plan and a remedial design work plan for the East Parking Lot plume.

In FY98, an emergency plume containment action and a focused FS (FFS) were initiated at the leading edge of the TCE plume on Carswell Field. Tracer testing was used to identify potential dense nonaqueous phase liquid (DNAPL) areas of source contamination.

In FY99, an RA plan was completed. A phytoremediation project was initiated to dewater the area near Landfill 3. The installation investigated use of radio frequency heating and six-phase heating to remove DNAPL in the East Parking Lot/Building 181 area.

In FY00, fish tissue sampling in nearby Lake Worth indicated a potential health hazard due to polychlorinated biphenyls (PCBs), and the Texas Department of Health issued a consumption advisory. Most of the RAs for the East Parking Lot were completed. The Carswell groundwater treatment system near LF4/5 was reactivated because the plume had migrated near the federal property line. Additional drums were discovered in the Carswell Waste Pile 7 area. Phase II of the west side DNAPL investigation was completed. The installation worked with Carswell and the Air Force Center for Environmental Excellence (AFCEE) on an FFS for the potential transfer of the Carswell golf course because of issues related to commingled plumes.

In FY95, Air Force Plant No. 4 converted its technical review committee to a Restoration Advisory Board (RAB). The RAB was integrated with the Carswell RAB in 1996. RAB meetings are now held quarterly.

FY01 Restoration Progress

The installation completed Lake Worth sediment sampling. Results indicate above average PCB levels in areas adjacent to the plant. The installation obtained funding, completed construction, and began operating the East Parking Lot groundwater system. Characterization of west side fractured bedrock DNAPL was completed. Fifteen hundred pounds of DNAPL was removed. The six-phase heating pilot test was deemed successful and full-scale RA implementation was approved by the peer review team. A remedial process optimization study at the LF3 treatment system was conducted. An off-site well adjacent to Carswell AFB is being monitored, and contaminant levels have decreased to just above maximum acceptable contaminant levels.

The 5-year ROD review report was delayed to incorporate numerous activities on the former Carswell AFB and Air Force Plant No. 4.

The installation and Carswell AFB maintain a close partnership with the regulators and the AFCEE. The RAB participated in site tours.

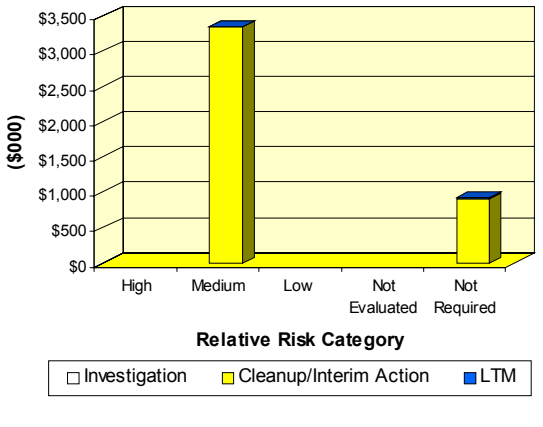
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

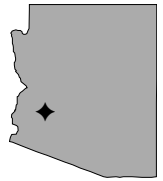
- Complete construction and begin six-phase heating of soil and groundwater below Building 181 in FY02
- Draft a 5-year ROD review report in FY02
- Conduct radioisotope study of TCE along groundwater flow path to Carswell AFB in FY02
- Characterize East Parking Lot plume in FY02
- Partner with AFCEE and BRAC participants to address the commingled plume after the FFS is completed in FY02

FY02 Funding By Phase And Relative Risk



Air Force Plant No. 44 — *Tucson, Arizona* — NPL

FFID:	AZ957172462900	**Funding to Date:**	$66.9 million
Size:	1,374 acres	**Estimated Cost to Completion (Completion Year):**	$32.5 million (FY2020)
Mission:	Research, design, and manufacture missiles	**Final RIP/RC Date for ER Sites:**	FY2003
HRS Score:	57.86 placed on NPL in 1983	**Five-Year Review Status:**	Planned
IAG Status:	Negotiations under way		
Contaminants:	Solvents, machine coolants and lubricants, paint sludges and thinners, and heavy metals		
Media Affected:	Groundwater and soil		



Progress to Date

Air Force Plant 44 (AFP 44), located adjacent to Tucson International Airport, was constructed in 1951 to manufacture Falcon air-to-air missiles. Over the years, industrial facilities were constructed to support several other missile systems. At present, industrial facilities occupy approximately 1.2 million square feet on this 1,374-acre property. EPA placed the entire Tucson International Airport Area, including AFP 44, on the National Priorities List (NPL) in 1983.

In FY86, a Record of Decision (ROD) addressing groundwater remediation was signed. A groundwater reclamation system was constructed and began operation in FY87 to contain and reduce groundwater contamination migrating from the plant.

In FY93, a risk assessment was completed to identify sites for remediation. In FY94, a remedial investigation of potential soil contamination at 11 historic waste-management sites was completed. The installation began using dual-phase extraction (DPE) to lower the water table and expose a greater area of soil to soil vapor extraction (SVE), which is more efficient than groundwater reclamation systems at removing volatile organic compounds (VOCs) from the subsurface. The DPE system has removed 8,421 pounds of VOCs in 6 years of operation, in addition to the 21,744 pounds of VOCs removed by the groundwater reclamation system.

In FY95, a feasibility study was completed. A proposed plan was released for public comment, along with engineering evaluations and cost analyses for six sites requiring remedial actions. Removal actions began at six sites. SVE for removing VOCs was implemented at three sites, and excavation of metals-contaminated soil, with off-site disposal at a RCRA landfill, was initiated at three other sites.

In FY97, a removal action was initiated in the shallow groundwater zone site to address VOCs in the vadose zone. A ROD for no further action (NFA) at four sites and a ROD for three SVE sites were signed by the regulators. In FY98, the regulators signed a ROD for three soil excavation sites.

In FY00, all 12 Installation Restoration Program sites had remediation systems in place or required NFA. An explanation of significant differences for the Site 1, 2, and 3 ROD was approved by EPA. Additional VOCs were detected at Site 1, and the SVE system was restarted for 3 months. Confirmation samples verified that Site 1 met ROD standards, and the Site 1 closeout report received EPA concurrence. The Air Force Center for Environmental Excellence conducted a scoping visit to AFP 44 initiating the remedial process optimization project. The installation completed laboratory studies and initiated fieldwork for an in situ oxidation pilot test. The installation also conducted a potentially responsible parties (PRP) search for AFP 44. Six of 12 sites have received EPA concurrence for site closeout.

In FY95, at the request of the Tucson community, the AFP 44 Restoration Advisory Board was expanded to include all PRPs associated with the Tucson International Airport Area Superfund Site (TIAASS), including the Arizona Air National Guard base. This group became the TIAASS Unified Community Advisory Board.

FY01 Restoration Progress

The installation completed the in situ oxidation pilot test using potassium permanganate at Sites 2 and 3. Remedial process optimization Phase II was also completed. Site closeout for Site 6, historic drainage channels and trenches, was completed. Post-shutdown monitoring continued at Site 2. Operation and maintenance (O&M) of the groundwater reclamation system, DPE systems, and SVE systems continued.

The DPE system at Site 5 was expanded to include three additional extraction wells. A portable treatment system was added to the DPE to remove high levels of chromium from the extracted groundwater.

The TIAASS Unified Community Advisory Board sponsored environmental fairs at two Tucson middle schools and participated in the Earth Day celebration at the Tucson Children's Museum.

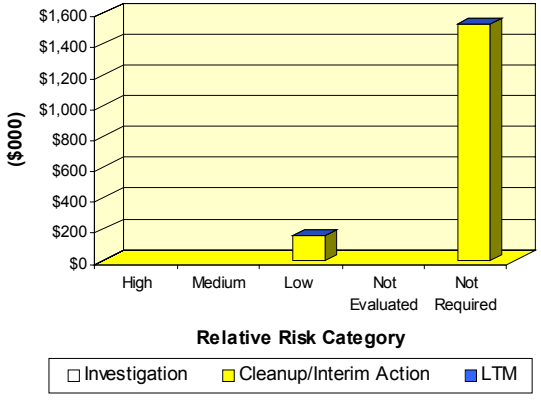
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete closeout of Site 2, final assembly and checkout landfill, in FY02
- Complete remedial process optimization Phase III in FY02
- Complete 5-year review in FY02
- Continue O&M of groundwater reclamation system, SVE systems, and DPE systems in FY02–FY03

FY02 Funding by Phase and Relative Risk



Air Force Plant No. 85 — *Columbus, Ohio* — NPL

FFID:	OH557172887000	**Funding to Date:**	$3.8 million
Size:	420 acres	**Estimated Cost to Completion (Completion Year):**	$0 million (FY2000)
Mission:	Produced aircraft and aircraft missile components	**Final RIP/RC Date for ER Sites:**	FY2000
HRS Score:	50.00; proposed for NPL in January 1994	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	PCBs, petroleum hydrocarbons, VOCs, and metals		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Environmental studies since FY86 have identified 11 sites and 1 area of concern (AOC) at Air Force Plant No. 85. Historical operations at the installation involved the use of solvents and petroleum products. Contaminants include polychlorinated biphenyls (PCBs), metals, petroleum hydrocarbons, and volatile organic compounds (VOCs), which have affected groundwater, surface water, sediment, and soil. Decision documents have been prepared for 9 of the 11 sites.

In FY94, the installation conducted supplemental investigations of pesticide contamination at the fire training area. In FY95, the installation began to remove soil contaminated with PCBs. In FY96, the AOC was closed under a letter of concurrence from the Ohio Environmental Protection Agency (EPA), and the installation began a groundwater and surface water investigation. Fieldwork for the investigation was completed in FY97.

In FY97, the Aeronautical Systems Center began using the State of Ohio's Voluntary Action Program rules as applicable or relevant and appropriate requirements for the sites. Ohio EPA concurred with an environmental baseline survey indicating that all necessary remedial actions (RAs) had taken place at one PCB spill site.

In FY98, a PCB-contaminated soil site was remediated and regulator concurrence was obtained. Investigations began under Ohio's Voluntary Action Program. Ohio EPA approved closure of a hazardous waste storage site. In addition, Air Force Plant No. 85 property was sold.

In FY99, the installation used the proceeds from the FY98 sale of installation property to investigate eight sites. Investigations resulted in closure of a coal pile site and an acid spill site. Ohio EPA provided preliminary concurrence on these designations.

In FY00, the installation completed feasibility study and RA activities at the fire training area. It also received concurrence from Ohio EPA on closure of the coal pile site and the acid spill site. Future cleanup costs are expected to be paid for by sales proceeds.

In FY95, the installation formed a Restoration Advisory Board (RAB) and began an educational program for RAB members. A public meeting held in FY97 determined that the continuation of the RAB was not necessary. The public and the installation agreed that information would be provided to the community informally, as needed.

FY01 Restoration Progress

The installation obtained Ohio EPA concurrence on the RA for the fire training area. Site investigations were completed at five remaining open sites. No further action (NFA) was necessary at three of these sites; RA was initiated at the two remaining sites. EPA concurrence was obtained on all NFA and RA determinations.

The installation continued to use the defense and state memorandum of agreement/cooperative agreement process to maintain Ohio EPA coordination of and concurrence with its cleanup program.

Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete RA at two remaining open sites in FY02 and FY03

FY02 Funding by Phase and Relative Risk

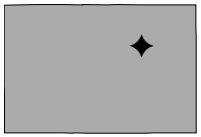
There are no cost data for this installation.

Air Force Plant PJKS

Waterton, Colorado

NPL

FFID:	CO857172553700	**Media Affected:**	Groundwater and soil
Size:	464 acres	**Funding to Date:**	$24.1 million
Mission:	Research, develop, and assemble missiles and missile components; test engines	**Estimated Cost to Completion (Completion Year):**	$15.9 million (FY2015)
		Final RIP/RC Date for ER Sites:	FY2006
HRS Score:	42.93; placed on NPL in November 1989	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	Chlorinated organic solvents, VOCs, nitrate, fuel, and hydrazine		



Progress to Date

Air Force Plant PJKS supports the military by researching, developing, and assembling missiles, missile components, and engines. Past operations have contaminated groundwater beneath the installation with trichloroethene, hydrazine, vinyl chloride, benzene, other volatile organic compounds (VOCs), and nitrate. Since FY86, studies have identified 59 sites, which were grouped into six operable units (OUs). There are also six areas of concern. Twelve of 14 underground storage tanks have been removed from the installation.

In FY93, field activities began for a supplemental remedial investigation and feasibility study (RI/FS) at OU1, OU4, and OU6. In FY94, the installation began using new technologies to improve field methods and data management. The installation also sponsored workshops, which included representatives from EPA and the state, to ensure that all technical and regulatory requirements for the supplemental RI/FS would be met. As a result of the workshops, work plans for supplemental RI/FS activities at OU2, OU3, and OU5 were renewed, approved, and made final. In FY95, all fieldwork, sample collection, and sample analysis for the supplemental basewide RI/FS, and construction of the monitoring well network were completed.

In FY96, data validation was completed and an electronic database was established. Technical work groups were formed with EPA, the State of Colorado, the USGS, and the U.S. Army Corps of Engineers to support RI site characterization and risk assessment. Site characterization and a baseline risk assessment began. Negotiations on an interagency agreement also began.

The installation formed a Restoration Advisory Board (RAB) in FY96, and in FY97 signed a RAB charter. In FY97, Relative Risk Site Evaluations were reevaluated and revised to reflect data from the RI/FS. The Aeronautical Systems Center and Lockheed Martin Astronautics agreed to sale terms for the installation that include environmental liability and cleanup aspects. In FY98, an engineering evaluation and cost analysis (EE/CA) was developed for an early action addressing groundwater contamination.

In FY99, a supplemental RI report including all six OUs was submitted to regulators for review. Groundwater monitoring was conducted. A compliance order on consent (COC) between the Air Force and the Colorado Department of Public Health and Environment was signed, and closure plans were developed for regulatory review pursuant to the COC.

In FY00, closures were completed at two sites. A work plan for the groundwater monitoring program was developed and implemented. The installation obtained regulatory concurrence on an EE/CA for soil contamination at two sites.

FY01 Restoration Progress

The installation received regulatory comments for one site in the supplemental RI report. Additional investigation is necessary before regulatory concurrence. A work plan was developed, and regulatory approval was obtained for additional investigation. Groundwater monitoring continued. A closure plan received regulatory approval and the closure was completed. A removal action to address contaminated soil at two sites was completed. Air Force Plant PJKS was sold to Lockheed Martin Corporation, the operator of the facility. The cost of completing environmental restoration has changed significantly at this installation because of estimating criteria.

Planned FS work was not initiated, and RODs were not signed, due to a delay in obtaining regulatory approval for the supplemental RI report.

The installation continued to use the Defense State Memorandum of Agreement/Cooperative Agreement process to maintain Colorado Department of Public Health and Environment coordination and concurrence with its cleanup program. Quarterly RAB meetings were held.

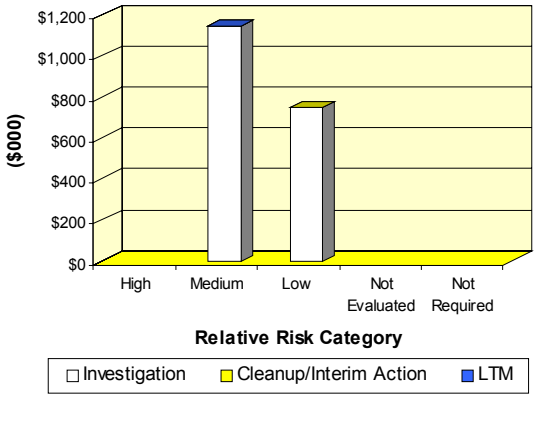
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Develop and implement FSs or RODs based on regulatory approval of the supplemental RI report in FY02
- Obtain regulatory concurrence on a closure plan and implement closure in FY02
- Continue periodic groundwater monitoring in FY02
- Obtain and address regulatory comments on a supplemental RI report for two sites in FY02–FY03

FY02 Funding by Phase and Relative Risk



Alabama Army Ammunition Plant

Childersburg, Alabama

NPL/BRAC 1988

FFID:	AL421382000800	**Funding to Date:**	$60.7 million
Size:	2,235 acres	**Estimated Cost to Completion (Completion Year):**	$3.9 million (FY2003)
Mission:	Manufactured explosives	**Final RIP/RC Date for BRAC-ER Sites:**	FY1983
HRS Score:	36.83; placed on NPL in July 1987	**Final RIP/RC Date for ER Sites:**	FY2003
IAG Status:	Federal facility agreement signed in December 1989	**Five-Year Review Status:**	NA
Contaminants:	Nitroaromatic compounds, heavy metals, and munitions-related wastes		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Studies conducted at this installation since FY83 have identified various sites as potential sources of contaminants. Prominent site types include a former ammunition production and burning ground for explosives; industrial wastewater conveyance systems, ditches, and a red water storage basin; landfills; underground storage tanks; polychlorinated biphenyl (PCB)–containing transformers; and a former coke oven.

Remedial investigation and feasibility study (RI/FS) activities began in FY85. The installation was divided into five operable units (OUs) in Area A and Area B. The RI confirmed that groundwater, surface water, sediment, and soil are contaminated with nitroaromatic compounds, heavy metals, and explosives waste.

In FY88, the Army excavated contaminated soil at the burning grounds in Area A and stockpiled it in Area B. In FY90, the Army and regulators signed a Record of Decision (ROD) for Area B.

In FY94, the Army initiated an installationwide RI; installed monitoring wells and conducted soil borings; resampled monitoring wells; and collected background, soil and sediment, surface water, and ecological samples. The Army also incinerated the stockpiled contaminated soil, as prescribed in the ROD, and formed a BRAC cleanup team.

In FY95, the Army attempted to establish a Restoration Advisory Board (RAB) but received no applications for RAB membership. The Army and regulators approved the Area A RI/FS. In FY96, the installation identified an additional OU for Area B (OU4), which includes all remaining lead- and explosives-contaminated soil at the plant. It also initiated an interim ROD for OU4. In FY97, the Army and regulators approved the final ROD for Area A and completed the remedial action (RA) for Areas 13 and 14. The Army incinerated explosives-contaminated soil in Area B OUs 3 and 4 and constructed an additional disposal cell for the remaining contaminated soil.

In FY98, the installation completed RAs for all lead- and explosives-contaminated soil and obtained regulatory approval for an engineered cap for Landfill 22. EPA and the Alabama Department of Environmental Management approved the closeout report for Area A.

In FY99, the installation completed quarterly groundwater monitoring, surface water and sediment sampling, a dye trace study, and a pump test in Area B. The installation closed 35 groundwater monitoring wells and installed an engineered cap for Area 22. EPA and the State of Alabama approved the closeout report for Area B OUs 3 and 4. The installation removed and disposed of PCB-contaminated soil at the transformer area, lead-contaminated soil at the lead hot spot area, and tar and contaminated sediment from the aniline sludge pond.

In FY00, a land use control plan and an implementation plan were completed as required to support property transfer and prepared a technical memorandum to document satisfactory soil remediation in Area B and the property's availability for transfer for industrial reuse. The technical review committee held quarterly meetings to address regulatory issues.

FY01 Restoration Progress

The installation completed soil investigations in Area B. No additional sources of explosives contamination were found. Lead contamination was found in soil at the Old South Georgia Road dump. The groundwater investigation of Area B continued, and sampling of off-site wells indicated that contamination has migrated off post to the south and southeast of Area B. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues.

The completion of the final RI/FS and ROD was delayed due to the discovery of explosives contamination in off-post wells and surface water. Additional investigation is required to determine the potential impact on the adjacent properties. Funding for the closing of monitoring wells in Area A was received, but the wells were not closed due to a delay in gaining right of entry.

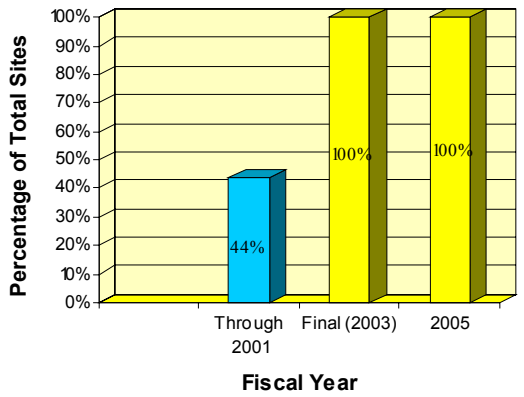
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Perform time-critical removal action of lead-contaminated sites at Old South Georgia Road dump in FY02
- Complete finding of suitability for early transfer for Area B in FY02
- Close groundwater monitoring wells in Area A in FY02
- Complete final groundwater RI/FS and ROD in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Alameda Naval Air Station

Alameda, California

NPL/BRAC 1993

FFID:	CA917002323600	**Contaminants:**	BTEX, chlorinated solvents, radium, heavy metals, herbicides, pesticides, methylene chloride, petroleum hydrocarbons, PAHs, PCBs, VOCs, and SVOCs
Size:	2,675 acres, including about 1,000 offshore acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Maintained and operated facilities and provided services and material support for naval aviation activities and operating forces	**Funding to Date:**	$124.1 million
		Estimated Cost to Completion (Completion Year):	$136.8 million (FY2010)
HRS Score:	50.0; placed on NPL July 22, 1999	**Final RIP/RC Date for BRAC-ER Sites:**	FY2008
IAG Status:	Federal facility agreement signed	**Five-Year Review Status:**	Planned

Progress to Date

In September 1993, the BRAC Commission recommended closure of Alameda Naval Air Station. The installation was closed in April 1997. Cleanup activities at this installation relate to 28 sites. Prominent site types are landfills, offshore sediment areas, plating and cleaning shops, pesticide control areas, transformer storage areas, and a former oil refinery.

In FY94, the installation removed lead- and acid-contaminated soil from Site 13. In FY95, 4 underground storage tanks (USTs) and associated contaminated soil were removed from Site 7, debris removal began for catch basins at Site 18, and 60 abandoned USTs and associated contaminated soil were removed. A community land reuse plan was approved in FY96.

In FY97, the installation began Phase II of the ecological risk assessment for all sites, completed an environmental baseline survey (EBS) for 208 parcels, and removed sediment from storm sewer lines at Site 18. A treatability study (TS) was completed for Site 3. The installation also completed the initial community relations plan (CRP) and performed early actions at Sites 15, 16, and 18.

In FY98, the installation completed the early removal of polychlorinated biphenyl (PCB)– and lead-contaminated soil at Sites 15 and 16. The removal action at Site 18 was completed, and TSs were completed at Sites 1 and 17. The installation also began a project to remove or close 13 miles of abandoned fuel lines.

In FY99, all but one of the remaining USTs were removed. Abatement of asbestos in all industrial facilities was completed, and lead-based paint and asbestos were abated in all pre-1960 housing units. The removal of most of the active and inactive fuel lines was completed. The installation was placed on the National Priorities List (NPL) on July 22, 1999. The final remedial investigations (RIs) for Operable Unit (OU) 1 and OU3 and the draft feasibility study (FS) for OU3 were completed.

In FY00, the installation completed the removal action and transferred East Housing (73 acres) to the City of Alameda. TSs were completed at Sites 4, 5, and 13. Cleanup and the fuel line removal were completed at the RCRA-permitted facility at Area 37. Negotiations with EPA and the State of California on the federal facility agreement neared completion. A Record of Decision was prepared for Marsh Crust. The installation completed most of the basewide EBS and reached a preliminary agreement with the regulatory agencies on Environmental Condition of Property recategorization of parcels. The majority of radium paint contamination at Sites 1, 2, 5, and 10 was removed.

The installation formed a technical review committee in FY90 and converted it to a Restoration Advisory Board (RAB) in FY93. A BRAC cleanup team was formed in FY93. A BRAC cleanup plan was completed in FY94. In FY98, the first Technical Assistance for Public Participation grant in the United States was issued to the RAB to help with the OU1 RI review.

FY01 Restoration Progress

The installation completed the majority of the basewide sampling. The petroleum corrective action plans were completed and cleanup began. The first Site 25 removal action was completed, and documentation began for removals at the other sites. Closure of three RCRA-permitted sites was completed. Regulatory concurrence was received on one site and is pending on the other two sites. The cost of completing environmental restoration has increased significantly due to estimating criteria issues, regulatory issues, and technical issues.

The RI and the FS for OU3 were separated so that data gap sampling, cumulative risk assessment, and geotechnical/ordnance and explosives waste investigation could be incorporated into the RI. The RI for OU4A was completed but was not approved by regulatory/public review. Land transfers were postponed for investigation of basewide polyaromatic hydrocarbon (PAH) contamination. The closure of the two remaining RCRA-permitted sites was delayed by funding and regulatory issues.

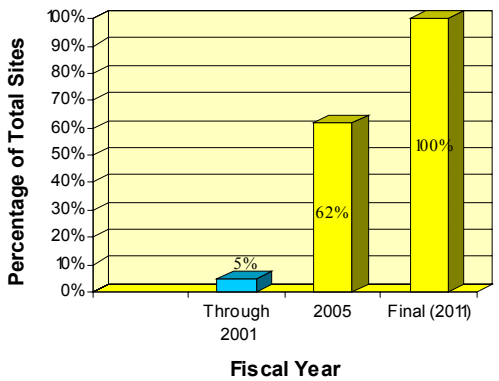
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete RI for Sites 3, 31, 39, 41, and 47 in FY01
- Complete removal at Sites 4, 5, 9, 11, 14, 16, 21, and 25 in FY02–FY03
- Complete basewide PAH investigation in FY02–FY03
- Complete 70 percent of petroleum cleanup in FY02–FY03
- Complete FS and PP for OU3, RI and FS for OU5, and RI for OU6 in FY02–FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Albany Marine Corps Logistics Base — *Albany, Georgia* — NPL

FFID:	GA417302369400	**Contaminants:**	VOCs, PCBs, heavy metals, pesticides, and PAHs
Size:	3,579 acres	**Media Affected:**	Groundwater, soil, and sediment
Mission:	Acquire, supply, and dispose of materials needed to sustain combat readiness of Marine Corps forces worldwide; acquire, maintain, repair, rebuild, distribute, and store supplies and equipment; conduct training	**Funding to Date:**	$29.9 million
		Estimated Cost to Completion (Completion Year):	$28.5 million (FY2016)
		Final RIP/RC Date for ER Sites:	FY2011
		Five-Year Review Status:	Completed/Planned
HRS Score:	44.65; placed on NPL in December 1989		
IAG Status:	Federal facility agreement signed in July 1991		

Progress to Date

Environmental studies identified 30 sites at this base. These sites were grouped in six operable units (OUs), including basewide groundwater (OU6) and a site screening group. Sites include disposal areas, storage areas, and landfills. Contaminants include trichloroethene, polychlorinated biphenyls (PCBs), and heavy metals. A 5-year review was completed for the installation.

In the 1980s, an initial assessment study was completed for eight sites, a confirmation study was completed for nine sites, a groundwater recovery system was installed, and a quarterly groundwater monitoring program began for the industrial wastewater treatment plant (IWTP) area. The installation completed a RCRA facility investigation (RFI) for nine sites, a corrective measures study (CMS) for one site, and an interim remedial action (IRA) for capping of the IWTP sludge beds. The installation also completed a preliminary assessment for one site in FY91 and a remedial investigation and feasibility study (RI/FS) in FY92.

In FY95, the RI/FSs for OU1 and OU2 were submitted to the regulators, and an IRA was completed for one site at OU1. The installation also completed a focused FS, signed an interim Record of Decision (ROD), and finished RCRA closure of the domestic wastewater treatment plant sludge beds at Solid Waste Management Unit (SWMU) 3. During FY96, the installation completed a removal action for another site at OU1. A final no further action ROD was signed for OU2, and the site was closed. An IRA was completed for one site at OU5.

In FY97, the installation completed the RI and baseline risk assessment (BRA) and signed a final ROD for the four sites at OU1 and the two sites at OU3. The RI, BRA, and the no further remedial action planned (NFRAP) proposed plan for two sites at OU5 were completed. The RFI, the CMS, and corrective measures implementation were finished for two SWMUs. In FY98, the installation completed an RI/BRA for OU4. A final ROD was signed for two sites at OU5, declaring NFRAP for all soil, surface water, and sediment.

In FY99, a final ROD was signed for OU4, specifying institutional controls for one site and NFRAP for four sites. A land use controls assurance plan agreement was finalized between the base and EPA Region 4, and an alternate water supply was provided to 55 residents north of the base. The RFI report was submitted to the regulators. The draft FS was submitted to the regulators.

In FY00, the installation received clean closure notification for the carpenter shop wood-preservation area that was contaminated with pentachlorophenol. Remediation was completed at SWMU 30, the former PCB transformer site.

A technical review committee was formed in FY89. In FY92, a community relations plan was completed.

The Georgia Environmental Protection Division (EPD) began receiving Defense and State Memorandum of Agreement funding in FY00.

FY01 Restoration Progress

The installation completed the final ROD for OU6, which specified enhanced bioremediation for groundwater and capping for source control. The certificate of closure for SWMU 30 was received, and a no further response action planned letter was received from the Georgia EPD. The 5-year review was completed.

Laboratory testing and arranging for specialty subcontractors to perform hydraulic and pneumatic fracturing delayed completion of the pilot study for enhanced bioremediation at OU6. The remedial design (RD) and initial construction for OU6 were delayed until the pilot study could be completed.

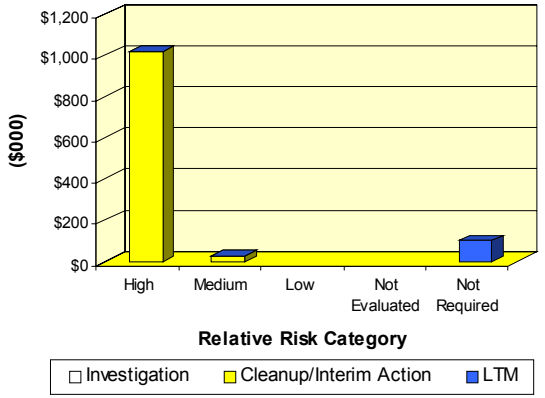
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete enhanced bioremediation pilot study in FY02
- Begin RD in FY02, and complete RD and begin construction in FY03
- Complete evapotranspiration cap pilot study in FY03, comparing an evapotranspiration cap (hybrid poplar tree cap) with a compacted clay cap
- Initiate a zero-valent iron pilot study for groundwater remediation in FY02, and complete study in FY03

FY02 Funding by Phase and Relative Risk



Allegany Ballistics Laboratory

Mineral County, West Virginia

NPL

FFID:	WV317002369100	**Funding to Date:**	$20.9 million
Size:	1,628 acres (1,572 acres owned by the Navy)	**Estimated Cost to Completion (Completion Year):**	$45.2 million (FY2042)
Mission:	Research, develop, and produce solid propellant rocket motors for DoD and NASA	**Final RIP/RC Date for ER Sites:**	FY2009
		Five-Year Review Status:	Planned/Under Way
HRS Score:	50.00; placed on NPL in May 1994		
IAG Status:	Federal facility agreement signed January 1998		
Contaminants:	VOCs, RDX, HMX, and silver		
Media Affected:	Groundwater and soil		

Progress to Date

Environmental studies in FY83 identified 11 sites at this government-owned, contractor-operated installation. A confirmation study recommended further study at eight of these sites. In FY92, remedial investigation (RI) and feasibility study (FS) activities began at six sites. In FY93, 119 solid waste management units (SWMUs) and 12 areas of concern (AOCs) were identified, with 61 recommended for further action. Site 1 consists of six waste disposal units, including ordnance burning grounds, inactive solvent and acid pits, a drum storage area, a former open burn area, and an ash landfill.

During FY95, baseline risk assessments were completed for Sites 1 through 5 and Site 10. During FY96, the installation completed a focused FS (FFS) for groundwater and began an FFS for soil. It also completed an engineering evaluation and cost analysis (EE/CA) for Site 7, performed a site inspection, and began an RI/FS for Site 11.

In FY97, the Record of Decision (ROD) for Site 1 was signed, and the remedial design (RD) for a water treatment plant (WTP) was implemented to achieve hydraulic containment. Remedial action (RA) was initiated for groundwater at Site 1. A ROD was signed for Site 5, and an RD was implemented for a landfill cap. The removal action for Site 7 was completed.

In FY98, the installation's federal facility agreement was signed. For Site 10, an FFS for groundwater was completed, the ROD was signed, and the RD was completed. The Site 1 WTP was used for hot-spot extraction of groundwater at Site 10.

In FY99, closeout packages were submitted for 12 SWMUs. An institutional control plan was issued for Sites 1, 5, and 10; the Site 11 RI was completed; and a draft community relations plan was issued.

In FY00, the installation completed an RI for groundwater and soil at Site 10, and plume boundaries were identified. A draft long-term management (LTM) plan and a draft sewer line hydrologic investigation were completed for Site 10. In addition, a draft final work plan addendum for Sites 4B and 10 was completed. A natural attenuation (NA) study was completed for groundwater at Site 5, and a draft NA assessment project plan was completed. In addition, an LTM report was completed for Site 5. A draft risk memorandum and a draft proposed remedial action plan (PRAP) were prepared for Site 7. The SWMU/AOC preliminary investigation was completed, resulting in a need for further RI/FS at three SWMUs' AOCs. In addition, a final decision document (DD) for no further action (NFA) was signed for 14 SWMUs. A draft EE/CA for soil was completed at Site 1.

The installation established a technical review committee in FY89 and converted it to a Restoration Advisory Board (RAB) in FY95. In FY94, an administrative record and two information repositories were established.

FY01 Restoration Progress

The final NFA ROD for Site 7 was signed. Final closeout reports for SWMUs 21, 37S, 37G, and 37C (groundwater), and AOC O were completed. Aquifer testing utilizing groundwater flow modeling was conducted at Sites 1 and 10 in order to optimize well locations and pumping rates. A groundwater treatment plant optimization study was conducted, and the recommendations were implemented reducing plant outages and operating costs. RAs at SWMUs 37A, 37B, 37BB, 37N, 37V, 37X, 24R, and 26, and the condensate collection tank were completed. The SWMU/AOC investigations are complete. A 5-year ROD review for Site 5 soil is under way.

The installation's final PRAP and ROD for Sites 10 and 11, the risk assessment for Site 10, and the FS for soil at Site 1 subsites were delayed by a need for additional sampling. The Site 5 FS, PRAP, and ROD were delayed due to an additional investigation of groundwater contamination. The ROD for Site 4B was delayed because an EE/CA and an RA are necessary to obtain an NFA ROD.

Documents were reviewed via PowerPoint presentations at RAB meetings. Partner team meetings were held as needed, generally every 1 to 2 months.

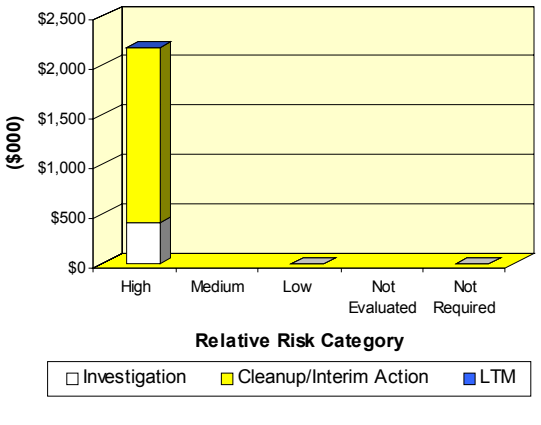
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete Site 4B EE/CA and RA in FY02
- Continue RI and begin risk assessments for SWMUs 27A and 37V, and AOC N in FY02
- Complete the Site 5 and Site 11 PRAPs and RODs in FY03
- Perform human health and ecological risk assessments on Sites 1 (soil only), 2, 3, 5, and 10 in FY03
- Develop draft preliminary remediation goals for soil subsites in FY03

FY02 Funding by Phase and Relative Risk



Andersen Air Force Base — *Yigo, Guam* — NPL

FFID:	GU957309951900	**Funding to Date:**	$69.4 million
Size:	15,400 acres	**Estimated Cost to Completion (Completion Year):**	$29.1 million (FY2009)
Mission:	Provide troops, equipment, and facilities in the Pacific	**Final RIP/RC Date for ER Sites:**	FY2009
		Five-Year Review Status:	Planned
HRS Score:	50.00; placed on NPL in October 1992		
IAG Status:	Federal facility agreement signed in March 1993		
Contaminants:	VOCs, metals, asphalt, dioxins, PCBs, and UXO		
Media Affected:	Groundwater and soil		

Progress to Date

In FY84 and FY85, preliminary assessments identified 50 sites at Andersen Air Force Base, including landfills, waste piles, fire training areas, hazardous waste storage areas, and spill sites. The 50 sites were consolidated into 39 sites and grouped into six operable units (OUs). Restoration activities began when low levels of trichloroethene and tetrachloroethene were detected in the sole-source drinking water aquifer.

Andersen Air Force Base is home to several endangered species of plants and animals. Rapid development of nonmilitary lands on the island has made the installation a de facto nature preserve. Extensive ecological inventories are conducted before field activities are performed to ensure that endangered species will not be affected by restoration work.

In FY93, Landfill 5 was capped. To avoid the high cost of importing sterilized soil to Guam, the installation used a synthetic cover material to cap the landfill. The installation's success with this innovative technology prompted other agencies on Guam to use the same synthetic material. Remedial investigation and feasibility study (RI/FS) activities also began. In addition, the installation formed a technical review committee (TRC) and built a partnership with the Navy to establish a Defense Environmental Restoration Team.

The TRC was converted to a Restoration Advisory Board in 1995. In FY96, 25 additional groundwater monitoring wells were installed to facilitate RI sampling and long-term management (LTM) of groundwater in the karst aquifer. In FY97, the base was geographically reorganized into four OUs to accommodate excess-land issues and address groundwater at each site.

In FY98, a Record of Decision (ROD) was completed for the MARBO OU, and remediation began at four of the OU's six sites. More than 4,000 barrels of 1950s-era asphalt were collected from three sites in the Main Base OU and recycled. The base community relations plan was also updated in FY98.

In FY99, remediation was completed for four sites and seven areas of concern on excess property. Investigations were completed at eight sites, four of which require remediation. No further remedial action planned (NFRAP) documents were prepared for the remaining four sites. Engineering evaluations and cost analyses (EE/CAs) for six sites and investigations for eight sites were completed. The installation and regulators agreed to halt groundwater monitoring at the Harmon and Northwest Field OUs because concentrations of target analytes did not exceed action levels. Two monitoring wells are being sampled at Northwest Field until the interim remedial action (IRA) for the last two sites has been completed.

In FY00, EE/CAs for 4 sites and NFRAP documents for 10 sites were completed. Groundwater investigation at the Main Base OU, partnerships with Guam EPA and EPA Region 9 remedial project managers, and LTM of MARBO OU groundwater continued. An IRA for four sites was initiated.

FY01 Restoration Progress

The MARBO ROD amendment was signed. Remediation was completed at LF-29. EE/CAs for LF-17, the Ritidian Dump, LF-13, LF-18, LF-19, and LF-10 are under regulatory review. NFRAP documents for LF-22, WP-4, CSA-1, FTA-1, and LF-6 are awaiting signature by Guam EPA. The RI/FS and the proposed plan for the Harmon OU were finalized. The ROD is in regulatory review. The Urunao Dump was added as a new OU and Installation Restoration Program site; work is now in the FS phase. IRAs for LF-10 are planned. The 5-year review for the MARBO ROD was scheduled for FY03. IRA projects for LF-29 and LF-7 have been completed.

During the remediation of WP-6, additional soil requiring remediation was identified; a follow-on project is being developed. LF-8 is not scheduled for cleanup until an EE/CA report is written. An LF-2 remedial project was initiated, but was not completed due to lack of funding. IRAs for CSA-4, LF-14, LF-21, and the PCB storage area were initiated.

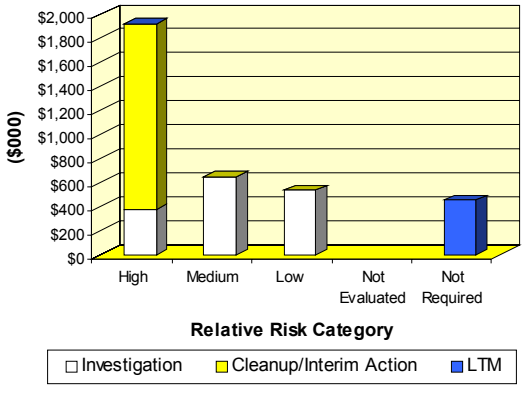
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Perform follow-up cleanup projects for LF-2 and WP-6 in FY02
- Complete IRA for LF-10 in FY02
- Complete EE/CAs for FTA-2 and LF-8 in FY02
- Continue groundwater monitoring in FY02
- Produce and sign a final version of the Harmon ROD in FY02

FY02 Funding by Phase and Relative Risk



Andrews Air Force Base — *Camp Springs, Maryland* — NPL

FFID:	MD357182400000	**Funding to Date:**	$39.1 million
Size:	4,300 acres	**Estimated Cost to Completion (Completion Year):**	$82.8 million (FY2025)
Mission:	Provide Presidential airlift support	**Final RIP/RC Date for ER Sites:**	FY2018
HRS Score:	50.0; placed on NPL in June 1999	**Five-Year Review Status:**	NA
IAG Status:	NA		
Contaminants:	Heavy metals, SVOCs, VOCs, PAHs, PCBs, and pesticides		
Media Affected:	Surface water		

Progress to Date

Environmental studies at Andrews Air Force Base (AFB) began in 1985. Historic fuel supply activities, landfills, and other support and training operations had contaminated ground and surface water with metals, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and pesticides. Twenty-two Installation Restoration Program sites were identified, with 11 additional areas of concern (AOCs). Four sites have been closed under the RCRA program.

EPA identified five source areas at Andrews AFB during Hazard Ranking System scoring for proposed National Priorities List (NPL) listing. Source 1 (FT02) and Source 2 (FT03) are former fire training areas where fuel and waste oil were burned. Source 3 (AOC 29) is on the airfield where waste treatment plant sludge was used to bring areas up to grade. Source 4 (LF05) is a former landfill that was used for disposal of general refuse, construction rubble, and fly ash. Source 5 consists of two landfills (LF06 and LF07) used primarily for disposal of construction wastes. Small quantities of household waste and shop wastes (oils, paint thinner, and cleaning solvents) were also disposed of in Source 5.

A preliminary assessment and site investigation (PA/SI) and other work at Source 1 showed nickel concentrations that were slightly above maximum contaminant levels. In FY92, a no further remedial action planned (NFRAP) document was issued for FT03. In FY96, a geophysical survey was conducted and test pits were dug at FT03. In FY98, sampling data and the PA/SI results showed contaminants at Source 3 to be within acceptable sewage sludge land-application limits.

In FY95, a remedial investigation and feasibility study (RI/FS) and a baseline risk assessment were conducted for Source 5, resulting in an NFRAP proposal. The state and county regulators did not concur with this recommendation.

In June 1999, the base was placed on the NPL. The installation began partnering with EPA Region 3, the Maryland Department of the Environment, and the Prince George's County Health Department. The regulators have indicated that all CERCLA sites require new RI/FS investigations because of the NPL listing. Seventy-eight solid waste management units identified in 1988 and reviewed by the CERCLA partnering group must also be revisited.

In FY00, the installation submitted an RI work plan for Source 4 for regulatory review. Final basewide master plans were also submitted to regulators to streamline future document review. Based on the NPL decisions, the installation developed new cost plans and schedules. An administrative record and an information repository were created on CD-ROM.

FY01 Restoration Progress

The installation received regulatory concurrence and completed the RI work plan for LF05. Overexcavation was implemented as an interim remedial action at SS22 (Hangar 13). The building demolition project at SS21 was rescoped to include removal of contaminated soil in the source area. Interim removal actions at RCRA petroleum sites ST17, ST18, and ST19 were conducted. Basewide master plans to streamline future document review were completed. The cost of completing environmental restoration has changed significantly at this installation because of estimating criteria and technical issues.

RI field activities at LF05 were delayed due to regulatory review and legal issues associated with the site.

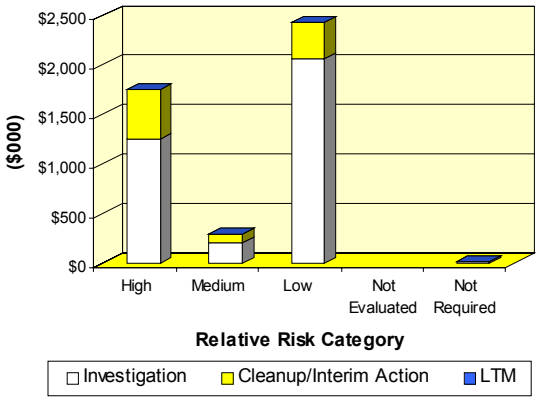
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Begin RI at FT04, LF06/07, and ST10 in FY02
- Finalize RI and begin FS at ST14 in FY02
- Begin RI fieldwork at LF05 in FY02
- Begin basewide background study and work plans for basewide ecological risk assessment in FY02

FY02 Funding by Phase and Relative Risk



Anniston Army Depot — Southeast Industrial Area — *Anniston, Alabama* — NPL

FFID:	AL421382002700	**Funding to Date:**	$48.2 million
Size:	600 acres	**Estimated Cost to Completion (Completion Year):**	$32.8 million (FY2032)
Mission:	Maintain combat vehicles	**Final RIP/RC Date for ER Sites:**	FY2006
HRS Score:	51.91; placed on NPL in March 1989	**Five-Year Review Status:**	Completed/Planned
IAG Status:	Federal facility agreement under negotiation		
Contaminants:	VOCs, heavy metals, phenols, petroleum products, acids, and caustics		
Media Affected:	Groundwater and soil		

Progress to Date

Since 1948, the Army has repaired, rebuilt, and modified combat vehicles and artillery equipment at the Anniston Army Depot Southeast Industrial Area (SIA). Painting, degreasing, and plating operations at the installation generate wastes containing volatile organic compounds (VOCs), phenols, heavy metals, and petroleum distillates. Studies at the installation revealed soil and groundwater contamination at 47 sites, most prominently with VOCs, metals, and phenols.

From FY79 to FY89, Army cleanup activities included pumping waste from an unlined lagoon into a lined lagoon, removing sludge and contaminated soil at RCRA corrective action sites, and installing groundwater interception and treatment systems to remove VOCs and phenols. In FY93, the Army removed sludge contaminated with VOCs, metals, and petroleum products from a former industrial wastewater treatment plant.

In FY95, the Army removed two underground storage tanks (USTs) and incorporated the contaminated groundwater at the sites into the Groundwater Operable Unit (OU). Under an interim Record of Decision (ROD), the Army began a pilot study to address chemical fouling in the groundwater extraction system. The Army developed an emergency response plan to identify further response actions at public water-supply sites and residential wells that might be affected by installation activities. The Army also addressed community concerns by sampling residential groundwater wells.

In FY96, the Army completed source characterization of Solid Waste Management Unit (SWMU) 12 and fieldwork for Phase II of the remedial investigation and feasibility study (RI/FS).

In FY97, the Army completed dye tracing at the Off-Post OU. A monitoring well inventory also was completed. A Phase I RI began at the TNT washout facility. A partnership initiative began that involved all restoration process stakeholders.

In FY98, the Army completed the SIA Phase II RI report, the updated community relations plan, and the report on the groundwater dye-tracer test. Fieldwork concluded on the Ammunition Storage Area (ASA) RI, the Off-Post Groundwater OU RI ecological risk screening, and the geophysical study along the depot boundary. The installation also formed a Restoration Advisory Board (RAB).

In FY99, the Army completed the SIA Groundwater and Soil OU FSs, the 5-year review of the interim ROD for the SIA Groundwater OU, and the proposed plan (PP) for the SIA Groundwater OU. The draft ASA RI/FS and the SIA Groundwater OU ROD were also completed. The installation designed and implemented an environmental geographic information system.

In FY00, the Army completed conversion of the chromium treatment plant to an SIA centralized groundwater treatment system. The Army also completed hydrogen peroxide injection for groundwater treatment at SWMU 12, inventory and sampling of off-post private wells and springs surrounding the installation, and the fieldwork for the Phase I off-post RI. The SIA Soil OU PP was completed.

FY01 Restoration Progress

The Army completed the Phase I RI and began the Phase II off-post RI. Remedial design for sediment and surface water at SWMU 44 is ongoing. The installation completed the SWMU 12 emergency removal and groundwater treatment reports. Operation of the new centralized groundwater treatment facility began. The installation sampled 66 off-post private drinking water wells; all were below the detection limits for volatile organics. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues.

The On-Post Groundwater OU interim ROD, the SIA Soil OU ROD, the land use control plan memorandum of agreement, and complete applicable land use control plans were delayed because of debate between regulatory agencies over land use controls. The ASA RI/FS and the draft final ASA ROD were delayed due to regulatory issues. Additional data requirements delayed the Alabama risk-based corrective action for SWMU 46.

The RAB remained active, participating in site tours and presentations.

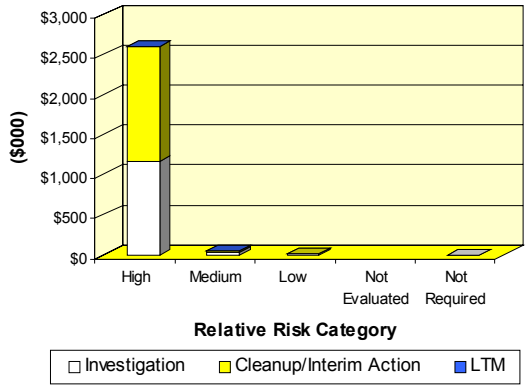
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete and sign On-Post Groundwater OU interim ROD and SIA Soil OU ROD in FY02
- Complete Alabama risk-based corrective action for SWMU 46 in FY02
- Complete ASA RI/FS and draft final ASA ROD in FY02
- Complete Phase II of the combined groundwater RI in FY03
- Complete 5-year review in FY04

FY02 Funding by Phase and Relative Risk



Army Research Laboratory–Watertown

Watertown, Massachusetts

NPL/BRAC 1988

FFID:	MA121382093900	**Funding to Date:**	$99.5 million
Size:	48 acres	**Estimated Cost to Completion (Completion Year):**	$2.1 million (FY2004)
Mission:	Conduct materials research and development	**Final RIP/RC Date for BRAC-ER Sites:**	FY2004
HRS Score:	48.60; placed on NPL in May 1994	**Five-Year Review Status:**	Under Way/ Planned
IAG Status:	Signed July 25,1995		
Contaminants:	Radionuclides, heavy metals, petroleum products, solvents, pesticides, and PCBs		
Media Affected:	Soil and surface water		

Progress to Date

In December 1988, the BRAC Commission recommended closure of the Army Materials Technology Laboratory (Army Research Laboratory), Watertown. The Army has moved the installation's mission activity to a combined laboratory at Aberdeen Proving Ground, Maryland. The installation closed, as scheduled, on September 30, 1995.

Studies at the installation revealed soil contaminated with petroleum products, pesticides, and polychlorinated biphenyls (PCBs). Similar chemical and metal contaminants were present in several laboratories and machine shops. The installation divided its remedial investigation (RI) and feasibility study (FS) activities into three areas (Indoor, Outdoor, and Charles River).

Interim actions have included asbestos abatement, removal of all known aboveground and underground storage tanks, remediation of petroleum-contaminated soil, decommissioning of the central heavy-oil-fired power plant, retrofitting and disposal of PCB-containing transformers, and closing of a cooling water discharge system from an old decommissioned reactor.

The installation formed a BRAC cleanup team (BCT) and a Restoration Advisory Board in FY94. In FY96, it decommissioned facilities contaminated with radioactive materials and completed removal and demolition of the tank farm. The Army and regulators signed a Record of Decision (ROD) for the Outdoor Soil and Groundwater Operable Unit (OU). The BCT expedited development of a second ROD for Building 131.

In FY97, the installation initiated soil and indoor remediation and completed cleanup for 11 areas where soil contamination exceeded acceptable risk levels. The BCT separated the 11-acre River Park parcel from the 37-acre installation parcel for future resolution, coordinated soil remediation, and finished the Building 60/227 RI/FS.

In FY98, the installation finished remediating the Indoor OU and the soil areas within the 37-acre parcel. A finding of suitability to transfer (FOST) and related transfer documents were signed. The Army implemented land use controls, using state prohibitions and oversight. The installation obtained approval of the environmental assessment for River Park. In FY99, the Army published EPA's notice of partial deletion from the National Priorities List (NPL) of the 37 acres transferred to Watertown in the *Federal Register*. The installation began the Charles River RI/FS.

In FY00, EPA deleted the 37-acre parcel from the NPL. The Watertown Yacht Club completed the initial subsurface injection of an oxygen release compound to oxidize petroleum residue below 2 feet. The Charles River draft FS was completed and distributed. With regulator approval, the installation began to scope the Charles River FS requirements.

FY01 Restoration Progress

Work continued on developing an environmental assessment for the Charles River OU. The installation completed the draft screening-level risk assessment. The Army completed remedial work at the River Park and the riverbank areas. The 11-acre River Park parcel transfer documents were drafted. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria.

The final 5-year review document was delayed by numerous comments on the draft. The environmental baseline survey (EBS)/FOST documents were delayed until completion of remediation of the River Park parcel. The land use control markers were damaged during construction activities on the 37-acre parcel during the year. New markers are to be installed and resurveyed for addendum to the property deed.

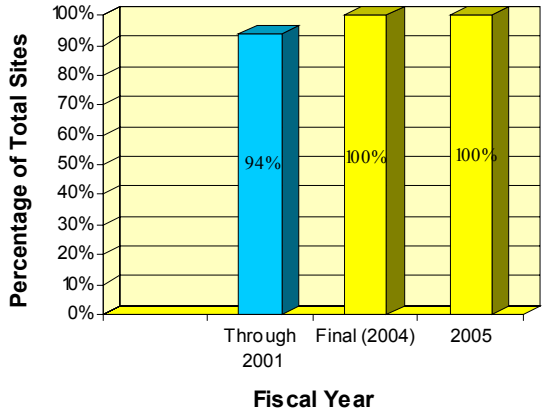
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete the first 5-year review of the 37-acre parcel in FY02
- Complete the EBS/FOST for the River Park parcel in FY02
- Transfer the 11-acre River Park parcel in FY02
- Continue sampling in the Charles River OU in FY02
- Complete the risk characterization of the Charles River OU in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Army Research Laboratory–Woodbridge

Woodbridge, Virginia

BRAC 1991

FFID:	VA321382098100	**Funding to Date:**	$11.7 million
Size:	580 acres	**Estimated Cost to Completion (Completion Year):**	$1.9 million (FY2000)
Mission:	Conduct electromagnetic testing	**Final RIP/RC Date for BRAC-ER Sites:**	FY2000
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	PCBs, PAHs, pesticides, and petroleum hydrocarbons		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

In July 1991, the BRAC Commission recommended closure of the Woodbridge Research Facility and relocation of its operations to White Sands, New Mexico; the Adelphi Laboratory Center in Adelphi, Maryland; and Aberdeen Proving Ground, Maryland. The installation closed in September 1994. Pursuant to Public Law 103-307, the Army transferred the entire installation to the Department of the Interior in June 1998. The property is now known as the Occoquan Bay National Wildlife Refuge.

Site characterization activities conducted between FY92 and FY97 identified 49 areas requiring environmental evaluation (AREEs) at the installation. Verified site types include former disposal areas and spill sites. Releases of polychlorinated biphenyls (PCBs) and petroleum hydrocarbons from those sites have contaminated groundwater, surface water, sediment, and soil.

In FY94, the installation formed a BRAC cleanup team. It formed a Restoration Advisory Board (RAB) in FY95. An FY95 interim action involved removal of approximately 1,100 tons of PCB-contaminated soil from one site. In FY97, the Army completed decision documents (DDs) for remedial actions (RAs) at two operable units (OUs), along with a DD calling for no further action (NFA) at 37 sites. The installation removed eight underground storage tanks, one septic tank, one oil-water separator, one acid neutralization vault, and an array of buried ethylene glycol–filled hoses. In addition, two abandoned water production wells were properly closed. By the end of FY97, the Army had made RA or NFA decisions for 46 of the 49 sites.

In FY98, an installationwide remedial investigation and feasibility study was completed, and the installation began RAs at OU1 and OU3.

In FY99, the Army completed all field efforts at OU1 and OU3 with the exception of a stone riprap revetment at AREE 1. More than 1,600 tons of PCB-contaminated soil, sediment, and debris were removed from the installation, and at AREE 1, an impermeable cover was constructed over residual solid waste. The Army signed two supplemental DDs: one to revise the selected remedy at AREE 6A, the other to formalize the decision to take NFA at AREEs 8, 24C, and 41. The installation began the execution phase of the post-RA long-term monitoring program. The RAB's remaining active members agreed to adjourn the RAB.

In FY00, the Army completed the stone riprap revetment at AREE 1, marking the end of the RA construction phase at the installation. It also installed 21 new monitoring wells at OU1 and OU3 and completed two rounds of environmental sampling associated with the post-RA long-term monitoring program. The installation commander signed the RAB adjournment report on March 7, 2000, formally marking the adjournment of the RAB.

FY01 Restoration Progress

The installation completed environmental sampling associated with the long-term monitoring program and periodic inspections of the impermeable cover and the shoreline revetment at AREE 1. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues.

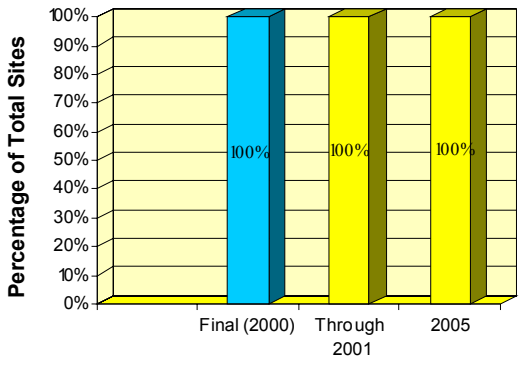
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

Continue the long-term monitoring program (FY02–FY03) and engage in closeout activities in the near future. This will be the last narrative submitted for this installation, since all remedial actions are complete and the property has been transferred.

BRAC Sites Achieving RIP or RC Per Fiscal Year



Army Research, Development and Engineering Center

Picatinny Arsenal

Rockaway Township, New Jersey **NPL**

FFID:	NJ221382070400	**Funding to Date:**	$78.3 million
Size:	6,500 acres	**Estimated Cost to Completion (Completion Year):**	$28.0 million (FY2007)
Mission:	House the Army's Armament Research, Development and Engineering Center	**Final RIP/RC Date for ER Sites:**	FY2007
		Five-Year Review Status:	NA
HRS Score:	42.92; placed on NPL in February 1990		
IAG Status:	IAG signed in July 1991		
Contaminants:	VOCs, explosives, PCBs, and heavy metals		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

In 1880, Dover Powder Depot, now known as Picatinny Arsenal, was established to store the gunpowder needed to manufacture ammunition. From 1898 to the early 1970s, the installation manufactured explosives, propellants, and ammunition. It now houses the Armament Research, Development and Engineering Center.

In FY91, the installation identified 156 sites, including a burning ground, landfills, underground storage tanks (USTs), former production areas, and former testing sites. Releases of volatile organic compounds (VOCs), explosives, and heavy metals from these sites have contaminated groundwater, surface water, sediment, and soil.

A remedial investigation and feasibility study (RI/FS), beginning in FY91, divided the installation into 16 areas. The installation conducted an additional RI for the burning ground in FY94. Interim actions included removing USTs, installing a groundwater extraction and treatment system, and removing drums from a landfill.

In FY95, the installation cleaned up lead-contaminated soil, operated a groundwater pump-and-treat system for an on-site trichloroethene plume, and installed a drinking water line to 12 nearby residences. In FY96, the installation's technical review committee was converted to a Restoration Advisory Board (RAB).

In FY97, the Army completed RI relative-risk scoring for all sites. The installation submitted a revised risk assessment for Site 20/24 to the regulators recommending no removal action.

In FY98, the installation completed geological and hydrogeological studies at the post farm landfill. The installation implemented the Phase III interim remedial action work plan and procured a Technical Assistance for Public Participation contract to provide technical support for the RAB.

In FY99, the regulators approved site inspection work plans for Sites 3, 31, 192, and 199. The Phase II ecological risk assessment (ERA) report data gap studies for Area D groundwater, Green Pond Brook, and Bear Swamp Brook were completed. The Army completed fieldwork for the RI report for Area F and G groundwater. The installation submitted the Phase II RI report to EPA. The Army and the State of New Jersey agreed that the Army would, on a case-by-case basis, implement institutional controls or low-cost engineering controls for soil at sites where contaminant levels were above state standards but where risk was acceptable per National Contingency Plan criteria.

In FY00, the installation submitted FSs for the post farm landfill, Area D groundwater, and the burning ground to the regulators. An additional Phase I RI work plan featuring eight sites was completed. The installation conducted an investigation of the gun cotton line (Site 16) that resulted in removal of contaminated pipe and surrounding contaminated soil. The Army submitted an ERA for Lake Denmark to the regulators. The regulators approved the Phase I and III investigative work plans for Sites 2A and 3A. The installation completed an engineering evaluation and cost analysis (EE/CA) for polychlorinated biphenyl (PCB) contamination at Site 122, and removed PCB-contaminated soil from near Building 60. The Phase II ecological risk report was submitted to the regulators.

FY01 Restoration Progress

The installation completed, and the regulators approved, groundwater FSs for Areas B, D, and E. The plan to use iron filings to treat Area B groundwater has been put into action. EPA and the New Jersey Department of Environmental Protection have approved remedial design and treatment for Site 20 and Site 24. A study began on the effects of contamination on fish in ponds and lakes at the installation.

The planned soil removal action for the apple orchard area was deemed unnecessary, slightly elevated levels of arsenic in the soil were due to the prescribed use of pesticides in the orchard.

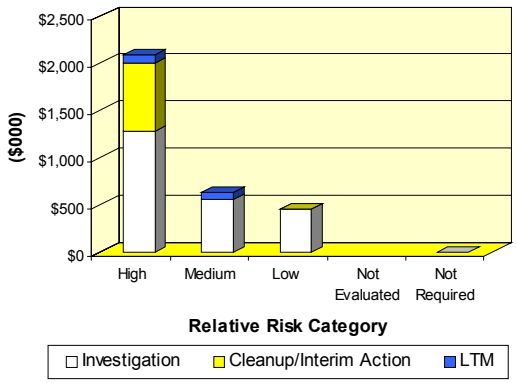
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete PP for burning ground, Green Pond Brook, Bear Swamp Brook, and post farm landfill in FY02
- Complete report on Indiana bat assessment in FY02 (an endangered species)
- Study effects of contaminated or potentially contaminated fish in ponds and lakes at Picatinny in FY02
- Treat tetryl-contaminated soil using bioslurry in FY02
- Complete the cover for Site 20/24 in FY02

FY02 Funding by Phase and Relative Risk



Arnold Engineering Development Center

Coffee and Franklin Counties, Tennessee

Proposed NPL

FFID:	TN457172404400	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	40,000 acres	**Funding to Date:**	$67.8 million
Mission:	Simulate flight conditions	**Estimated Cost to Completion (Completion Year):**	$53.1 million (FY2026)
HRS Score:	50.00; proposed for NPL in August 1994	**Final RIP/RC Date for ER Sites:**	FY2007
IAG Status:	None	**Five-Year Review Status:**	NA
Contaminants:	VOCs, solvents, PCBs, heavy metals, acids, petroleum hydrocarbons, and asbestos-containing material		

Progress to Date

Arnold Engineering Development Center (AEDC) is an advanced aerospace ground test, evaluation, and simulation facility. AEDC conducts tests, engineering analyses, and technical evaluations for research, system development, and operational programs that simulate operational conditions.

Sites at the installation include a landfill, a chemical treatment plant, AEDC's main testing area, a leaching pit, a leachate burn area, and a fire training area. The chemical treatment plant, main testing area, and leaching pit contain soil and groundwater contaminated with volatile organic compounds (VOCs).

Between FY88 and FY94, the installation removed 37 underground storage tanks. In FY89, a RCRA facility assessment identified 110 solid waste management units (SWMUs). RCRA facility investigations (RFIs) were conducted at 13 of these units. In FY94, confirmatory sampling and RFI fieldwork were conducted for 57 SWMUs, preliminary assessments were completed at all remaining sites, and RCRA closure was approved for 4 hazardous waste facilities.

In FY95, several interim remedial actions (IRAs), the RFI Phase I report, and confirmatory sampling for Site 19 were completed. IRAs included low-temperature thermal treatment of soil contaminated with VOCs and installation of a groundwater extraction and treatment system. In FY96, the installation implemented three interim corrective measures to treat contaminated groundwater.

In FY97, the installation constructed 36 wells to monitor groundwater at Site 19. It also performed a corrective measures study (CMS) at three other sites and completed the landfill cap at Site 1. In FY98, the Site LF-3 landfill clay cap was completed. Eight solvent recovery wells were added to the source removal and control system at Site WP-8. Two groundwater source control wells were added to the system at Site WP-6.

In FY99, delineation of the Site SS-22 plume migration pathway was conducted. At Site LF-3, a landfill boundary soil gas collection system was constructed to mitigate an emergency situation involving methane gas migration to a local high school and residences. Twenty-two SWMUs in Site SS-22 were designated for no further action.

In FY00, the Estill Springs water line was extended, and residents of 20 homes downgradient of the Site WP-6 plume were connected. The Site WP-6 RFI was approved, and a CMS work plan was submitted. The draft RFI report for SS-22 was completed. The installation began constructing a series of interior methane gas extraction trenches at the Coffee County landfill, LF-3. The installation used color-enhanced aerial thermography to identify springs to which groundwater from the base may be discharging.

The installation formed a technical review committee in FY91, which was converted to a Restoration Advisory Board (RAB) in FY95. The RAB was converted to a Community Advisory Board in FY99.

FY01 Restoration Progress

The draft RFI No. 3 report was completed, and the CMS work plan is in preparation. The CMS report for WP-6 was initiated. Construction of the interior methane gas collection trenches at LF-3 was completed. Also, the draft RFI report for LF-3 was completed and the CMS work plan is being prepared. Fieldwork is under way at sites WP-2, WP-8, WP-11, and SS-19. The RFI work plan for Site LF-1 is being prepared. Regulatory approval was received for RFIs for Sites SS-22, FT-10, and WP-12.

Military Munitions Response Program Progress

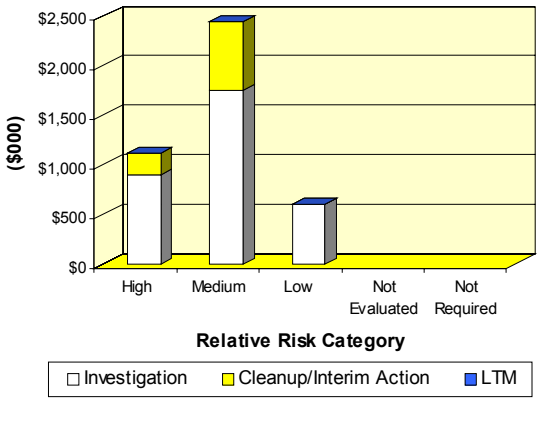
In FY01, a comprehensive range inventory was initiated. This inventory was designed to be an annual, iterative effort. To supply data for the inventory, a detailed questionnaire was completed that collected data on the types of munitions used, the range's environmental status, and the type and level of external stakeholder interest.

Munitions response and range cleanup actions have been delayed, pending funding availability and guidance refinement. As funding becomes available and guidance is refined, ranges will be cleaned up based on risk to human health and the environment.

Plan of Action

- Complete RFIs for Sites WP-2, WP-8, WP-11, and SS-19 in FY02
- Initiate fieldwork for the Site LF-1 RFI in FY02
- Complete CMS for Site WP-6 in FY02
- Complete CMS for Site LF-3 in FY03
- Initiate interim actions and removal actions to address solvent contamination discharging into surface waters at Sites WP-6 and WP-12 in FY03

FY02 Funding by Phase and Relative Risk



Atlantic City National Guard Base
Atlantic City International Airport

Pleasantville, New Jersey **NPL**

FFID:	NJ257282844900	**Funding to Date:**	$1.5 million
Size:	280 acres	**Estimated Cost to Completion (Completion Year):**	$2.9 million (FY2009)
Mission:	Provide Air National Guard training	**Final RIP/RC Date for ER Sites:**	FY2007
HRS Score:	39.65; placed on NPL in August 1991	**Five-Year Review Status:**	NA
IAG Status:	Federal facility agreement signed in July 1993		
Contaminants:	VOCs, SVOCs, lead, copper, and pesticides		
Media Affected:	Groundwater and soil		

Progress to Date

Atlantic City International Airport is an FAA facility. It was placed on the National Priorities List (NPL) in 1991 because of its proximity to the South Branch of Doughty's Mill Stream, which flows into the Upper Atlantic City Reservoir, a source of drinking water for local residents. In addition, a sole-source aquifer underlying the FAA facility contributes 85 to 90 percent of the watershed for the Upper Atlantic City Reservoir. Sites located at the facility are the FAA salvage yard, the FAA jet fuel farm, the FAA fire training facility, and the FAA's old landfill.

The 177th Fighter Wing, New Jersey Air National Guard (ANG), is a tenant at the FAA facility. The installation's mission is to maintain fighter aircraft on continuous peacetime air defense alert to preserve U.S. air sovereignty. During wartime, the mission is to mobilize personnel and equipment for deployment to designated locations and to use air-to-air munitions in strategic defense of the North American continent. The ANG sites were not ranked for the NPL, but the ANG facility is on the NPL because it is a tenant on the FAA property.

A preliminary assessment (PA) for the ANG facility, completed in November 1989, identified six sites. The PA recommended site inspections (SIs) at all six. Two of the sites (Sites 1 and 4) were already being investigated by the FAA and were referred to it for further investigation. None of the ANG sites is suspected of contributing to contamination of groundwater.

An SI was completed by the Hazardous Waste Remedial Action Program (HAZWRAP) in FY95 at Sites 2, 3, 5, and 6. The FAA and the Air National Guard Readiness Center (ANGRC) signed a memorandum of agreement in FY95, stipulating that the FAA will perform any additional studies, and the remedial design and remedial action if necessary, at ANG sites. ANGRC will provide funding. An SI addendum for additional soil and groundwater sampling at Sites 2, 3, 5, and 6 was completed. In FY96, the FAA completed the draft SI report.

The SI addendum was completed in FY97. Relative risk evaluations were completed at Sites 2, 3, 5, and 6. A technical review committee meets every 6 weeks. In FY98, several small metal anomalies were discovered at Site 6, but no drums were found.

In FY99, an SI addendum was completed; this is under review by the FAA. The future scope of work at the 177th Fighter Wing will be reevaluated based on the results of the SI.

FY01 Restoration Progress

ANG, FAA, and EPA met to discuss the next course of action. The FAA is in the process of responding to EPA comments on the SI addendum and conducting additional field investigations to fill data gaps. The cost of completing environmental restoration has changed significantly at this installation because of estimating criteria.

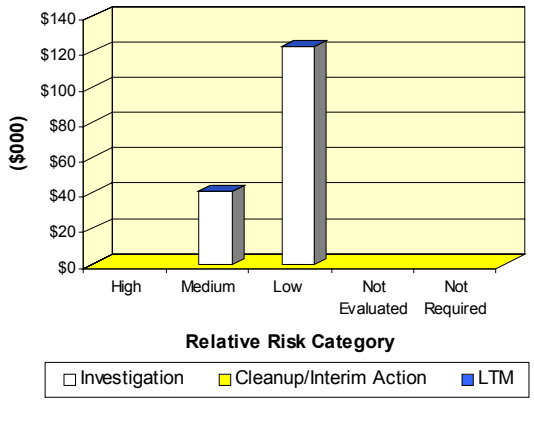
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- The FAA will complete additional field investigations in response to EPA comments on the SI addendum in FY02
- Hold meeting to develop future ownership strategies in FY02
- Follow up on meeting to determine whether to perform no further action or to execute a remedial investigation and feasibility study in FY02 and FY03

FY02 Funding by Phase and Relative Risk



Bangor Naval Submarine Base

Silverdale, Washington

NPL

FFID:	WA017002729100	**Media Affected:**	Groundwater, soil, and sediment
Size:	7,001 acres	**Funding to Date:**	$77.3 million
Mission:	Provide support base for Trident submarines	**Estimated Cost to Completion (Completion Year):**	$39.8 million (FY2031)
HRS Score:	30.42 (Bangor Ordnance Disposal); placed on NPL in July 1987, 55.91 (Bangor Naval Submarine Base); placed on NPL in August 1990	**Final RIP/RC Date for ER Sites:**	FY2001
		Five-Year Review Status:	Completed
IAG Status:	Federal facility agreement signed in January 1990		
Contaminants:	Residual TNT, RDX, Otto fuel, and VOCs		

Progress to Date

From the early 1940s until it was commissioned as a submarine base in 1977, Bangor Naval Submarine Base was used to store, process, and ship munitions. Past chemical releases at the installation are primarily related to the detonation, demilitarization, and disposal of explosive ordnance and associated activities. The Navy conducted an initial assessment study in FY83 to identify sites requiring further investigation because of suspected soil and groundwater contamination.

In FY90, the Navy, EPA, and the State of Washington signed a federal facility agreement for the installation. Investigation of 22 sites was recommended. These sites were first grouped into eight operable units (OUs).

Between FY91 and FY97, seven Records of Decision (RODs) were completed and five expedited response actions were performed. Underground storage tank (UST) removals at four sites and remedial actions (RAs) at USTs 1 and 4 were completed. Construction and long-term operation of groundwater treatment systems were performed at OUs 1 and 2. Soil was composted as the RA for OU6, and drum removal and berm construction were performed at OU7. At OU8, water use agreements were established, which included a provision for an alternate drinking water supply for nearby residents; construction of a pump-and-treat system was completed and the system began operation. Long-term management (LTM) began at several sites, including OUs 1 and 2.

In 1994, an explanation of significant differences (ESD) for OU1 was completed to revise the selected treatment technology and to allow the use of granular activated carbon as the treatment for a closed loop passive soil washing system in lieu of an advanced oxidation treatment system.

In FY98, construction completion documents for OUs 1, 2, and 7 were submitted to EPA and the Washington Department of Ecology. RAs were completed for OU6 and Camp Wesley Harris. A 5-year review was conducted for OUs 1, 2, and 3. Cleanup levels were met for all media at all OUs, except for groundwater at OUs 1, 2, and 8. ESD 2 was completed for OU1.

In FY99, compliance and performance monitoring, and operations and maintenance, continued at OUs 1, 2, 7, and 8 and UST 4. The RA for UST 1 was completed. Monitored natural attenuation (MNA), free-product recovery, and institutional controls (ICs) were selected as the remedies at OU8.

In FY00, the installation finalized the remedial investigation and feasibility study and signed the ROD for OU8. This ROD includes IC language for OU8 and all other OUs requiring ICs as part of the remedy. Amendment of the OU1 ROD was completed via ESD 3. A basewide 5-year review was conducted for all OUs. An RA was completed at UST 4. Sampling was conducted at OU7 (Site 26) and at Floral Point.

FY01 Restoration Progress

The installation completed the first basewide 5-year review; there were no significant deficiencies. Technical impracticability was evaluated at Site A (OU1); however, additional evaluation is required. LTM and land use controls (LUCs) were instituted at Site A. Ordnance NA continues to be evaluated. OU2 groundwater cleanup is ongoing. The Navy will institute a well-cleaning maintenance program, with minor plant modifications. Remedial design and construction for the OU8 MNA and free-product recovery were completed; the remedy is effective and operating as predicted. The installation developed and implemented a basewide IC/LUC management plan. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

The community relations plan is updated as necessary, and a Restoration Advisory Board meets bimonthly.

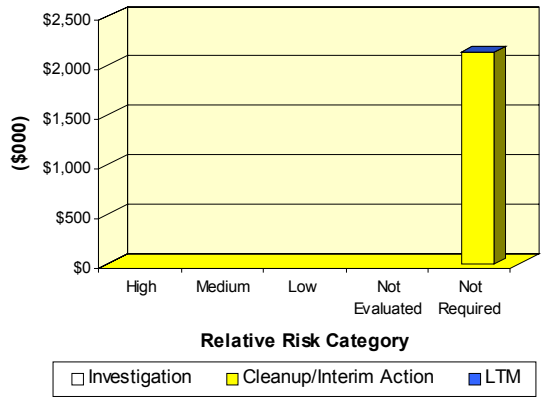
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Submit a partial delisting for two National Priorities List listings for all media except groundwater in FY02
- Evaluate ordnance MNA and downgradient aquifer conditions at OU1 in FY02
- Continue long-term operations and management at OUs 1, 2, and 8 in FY02–FY03
- Implement and maintain LUCs in FY02–FY03

FY02 Funding by Phase and Relative Risk



Barbers Point Naval Air Station

Barbers Point, Hawaii

BRAC 1993

FFID:	HI917002432600	**Contaminants:**	PCBs, heavy metals, petroleum hydrocarbons, pesticides, solvents, and asbestos
Size:	3,816 acres	**Media Affected:**	Groundwater and soil
Mission:	Maintain and operate facilities and provide services and material support to aviation activities and units of the operating forces	**Funding to Date:**	$49.6 million
		Estimated Cost to Completion (Completion Year):	$11.7 million (FY2011)
		Final RIP/RC Date for BRAC-ER Sites:	FY2001
HRS Score:	NA	**Final RIP/RC Date for ER Sites:**	FY2003
IAG Status:	None	**Five-Year Review Status:**	Planned

Progress to Date

In July 1993, the BRAC Commission recommended closure of Barbers Point Naval Air Station. The installation closed on July 2, 1999.

In the early 1980s, a preliminary assessment identified nine sites at the installation. Contamination sources include disposal pits, a pesticide shop, a landfill, and transformer sites. In FY93, an expanded site inspection determined that only one site required further investigation. Primary contaminants include polychlorinated biphenyls (PCBs) and heavy metals.

In FY94, the installation began remedial investigation and feasibility study (RI/FS) activities for 17 areas identified for further investigation. After an initial site characterization, two groups of underground storage tanks (USTs) were added to the sites already identified. Other USTs had been removed in FY92 and FY93. The installation completed an environmental baseline survey (EBS) in FY94.

A Restoration Advisory Board and a BRAC cleanup team (BCT) were formed in FY94. The installation also maintains an information repository. A community relations plan was prepared in FY95.

The BCT decided to conduct interim remedial actions (IRAs) at all sites requiring cleanup. During FY96, the installation removed waste from one UST site and completed a corrective action plan (CAP) for another UST site. In FY97, a CAP was completed for UST 6. Relative Risk Site Evaluations were completed at all sites where required. The latest version of the BRAC cleanup plan was completed. A land reuse plan was approved.

During FY98, further investigations were conducted at Sites 1, 2, 15, 18, and 19 and USTs 6 and 7. UST 2 was closed. The engineering evaluation and cost analysis (EE/CA) for Site 2 and the EE/CA and remedial design (RD) for Site 20 were completed. An RI/FS at Site 14 began.

In FY99, a removal site evaluation was conducted at Site 18 as part of the RI/FS. EE/CAs were prepared for Sites 1 and 18, and RDs were completed for Sites 15 and 18. IRAs were conducted at Sites 1, 15, 18, 20, and 22; UST 3; and Aboveground Storage Tank (AST) 4. Sites 5, 8 through 13, and 19 were closed. Records of Decision were signed for all of these sites and for Sites 15 and 20. Findings of suitability to transfer were prepared for nine parcels of land. Fencing was installed around three of the five firing ranges, and bullet removal began at three of the five ranges (Site 18 IRA).

In FY00, an IRA was completed at Site 18, an EE/CA was prepared for Site 22, and AST 4 was closed out. The RD for Site 1 was completed, and IRAs started at Sites 1 and 18. Remedy implementation at UST 3 and annual long-term management (LTM) at Site 19 were conducted. Based on the 1994 EBS and a site walk of the area, a site investigation was conducted on Navy retained property.

FY01 Restoration Progress

An RI was completed for Site 14. IRAs were completed for Sites 15, 22, and 23, and the sites were then closed out. LTM continued at Site 19. The installation completed an SI of Navy retained property, recommending further action at Sites 6, 7, 17, 27, 29, and 31. The SI also recommended no further action at Sites 26, 28, and 30. IRAs at Sites 6, 7, 17, 27, 29, and 31 were initiated, and the draft EE/CA was completed. A 5-year review is planned. The estimated cost of completing environmental restoration has increased significantly due to technical issues, including discovery of additional contamination at Site 1 and an increase in LTM costs for the site, reflecting current requirements for groundwater monitoring. In addition, resolution of issues pertaining to projected future degradation of lead pellets at a former trap and skeet range increased cleanup requirements at Site 18.

The planned RI for Site 2 was not completed, due to funding and transfer issues. The IRA at Site 1 also was not completed due to discovery of additional contamination. An IRA at Site 14 was deemed unnecessary, based on the RI. The IRA at Site 18 was not completed, due to funding and technical issues. The IRA at Site 20 was not completed, because of contractual issues. The IRA planned for Site 2 is no longer expected.

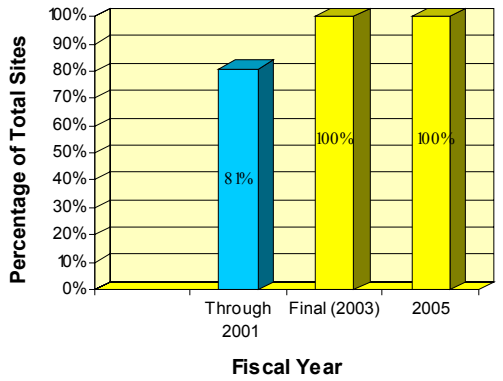
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete RI at Site 2 and close site in FY02
- Continue LTM for Site 19 in FY02
- Complete IRA at Sites 1, 18, and 20 and close these sites in FY02–FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Barstow Marine Corps Logistics Base

Barstow, California

NPL

FFID:	CA917302426100	**Media Affected:**	Groundwater and soil
Size:	5,688 acres	**Funding to Date:**	$94.7 million
Mission:	Maintain, repair, rebuild, store, and distribute supplies and equipment; formerly conducted industrial operations	**Estimated Cost to Completion (Completion Year):**	$42.0 million (FY2029)
		Final RIP/RC Date for ER Sites:	FY2007
HRS Score:	37.93; placed on NPL in November 1989	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement signed in October 1990		
Contaminants:	Heavy metals, PCBs, petroleum hydrocarbons, pesticides, herbicides, and VOCs		

Progress to Date

Marine Corps Logistics Base Barstow consists of Yermo Annex, Nebo Main Base, and the rifle range. Operations that contributed to contamination are vehicle maintenance, repair and maintenance of weapons and missile systems, and storage of petroleum and chemical products. The installation was placed on the National Priorities List (NPL) after high concentrations of trichloroethene were detected in groundwater monitoring wells.

Investigations conducted between FY83 and FY90 identified 38 CERCLA sites and 2 underground storage tank (UST) sites. Site types include sludge disposal areas, plating waste disposal areas, low-level radioactive waste storage areas, spill sites, and evaporation ponds. To facilitate cleanup efforts, in accordance with the federal facility agreement, the sites were grouped into seven operable units (OUs). OUs 1 and 2 address groundwater contamination at Yermo Annex and Nebo Main Base, respectively. OUs 3, 4, 5, and 6 address contaminated soil at 36 sites. OU7 was established for new sites.

The Navy installed an activated carbon groundwater treatment system to address volatile organic compounds (VOCs) in the Yermo drinking water system. During FY92, the installation removed 41 abandoned USTs from UST Area 1. In FY93, the installation provided potable water to nearby residents. It also removed industrial waste sludge from the oil storage/spillage and industrial wastewater treatment plant.

In FY94, the installation excavated and disposed of contaminated soil from two sites. It also completed an investigation of UST Area 2 and conducted remedial investigation (RI) and feasibility study (FS) activities at all 38 sites.

During FY96, the installation completed construction of the groundwater treatment system at OU1. In FY97, it completed RI/FSs for OUs 5 and 6, signed a Record of Decision (ROD) for OUs 3 and 4, finished a remedial site evaluation and a removal action at Site 21, and completed corrective actions at UST Area 2.

In FY98, the installation completed RODs for OUs 1, 2, 5, and 6. In FY99, remedial actions (RAs) at CERCLA Areas of Concern (CAOCs) 20 and 23 were completed. The remedial design (RD) was finalized and RA construction began for the OU1 and OU2 off-base groundwater extraction systems. Thirty UST sites were submitted for closure.

In FY00, the installation closed OUs 3 and 4. CAOCs 20 and 23 are now undergoing long-term management. The CAOC 7 RA was completed, and the CAOC 35 RA began. An extended RCRA facility assessment (RFA) field investigation for 15 solid waste management units was completed, and the draft report is under negotiation. An air-sparging and soil vapor extraction (AS/SVE) system at CAOC 26 was completed.

The installation formed a technical review committee, prepared a community relations plan (CRP), and established an information repository and an administrative record in FY91.

FY01 Restoration Progress

The installation replaced dry monitoring wells at OU1 and closed out six tanks. RA was completed at CAOC 35, OU5. The RI/FS for CAOC 39, and OU7 and the RD for CAOC 38, OU2 were awarded. The first year of long-term management for the CAOC 7, 20, and 23, landfill caps was completed. A 5-year review of CAOC 37/38 is planned for 2003. The construction of an AS/SVE system for the Phase II treatability study (TS) at CAOC 38, Nebo South, was completed.

The RA report for closeout of OUs 5 and 6 was not completed as planned because of delays in report submittal and prolonged regulatory review of the CAOC 35 construction completion report. The finalized extended RFA report (CAOC 39) and beginning of the RI/FS for CAOCs 38 and 39, and OU7 were delayed due to extended regulatory review. The review process also delayed the closeout of 26 tanks. The TS for CAOC 38 and the development of corrective action plans (CAPs) for five USTs are awaiting funding. The signing the of the final ROD for OUs 1, 2, and 7, will occur after the TS for CAOC 38 and the CAOC 39 RI/FS are completed.

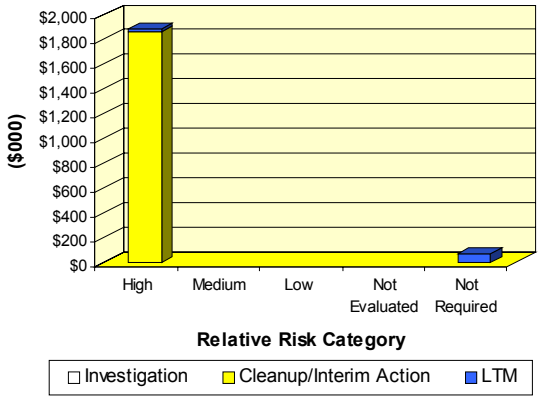
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete RA report for and closeout of OUs 5 and 6 in FY02
- Finalize extended RFA report for CAOC 39 in FY02
- Begin RI for remaining areas of concern at CAOC 39, OU7; and TS for CAOCs 38, Nebo North, OU2, in FY02
- Close out 26 tanks and develop CAPs for five USTs in FY02
- Revise CRP in FY02
- Complete Phase II TS at CAOC 38, Nebo South, OU2 by FY03

FY02 Funding by Phase and Relative Risk



Bedford Naval Weapons Industrial Reserve Plant *Bedford, Massachusetts* NPL

FFID:	MA117002357000	**Media Affected:**	Groundwater and soil
Size:	46 acres	**Funding to Date:**	$14.5 milllion
Mission:	Design, fabricate, and test prototype weapons and equipment	**Estimated Cost to Completion (Completion Year):**	$28.2 million (FY2020)
		Final RIP/RC Date for ER Sites:	FY2007
HRS Score:	50.00; placed on NPL in May 1994	**Five-Year Review Status:**	NA
IAG Status:	Federal facility agreement signed in September 1999		
Contaminants:	Acids, BTEX, incinerator ash, industrial wastes, paints, POLs, photographic wastes, solvents and VOCs		

Progress to Date

This former government-owned, contractor-operated plant produced and tested prototype weapons and equipment, such as missile guidance and control systems. The facility was declared excess and closed as a non-BRAC closure on December 31, 2000. Four sites have been identified at the installation: Site 1, incinerator ash disposal areas (potential soil contamination with ash and heavy metals); Site 2, components-laboratory fuel oil tank (potential soil contamination with low levels of petroleum/oil/lubricants); Site 3, northwest groundwater plume (groundwater plume contaminated with volatile organic compounds (VOCs)); and Site 4, former fuel pump/tank BTEX area (soil and ground water contaminated with benzene, toluene, ethylbenzene, and xylene (BTEX)). The Navy began to dispose of the plant as excess property in FY97.

Remedial investigation (RI) and feasibility study (FS) activities began in FY88. RI activities in FY93 and FY94 included further characterization of soil contamination, location of the sources of the VOC groundwater plume, and characterization of contaminant migration in groundwater.

In FY95, the draft Phase II RI report was submitted for regulatory review. In cooperation with the Massachusetts Department of Environmental Protection, the Navy implemented an immediate response action to contain and remediate the VOC groundwater plume and prevent migration of VOCs off site.

During FY96, a fate-and-transport report was completed. The pump-and-treat system at Site 3 began operating in March 1997. In FY98, an interim Record of Decision (ROD) was initiated for Site 3.

In FY99, a federal facility agreement was signed and a site management plan (SMP) was finalized. The installation also initiated completed FSs for all four Installation Restoration Program sites.

In FY00, the installation completed the RI Phase II supplemental reports for Sites 3 and 4. Remedial action (RA) planning was implemented for Site 4. The RI report, including the human health and ecological risk assessments, for Sites 1, 2, 3, and 4 was completed. Monthly monitoring of the Site 3 groundwater treatment facility and quarterly monitoring of the extraction and monitoring wells continued. No Further Action RODs were completed for Sites 1 and 2. The SMP was updated.

The installation established a technical review committee in FY89 and converted it to a Restoration Advisory Board (RAB) in FY95. A community relations plan (CRP) was developed in FY89 and updated in FY92. An information repository is maintained.

FY01 Restoration Progress

The installation completed the annual SMP update. The Site 4 accelerated RA was successfully implemented. Monthly monitoring of the Site 3 groundwater treatment facility and semiannual monitoring of the extraction and monitoring wells continued. The cost of completing environmental restoration at this installation increased significantly due to the cost of technologies for cleanup of VOCs in the groundwater.

The CRP update was delayed for contractual reasons. The FSs for Sites 3 and 4 were delayed to accommodate expanded risk assessment scenarios related to the property's closure and eventual transfer. The final RA for Sites 3 and 4 has been postponed until two pilot studies have been completed.

The Bedford RAB has continued to meet quarterly. Site tours were given for the Site 4 RA.

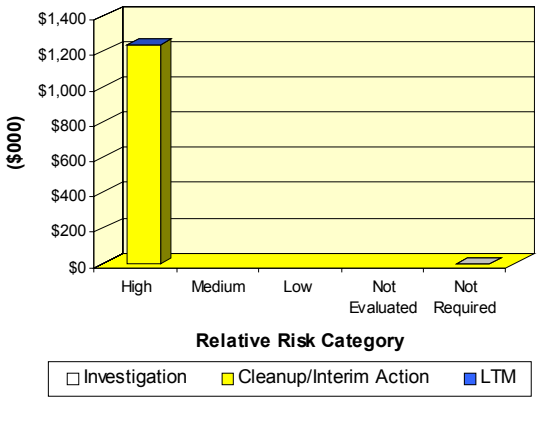
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Update the SMP annually
- Complete the Site 4 RA (in situ chemical oxidation process) in FY02
- Update the CRP in FY02
- Complete FSs for Sites 3 and 4 in FY02
- Continue monthly monitoring of the Site 3 groundwater treatment facility and semiannual monitoring of the extraction and monitoring wells through FY02–FY03
- Initiate the proposed plans and RODs for Sites 3 and 4 in FY02–FY03
- Initiate two pilot studies in FY02 and a third pilot study in FY03
- Complete two pilot studies in FY03

FY02 Funding by Phase and Relative Risk



Bergstrom Air Force Base

Austin, Texas

BRAC 1991

FFID:	TX657002418800	**Contaminants:**	VOCs, pesticides, petroleum hydrocarbons, metals, and low-level radioactive waste
Size:	3,216 acres		
Mission:	Housed the 67th Reconnaissance Wing, 12th Air Force Headquarters, 12th Tactical Intelligence Squadron, 712th Air Support Operations Center, 10th Air Force Reserve	**Media Affected:**	Groundwater and soil
		Funding to Date:	$46.5 million
		Estimated Cost to Completion (Completion Year):	$6.9 million (FY2005)
		Final RIP/RC Date for BRAC-ER Sites:	FY1999
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	None		

Progress to Date

Bergstrom Air Force Base (AFB) began operations in 1942, maintaining troop carrier units. In July 1991, the BRAC Commission recommended closure of the installation and retirement of the assigned RF-4 aircraft. The installation closed in late FY93, and the land reuse authority began to convert the installation to a civilian airport.

Environmental studies since FY83 previously identified 30 CERCLA sites and 454 RCRA areas of concern (AOCs). Site types include underground storage tanks (USTs), landfills, fuel spill areas, a pesticide evaporation pit, firing ranges, a sludge weathering pit, aboveground storage tanks (ASTs), a fire training area, and a radioactive waste disposal area. Interim remedial actions have included removal of 106 USTs, removal of contaminated soil and low-level radioactive wastes, and closure of 45 ASTs. Remedial actions (RAs) included removal of remaining ASTs, USTs, and oil-water separators. Use of soil vapor extraction and air-sparging systems accelerated cleanup of groundwater plumes at several sites.

A BRAC cleanup team and a Restoration Advisory Board (RAB) were formed in FY94. The RAB was disbanded by the community in FY97 because of the successful remediation efforts at the installation.

In FY97, the installation completed 37 removal actions; cleanup of Installation Restoration program (IRP) Sites SS-08, SS-10, and SD17; and the latest environmental baseline survey. The installation also completed the air injection sparging and soil-venting project. In FY98, the installation completed 34 removal actions and a corrective measures study for two trichloroethene (TCE) plumes. Construction of landfill caps for the combined southeast landfill (CSLF) area and improvements on the North Fork and South Fork drainage channels were completed. Remediation of soil at the former pistol and rifle ranges was completed. The installation was established as the regional operating location and took over programs from Carswell AFB, England AFB, and Williams AFB.

In FY99, the installation completed closure reports and received regulatory approval for the closure of the CSLF area and several other IRP sites. A remedial design document was completed, and treatment system components were installed for remediation of the TCE plume. Four hundred thirty-nine AOCs were designated for no further action (NFA).

In FY00, the installation completed the remaining RAs. The remediation system for a TCE plume that had migrated off base began operation. Long-term management (LTM) of TCE plumes and landfills continued. The installation obtained concurrence from regulators on the closure of 32 sitess, raising the number of sites and AOCs designated for NFA to 471.

FY01 Restoration Progress

The installation obtained concurrence from the regulators on the closure of 7 AOCs, raising the number designated for NFA to 478 out of a total of 484 sites and AOCs. The 5 landfills on the east side of the base and the TCE plume continued to undergo LTM. The remediation system for the TCE plume continued to operate. The installation also continued coordination with the City of Austin, the Texas Natural Resource Conservation Committee, and EPA on closure of the remaining sites. An additional 1,500 acres was transferred to the local reuse authority through the finding of suitability to transfer process.

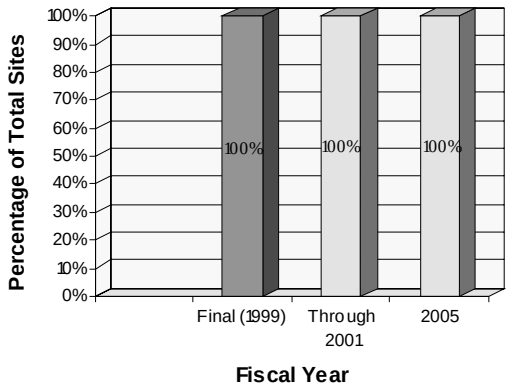
Military Munitions Response Program

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Complete post-closure care plans for Solid Waste Management Unit (SWMU) 76 (TCE plume) in FY02
- Conduct quarterly monitoring and continue to operate the RA system associated with SWMU 76
- Conduct semiannual LTM on Landfills 3 through 7
- Complete site and documentation research in preparation for future Operating Properly and Successfully determinations for Landfills 3 through 7 and SWMU 76

BRAC Sites Achieving RIP or RC Per Fiscal Year



Brandywine Defense Reutilization and Marketing Office — *Brandywine, Maryland* — NPL

FFID:	MD357182400001	**Funding to Date:**	$4.1 million
Size:	8 acres	**Estimated Cost to Completion (Completion Year):**	$11.0 (FY2025)
Mission:	None (inactive)	**Final RIP/RC Date for ER Sites:**	FY2018
HRS Score:	50.15; placed on NPL in June 1999	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	PCBs and solvents (TCE)		
Media Affected:	Surface water and groundwater		

Progress to Date

The Brandywine facility is an inactive 8-acre former Defense Reutilization and Marketing Office (DRMO) site located approximately 8 miles south of Andrews Air Force Base (AFB). Andrews AFB acquired the property from the Navy in 1961, and the Air Force used it to store bulky aircraft parts, aircraft engine fuels and lubricants, paints, chemicals, and other supplies subject to deterioration. As a Directorate of Personnel Data Systems Operations Division in the 1970s, this facility received wastes from other area DoD facilities. No hazardous materials have been stored on site since 1980. The primary contaminants of concern are polychlorinated biphenyls (PCBs) and solvents, including trichloroethene (TCE). The surface water migration pathway for the facility includes wetlands, Timothy Branch, and Mattawoman Creek.

No personnel now occupy the site. To prevent access to the property, a chain-link fence with gate locks was constructed around the perimeter of the site. The Air Force has performed three PCB removal actions, removing a total of 17,000 cubic yards of contaminated soil; the most recent PCB removal action was in 1994. Acceptable PCB concentrations for industrial and for unrestricted use of the site were established in 1989 through meetings with regulatory agencies. The Air Force chose to remove PCB-contaminated soil to meet the unrestricted-use standards.

Andrews AFB has installed a groundwater treatment system as an interim measure to address solvents in groundwater. In FY99, the remedial action (RA) pump-and-treat system for capturing and remediating the TCE groundwater plume began operation. The installation has continually monitored the groundwater near the DRMO. Despite the installation's submittal of rebuttal comments to the proposal to place Brandywine on the National Priorities List (NPL), the site was placed on the NPL in June 1999.

In FY00, the installation submitted a draft remedial investigation (RI) and feasibility study work plan, which was jointly scoped with regulators. It also began full-time operation of the RA pump-and-treat system. A new cost-to-complete figure and new schedules, based on the NPL decision, were developed, and support of partnering efforts with the regulatory community continued.

FY01 Restoration Progress

The installation continued operation of the pump-and-treat system. Finalization of RI work plans was delayed due to technical issues. Field activities were delayed pending EPA Region 3 approval of the RI work plan.

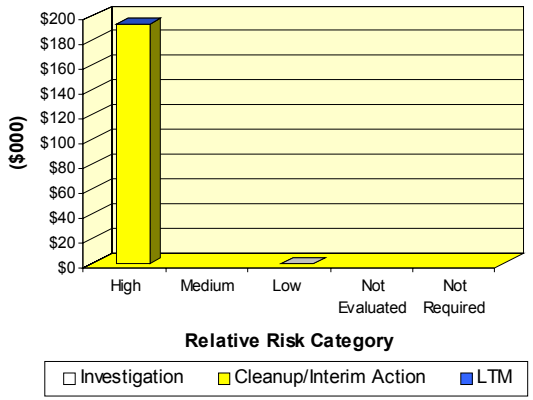
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Begin RI field investigation in FY02
- Continue operation of the treatment system in FY02

FY02 Funding by Phase and Relative Risk



Brunswick Naval Air Station

Brunswick, Maine

NPL

FFID:	ME117002201800	**Media Affected:**	Groundwater and soil
Size:	7,259 acres	**Funding to Date:**	$55.6 million
Mission:	Provide facilities, services, materials, and aircraft for submarine warfare	**Estimated Cost to Completion (Completion Year):**	$14.2 million (FY2031)
		Final RIP/RC Date for ER Sites:	FY2002
HRS Score:	43.38; placed on NPL in July 1987	**Five-Year Review Status:**	Completed/Planned
IAG Status:	Federal facility agreement signed in 1989; revised in 1990 to include the State of Maine		
Contaminants:	DDT, PCBs, PAHs, VOCs, and metals		

Progress to Date

Studies conducted since FY83 have identified 21 sites at this installation. Site types include landfills, a groundwater plume contaminated with volatile organic compounds (VOCs), and two underground storage tank (UST) sites. Activities that contributed to contamination include intermediate aircraft maintenance, material support for maintenance, aircraft fueling services, storage and disposal of ordnance, and all-weather air station operations. On-site landfills were used to dispose of wastewater treatment sludge, paints, solvents, medical supplies, pesticides, petroleum products, and photographic and industrial chemicals. The installation was placed on the National Priorities List (NPL) because some sites were used to store or dispose of hazardous waste.

From FY85 to FY95, the installation completed site inspections for 16 sites. It also completed remedial investigations and feasibility studies for 14 of the 17 active sites, remedial design for 10 sites, and a remedial action (RA). A Record of Decision (ROD) was signed in FY92 to address the eastern groundwater plume, three USTs, and a waste pit.

In FY93 and FY94, the installation removed USTs from the fuel farm and began full-scale operation of an air- sparging (AS) system.

During FY95, the installation completed a removal action at the former pesticide shop site, where DDT was detected in soil and in unfiltered groundwater samples. Long-term management (LTM) of groundwater is being conducted at the site. In FY96, the installation constructed landfill caps at Sites 1 and 3 and developed final RAs at five sites, three of which were designated as Response Complete. The final ROD for the eastern groundwater plume treatment plant was prepared in FY97. The final ROD for Sites 4, 11, and 13 was also signed. The AS system at UST 1 was modified, and the AS system at UST 2 was expanded. In FY99, a ROD was signed for Site 9.

In FY00, the installation completed its 5-year review. RA was initiated for UST 1, and modification of the eastern groundwater plume treatment plant began. No further action (NFA) documentation was initiated for Site 12, and fieldwork began for Site 7. RA continued for Sites 1 through 4, 9, 11, and 13. The process of deleting the installation from the NPL was initiated. Final remediation began at the fuel farm.

The installation established an administrative record and an information repository in FY87. In FY88, the community relations plan was completed. A technical review committee was formed in FY88 and converted to a Restoration Advisory Board in FY95.

FY01 Restoration Progress

The installation completed an RA for UST 1 and began an RA for UST 2. Modifications of the eastern plume treatment plant, surface water discharge, and extraction well installation were completed. NFA documentation was completed for Sites 14, 15, 16, and 18. The decommissioning and closeout of monitoring wells, recommended by the EPA and the Maine Department of Environmental Protection, was completed. The 5-year review was completed. The cost of completing environmental restoration at Site 11 has increased significantly because of the need to extend long-term operations. The groundwater and geological investigation to determine optimum locations for future extraction wells is ongoing.

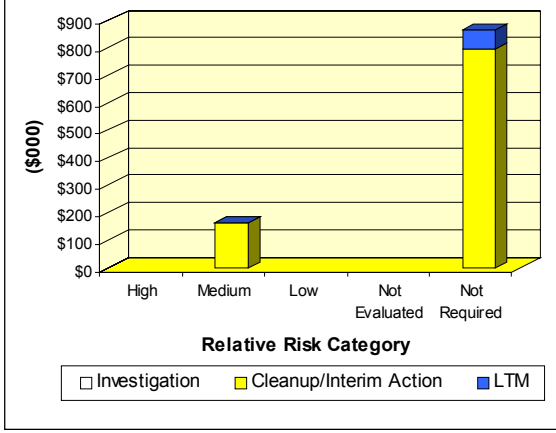
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Develop exit strategy for Building 95 in FY02
- Develop exit strategy for Site 12 in FY02
- Evaluate the conversion of diffusion sampling as part of the LTM plan in FY02
- Complete groundwater and geological investigation of Site 11 and the southern boundary to determine optimum effectiveness of contaminant capture in FY02

FY02 Funding by Phase and Relative Risk



Camp Bonneville

Vancouver, Washington

BRAC 1995

FFID:	WA021402011200	**Funding to Date:**	$8.2 million
Size:	3,020 acres	**Estimated Cost to Completion (Completion Year):**	$85.3 million (FY2028)
Mission:	Conducted training of active and reserve DoD personnel	**Final RIP/RC Date for BRAC-ER Sites:**	FY2005
HRS Score:	NA	**Final RIP/RC Date for MMRP Sites:**	FY2018
IAG Status:	None	**Five-Year Review Status:**	NA
Contaminants:	POLs, solvents, and UXO		
Media Affected:	Soil		

Progress to Date

In July 1995, the BRAC Commission recommended closure of Camp Bonneville.

The Army identified 14 areas of concern (AOCs): a leaking underground storage tank (UST) site, three landfills, a burn site, a drum burial site, a paint and solvent burial site, two wash racks, a maintenance pit, grease pits, a pesticide storage facility, and an old sewage lagoon site. The Army initiated site investigation work at the leaking petroleum UST.

In FY96, the Army awarded a contract for the removal of petroleum-contaminated soil at the UST site and completed a survey for lead-based paint and metals in soil.

In FY97, the installation began an asbestos survey and characterization of metals in soil and submitted the reports for regulator approval. It also completed an environmental baseline survey.

In FY98, the installation completed fieldwork for the site inspection of 13 AOCs. It determined that Landfill 1, the gas chamber, and USTs require no further action. In FY99, surface water sampling was completed for all water entering and leaving the property.

In FY00, the installation completed a cultural resources survey and fieldwork on 11 of 13 hazardous and toxic waste sites. The Army initiated investigations to identify explosives contamination in soil and groundwater. It also updated the BRAC cleanup plan.

FY01 Restoration Progress

A groundwater investigation to determine whether training activities have impacted groundwater is ongoing. The Army began characterization of lead contamination from small-arms ranges. Removal actions at the suspected drum burial area began, and the groundwater evaluation will start once the reports documenting the debris removal are approved. Removal actions at the Pesticide Building (#4126) and Ammunition Bunkers (#2953, #2951, and #2950) were completed. Monitoring of the landfill at Demo Area 1 is ongoing; the installation is retaining this site as an active range.

Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. Previously, clearance of unexploded ordnance (UXO) had occurred in support of reuse. In FY97, the installation completed a report on a UXO archive search, and the Restoration Advisory Board became involved in UXO issues.

In FY98, the Army discovered a second munitions demolition site (Demo 2) during ordnance and explosives field sampling. In FY99, the Army conducted an independent technical review focusing on UXO issues and submitted responses to recommendations in the draft report. The installation also worked with regulators and the community to develop a UXO management plan. The installation completed UXO clearance of 23 acres.

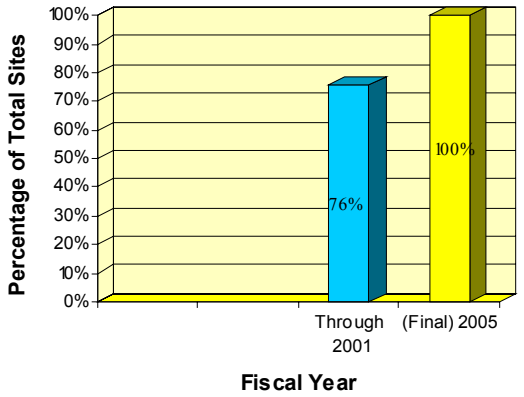
In FY00, the installation and regulators jointly developed a site-specific UXO characterization system and continued to develop an engineering evaluation and cost analysis (EE/CA) for UXO. The installation began using geographic information systems to evaluate and categorize the UXO hazard for areas within the installation. Characterization of Demo Area 1 (an open burning and open detonation area) is ongoing. Field sampling to characterize UXO hazards in this area also is under way.

An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Continue monitoring the landfill for Demo 1 in FY02
- Conduct site evaluation for partial transfer of property in FY02
- Continue UXO characterization and complete EE/CA in FY02–FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Camp Lejeune Marine Corps Base

Jacksonville, North Carolina

NPL

FFID:	NC417302258000	**Contaminants:**	Battery acid, fuels and used oils, paints and thinners, PCBs, pesticides, solvents, and metals
Size:	151,000 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Provide housing, training facilities, logistical support, and administrative supplies for Fleet Marine Force units and other assigned units; conduct specialized schools and other training as directed	**Funding to Date:**	$96.6 million
		Estimated Cost to Completion (Completion Year):	$172.3 million (FY2059)
		Final RIP/RC Date for ER Sites:	FY2011
HRS Score:	36.84; placed on NPL in October 1989	**Five-Year Review Status:**	Completed/Planned
IAG Status:	Federal facility agreement signed in February 1991		

Progress to Date

Investigations at Camp Lejeune identified 176 sites, including 86 leaking underground storage tank (UST) sites. Contaminants released from past storage and disposal operations have migrated to a shallow aquifer, several surface water bodies, and a deep aquifer used for drinking water.

In 1991, a federal facility agreement was signed. Since then, 18 operable units (OUs), comprising 42 of the 91 Installation Restoration program sites, have been identified as requiring additional investigation or remediation.

Between FY83 and FY88, the installation completed an initial assessment of 72 sites and site inspections of 8 sites, conducted 26 remedial investigations and feasibility studies (RI/FSs), signed Records of Decision (RODs) for 19 sites, and completed remedial design for 10 sites. Three interim remedial actions at two sites and six time-critical removal actions (TCRAs) were completed. In addition, remedial actions were completed at four sites, and remediation systems were operating at four sites. Since FY88, the installation's UST program has completed site assessments (SAs) at 76 sites and corrective action plans at 34 sites. Remediation systems were designed and implemented at 23 sites and are operating at 16 sites. The installation has requested closure with no further action (NFA) at 26 sites.

In FY97, Phase I of the RI was completed at 6 sites, RIs were completed at 12 sites, and treatability studies were completed at 2 sites. Final RODs were signed for four sites. SAs were completed at five UST sites, one of which was found to require NFA. Designs were completed at four UST sites, and implementation was completed at three others.

In FY98, the installation completed a TCRA for polychlorinated biphenyl (PCB)–contaminated soil at Site 36. It also initiated an engineering evaluation and cost analysis (EE/CA) for non-time-critical removal actions at Sites 84 and 85. Remediation was completed at UST Sites 27, 38, 43, and 78. Use of natural attenuation (NA) continued at 14 UST sites. Construction began at UST Sites 9, 50, and 62. Final RODs were prepared for Sites 36, 43, 44, 54, and 86.

In FY99, a memorandum of agreement and the Site 3 amended ROD were signed. A 5-year review was completed. Site characterization studies were implemented at the NA UST sites. Four UST sites attained NFA status.

In FY00, the installation implemented recommendations from the 5-year review. The final interim ROD for Site 69 was signed. The RI/FS continued at Sites 84, 88, 89, 90, 92, and 93. Sampling in a creek upstream from base housing detected tetrachloroethene (PCE). This discovery led to a TCRA for contaminated soil at Site 89. Removal actions were conducted at Sites 3 and 85. Three UST sites achieved NFA status.

The installation formed a technical review committee in FY88 and converted it to a Restoration Advisory Board (RAB) in FY95. A community relations plan was completed in FY90. The installation placed its administrative record on the Web in FY00.

FY01 Restoration Progress

The installation completed the TCRA at Site 89. No Further Remedial Action documents for Sites 10, 75, 76, 85, and 87 were finalized. The RODs for OU9 and OU17 were completed, as were a supplemental field investigation for Site 10 and an RI/FS project plan for Site 84. The final site management plan (SMP) was completed and additional sampling was conducted at Sites 35, 78, 82, 84, 86, and 89. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

The NFA document for Site 68 was delayed by additional requirements. The RI/FS at Sites 84, 86, 89, and 93 was delayed, although fieldwork was completed.

The RAB participated in several site visits, which included observing work at sites. It also reviewed the SMP and Proposed Remedial Action Plan/RODs for OU9 and OU17. The partnering team meets regularly to resolve issues between DoD, the state, and federal agencies.

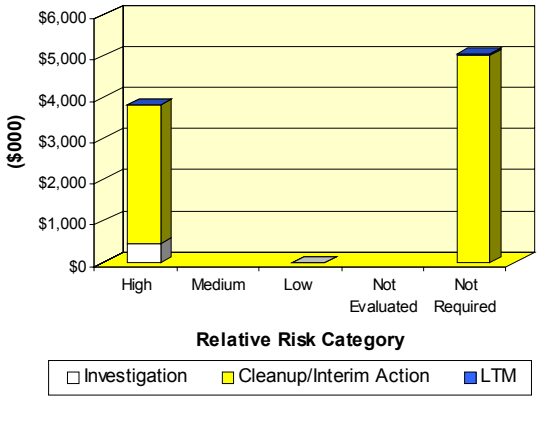
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Perform IRA for Site 84, PCBs at Building 45, in FY02
- Complete RODs for OU6 and OU19 in FY02
- Complete NA study for Site 73 in FY02
- Complete EE/CA and IRA for Site 89, thermal destruction of dense nonaqueous phase liquid, in FY02–FY03
- Complete fieldwork for the focused NA study for Site 35 wetland area in FY02–FY03
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk



Camp Pendleton Marine Corps Base

Oceanside, California

NPL

FFID:	CA917302353300	**Funding to Date:**	$126.1 million
Size:	125,000 acres	**Estimated Cost to Completion (Completion Year):**	$116.0 million (FY2015)
Mission:	Provide housing, training facilities, logistics support, and administrative support to Fleet Marine Force Units	**Final RIP/RC Date for ER Sites:**	FY2014
		Five-Year Review Status:	Planned
HRS Score:	33.79; placed on NPL in November 1989		
IAG Status:	Federal facility agreement signed in October 1990		
Contaminants:	Pesticides, herbicides, heavy metals, PCBs, and VOCs		
Media Affected:	Groundwater and soil		

Progress to Date

Environmental contamination at Camp Pendleton Marine Corps Base resulted from maintenance of vehicles; equipment; and support facilities, such as gas stations, hospitals, laundries, pest control services, and hobby shops. Sites at the installation include landfills, surface impoundments, pesticide storage areas, fire training areas, vehicle maintenance areas, and underground storage tanks (USTs). The installation was placed on the National Priorities List (NPL) after the herbicide 2,4,5-TP (Silvex) was detected in two groundwater wells used for drinking water.

Of the 202 sites identified at the installation, 58 are CERCLA sites, 113 are RCRA sites, and 30 are UST program sites. The installation has completed remedial investigations and feasibility studies (RI/FSs) for 55 CERCLA sites and has completed interim removal actions at three sites. Three operable unit (OU) Records of Decision (RODs) have been signed.

In FY96, the installation completed RIs for 21 sites and an FS for 13 sites and signed the final ROD for no further action at OU1. All parties to the federal facility agreement (FFA) signed the final ROD. The FFA project team identified five removal actions and closed six sites. The installation completed an engineering evaluation and cost analysis (EE/CA) and an action memorandum for Site 7. It also initiated interim remedial actions (IRAs) for 3 sites, completed the initial site characterization of 25 UST sites, and prepared a corrective action plan (CAP) for 4 UST sites.

In FY97, RIs were completed at 34 sites and a ROD was signed for 13 sites. IRAs were completed at the pest control wash rack and the scrap yard sites. The OU2 ROD was signed. In FY98, the installation capped 5 acres of the Box Canyon landfill. The installation received regulatory approval for a CAP for seven program sites and completed the remedial design and remedial actions (RAs) for seven UST sites.

In FY99, the installation signed the ROD for OU3. The installation completed CAPs for three program sites, remediated eight sites, installed remediation systems at three sites, and conducted operations and maintenance (O&M) and long-term management (LTM) at an additional seven sites. A remediation system was installed at UST sites in Areas 12 and 13. A CAP was completed for one UST in Area 27 and one UST in Area 53. A remediation system was installed for USTs in Areas 13 and 43.

In FY00, the installation completed O&M and LTM for 10 UST sites in Area 13, 20 UST sites in Area 22, 13 UST sites in Area 12, and UST sites at gas stations in Area 43. RAs were completed at OU3. The installation applied for closure of 40 UST sites in Area 62, 4 UST sites in Area 24, 2 UST sites in Area 26, 1 UST site in Area 27, and 1 UST site in Area 53. Closure was achieved for seven UST sites in Areas 13, 15, and 16. The installation received approval for CAPs for eight UST sites. The installation began a 5-year review of the OU1 ROD.

The installation formed a technical review committee in FY91 and prepared a community relations plan (CRP) in FY92.

FY01 Restoration Progress

The installation began construction of the evapotranspiration cover at Site 7 (Box Canyon landfill). An air quality and noise-monitoring program to ensure the safety of community members was developed and implemented. The OU4 work plans for the supplemental FS were finalized and fieldwork neared completion. The work plans for the OU5 RI were finalized. Remediation systems for nine UST sites were installed. The closure of one UST in Area 61 and approval of the CAP for a UST in Area 26 were obtained. CAPs were submitted for regulatory review for USTs in Areas 14, 22, 31, and 43. The CRP was updated. The draft 5-year review of OU1 sites was completed. The cost of completing environmental restoration at this installation has increased significantly due to technical issues.

Planned closure of one UST site was delayed, pending regulatory concurrence. Scheduled LTM for OU3 (Site 7) was delayed until construction of the landfill cover is completed.

A community open house was conducted to inform the public of program activities.

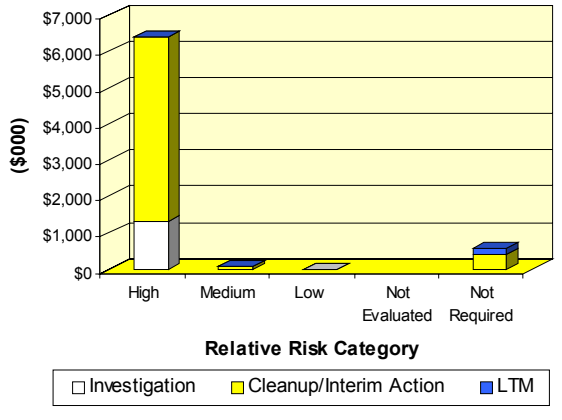
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Issue final OU4 supplemental FS and draft OU5 RI in FY02
- Complete OU3 evapotranspiration cover and initiate LTM at Site 7 in FY02
- Prepare CAPs for USTs in Areas 13, 16, 17, 22, and 53 in FY02
- Complete EE/CA for Site 62001 in FY02
- Continue O&M for remediation systems at nine sites and groundwater monitoring at UST sites in Areas 13, 21, 22, 24, 26, 43, and 53 in FY02
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk



Castle Air Force Base

Atwater, California

NPL/BRAC 1991

FFID:	CA957002455100	**Media Affected:**	Groundwater and soil
Size:	2,777 acres	**Funding to Date:**	$132.0 million
Mission:	Trained tanker crews and serviced KC-135 stratotanker	**Estimated Cost to Completion (Completion Year):**	$117.9 million (FY2038)
		Final RIP/RC Date for BRAC-ER Sites:	FY2004
HRS Score:	27.93; placed on NPL in July 1987	**Five-Year Review Status:**	Planned
IAG Status:	IAG signed in 1989		
Contaminants:	Solvents, PCBs, POLs, pesticides, cyanide, and cadmium		

Progress to Date

In July 1991, the BRAC Commission recommended closure of Castle Air Force Base. The installation was closed on September 30, 1995. The first 5-year review for the installation was completed in March 1998.

Landfills, underground storage tanks (USTs), discharge areas, chemical disposal pits, fire training areas, fuel spill areas, and polychlorinated biphenyl (PCB) spill areas were identified at the installation. Interim actions have included removing contaminated soil from the PCB spill areas, installing potable-water supply wells with filtration systems to remove trichloroethene (TCE) from groundwater, and removing USTs. Sites were grouped into three operable units (OUs).

The interim Record of Decision (ROD) for OU1 was signed in FY91, and the OU2 ROD was signed in 1994. In FY93, additional areas of concern were identified and incorporated into the source control OU (SCOU). The installation also completed remedial design (RD) activities at OU1 and began a remedial action (RA), abandoning inactive production wells and removing abandoned USTs. An environmental baseline survey was completed.

In FY95, the installation began operating soil vapor extraction (SVE) systems at two fuel spill areas. In FY96, Part I of the remedial investigation and feasibility study (RI/FS) report was completed. The installation removed 69 USTs and 16 oil-water separators and completed construction of a pump-and-treat system at OU2.

In FY97, the installation constructed two pump-and-treat systems. The base cleanup team completed an RD/RA landfill work plan and a comprehensive basewide Part I groundwater ROD incorporating OU1, OU2, and Castle Vista.

In FY98, the storm drain cleanup was completed. Castle Vista Landfill A (CV-A), CV-B, and Landfill 2 were excavated and consolidated into Landfill 4. PCB-9 and ETC-10 removal actions were completed. RCRA compliance actions included demolition of the demineralized water plant and the wastewater treatment plant. The installation's base cleanup plan was updated.

In FY99, one SVE system and two bioventing systems were installed for remediation of petroleum/oil/lubricant intrinsic remediation sites. Two additional UST site SVE systems and three UST site bioventing systems were installed. The installation consolidated Landfills 1 and 3 into Landfills 4 and 5. Closure reports were approved for SCOU sites LF-A and LF-2.

In FY00, construction of Phase III of the groundwater treatment system was completed. Long-term operations (LTO) of groundwater treatment systems, intrinsic remediation sites, bioventing sites, and SVE sites continued. Repairs to the sanitary sewer and excavation at eight SCOU Installation Restoration program (IRP) sites were completed. The installation also received approval on closure reports for six SCOU sites.

The installation Restoration Advisory Board meets quarterly.

FY01 Restoration Progress

The SCOU proposed plan was completed, and the SCOU ROD II is undergoing regulatory review. The comprehensive basewide RI/FS (CB Part 2 RI/FS) consolidating the groundwater RI/FS and the SCOU RI/FS is also now in regulatory review. LTO of groundwater treatment systems, intrinsic remediation sites, bioventing sites, and SVE sites continued. Five SVE systems, which address 10 TCE-contaminated SCOU sites, were constructed. The installation also received approval on closure reports for nine SCOU sites. The Castle base closure team created a new process for closing chlorinated volatile organic compound–contaminated SCOU sites.

SCOU ROD I approval was delayed because of institutional control issues.

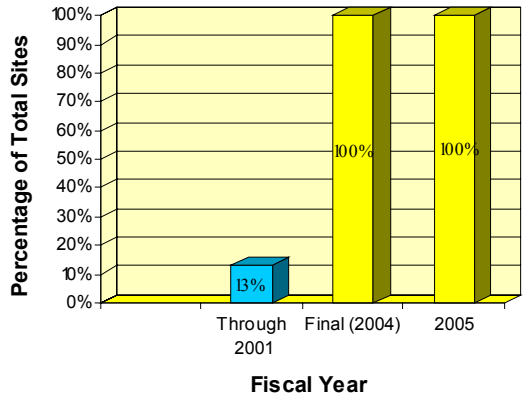
Military Munitions Response Program Progress

In FY93, the Air Force performed a UXO removal action over 1 acre of the installation. The removal action included small arms cartridges and scrap metal.

Plan of Action

- Complete regulatory review process for SCOU ROD I and SCOU ROD II in FY02
- Convert four SCOU intrinsic remediation sites to SVE sites in FY02
- Construct up to four SVE systems for four TCE-contaminated SCOU sites if needed in FY02
- Begin RAs at up to six petroleum-only SCOU sites and any other remaining SCOU sites in FY02
- Complete regulatory review process for the CB Part 2 RI/FS in FY02 and FY03
- Complete second 5-year review in FY02 for review and approval in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year

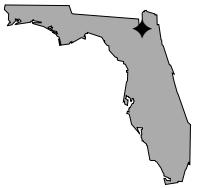


Cecil Field Naval Air Station

Jacksonville, Florida

NPL/BRAC 1993

FFID:	FL417002247400
Size:	31,227 acres
Mission:	Provide facilities, services, and material support for maintenance of Naval weapons and aircraft
HRS Score:	31.99; placed on NPL in November 1989
IAG Status:	Federal facility agreement signed in November 1990
Contaminants:	Waste fuel oil, solvents, heavy metals, halogenated aliphatics, phthalate esters, SVOCs, and lead
Media Affected:	Groundwater, surface water, sediment, and soil
Funding to Date:	$46.5 million
Estimated Cost to Completion (Completion Year):	$16.2 million (FY2017)
Final RIP/RC Date for BRAC-ER Sites:	FY2009
Five-Year Review Status:	Completed/Planned



Progress to Date

In July 1993, the BRAC Commission recommended closure of this installation and relocation of its aircraft, personnel, and equipment to other stations.

Since FY84, investigations have identified 30 CERCLA sites; 7 major underground storage tank (UST) sites and 235 USTs; 250 BRAC grey sites; and 1 RCRA site. Operations that caused contamination include equipment maintenance, storage and disposal of fuel and oil, fire training, and training on target ranges. The initial site assessment was completed in FY85, and remedial investigation and feasibility study (RI/FS) activities began in FY93. Twenty-four sites have been grouped into 12 operable units (OUs). The six remaining CERCLA sites are No Further Action (NFA) sites.

Four interim Records of Decision (RODs) were signed, and contaminated soil at Site 16 was removed in FY94. A BRAC cleanup team was formed. In FY95, RODs for four sites were signed and contaminated soil was removed from Sites 11 and 17. During FY96, contaminated soil was removed and a bioslurper was installed at the North Fuel Farm (NFF). The ROD for Site 16 was signed.

In FY97, an NFA ROD was signed for Site 10, and the RI, baseline risk assessment, and FS documents were completed for Sites 14 and 15. The installation completed removal of Day Tank 2 (DT2), Jet Engine Test Cell (JETC) soil, A Avenue soil, Site 18 unexploded ordnance, and 29 miscellaneous tanks.

In FY98, the installation signed RODs for Sites 3, 11, and 14. The RI/FS for Site 4 was completed, and an NFA document was signed. The installation completed soil excavation at Site 5 and the NFF. A groundwater remediation system was installed at South Fuel Farm. The installation completed an FS for Site 11 and RIs for two sites. It also completed the DT2 contamination assessment report, the remedial action plan, and six designs. Three corrective action plans for USTs and four groundwater remedial designs also were completed.

In FY99, the installation completed three findings of suitability to transfer (FOSTs). An air-sparging (AS) system was installed in the Site 3 source area, and natural attenuation (NA) sampling was conducted. NA monitoring was also conducted at Sites 5, 8, 16, and 17 and the JETC. NFA decision documents for Sites 18 and 19 were completed. RODs for Sites 7 and 8 were signed. A groundwater design for Site 11 and a sewer design for Site 16 were submitted. An AS system was installed, and an investigation of the 103rd Street pipeline and removal of asbestos-containing material (ACM) from six buildings were conducted. Soil removal was conducted at Sites 6, 7, and 8 and seven BRAC grey sites. Sixteen petroleum tanks were removed.

In FY00, the installation completed three FOSTs, covering a total of 10,026 acres. Remedial actions (RAs) were conducted for Sites 10 and 11, NFF soil, DT1, A Avenue, 31 grey sites, and 28 tanks. ACM was removed from 10 buildings. The RI/FS and the proposed plan for Site 36/37 were completed. The installation also completed the ROD amendment for Site 5 and the 5-year review. Site 6 and 42 grey sites were determined to require NFA.

In FY94, the technical review committee was converted to a Restoration Advisory Board.

FY01 Restoration Progress

The installation completed RODs for Sites 36 and 37. RAs were implemented at Buildings 46 and 9, and 11 grey sites. A FOST covering 29 acres was completed. An RI/FS was completed at Site 45 and an RI was initiated at Sites 57 and 58.

The ROD and the RA for Site 15 were delayed due to ongoing regulatory negotiations. An evaluation that accepted NA and long-term management rather than active remediation delayed RODs for Sites 21, 25, and 45. Site 36/37 RA implementations were delayed by the increasing complexity of the design phase. FOST schedules were delayed due to negotiations with regulatory agencies regarding land use controls at the transferring property. The groundwater RA at the NFF was delayed due to incomplete plume delineation and funding issues.

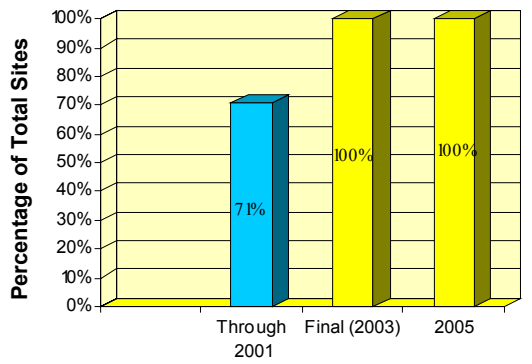
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Implement RA at Site 36/37 in FY02
- Complete RI/FS for Sites 21 and 25 in FY02 and Site 57/58 in FY03
- Complete RODs for Sites 21, 25, and 45 and OU12 (containing four sites) in FY02 and for Sites 15, 49, and 57/58 in FY03
- Make Operating Properly and Successfully determinations for Sites 1, 2, 5, 7, 8, 11, and 17 in FY02 and Sites 3 and 16 in FY03
- Complete three FOSTs covering 32 acres in FY02 and three FOSTs covering 310 acres in FY03
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Chanute Air Force Base

Rantoul, Illinois

Proposed NPL/BRAC 1988

FFID:	IL557002475700	**Funding to Date:**	$73.8 million
Size:	2,174 acres	**Estimated Cost to Completion (Completion Year):**	$23.8 million (FY2013)
Mission:	Served as technical training center	**Final RIP/RC Date for BRAC-ER Sites:**	FY2004
HRS Score:	Pending	**Five-Year Review Status:**	Planned
IAG Status:	IAG signed in September 1990		
Contaminants:	POLs, chlorinated solvents, UXO, and metals		
Media Affected:	Groundwater, soil, and sediment		

Progress to Date

Chanute Air Force Base (AFB) was one of five Air Training Command Technical Training Centers providing specialized training for officers, airmen, and civilian employees of the Air Force and other DoD agencies. In 1988, the installation was recommended for closure. A Record of Decision (ROD) for reuse of the base was signed in FY91, and closure occurred in September 1993. The majority of the installation has been licensed to the Village of Rantoul for use as an airport.

Environmental studies conducted between FY82 and FY92 identified 69 sites at the facility, including landfills, fire training areas, oil-water separators, a petroleum sludge disposal pit, jet engine test cells, and underground storage tanks (USTs). Interim actions have included removal of USTs, pipelines, and contaminated soil at UST sites; removal of sludge and contaminated soil at a sludge pit; and removal of the oil-water separators.

The installation formed a BRAC cleanup team (BCT) and a Restoration Advisory Board in FY94. In FY95, the installation completed a treatability study (TS) and used low-temperature thermal volatilization to treat 60,000 tons of contaminated soil at 14 former UST sites.

In FY96, the installation initiated a groundwater extraction and treatment system at Building 700, a former UST site. Several parcels within Operable Unit (OU) 1 were designated as suitable for transfer. Bioremediation and intrinsic bioremediation TSs for the Building 950 area spill site determined that petroleum levels were below State of Illinois cleanup levels for petroleum contamination. Two early actions and site cleanups were completed.

The Village of Rantoul, Illinois, Aviation and Development Group completed a reuse plan for the facility. As a result of the local redevelopment authority's efforts, an operating civilian airport was established on former property of the installation.

In FY97 and FY98, the BCT reviewed and updated the BRAC cleanup plan. In FY98, area surveys, geophysical studies, and cone penetrometer testing were completed at the landfills. New areas of concern (AOCs) were discovered in OU1. An interim remedial action (IRA) investigation was initiated at the four landfills in OU2.

In FY99, planning documents, including monitoring well design documents, for the landfill remedial investigation (RI) were completed. Monitoring well abandonment Phase I was initiated to close nonproductive wells. The installation completed the site characterization and the engineering evaluation and cost analysis for Fire Training Area 2 and the Building 932 sludge pit. The installation prepared for non-time-critical removal actions (NTCRAs) to accelerate soil cleanup. A field screening investigation was initiated at OU2.

In FY00, the majority of field activities for the landfills and Heritage Lake RI and the final two phases of monitoring well abandonment were completed. The field screening investigation was completed at OU2. Preparation for cap construction at Landfills 1, 2, and 3 began. Soil remediation was completed in the Veterans Parkway area, allowing for the construction of a new roadway into the village. The NTCRAs for the Building 932 sludge pit and Fire Training Area 2 were initiated, and approximately 50,000 cubic yards of contaminated soil was removed. Plan preparation for the closeout of aboveground storage tank (AST), UST, and oil-water separator sites was initiated.

FY01 Restoration Progress

An interim ROD for the construction of the landfill caps was signed, and plans were initiated for the landfill RI completion. Installation of RCRA-equivalent caps, including passive gas and leachate collection, was 50 percent complete at Landfills 2 and 3, and 60 percent complete at Landfill 1. Preparation for the OU2 RI began. Geophysical studies and cone penetrometer testing were completed at OU1. Unused ASTs throughout the facility and underground fuel piping at Building 950 were removed. A work plan for the closeout of 84 AST, UST, and oil-water separator sites was completed, and field activities were initiated. A groundwater assessment was initiated at 15 UST and petroleum, oil, and lubricant sites. Cap construction and the RI/FSs for the landfills, Heritage Lake, OU1, and OU2 were delayed for the reevaluation of project requirements.

Chanute AFB was proposed for the National Priorities List (NPL). The Agency for Toxic Substances and Disease Registry initiated a public health assessment for the installation. The cost of completing environmental restoration has changed significantly at this installation because of technical and regulatory issues.

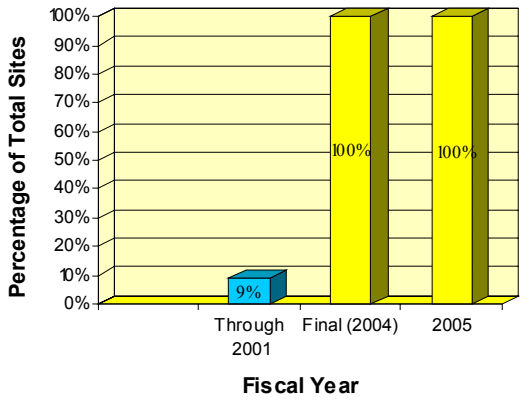
Military Munitions Response Program Progress

An unexploded ordnance removal action is planned for FY02 encompassing 6 acres of the installation.

Plan of Action

- Complete RI and feasibility study for landfills and Heritage Lake in FY02
- Complete OU1 and OU2 RI planning documents and initiate field activities in FY02
- Complete construction of caps at Landfills 1, 2, and 3 in FY02
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Charleston Naval Shipyard and Naval Station *Charlestion, South Carolina* BRAC 1993

FFID:	SC417002434300, SC417002757100, SC417002267000, SC417002425800, SC41700225600	**Contaminants:**	petroleum hydrocarbons
		Media Affected:	Groundwater, sediment, and soil
Size:	2,965 acres	**Funding to Date:**	$51.9 million
Mission:	Repaired, maintained, and overhauled Navy ships	**Estimated Cost to Completion (Completion Year):**	$1.1 million (FY2004)
HRS Score:	NA	**Final RIP/RC Date for BRAC-ER Sites:**	FY2003
IAG Status:	None	**Five-Year Review Status:**	NA
Contaminants:	Asbestos, cyanide, decontaminating agents, heavy metals, paints, PCBs, pesticides, POLs, solvents, and		

Progress to Date

The Charleston Naval Complex housed five major naval commands (the Naval Shipyard, the Naval Station, the Naval Fleet and Industrial Supply Center, the Fleet and Mine Warfare Training Center, and the Naval Reserve Center), as well as several small organizations. In July 1993, the BRAC Commission recommended closure of the property and the majority of the commands. Operational closure of the complex occurred on April 1, 1996.

The primary sites of concern at the installation are areas that were used as landfills or disposal pits. For investigative purposes, the complex was divided into 12 zones. As of October 1999, 117 RCRA solid waste management units (SWMUs) and areas of concern and 65 underground storage tanks (USTs) and aboveground storage tanks (ASTs) at the complex required some remedial action. Zones J and L, which are in the RCRA facility investigation (RFI) stage, contain the waterside areas and the sanitary sewer system, respectively. The installation has completed initial site characterizations for all UST sites and is nearly finished with the site assessments.

In FY94, a BRAC cleanup team and two reuse groups were formed. One reuse group represented the community; the other, a state agency. A land reuse plan was developed and approved, and transfers of property to other federal agencies and leases to private businesses were completed.

In FY98, the installation completed RFIs for 70 SWMUs. A corrective measures study (CMS) was initiated for 12 sites; 7 sites were determined to be Response Complete. The installation removed all but two petroleum storage tanks. Three contamination assessments were completed: one required remediation; the other two resulted in a no further action (NFA) decision by the state regulator.

In FY99, CMS reports for 12 sites were submitted to the regulatory agencies. Rapid site assessments were completed for the USTs and ASTs requiring additional action. Asbestos and lead-based paint abatement was completed for the majority of the historical housing.

In FY00, the installation completed the finding of suitability to transfer (FOST) and the environmental baseline survey for transfer (EBST) for the marina and transferred the parcel to the Parks and Recreation Department. Interim measures, UST site assessments, and lead-based paint and asbestos abatement were completed for sites associated with economic development conveyance (EDC) Phase I. Approximately 207 acres was transferred as part of EDC Phase I, and 16 acres containing the marina was transferred under a public benefit conveyance.

The installation converted its technical review committee to a Restoration Advisory Board in FY94. A community relations plan was completed and updated.

FY01 Restoration Progress

Lead-based paint abatement was completed in all target housing. Remedies for groundwater contamination were implemented at five of the eight major sites. Asbestos surveys were completed at EDC Phase II buildings, and abatement at Phase III buildings is under way. The FOST and EBST for EDC Phase II, which encompassed 285 acres, was finished. Nine additional Installation Restoration Program sites were closed with NFA required. Of the remaining 78 UST sites listed for corrective action, 42 have been approved for NFA. The cost of completing environmental restoration at this installation has increased significantly because the cost of asbestos abatement, included in the current estimate, was not previously included.

The transfer of the Chicora tank farm was delayed because additional contamination was found, requiring additional funding.

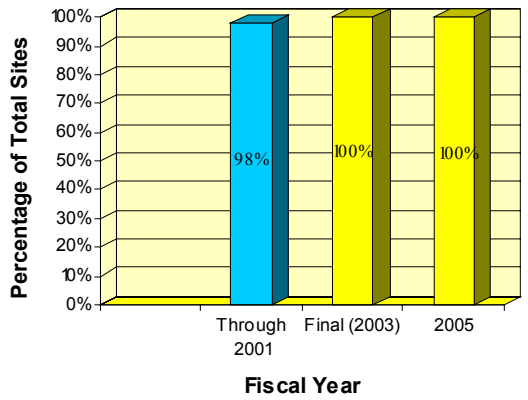
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete CMS for SWMU 9 in FY02
- Complete asbestos surveys for Phase III and IV parcels in FY02
- Complete FOST/EBST for Phase III in FY02
- Implement remedy at SWMU 166 in FY02
- Implement remedy at SWMU 5/36 in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year

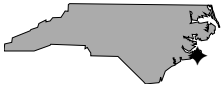


Cherry Point Marine Corps Air Station

Cherry Point, North Carolina

NPL

FFID:	NC417302726100	**Funding to Date:**	$59.0 million
Size:	29,139 acres	**Estimated Cost to Completion (Completion Year):**	$60.9 million (FY2032)
Mission:	Maintain and operate support facilities; provide services and materials for marine aircraft	**Final RIP/RC Date for ER Sites:**	FY2011
		Five-Year Review Status:	Under Way
HRS	Score:70.71; placed on NPL in December 1994		
IAG Status:	Federal facility agreement under negotiation		
Contaminants:	PCBs, petroleum hydrocarbons, and solvents		
Media Affected:	Groundwater and soil		



Progress to Date

This station conducted an initial assessment study in FY83, which identified 32 sites. A RCRA facility assessment performed in FY88 identified 114 solid waste management units. The Navy and EPA agreed to perform additional investigations at 32 of the 114 sites.

The installation characterized 22 underground storage tank (UST) sites between FY91 and FY95 and completed corrective action plans (CAPs) for 3 UST sites in FY93 and FY94. During FY95, a corrective measures study (CMS) was initiated for five sites and completed for one site. The installation completed corrective measures implementation for two sites and a time-critical removal action (TCRA) for one site. A CAP was completed for one UST site.

During FY96, the installation completed remedial investigations and feasibility studies (RI/FSs) for two sites and finished nine proposed remedial action plans (PRAPs). CAPs were completed for six UST sites, and designs were completed for three UST sites. A baseline risk assessment was conducted for all sites.

In FY97, the RI/FS was initiated for two sites and completed for four additional sites. PRAPs were prepared for two sites and completed at three additional sites. Remedial action (RA) was initiated for eight sites and completed for four additional sites. An engineering evaluation and cost analysis was completed for one site. Three Records of Decision (RODs) were completed.

In FY98, a TCRA and a corresponding action memorandum were completed for a new site. Interim remedial actions were completed for Operable Unit (OU) 1 at Sites 16, and 85, and the NADEP central hot spot. An RI/FS was initiated for OU6. A comprehensive RI/FS work plan was initiated for OU1. A CMS was completed for Sites 7, 8, and 9, and negotiations began on a federal facility agreement (FFA).

In FY99, a ROD for OU2 and a land use control implementation plan with the State of North Carolina and EPA were signed. An optimization evaluation of four remediation systems was performed. Initial construction at an OU1 site was completed. Operations and monitoring for the OU 1, 2, and 3 treatment systems were conducted. A treatability study (TS) using substrate injection to treat a chlorinated solvent groundwater plume was implemented. Modifications of the industrial wastewater treatment plant were completed. The installation won the Marine Corps Environmental Award for Excellence.

In FY00, the installation completed RIs for OUs 2, 4, 6, and 13. A draft remedial design/RA report for OU3 was completed, as was an RA system for OU3 Site 7. A draft screening-level ecological risk assessment (ERA) for the creek adjacent to OUs 1, 2, and 3 was completed. A draft TS work plan for OU1 was also completed. A total of nine UST sites achieved regulatory closure.

A technical review committee was established in FY91, and two information repositories were established in FY93. The installation's Restoration Advisory Board was established, and a community relations plan was completed, in FY95.

FY01 Restoration Progress

The construction of the IRA systems at OUs 1, 2, and 3 was completed, and final long-term RA (LTRA) plans are awaiting regulator review. The final site screening assessment work plan was approved for Site 85. The TS was initiated at OU1. The OU2 and OU3 RD, RAs, and long-term management (LTM) plans for groundwater have been approved and signed by the state. The OU 5 and 14 RIs have been initiated and their draft work plans have been submitted for review. The 5-year review has begun.

FFA signature and closeout documentation were delayed due to negotiations with EPA. The OU1 RI remains under development due to the complexity of the contamination. The OU15 ERA is now undergoing regulatory review. The Navy anticipates that no further investigation at OU15 will be required. Submission of the OU6 FS was delayed by regulatory issues. The OU6 RI will need to be reviewed and approved before the OU6 FS can be submitted. The FSs and PRAPs for OU4 and OU13 were delayed due to efforts to address lead and dioxin issues.

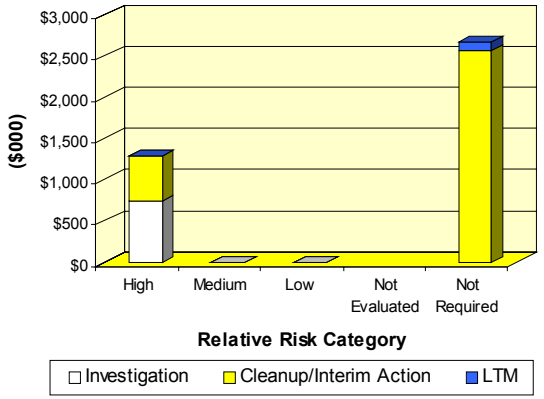
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete final RIs for OUs 4, 6, and 13 and submit draft RIs for OUs 1, 5, and 14 in FY02
- Submit draft FS/PRAP/ROD reports for OUs 1, 4, 6, and 13 in FY02
- Complete evaluation report for Site 85 in FY02
- Complete final LTRAs for OUs 1, 2, and 3 and initiate RA and LTM for groundwater at OUs 2 and 3 in FY02
- Determine whether remedy is complete for OU3 Site 7 soil and begin shutdown of RA system in FY02–FY03

FY02 Funding by Phase and Relative Risk



Chicago O'Hare IAP Air Reserve Station — *Chicago, Illinois* — BRAC 1995

FFID:	IL557122427200	**Media Affected:**	Groundwater and soil
Size:	359 acres	**Funding to Date:**	$6.7 million
Mission:	Housed 126th Air Refueling Wing (Illinois National Guard) and 928th Airlift Wing (Air Force Reserve)	**Estimated Cost to Completion (Completion Year):**	$0.06 million (FY2002)
		Final RIP/RC Date for BRAC-ER Sites:	FY2002
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	VOCs, SVOCs, PNAs, petroleum hydrocarbons, and heavy metals		

Progress to Date

Chicago O'Hare International Airport Air Reserve Station (ARS) began operations in 1942 as an aircraft assembly plant. The plant was deactivated in 1945, and the Air Force Reserve and the Air National Guard began flying activities there in 1946 and 1954, respectively.

The 1993 BRAC Commission recommended closure of this station, contingent on receipt of funding from the City of Chicago. The BRAC 1995 round modified the decision, and the Air Force and the city began implementing the revised decision. In late 1996, the Air Force and the City of Chicago signed a purchase agreement. The city is paying for replacement facilities at Scott Air Force Base in exchange for the Chicago O'Hare ARS land.

Environmental cleanup studies at the station began in 1983. To date, 19 Installation Restoration program (IRP) sites and 23 areas of concern (AOCs) have been identified. Site types include underground storage tanks (USTs), landfills, fuel spills, aboveground storage tanks (ASTs), a fire training area, and a low-level radioactive waste disposal area. Primary contaminants are petroleum hydrocarbons, metals, polynuclear aromatic hydrocarbons (PNAs), volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs), which have been released into soil and groundwater.

Interim remedial actions have included removal of 19 USTs, contaminated soil, and low-level radioactive waste. Eleven ASTs have been closed. Remedial actions (RAs) include removal of eight ASTs and partial on-site remediation of the south petroleum/oil/lubricant (POL) facility. The O'Hare ARS military property will be recommended for institutional controls (deed restrictions). One site (RW-011) has been closed with no further action needed. ST-002 (west POL) and ST-016 (former trailer park) have been remediated; and ST-006, the defuel tank leak, was closed under regulations for leaking USTs.

In FY97, a stationwide Phase I environmental baseline survey (EBS) was completed. EBS Phase II supplements are being prepared as investigations and cleanup occur and property transactions are developed. In FY98, a parcel-specific EBS and a remedial investigation (RI) were completed for Parcels 2 and 3A. A finding of suitability to lease (FOSL) was issued. A parcel-specific EBS was completed for Parcel 3.

In FY99, an RI was completed for Parcel 3. A FOSL was issued. All remaining in-leases between the Air Force and the City of Chicago were terminated. RIs for south POL/storm drainage and nine IRP sites were completed. The groundwater investigation project was expanded.

In FY00, soil removal for ST-002 and OT-016 was completed. Site inspections were completed. EPA approved four RIs. Illinois EPA approved three RIs. An RA was completed for trichloroethene (TCE)-contaminated soil at the sanitary sewer/former trailer park (SS-019). Supplemental RIs were completed for three sites (ST-012, SA-017, and IN-018). The Base Closure and Transition Team meets monthly.

FY01 Restoration Progress

The review and approval process was successfully implemented for all pending documents. The sanitary sewer investigation and the time-critical RA for the SS-019 were completed. Soil removals were completed for SA-017, IN-018, and ST-015. A feasibility study (FS) was developed to support closure of all sites.

The decision documents for all sites and AOCs were not completed as planned due to a need for re-excavations in the field to complete removal actions. Investigation of LF-001 proceeded, but the focused FS was not completed due to funding issues.

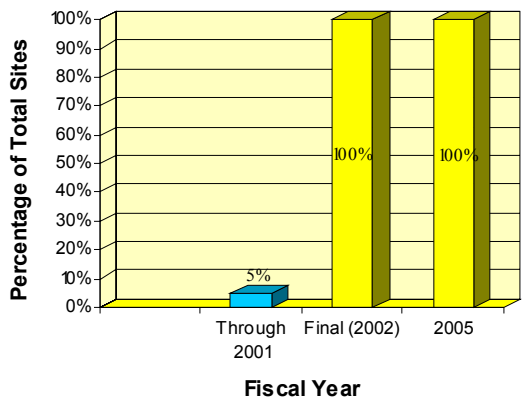
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Complete basewide Record of Decision for all sites within the BRAC property in FY02
- Complete finding of suitability to transfer for all property outside of LF-01 in FY02
- Develop an institutional control management plan in FY03
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Concord Naval Weapons Station

Concord, California

NPL

FFID:	CA917002452800	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	13,023 acres	**Funding to Date:**	$49.3 million
Mission:	Ship, receive, inspect, and classify munitions (tidal area); serve as munitions storage and weapons maintenance, inspection, and testing facility (inland area)	**Estimated Cost to Completion (Completion Year):**	$18.4 million (FY2013)
		Final RIP/RC Date for ER Sites:	FY2013
		Five-Year Review Status:	Completed/Under Way/Planned
HRS Score:	50.00; placed on NPL in December 1994		
IAG Status:	Federal facility agreement signed in June 2001		
Contaminants:	Heavy metals and petroleum hydrocarbons		

Progress to Date

Since FY83, investigations have identified 56 sites at this installation. Past operations, such as disposal of paints and solvents, spent ordnance, treated wood, and household and industrial waste; open burning of munitions; and spills or leaks from fuel storage tanks, have contributed to contamination. The installation was placed on the National Priorities List (NPL) in 1994, primarily because of surface water and sediment contamination at tidal and litigation-area sites. These sites include sensitive habitat for threatened and endangered species and are interconnected to Suisun Bay.

From FY86 through FY94, the installation completed a remedial investigation (RI) and feasibility study (FS), signed a Record of Decision (ROD), and completed remedial design (RD) for the seven litigation-area sites. Site inspections (SIs) were completed and RI began at four tidal area sites and five inland sites. SIs were also performed for six other sites. A RCRA facility assessment (RFA) was performed for 49 solid waste management units (SWMUs); 24 SWMUs were proposed for RCRA corrective action. Three tanks were removed from an underground storage tank (UST) site, and initial site characterization was completed for a UST site.

In FY95, three abandoned wells were closed and sealed at one inland site. By FY96, the installation had completed the remedial action (RA) and begun long-term management (LTM) for all litigation-area sites. FY97, the installation completed corrective actions for three of the SWMUs and finished an RFA confirmation study for all SWMUs, recommending 20 for no further action (NFA).

In FY98, the installation completed RIs for five inland sites and a Phase II RI for one of the sites. A no-action proposed plan (PP) was initiated at four of the inland sites, and the fifth inland site was removed from the Installation Restoration Program. A removal action was completed at one inland site.

In FY99, the installation completed an RI for four tidal area sites and confirmed that NFA was required for three of the four sites. An RI/FS was initiated for Site 30, and a ROD for four inland sites was submitted for final regulatory agency review and signature. A preliminary assessment was completed for one area of concern (AOC).

In FY00, the installation prepared RODs for two inland sites and the tidal area landfill. The 5-year review of LTM for seven litigation-area sites was completed, and the 5-year periodic review and assessment of these sites began. The SI for four SWMUs and Inland Site 29 were completed. The RI for four SWMUs, the FS for Site 29, and the PP and ROD for three tidal area sites were initiated. The required site screening was completed for documentation of a proposed removal action at AOC 1, Site 31. Planning began for the RI/FS for one tidal area site and the PP and ROD for Site 29. Federal facility agreement (FFA) negotiations began, and work began on the site management plan (SMP).

An information repository and an administrative record were established in FY89. The installation formed a technical review committee in FY90 and converted it to a Restoration Advisory Board (RAB) in FY95. The installation updated its community relations plan in FY96.

FY01 Restoration Progress

The installation completed the 5-year periodic review and assessment report for seven litigation-area sites and submitted it for agency review and comment. The FFA was signed with EPA Region 9, and the public comment period began. The ecological risk assessment component of the tidal area RI was updated to current technical standards, and the RI update was initiated.

The tidal area landfill RD was initiated and the RA was scheduled; however, both were delayed until finalization of the ROD for the site. Completion of the inland area ROD was rescheduled for revision to meet current standards.

Execution of the FFA has reinvigorated public interest in partnering, participation in the RAB, and application for EPA Technical Assistance for Public Participation grants.

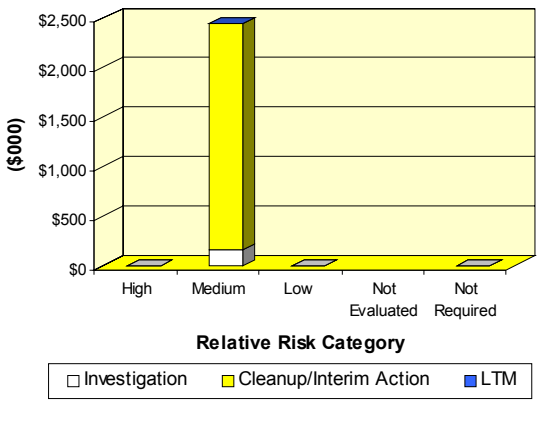
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Finalize the 5-year periodic review assessment report for the seven litigation-area sites in FY02
- Finalize the FFA and update the SMP with EPA Region 9 in FY02
- Finalize the RI for the three tidal area sites in FY02
- Finalize the tidal area landfill ROD, complete the RD, and initiate the RA in FY02
- Finalize the AOC 1 RD and initiate the RA in FY02

FY02 Funding by Phase and Relative Risk



Cornhusker Army Ammunition Plant

Hall County, Nebraska

NPL

FFID:	NE721382023400	**Funding to Date:**	$48.2 million
Size:	10,500 acres	**Estimated Cost to Completion (Completion Year):**	$30.8 million (FY2021)
Mission:	Manufactured ammunition	**Final RIP/RC Date for ER Sites:**	FY2010
HRS Score:	51.13; placed on NPL in July 1987	**Five-Year Review Status:**	Planned
IAG Status:	IAG signed in 1990		
Contaminants:	Explosives and heavy metals		
Media Affected:	Groundwater and soil		

Progress to Date

Cornhusker Army Ammunition Plant (CHAAP) is a former ammunition manufacturing facility. EPA placed the installation on the National Priorities List (NPL) because of explosive liquid waste contaminants released during the manufacturing process to sumps, cesspools, and leaching pits and disposal of solid waste in landfills and burning areas.

An initial assessment study completed in FY80 identified 65 contaminant sources at the installation. In FY83, the Army identified an explosives-contaminated groundwater plume migrating off site. The off-site contamination affected more than 250 private residences in Grand Island. In FY86, the Army removed and incinerated 40,000 tons of explosives-contaminated soil from sumps and leaching pits. In FY86 and FY95, the Army extended the Grand Island municipal water distribution system to all affected residences. In FY89, the community formed a local redevelopment authority. In FY94, the Army performed an interim remedial action, removing 5,000 tons of explosives-contaminated soil. The Army also completed a Record of Decision (ROD) for remediation of groundwater contamination at Operable Unit (OU)1.

A remedial investigation (RI) in FY96 designated six sites (OU2) as requiring no further action. A site investigation for former underground storage tanks and aboveground storage tanks (ASTs) was submitted to the state.

In FY97, the U.S. Army Corps of Engineers (USACE) completed changes in the design of the OU1 ROD phase treatment of on-site source areas. These changes allow accelerated source removal and treatment.

In FY98, the Army and regulators signed the proposed plan and the ROD for OU2. The OU2 ROD requires no action for protection of human health and the environment, given future land use requirements.

In FY99, the results of long-term monitoring of off-installation contamination provided data to support natural attenuation (NA) of contaminants. The amendments to the OU1 ROD signed in FY01 did not require off-site treatment. The Army initiated public sales of the clean tracts on CHAAP.

In FY00, the Army and regulators signed RODs for OU3 and OU4 and the installation completed remedial action (RA) for contaminated soil in OU3. The installation added one extraction well at the CHAAP boundary to contain the plume within the installation boundary. The Army initiated monitoring NA of a groundwater plume in the shop area with marginal PCA solvent contamination. The installation began operational periodic monitoring (pre-remediation) at the OU5 open burning grounds.

FY01 Restoration Progress

The OU1 ROD amendment for no further RA was completed and signed. The transfer of CHAAP to USACE is under way. The Army began monitoring the solvent-contaminated groundwater plume in the shop area as well as long-term operations (LTO) and long-term monitoring of the contaminated groundwater plume at OU1. An explosives safety action is currently underway, ultimately leading to DDESB certification. Areas suspected of containing UXO will be swept prior to completing the OU5 effort. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues.

The RI and RA for the ASTs on the load lines were delayed due to funding shortages. The complete feasibility study (FS), proposed plan (PP), and ROD for OU5 were delayed, pending the completion of the explosive safety action and DoD Explosives Safety Board certification.

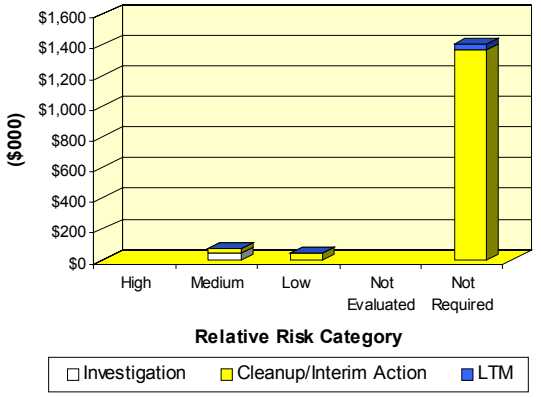
Military Munitions Response Program Progress

Previously, clearance of unexploded ordnance has occurred in support of the restoration program. See the Progress to Date and FY01 Restoration Progress for more information. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete the 5-year CERCLA review in FY02
- Continue monitoring of solvent-contaminated plume in FY02–FY03
- Continue LTO and long-term monitoring of the contaminated groundwater plume (OU1) in FY02–FY03
- Complete RI and RA for ASTs on load lines in FY03

FY02 Funding by Phase and Relative Risk



Dahlgren Naval Surface Warfare Center — *Dahlgren, Virginia* — NPL

FFID:	VA317002468500	**Contaminants:**	low-level radioactive materials, mercury, PCBs, and pesticides
Size:	2,677 acres main site; 1,614 acres experimental explosive area	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Proof and test ordnance	**Funding to Date:**	$35.2 million
HRS Score:	50.26; placed on NPL in October 1992	**Estimated Cost to Completion (Completion Year):**	$25.3 million (FY2011)
IAG Status:	Federal facility agreement signed in September 1994	**Final RIP/RC Date for ER Sites:**	FY2011
Contaminants:	Cleaning solvents, explosives residues, heavy metals,	**Five-Year Review Status:**	Planned

Progress to Date

Dahlgren Naval Surface Warfare Center was placed on the National Priorities List (NPL) because of potential migration of releases from three contaminated sites. These releases could affect the Potomac River, Gambo Creek, associated wetlands, and local groundwater aquifers used for drinking water. Ordnance testing operations have contributed to the contamination. Site types include former landfills, former ordnance burning and disposal areas, underground storage tanks, operating ordnance ranges, and operating ordnance research and development areas. Seventy-four sites are being addressed under CERCLA. A 5-year review was completed.

A total of 37 sites have been identified at the installation. During FY93, a RCRA facility assessment identified more than 100 solid waste management units (SWMUs), and a visual site inspection identified 6 areas of concern (AOCs) and 31 SWMUs that required further action. In FY95, an engineering evaluation and cost analysis began at 2 sites, site inspections (SIs) were completed at 10 sites, and a removal action was completed at 1 site.

In FY96, the installation completed SIs for 10 sites, initiated SIs for 6 sites, and began remedial investigations (RIs) for 7 sites. It completed Phase I of the ecological risk assessment (ERA) of Gambo Creek and Phase I of the ERA and human health risk assessment for eight sites. Two SWMUs and two AOCs were closed out.

In FY97, the installation completed removal actions for seven sites and began remedial actions (RAs) for a landfill site and a chemical burn area. RIs for two sites were completed. The installation completed the feasibility study (FS) and remedial design (RD) and signed two Records of Decision (RODs) for two sites.

In FY98, two RIs including human health and ecological risk assessments were completed for Sites 9 and 17. FSs, proposed plans (PPs), and RODs also were completed for these two sites. In FY99, the installation completed three RI/FSs, PPs, and RODs for Sites 19, 25, and 29. Six Appendix B sites were evaluated and closed out with no further action (NFA). Construction began on the Site 9 landfill cap and a cap was completed for Site 2.

In FY00, the installation completed RI/FSs, PPs, and RODs for Sites 3/44 and 10. An RD was completed for Site 17. The air-sparging and soil vapor extraction system at Site 12 was recommended for shutdown because soil and groundwater contaminant concentrations met remediation goals.

An information repository and an administrative record were established in FY91. In FY92, a community relations plan was completed and the installation formed a technical review committee (TRC). In FY95, the TRC was converted to a Restoration Advisory Board (RAB). The administrative record was converted to CD-ROM and placed in a local library in FY99.

FY01 Restoration Progress

The installation completed RI/FSs, PPs, and RODs for Sites 36/49 and 46. An RD was completed for Site 25, and the RA contract was awarded and initiated. Contracts for removal designs and actions at Sites 31 and 50 were awarded and initiated. Three Appendix B sites were closed out with NFA, including SWMUs 23, 61, and 77. Regulators approved the Phase II Gambo Creek work plan, and sampling was performed. Site 9 and 17 long-term management (LTM) contacts were awarded and work plans submitted.

The Phase II Gambo Creek draft report submission was delayed because of the complexity of the associated issues and to obtain additional regulatory input. The Site 2 LTM work plan was finalized; however, sampling was delayed due to receipt of regulatory comments. The Site 10 LTM work plan is in draft form, pending receipt of regulatory comments.

The Navy, EPA Region 3, Virginia Department of Environmental Quality, and support contractors continue to participate in formal partnering to accelerate decisions, document preparation, and review. RAB fact sheets were distributed to explain the completed and planned construction activities at Sites 17 and 25.

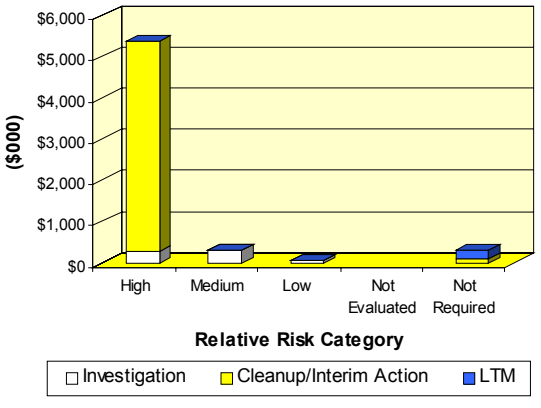
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete draft final Phase II Gambo Creek ecological assessment report in FY02
- Complete sampling and cleanup for Appendix B sites in FY02
- Complete two RI/FSs, PPs, and RODs in FY02–FY03
- Complete two RDs in FY02 and one RD in FY03, and complete two IRAs in FY02–FY03
- Continue LTM at sites and review impact in FY02–FY03
- Complete 5-year review for Site 2 in FY03

FY02 Funding by Phase and Relative Risk



Dallas Naval Air Station

Dallas, Texas

BRAC 1993

FFID:	TX617002278600	**Funding to Date:**	$49.9 million
Size:	832 acres	**Estimated Cost to Completion (Completion Year):**	$58.7 million (FY2008)
Mission:	Served as a pilot training center	**Final RIP/RC Date for BRAC-ER Sites:**	FY2004
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	POLs, solvents, heavy metals, and asbestos		
Media Affected:	Groundwater and soil		

Progress to Date

In July 1993, the BRAC Commission recommended closure of the Dallas Naval Air Station (NAS Dallas). Operations were transferred to the Fort Worth Naval Air Station. The installation closed September 30, 1998.

A number of the industrial operations that supported the installation's military mission contributed to contamination. For investigation of environmental conditions, the installation was divided into six areas, Categories A through F. Thirteen sites were identified. The installation completed a confirmation study for six of these sites and a RCRA facility assessment, which identified 135 solid waste management units (SWMUs) and 44 areas of concern (AOCs).

During FY94, an environmental baseline survey (EBS) identified 118 additional AOCs. A BRAC cleanup team was formed, and a BRAC cleanup plan was completed. The installation formed a Restoration Advisory Board and established an information repository. During FY95, the installation began fieldwork for Categories B and C, initiated the design for removal of underground storage tanks (USTs), and completed surveys of asbestos and polychlorinated biphenyls (PCBs). A local redevelopment authority was established and adopted a land reuse plan. During FY96, the installation completed a community relations plan and remediated asbestos in all buildings. In FY97, the installation began to delineate a contaminant plume at the fuel farm. The EBS for transfer and the finding of suitability to transfer (FOST) for Duncanville housing were approved.

In FY98, NAS Dallas was operationally closed, and operations were transferred to NAVFAC. Fifteen USTs and one oil-water separator were removed. Interim remedial action work plans were finalized for the northern fuel farm and the PCB spill area (SWMU 85). Interim source containment measures were implemented at SWMU 85.

In FY99, final RCRA facility investigation (RFI) reports were submitted for Categories C, E, and F. Fourteen oil-water separators and associated contaminated soil were removed, and 12 soil removal actions were completed as interim remedial measures. All USTs were removed and the sites closed out. An interim corrective action evaluation report was completed for the Texas Air National Guard ponds. A source removal action was completed at the fuel farm to address groundwater impacted by chlorinated solvents.

In FY00, the installation completed final RFI reports for Categories A, B, and D. Interim corrective soil removal actions were completed at five sites. Remediation of chlordane-impacted soil was completed at the Duncanville Housing site, and the City of Duncanville converted the site to a public park. FOSTs for all parcels of the Clear Zone and transfer of a 14-acre parcel at the southern tip of Runway 17-35 were completed. Interim corrective groundwater actions using in situ chemical oxidation and enhanced bioremediation were completed at two sites impacted by chlorinated solvents. A draft finding of suitability for early transfer for the last parcel was submitted to regulators.

FY01 Restoration Progress

Pilot studies were completed to address groundwater at two sites. A statement of suitability to transfer was prepared for the remaining Navy-owned property. Negotiations are under way with the City of Dallas regarding cleanup standards, long-term management (LTM), and long-term operations for remaining sites.

The selection of soil and groundwater remedies for all remaining sites was delayed by litigation with the City of Dallas. Termination of the NAS Dallas RCRA permit and implementation of a compliance plan are on hold, pending conclusion of negotiations with the city.

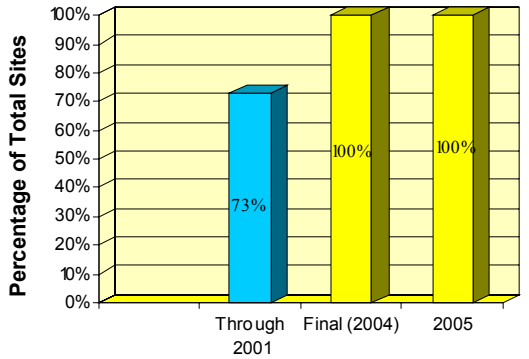
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

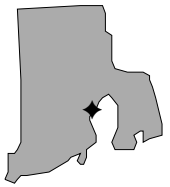
- Continue negotiations with the City of Dallas regarding cleanup standards in FY02
- Implement interim corrective actions to address groundwater at three sites in FY02
- Continue the interim actions at three groundwater sites in FY02
- Complete the final design and implement the construction of the Rubble Landfill cap in FY02
- Complete the ecological risk assessment process at the TANG Pond site in FY02
- Begin LTM of the remedy for the main fuel farm (proposed as monitored natural attenuation) in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Davisville Naval Construction Battalion Center *Davisville, Rhode Island* NPL/BRAC 1991

FFID:	RI117002203600	**Funding to Date:**	$47.4 million
Size:	1,285 acres	**Estimated Cost to Completion (Completion Year):**	$15.1 million (FY2004)
Mission:	Provided mobilization support to Naval Construction Forces	**Final RIP/RC Date for BRAC-ER Sites:**	FY2004
HRS Score:	34.52; placed on NPL in November 1989	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement signed in March 1992		
Contaminants:	Heavy metals, PCBs, pesticides, petroleum hydrocarbons, POLs, and VOCs		
Media Affected:	Groundwater and soil		



Progress to Date

In July 1991, the BRAC Commission recommended closure of this installation. Construction battalion training and mobilization activities were transferred to the Naval Construction Battalion Center, Gulfport, Mississippi, and to Naval Construction Battalion Center, Port Hueneme, California. The installation was closed in April 1994.

Studies conducted since FY84 have identified 25 sites, including landfills, solvent storage and disposal areas, transformer storage areas, spill areas, underground storage tanks (USTs), and fire training areas. Contaminants include solvents, polychlorinated biphenyls (PCBs), petroleum/oil/lubricants, and pesticides.

In FY91, the installation completed interim remedial actions (IRAs) for two PCB spill sites. In FY92, it completed a Phase I remedial investigation and feasibility study (RI/FS) for 10 sites. In FY93, it completed an IRA and an RI/FS and signed a Record of Decision (ROD) for two sites. In FY94, a site inspection, a Phase II RI/FS, the remedial design, and an ecological risk assessment were accomplished. In addition, 56 USTs were removed from seven sites, an initial site characterization and a land reuse plan was completed. Also in FY94, a BRAC cleanup team (BCT) was formed.

In FY95, the installation completed a corrective action plan for 7 UST sites, removed 27 USTs, signed a no further action (NFA) ROD for two sites, and completed one removal action. The installation completed five UST corrective actions (CAs) and closed out one site. It also prepared proposed remedial action plans for a number of sites. In FY95, a BRAC cleanup plan was completed, and in FY96 and FY97, respectively, the BCT prepared BRAC business plans and a community relations plan.

During FY97, cleanup of two sites was completed. Environmental baseline survey (EBS) Phase II CAs were approved by the regulatory agencies. In FY98, a risk assessment was completed for Sites 6, 11, and 13. NFA RODs were signed for five sites, and an NFA decision document was issued for one site. In FY99, the remedial action at Allen Harbor Landfill was completed. The ROD for long-term management (LTM) was signed for Site 7.

In FY00, a draft FS and RI amendment was issued for Sites 2 and 3 (Parcel 7). A finding of suitability to transfer (FOST) was completed. Remedial action operations continued at Site 9 (Parcel 10), and a draft FOST was issued. The installation completed, to the extent practical, all EBS items.

The installation established an administrative record and an information repository in FY89. The installation's technical review committee was converted to a Restoration Advisory Board in FY94.

FY01 Restoration Progress

The installation implemented LTM for Sites 3, 7, and 9 and EBS Site 21. The draft Phase I RI for Site 16 was completed. The Phase I RI generated incomplete site data; therefore, a Phase II RI will be required. The cost of completing environmental restoration increased significantly due to these technical issues.

The FOST for Site 21 was delayed due to off-site groundwater contamination. The Navy is now working on obtaining groundwater restrictions, a requirement for transferring the parcel.

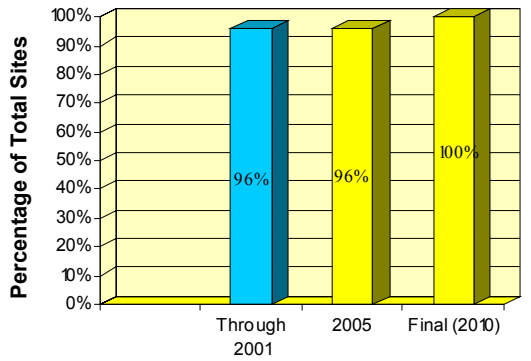
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Issue FOST for EBS Site 21 (Parcel 3) in FY02
- Complete Site 16 RI in FY02
- Complete and issue draft Phase II RI for Site 16 in FY02
- Complete 5-year review in FY02
- Continue LTM at Sites 3, 7, and 9 and EBS Site 21 in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Defense Distribution Depot Memphis

Memphis, Tennessee

NPL/BRAC 1995

FFID:	TN497152057000	**Contaminants:**	PCP, PCBs, chlorinated solvents, POLs, pesticides, heavy metals, and chemical warfare agents
Size:	642 acres		
Mission:	Store and distribute clothing, food, medical supplies, electronic equipment, petroleum products, and industrial chemicals	**Media Affected:**	Groundwater and soil
		Funding to Date:	$31.6 million
		Estimated Cost to Completion (Completion Year):	$5.3 million (FY2004)
HRS Score:	58.06; placed on NPL in October 1992	**Final RIP/RC Date for BRAC-ER Sites:**	FY2004
IAG Status:	Federal facility agreement signed in March 1995	**Five-Year Review Status:**	Planned

Progress to Date

In September 1995, the BRAC Commission recommended closure of Defense Distribution Depot Memphis. The installation closed in FY97.

Site studies beginning in FY81 have identified more than 120 sites at the installation. In FY85, an interim remedial action (IRA) was completed to remove a pentachlorophenol (PCP) wood preservative treatment vat, an underground storage tank (UST) used for PCP storage, and contaminated soil in the area. In FY90, remedial investigation and feasibility study (RI/FS) activities were accomplished for 40 sites. Upon the installation's placement on the National Priorities List (NPL) in 1992, all CERCLA sites and the remaining UST sites were divided into four operable units (OUs). In FY95, the installation completed additional RI/FS work plans for all four OUs. By 1999, all of the USTs had been removed or closed in place.

In FY94, groundwater monitoring was performed to characterize contamination at the installation. In FY95, the interim Record of Decision (ROD) for groundwater contamination at Dunn Field was completed. In FY97, initial RI/FS fieldwork was completed and monitoring wells were installed at Dunn Field. An environmental baseline survey and the local reuse authority's redevelopment plan were also completed.

In FY98, fieldwork in support of an engineering evaluation and cost analysis for removal of suspected chemical warfare material from sites at Dunn Field was accomplished. Dieldrin-contaminated soil was removed from housing (Site 73), polychlorinated biphenyl (PCB)–contaminated soil was removed from around the cafeteria (Site 48), and the two remaining USTs were removed from Site 57.

Also in FY98, a groundwater IRA began operation at Dunn Field to prevent off-site migration of contaminants and achieve product recovery. All RI work from the main installation was reviewed by the BRAC cleanup team, and each of the approximately 150 BRAC property parcels was assigned an appropriate CERFA Environmental Condition of Property designation.

In FY99, the erosion control, dust prevention, and revegetation project at Site 64 was completed. The RI/FS began for Dunn Field. All finding of suitability to lease documents for the main installation were completed, making the entire main installation available for reuse.

In FY00, removal of chemical warfare material at Dunn Field began. The removal action at Sites 29 and 31 was completed. Additional Dunn Field RI fieldwork was conducted to investigate a newly identified dense nonaqueous phase liquid (DNAPL) solvent source and to evaluate the use of soil vapor extraction. The main installation RI was completed, and the report was submitted to four information repositories for public review. Groundwater and soil FSs were completed, and a proposed plan (PP) was submitted for public comment.

The depot developed a community relations plan and formed a Restoration Advisory Board (RAB). A bimonthly informational publication was started in FY98. The BRAC cleanup plan was updated in FY00.

FY01 Restoration Progress

Removal at a suspected chemical warfare material site at Dunn Field was completed. The ROD for the main installation was signed. The finding of suitability to transfer (FOST) and the deed for Parcel 2 were signed. The FOST for Parcel 1 was signed.

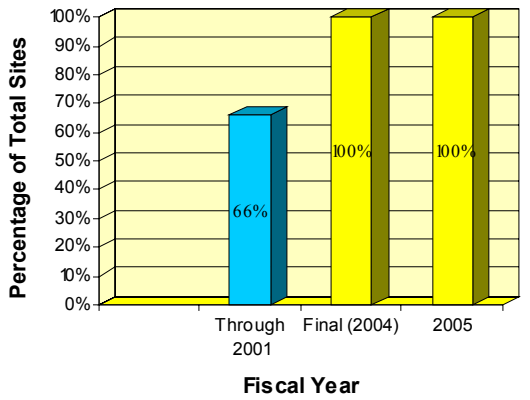
Discoveries during the RI phase delayed the planned RI, FS, and PP for Dunn Field. Development of remedial designs (RDs) for the main installation was delayed by a need for additional testing below the historic long-term operational areas. The state regulator has suggested that some sites may remain source-locations (e.g., DNAPL) for groundwater contamination. There is currently no evidence from the RI and the groundwater FS that DNAPL is present in the groundwater on the main installation.

A Technical Assistance for Public Participation contract was awarded to the RAB. Assistance will consist of education for the RAB members and interpretation of technical reports.

Plan of Action

- Finalize RI for Dunn Field in FY02
- Prepare FS and PP for Dunn Field in FY02
- Develop RDs for the main installation in FY02
- Sign ROD and develop RDs for Dunn Field in FY02
- Sign deed for FOST2, Parcel 1 FOST in FY02
- Complete 5-year review in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year

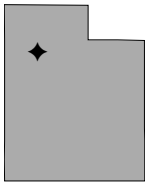


Defense Distribution Depot Ogden

Ogden, Utah

NPL/BRAC 1995

FFID:	UT897154985500	**Contaminants:**	wastes and sludge, PCB-contaminated transformer oils, degreasers, acids and bases, and sandblast residues
Size:	1,129 acres	**Media Affected:**	Groundwater and soil
Mission:	Store and distribute DoD commodities; package petroleum and industrial and commercial chemicals	**Funding to Date:**	$58.6 million
HRS Score:	45.10; placed on NPL in July 1987	**Estimated Cost to Completion (Completion Year):**	$11.0 million (FY2015)
IAG Status:	Federal facility agreement signed in November 1989	**Final RIP/RC Date for BRAC-ER Sites:**	FY2002
Contaminants:	Solvents, paint and paint residues, POLs, insecticides, chemical warfare agents, methyl bromide, metal-plating	**Five-Year Review Status:**	Completed



Progress to Date

In September 1995, the BRAC Commission recommended closure of Defense Distribution Depot Ogden (DDOU) except for minimal essential land and facilities for a reserve component area. The depot closed in September 1997. A 5-year review was completed at the installation.

A preliminary assessment in FY80 identified 44 potentially contaminated sites at the installation; 22 sites required further action. Site types include oil burning pits, disposal pits, a french drain system, and burial sites, which have contaminated groundwater and soil.

In FY90, a federal facility agreement divided the sites into four operable units (OUs). From FY92 through FY95, the installation conducted remedial actions at all OUs, including excavating and disposing of contaminated soil and debris. More than 130 groundwater monitoring wells and more than 100 extraction and injection wells have been installed. In FY92, a groundwater treatment facility began operating at OU2.

In FY95, groundwater treatment facilities began operating at OUs 1 and 4, and low-level-contamination screening sites and leaking aboveground storage tanks (ASTs) were investigated. The installation established a BRAC cleanup team, and the technical review committee was converted to a Restoration Advisory Board. During FY96, a local redevelopment authority was established and an installationwide environmental baseline survey was completed.

In FY97, the land reuse plan was updated and Phase I of the RCRA facility investigation (RFI) was completed. Six sites were approved for no further action (NFA), leaving six sites for evaluation and cleanup.

In FY98, DDOU completed cleanup of polychlorinated biphenyl (PCB) contamination at 135 transformer sites. Phase II of the AST and underground storage tank (UST) investigation, and investigation of the gasoline release at Building 321 also were completed. The installation prepared a corrective action plan (CAP) for Building 321 and finished an environmental assessment for disposal of excess property and investigation of identified BRAC sites. Leases covering 1.6 million square feet of building space were approved for 16 tenants.

In FY99, the cleanup of three BRAC sites was completed. Phase III of the RFI and the remediation of Solid Waste Management Unit (SWMU) 11 were also completed. Two SWMUs were eliminated from further work. The source area at OU4 was remediated, and a second pump-and-treat system for groundwater was installed. Cleanup was completed at Building 321. The investigation of the former skeet range also was completed, and the range was granted NFA status by the state and the EPA. The CAP was implemented for Tank 19 and Site 5C/6D. A lease in furtherance of conveyance was signed. A memorandum of agreement with the Utah State Historical Preservation Office and the Advisory Council on Historic Preservation was completed.

In FY00, removal of contaminated soil from SWMU 1 was completed. The cleanup of the western boundary area and the pistol range was completed as well. The soil cleanup at the parade ground area source for OU2 was accomplished. DLA completed a finding of suitability to transfer (FOST). Version 4 of the BRAC cleanup plan was completed. Remediation of the Ogden Nature Center site, a possible chemical warfare material recovery site, was started.

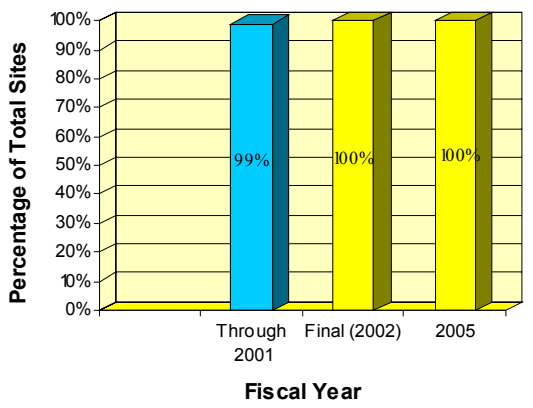
FY01 Restoration Progress

The installation completed soil remediation and is now conducting groundwater remediation and long-term management (LTM) of three groundwater treatment systems. The state approved site closure for UST Sites 5C and 6D, and AST Site 358, and Tank 19. Documentation to support monitored natural attenuation at the OU2 parade ground area was submitted; NFA will be proposed at the site. Soil removal at SWMU 13 and the pistol range was completed and concurrence was received from the state. The 5-year review was completed, and oral acceptance was received from the state. A remedial process optimization contract was implemented to review groundwater treatment systems throughout the installation.

Plan of Action

- Propose NFA for the parade ground area in FY02
- Receive NFA designation for OU2 and begin abandonment of the facility in FY02
- Obtain Operating Properly and Successfully designation for OUs 1 and 4 while continuing LTM and operations in FY02
- Receive acceptance of FOST in FY02 and complete final transfer of property

BRAC Sites Achieving RIP or RC Per Fiscal Year



Defense Distribution Depot San Joaquin, Sharpe Facility

Formerly Sharpe Army Depot

Lathrop, California **NPL**

FFID:	CA997152083200	**Funding to Date:**	$55.2 million
Size:	724 acres	**Estimated Cost to Completion (Completion Year):**	$32.1 million (FY2015)
Mission:	Receive, store, and distribute supplies, materials, and equipment	**Final RIP/RC Date for ER Sites:**	FY2003
		Five-Year Review Status:	Planned
HRS Score:	42.24; placed on NPL in July 1987		
IAG Status:	IAG signed in March 1989		
Contaminants:	VOCs, heavy metals, POLs, and pesticides		
Media Affected:	Groundwater and soil		

Progress to Date

This facility began operation in 1941 as a supply and maintenance center. Activities at the installation have included overhauls, repairs, painting, paint stripping, metal finishing, and degreasing of aircraft and heavy equipment. Investigations have identified 152 sites: 8 groundwater plumes and 144 contaminated or potentially contaminated soil and building sites.

A remedial investigation and feasibility study (RI/FS) for groundwater was completed in FY91, and a Record of Decision (ROD) was signed in FY93. Per ROD requirements, the two interim groundwater extraction and treatment (air-stripping) systems were upgraded to treat and control the migration of trichloroethene (TCE) plumes. A third system went into operation in FY95 to capture the depot's central area plume.

Between FY85 and FY98, 71 underground storage tanks (USTs) and sumps underwent removal and corrective actions and 57 sites were closed. Approximately 10,000 cubic yards of contaminated soil was removed and disposed of during this period.

In 1995–1996, approximately 500 cubic yards of pesticide-contaminated soil was removed from the former pesticide mixing area. An installationwide RI/FS and a risk assessment were completed, and the proposed plan was prepared. The final ROD for Operable Unit (OU) 2, the sitewide remedy, was signed.

During FY97, the installation completed a removal action for lead- and chromium-contaminated soil at Sharpe's former industrial waste treatment plant pond and submitted the final closure report. Four USTs were removed, and two were closed. The installation completed design of an in situ vapor extraction remedy for TCE-contaminated soil.

During FY98, lead- and chromium-contaminated soil was removed from Sites S-3 and S-26. Analysis of Sites S-30, S-36, and S-33/29 showed that remedial action (RA) was not required. Installation of in situ soil vapor extraction (SVE) systems was also completed, and the SVE systems began operation at TCE and volatile organic compound (VOC) sites P-1A, P-1B, P-1C, P-1E, and P-6A. Analysis of 10 TCE and VOC sites showed that RA was not required per ROD criteria. A dense nonaqueous phase liquid (DNAPL) study at Site P-6A showed no locatable DNAPL pools and recommended installation of an additional groundwater extraction well.

In FY99, preparation of RA reports recommending no further action (NFA) began at the 3 metals sites and 10 TCE and VOC sites. The water management plan was finalized, and nine USTs were removed at the installation's fuel station.

In FY00, RA reports were completed for OU2 metals sites S-3 and S-26. Three-dimensional groundwater modeling was performed as Phase I of RA process optimization.

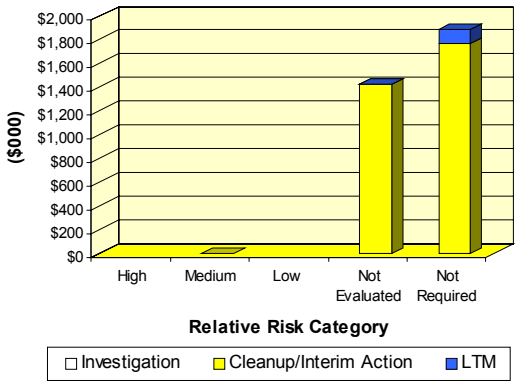
FY01 Restoration Progress

RA reports for 3 metals and 10 TCE and VOC NFA sites were completed. Operation of the three groundwater treatment systems continued. Implementation of remedial process optimization recommendations began. The OU1 interim groundwater RA report was completed. The SVE operational phase was extended to the first quarter of FY02. The last two remaining USTs were removed.

Plan of Action

- Complete SVE RA report in FY02
- Finalize UST alternatives report recommending NFA or natural attenuation for remaining open UST sites and implement in FY02
- Complete sitewide preliminary closeout report in FY02
- Complete 5-year review in FY03

FY02 Funding by Phase and Relative Risk



Defense Distribution Depot San Joaquin, Tracy Facility

Tracy, California **NPL**

FFID:	CA997150682700	**Contaminants:**	Chlorinated solvents, heavy metals, pesticides, POLs, and VOCs
Size:	908 acres	**Media Affected:**	Groundwater and soil
Mission:	Store and distribute medical, textile, food, electronic, industrial, construction, chemical, and other supplies and equipment	**Funding to Date:**	$80.6 million
		Estimated Cost to Completion (Completion Year):	$41.3 million (FY2017)
		Final RIP/RC Date for ER Sites:	FY2003
HRS Score:	37.16; placed on NPL in August 1990	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement signed in 1991		

Progress to Date

Studies have identified 73 sites at this installation, including burn and disposal pits, underground storage tanks (USTs), hazardous waste storage sites, and other areas of contamination. Contamination has been identified in on-site soil and in on-site and off-site groundwater.

In FY86, a remedial investigation and feasibility study (RI/FS) was initiated to address groundwater and soil contamination. Between FY88 and FY91, 32 USTs were removed, along with 1,060 cubic yards of contaminated soil. In FY92, bottled drinking water was supplied to two nearby farm residences where wells were threatened with contamination. The depot also installed a pump-and-treat system, five extraction wells, and three injection wells.

A Record of Decision (ROD) for treatment of groundwater contamination was signed in early FY93 and modified in FY95 to allow natural attenuation (NA) of a portion of the contaminant plume outside the installation.

In FY95, an environmental geographic information system was established to facilitate RI/FS, remedial design (RD), and remedial action (RA) work. The installation removed more than 1,000 cubic yards of contaminated soil at the child-care facility. An installationwide risk assessment was completed, and a proposed plan was prepared.

In FY96, the regulatory agencies concurred on an engineering evaluation and cost analysis and an action memorandum for removal of pesticide-contaminated soil from the former industrial pond and pipeline sites. Design work began for this removal action and for the installation of extraction wells and infiltration galleries for the Operable Unit (OU) 1 groundwater air-stripping pump-and-treat system.

In FY97, design of the industrial pond soil removal action and the final sitewide RI/FS were completed. A removal action for pesticide-contaminated soil began. Contaminated-soil removal actions were performed at five former UST sites.

During FY98, a sitewide comprehensive ROD was signed, the removal action for industrial pond soil was completed, and the RD for the remaining sites was prepared. The full-scale, low-flow groundwater-sampling system went into operation.

In FY99, the OU1 groundwater extraction and treatment system (Treatment Plant (TP) 2) went into operation. The design of the OU2 trichloroethene (TCE) and volatile organic compound (VOC) soil vapor extraction (SVE) systems was completed, as were removals of pesticide-contaminated soil at Sites 6, 20, and 27.

In FY00, the design of the SVE systems for sites designated in the OU2 ROD was completed. The ecological risk assessment was prepared for OU2 Site 4. Institutional controls were implemented at sites designated in the OU2 ROD, and the design work related to other OU2 RAs was completed.

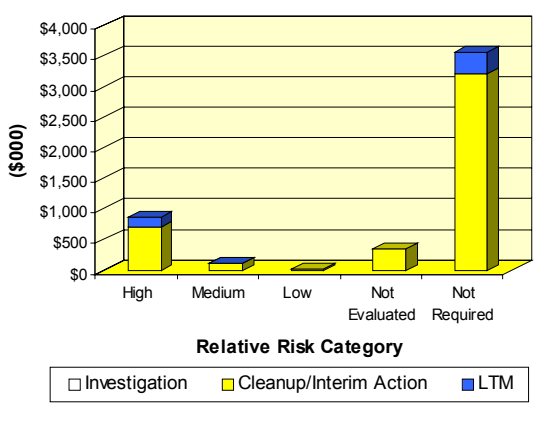
FY01 Restoration Progress

Operation of the groundwater treatment system (TP-1 and TP-2) continued. OU2 RAs at Sites 4, 6, 8, 20, and 27 were completed. Implementation of the remedial process optimization recommendations began. The TCE SVE system was constructed and began operation.

Plan of Action

- Continue operation and optimization of groundwater treatment system in FY02
- Implement NA or in situ RA at remaining former UST sites by end of FY02
- Continue operation of SVE system and complete RA report in FY03
- Complete Site 8 RA and prepare RA reports for OU2 soil by end of FY03
- Complete preliminary sitewide closeout report in FY03
- Complete 5-year review by end of FY04

FY02 Funding by Phase and Relative Risk



Defense Supply Center Philadelphia
Formerly Defense Personnel Support Center

Philadelphia, Pennsylvania

BRAC 1993

FFID:	PA397154266500	**IAG Status:**	None
Size:	87 acres	**Contaminants:**	POLs, PCBs, pesticides, and asbestos
Mission:	Procure and distribute food, clothing and textiles, medical supplies and equipment, and general and industrial items in support of the DoD military services, federal and civil agencies, and foreign countries and to ensure military readiness	**Media Affected:**	Groundwater and soil
		Funding to Date:	$15.7 million
		Estimated Cost to Completion (Completion Year):	$12.4 million (FY2010)
		Final RIP/RC Date for BRAC-ER Sites:	FY2000
		Five-Year Review Status:	NA
HRS Score:	NA		

Progress to Date

In July 1993, the BRAC Commission recommended closure of the Defense Personnel Support Center, now known as the Defense Supply Center Philadelphia (DSCP), and relocation of its mission to the NAVICP location in northeast Philadelphia. The commission also recommended closure of the Defense Clothing Factory and the Defense Contract Management District Mid-Atlantic.

Studies at DSCP identified underground storage tanks (USTs), aboveground storage tanks, pesticide management areas, hazardous waste management areas, polychlorinated biphenyl (PCB)–containing transformers, asbestos-contaminated areas, and former railroad track areas. A contaminant plume, primarily light refinery naphtha, underlies large portions of the installation. Studies indicated that the plume originated off site and migrated onto DSCP.

The installation completed cleanup of a PCB-contaminated sewer site in 1991. Remedial investigation (RI) and feasibility study and remedial action (RA) activities began at the clothing factory in FY94. RAs included cleanup of DDT in two buildings and removal of two USTs and contaminated soil. A hazardous waste management area was closed, and RI activities to assess petroleum contamination under the installation were completed.

A BRAC cleanup team (BCT) was formed in FY94 and has since provided information to the base transition office and the local redevelopment authority to support reuse plans for the installation. A final environmental baseline survey and a BRAC cleanup plan were completed, and an environmental assessment was prepared.

During FY95–FY96, a Restoration Advisory Board (RAB) was established. RAs were completed at all known UST sites, 10 USTs were removed, and 1 UST was closed in place. All 10 PCB-containing transformers were removed. Removal of free product from the surface of the groundwater began. A consent decree was signed between the installation, the Pennsylvania Department of Environmental Protection (PADEP), and Sun Oil (a neighboring refinery).

In FY97, 19 Federal Facilities Compliance Act sites were identified; all were certified as closed in FY98. Also, in FY98, the RAB received a Technical Assistance for Public Participation grant. Installation Restoration Program (IRP) Site 29, the PCB-containing transformers, was officially closed.

In FY99, DSCP generated a draft human health risk assessment (HHRA) and completed Phase III of the basewide expanded site inspection. A total of 43 remediated IRP sites have been administratively closed. Five of the remaining six sites have been remediated. A finding of suitability to transfer was completed for Building 13, Building 9, and the Johnston Street parking lot. A cooperative agreement with the City of Philadelphia for operating and maintaining the site until transfer is also in place.

In FY00, PADEP issued an administrative order requiring DLA to assume all responsibility for plume remediation and investigation, odor control, and the HHRA. Four IRP sites were added. Four World War I–era warehouses were demolished. Lead-contaminated soil discovered under Building 20 was excavated and disposed of. Asbestos abatement has been completed throughout the installation.

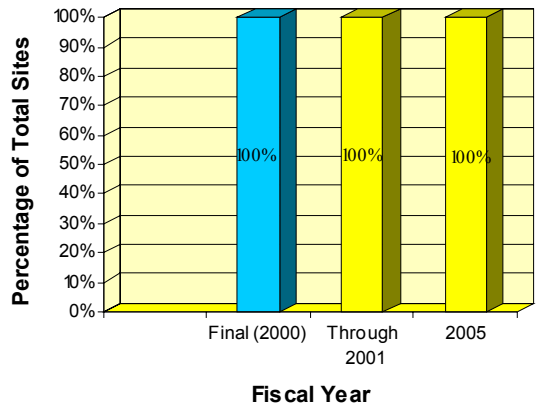
FY01 Restoration Progress

The HHRA was submitted to PADEP for review and approval. Five IRP sites were closed. The decision document (DD) for the remaining IRP site is being processed. Air rights to property and ground lease in furtherance of conveyance were transferred to the City of Philadelphia. Remaining DSCP environmental and site management personnel were relocated. Skimming operations continue, and installation of the vacuum-enhanced fuel recovery system was initiated.

Plan of Action

- Provide public outreach sessions for the final plume risk assessment in FY02
- Finalize DD for remaining IRP site in FY02
- Begin the fate-and-transport analysis for plume remediation in FY02
- Negotiate with PADEP to define the requirements for the plume remediation process, so that the ground property can be transferred to the City of Philadelphia in FY04

BRAC Sites Achieving RIP or RC Per Fiscal Year



Defense Supply Center Richmond

Richmond, Virginia

NPL

FFID:	VA397152075100	**Media Affected:**	Groundwater and soil
Size:	565 acres	**Funding to Date:**	$34.2 million
Mission:	Provide logistics support (aviation weapon system and environmental) for DoD	**Estimated Cost to Completion (Completion Year):**	$30.0 million (FY2015)
		Final RIP/RC Date for ER Sites:	FY2006
HRS Score:	33.85; placed on NPL in July 1987	**Five-Year Review Status:**	Planned
IAG Status:	IAG signed in 1991		
Contaminants:	Fuel, oil, chlorinated volatile organics, polyaromatic hydrocarbons, solvents, metals, and pesticides		

Progress to Date

To date, Defense Supply Center Richmond (DSCR) has identified 32 sites, 13 of which have been organized into operable units (OUs). Remedial technologies used at DSCR include soil vapor extraction, air stripping, dual-phase extraction, and density-driven convection.

By 1997, three Records of Decision (RODs) and a corrective action plan had been completed, requiring institutional controls and a variety of remediation systems. In FY97, a fuel recovery system was installed for groundwater at the PX gas station. The remediation of soil at OU3 and the final feasibility study (FS) and draft proposed plan (PP) for OU4 were completed. A treatability study began for groundwater at OU8.

During FY98 and FY99, an underground storage tank project and a 5-year review of OU1 were accomplished. A final FS was completed for OU2, and the remedial design was initiated. The ROD for OU4 was signed. A density-driven convection pilot test and a draft basewide creek sampling work plan were completed. The final remedial investigation (RI) was issued and the FS was completed for OU12. The final RI for OU13 was completed. Investigators found additional contamination at OU8.

In FY00, the OU1 draft risk assessment was submitted and the draft PP and ROD for OU2 were issued. Natural attenuation studies began at OU6 and OU7. A draft pilot test report and draft FS were issued for OU6. The final FS and the draft PP and ROD were completed for OUs 10, 11, and 12. A 60 percent removal action design at OU12 also was accomplished.

FY01 Restoration Progress

A risk assessment for OU1 was submitted that will eliminate land use controls at the site. A final density-driven convection pilot test report was submitted for OU6. The OU3 explanation of significant differences was issued. Findings from the remedial process optimization study were implemented. The draft FS study for OU13 is under review.

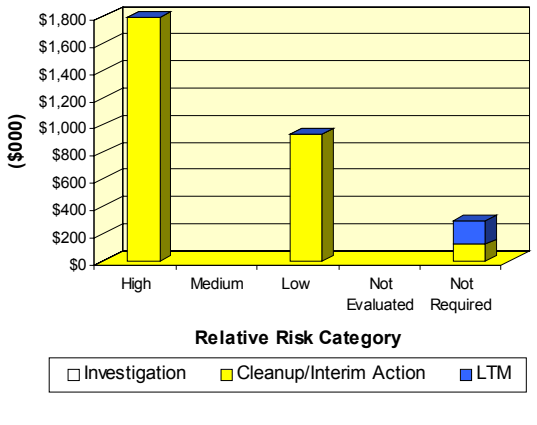
Due to questions about the direction of groundwater flow, raised during the optimization study, RODs for two sites were delayed pending further investigation. Based on the removal action date for OU3, the 5-year review and the site deletion document were delayed. The ROD and the PP for OU12 also were delayed pending further sampling.

A partnering exercise with regulators was completed. The draft community relations plan (CRP) was issued and is under review. The community has been canvassed for interest in forming a Restoration Advisory Board (RAB).

Plan of Action

- Conduct detailed remedial process optimization studies for OU8 and OU9 in FY02
- Implement the CRP and support the community in forming, then running, a RAB in FY02
- Perform three 5-year reviews in FY02
- Submit three RODs in FY02

FY02 Funding by Phase and Relative Risk



Detroit Arsenal and Tank Plant

Detroit, Michigan

BRAC 1995

FFID:	MI521382026800	**Funding to Date:**	$9.7 million
Size:	342 acres	**Estimated Cost to Completion (Completion Year):**	$0.06 million (FY2000)
Mission:	Develop, field, and sustain combat and tactical vehicles	**Final RIP/RC Date for BRAC-ER Sites:**	FY2000
HRS Score:	NA	**Final RIP/RC Date for ER Sites:**	FY1997
IAG Status:	None	**Five-Year Review Status:**	Planned
Contaminants:	Heavy metals, VOCs, SVOCs, and PCBs		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

In July 1995, the BRAC Commission recommended realignment of Detroit Arsenal and the closing and disposing of the Detroit Arsenal Tank Plant. The installation closed in December 1996.

Environmental studies conducted at the installation identified the following site types: polychlorinated biphenyls (PCBs), radioactive sources, aboveground storage tanks (ASTs), underground storage tanks (USTs), landfills, metal plating and surface treatment areas, and petroleum release areas. Studies revealed volatile organic compound (VOC) and heavy metal contamination in groundwater and soil.

Interim actions have included removal of USTs, excavation of contaminated soil, and in situ treatment and removal of petroleum-contaminated soil. The Army completed cleanup activities at a fuel farm site and a metal plating area. It also remediated and closed an installation fueling island site, USTs, and ancillary piping. CERCLA removal actions were completed at four contaminated sites. One additional contaminated site was closed under state UST closure guidance.

In FY95, the installation formed a BRAC cleanup team, and the local redevelopment authority (LRA) began work on a land reuse plan. In FY96, the installation commander established a Restoration Advisory Board (RAB). The installation completed an environmental baseline survey (EBS) and a CERFA report. Based on the results of the EBS, the installation initiated a contract for a remedial investigation (RI) and feasibility study (FS).

In FY97, the installation completed RI Phase I fieldwork and presented the results in the RI Phase I report. The LRA completed the land reuse plan, which specifies a mixture of commercial and industrial uses. The Army initiated a finding of suitability to transfer in order to transfer CERFA-clean acreage for immediate reuse. The installation completed version 1 of the BRAC cleanup plan.

In FY98, the installation completed RI Phase II work plans and fieldwork. The Army performed a risk assessment on all RI Phase I and Phase II data. RI Phase III was conducted and revealed four additional sites that required remedial action. The installation completed CERCLA removal actions at Building T-12, the switchgear PCB pad, the Building 4 stormwater sewer line, and the coal pile ASTs. It also closed seven groundwater monitoring wells. The Army, the Michigan State Historic Preservation Officer, and the Advisory Council on Historic Preservation negotiated a programmatic agreement for the closure and disposal of the Detroit Arsenal and Tank Plant. In FY99, the installation completed the RI/FS and CERCLA removal actions at four sites.

In FY00, the Army completed CERCLA removal actions at the metal debris disposal area and the oily waste disposal area. It also installed three groundwater monitoring wells to ensure that residual contamination from these sites does not migrate to a lower aquifer. The installation has achieved Response Complete status for all sites.

FY01 Restoration Progress

The installation conducted four rounds of quarterly groundwater monitoring, which indicated nondetectable levels for the target chemical, trichloroethene.

Final adjournment of the RAB and the transfer of remaining acreage did not occur as planned because of a delay in completing the deed.

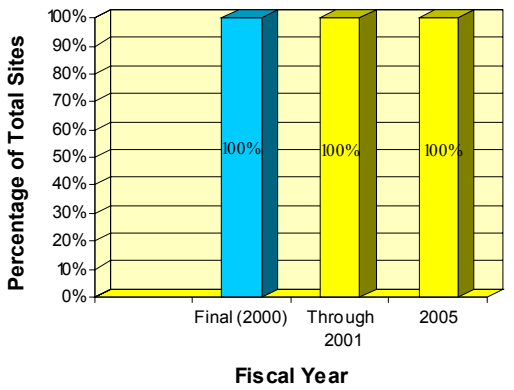
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Formally adjourn the RAB in FY02
- Transfer remaining acreage to the LRA in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Dover Air Force Base

Dover, Delaware

NPL

FFID:	DE357182401000	**Funding to Date:**	$52.3 million
Size:	3,730 acres	**Estimated Cost to Completion (Completion Year):**	$31.6 million (FY2016)
Mission:	Provide airlift support for troops, cargo, and equipment	**Final RIP/RC Date for ER Sites:**	FY2008
		Five-Year Review Status:	Planned
HRS Score:	35.89; placed on NPL in March 1989		
IAG Status:	Federal facility agreement signed in August 1989		
Contaminants:	Solvents, petroleum products, VOCs, plating wastes		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Since 1942, this base has provided airlift support for troops, cargo, and equipment. Former waste management practices contaminated the shallow groundwater aquifer with petroleum products and volatile organic compounds (VOCs). Site types include solvent spills, fire training areas, landfills, fuel spills and leaks, and a fuel hydrant system.

A preliminary assessment and a site inspection (SI) were completed during the 1980s. Fifty-nine restoration sites were identified. A former fire training area was remediated in FY92, and fieldwork for the basewide remedial investigation and feasibility studies (RI/FSs) was completed in FY94.

In FY95, three Records of Decision (RODs) were signed, which incorporated innovative treatment technologies into interim remedial actions. The installation also completed a remedial action at a former waste oil tank site, removed underground storage tanks from one site, and completed a focused FS for a drainage ditch that drains the north side of the base.

In FY96, the installation conducted a natural attenuation (NA) project at four sites contaminated with chlorinated solvents. Corrective action plans (CAPs) were completed for six petroleum exclusion sites. An engineering evaluation and cost analysis (EE/CA) was completed for excavation of a waste oil–contaminated soil source. In FY97, basewide RIs were approved by state and federal regulators. Three RODs were signed for NA at four sites.

In FY98, the installation completed construction of a free-product recovery system to extract spilled JP-4 jet fuel. The pesticide source area was excavated and capped. The installation completed a drum removal action at the former fire training area and began NA monitoring at three petroleum exclusion sites. At the golf course, the installation excavated 1,935 tons of waste oil–contaminated soil. The installation generated a ROD for excavation of two industrial waste basins.

In FY99, the installation completed construction of a second free-product recovery system. About 4,800 gallons of fuel was recovered from the first free-product recovery site. The installation excavated two concrete industrial waste basins and 753 tons of contaminated soil. The installation generated a full-scale remedial design (RD) for an innovative accelerated anaerobic bioremediation system for treatment of a chlorinated solvent source area. FSs were drafted for active sites, and a no further action (NFA) ROD for the closeout of 20 sites was drafted.

In FY00, the installation completed FSs for all remaining active sites. Long-term operations were implemented at the second free-product recovery site. Total fuel recovered from both free-product recovery sites amounted to over 11,000 gallons. An SI and an EE/CA were completed for a pesticide-contaminated soil source. A CAP for a third free-product source area and an RD for a trench collection system were completed. The installation solicited community interest in forming a Restoration Advisory Board (RAB); the level of interest was insufficient to justify forming a RAB.

FY01 Restoration Progress

The installation achieved cleanup standards for two of the petroleum exclusion sites and the sites were deemed response complete. The installation completed construction of an accelerated anaerobic bioremediation system for treatment of chlorinated solvents in groundwater. Operations and monitoring continued at two free-product recovery sites, one petroleum NA site, and five chlorinated solvent NA sites.

A ROD for NFA at 24 sites was delayed by EPA, pending preparation of a memorandum of agreement (MOA) for land use controls (LUCs). The LUC MOA is now undergoing Air Force legal review. A soil removal action at a pesticide source area located on the airfield was postponed indefinitely due to security restrictions resulting from world events. Construction of a trench collection system for free-product recovery was delayed for similar reasons. Based on new EPA 5-year review guidance, the planned 5-year review was not required.

The installation initiated two innovative technology demonstrations to gain regulator acceptance for use of more cost-effective field techniques. Results from both demonstrations will be submitted for regulator approval with future applications.

The base holds monthly meetings with federal and state regulators to discuss progress and resolve issues.

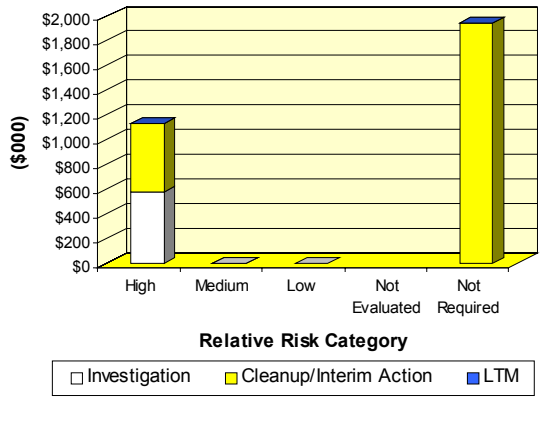
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete construction of free-product trench collection system in FY02
- Complete ROD for NFA at 24 sites in FY03
- Complete 5-year review in FY03
- Complete LUC MOA and implementation plans in FY03

FY02 Funding by Phase and Relative Risk



Driver Naval Radio Transmitting Facility — *Suffolk, Virginia* — BRAC 1993

FFID:	VA317002251600	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	600 acres	**Funding to Date:**	$6.8 million
Mission:	Provided radio transmitting facilities and services to support naval ships, submarines, and aircraft	**Estimated Cost to Completion (Completion Year):**	$0 (FY2001)
		Final RIP/RC Date for BRAC-ER Sites:	FY1996
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	Dichlorobenzene, PCBs, POLs, trichlorobenzene, SVOCs, and lead		

Progress to Date

This facility was established as a naval air station to train pilots during World War II and was then converted to a transmitter facility after the war. In July 1993, the BRAC Commission recommended closure of the installation. Installation operations ceased on March 31, 1994.

Studies since FY84 have identified 11 sites at the installation, including a former service station, two polychlorinated biphenyl (PCB) spill areas, and a number of landfills and other areas used to dispose of solvents, acids, bases, and general refuse.

In FY87, a confirmation study for Sites 1, 5, and 8 detected semivolatile organic compounds (SVOCs) in groundwater at Site 1, a former landfill. In FY92, the installation completed baseline ecological and human health risk assessments for Site 5; and in FY93, PCB-contaminated soil was removed from the site. In FY94, a remedial investigation and feasibility study (RI/FS) was completed, and a Record of Decision (ROD) was signed, for Site 5. Also in FY94, cleanup was completed at Site 8, a former gas station. An environmental baseline survey (EBS) was completed, and a BRAC cleanup team was formed.

During FY95, the installation completed a site inspection (SI) for Sites 2 through 4, 6, and 9 through 11 and recommended no further action for the sites. The installation also completed the RI/FS at Site 1. The remedial design and the remedial action (RA) were completed for Site 5. Cleanup consisted of removing and disposing of 2,200 cubic yards of PCB-contaminated soil. The installation also constructed a soil cap for creosote-contaminated soil at Site 7. At Site 8, contaminated soil was excavated and incinerated off site. The installation removed PCB-contaminated soil from the storage area near Building D-10.

During FY96, the installation completed a preliminary assessment, an SI, and an RA for Site 7 and an RA for Building D-10. The installation also completed its land reuse plan (LRP). In FY97, the Site 1 ROD was signed and a BRAC cleanup plan was completed.

In FY99, the LRP was finalized, and the facility was divided into five major parcels of land. The EBS was updated to reflect the current conditions of the property, and three findings of suitability to transfer were signed. The property was transferred to three agencies.

In FY00, the installation continued long-term management (LTM) at Sites 1, 5, 7, and 10. A draft of the Long Term Monitoring Program Annual Report for Year Five was completed. An evaluation of groundwater issues at Site 1 was initiated.

The installation formed a technical review committee in FY88 and converted it to a Restoration Advisory Board (RAB) in FY94. In FY92, the installation completed a community relations plan and an administrative record and established an information repository. The RAB was disbanded in FY97.

FY01 Restoration Progress

The installation continued LTM at Site 1. The possible removal action for PCB-contaminated soil at Site 1 was evaluated and deemed unnecessary.

A planned action to determine the progress of natural attenuation and obtain regulator concurrence was delayed due to issues at Site 1. An evaluation of the installation of a pump-and-treat system for contaminated groundwater at Site 1 was conducted; it was determined that other options should be evaluated.

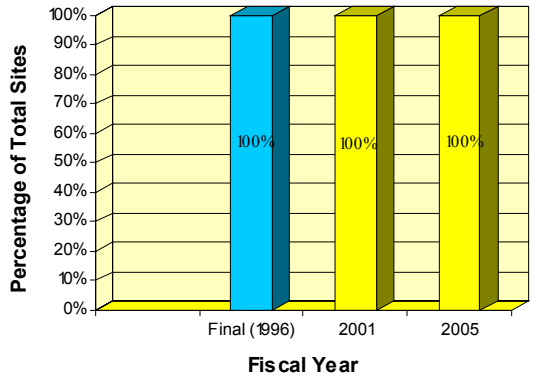
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Evaluate RAs to determine best alternative for addressing groundwater issues at Site 1 in FY02
- Obtain regulator concurrence on alternatives for Site 1 remediation in FY02
- Complete the 5-year review in FY02
- Continue LTM at Site 1 in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Eaker Air Force Base

Blytheville, Arkansas

BRAC 1991

FFID:	AR657002447300	**Media Affected:**	Groundwater and soil
Size:	3,286 acres	**Funding to Date:**	$30.4 million
Mission:	Supported B-52 strategic bombers and KC-97 and 135 stratotanker operations	**Estimated Cost to Completion (Completion Year):**	$3.8 million (FY2015)
		Final RIP/RC Date for BRAC-ER Sites:	FY1999
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	Petroleum hydrocarbons, VOCs, UXO, and metals		

Progress to Date

In July 1991, the BRAC Commission recommended closure of Eaker Air Force Base, which formerly supported aircraft and tanker operations. The installation was closed on December 15, 1992.

Environmental studies conducted between FY85 and FY90 identified 12 sites at Eaker. In FY90, a RCRA facility assessment identified 21 solid waste management units and 9 areas of concern. Prominent site types include underground storage tanks (USTs), aboveground storage tanks, oil-water separators, petroleum/oil/lubricant spill sites, and landfills. Other sites include a fire training area, storage areas, an explosive ordnance disposal (EOD) range, a small-arms firing range, a trap and skeet range, a JP-4 jet fuel hydrant system, and a bulk fuel storage tank farm. Remedial investigation and feasibility study fieldwork began for the first 12 sites. Later, an administrative consent order was signed indicating that 30 sites are subject to RCRA corrective action and will be addressed under a RCRA facility investigation (RFI). The installation also completed an environmental baseline survey (EBS).

Interim actions at the installation include removal of 125 USTs and 31 oil-water separators, remediation of contaminated soil at UST sites and the JP-4 fuel hydrant system, and provision of an interim soil cover and native vegetation for Landfill 4.

The installation formed a BRAC cleanup team and a Restoration Advisory Board in FY94 and completed a community relations plan in FY95. In FY96, human health and ecological risk assessments were performed at contaminated sites.

In FY97, actions included removal of pesticide-contaminated soil, removal of one UST, and removal of free product by bioslurper at the base service station. The latest version of the BRAC cleanup plan and several supplemental EBSs (SEBSs) also were prepared.

In FY98, the RFI was approved by the Arkansas Department of Environmental Quality (ADEQ) and EPA. ADEQ approved use of risk-based closure at the EOD range and the Defense Reutilization and Marketing Office. Interim remedial actions were performed at the roads and grounds maintenance facility and the entomology shop. A finding of suitability to lease and a SEBS were completed, resulting in the leasing of the potable water system and the wastewater system and the placement of all Eaker property under lease. A finding of suitability to transfer (FOST) and another SEBS also were completed.

In FY99, the installation received approval for a corrective measures study. The last remedy in place was completed for all Installation Restoration program sites. A FOST and a SEBS for the golf course, the potable water system, and approximately 100 acres of commercial property were completed and submitted to the regulators for review.

In FY00, the installation completed lead removal at the small-arms firing range. Remedial action (RA) systems were completed, and sites were monitored as necessary. The deeds for the 110-acre golf course and the 160-acre commercial tract were completed. The installation received regulatory concurrence on FOSTs and SEBSs for all farmland and archaeological sites.

FY01 Restoration Progress

The installation operated the RA systems and began monitoring sites. FOSTs and SEBSs for all remaining property were submitted to regulatory agencies for comment. The corrective measures implementation (CMI) design was approved, and the CMI report was submitted to the regulatory agencies for approval.

Transfer of all farmland and archaeological sites was delayed by discussions on the final disposition of the archaeological sites. The FOST and SEBS for airfield property and remaining commercial property were not completed due to a need to address regulator concerns.

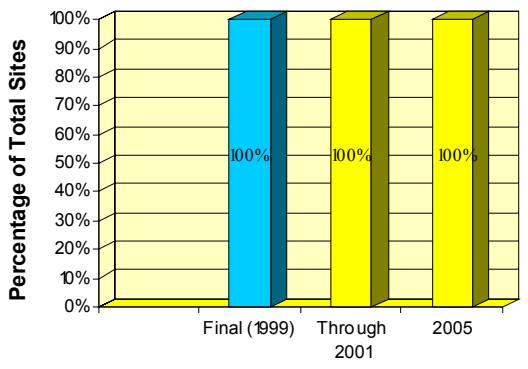
Military Munitions Response Program Progress

In FY96, the installation completed clearance of unexploded ordnance at the EOD range. In FY98, ADEQ approved the use of risk-based closure at the EOD range.

Plan of Action

- Complete FOST and SEBS for airfield property and remaining commercial property in FY02
- Deed all remaining property in FY02
- Operate RA systems and monitor sites as necessary in FY02 and FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Earle Naval Weapons Station

Colts Neck, New Jersey

NPL

FFID:	NJ217002217200	**Funding to Date:**	$21.2 million
Size:	11,134 acres: 706 acres shoreside; 10,428 acres inland	**Estimated Cost to Completion (Completion Year):**	$16.2 million (FY2030)
Mission:	Handle, store, renovate, and ship munitions	**Final RIP/RC Date for ER Sites:**	FY2008
HRS Score:	37.21; placed on NPL in August 1990	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement signed in December 1990		
Contaminants:	VOCs, SVOCs, heavy metals, hydrocarbons, and petroleum products		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Preliminary assessments (PAs) completed in FY83 identified 29 sites of concern at this installation, 4 of which required further investigation. The sites include landfills, production areas, storage areas, maintenance areas, and disposal areas. Sixty-nine sites (48 CERCLA and 21 underground storage tank (UST) sites) have been identified. Releases of volatile organic compounds (VOCs) and heavy metals from landfills and production areas have contaminated groundwater and soil at the installation.

In FY87, a site inspection (SI) identified 11 contaminated sites. An SI in 1992 examined 16 additional sites. No further action (NFA) was recommended for two sites. In FY91, the installation began remedial investigation and feasibility study (RI/FS) activities. An interim draft RI report for the first 11 sites was submitted in FY92. The first and second rounds of the RI/FS were completed in FY93 and FY94, respectively.

One UST site was investigated in FY91 and closed in FY92. In FY93, soil at several UST sites was excavated and disposed of. In FY94, the installation completed a work plan, an action memorandum, and an engineering evaluation and cost analysis for a removal action at Site 20. The installation also prepared a corrective action plan for UST 8. USTs were removed, and some leaking USTs were identified. In FY95, the installation completed RI fieldwork at 21 sites and removed and recycled soil from Site 20. NFA was recommended for six UST sites.

In FY96, the installation completed the RI for 27 sites, initiated removal actions at 5 sites, and began FS activities at 4 sites. During FY97, the installation completed remedial actions (RAs) at five sites and an FS at four sites. Remedial design (RD) began for two landfill caps, surface soil remediation, and four UST sites.

In FY98, landfill caps were designed and built for Sites 4 and 5. RD, removal of contaminated soil, and site restoration were completed at Site 19. Removal actions were completed at Sites 13 and 26 and expanded at Site 16F. Lead removal was completed at Site 5. In FY99, an NFA ROD was signed for eight sites. Natural attenuation started at UST Site 7, and RA began for Site 26.

In FY00, full-scale air sparging at Site 26 was initiated, and then expanded to include a new source area. Removals at Sites 12 and 47 and bank stabilization at Sites 6 and 17 were completed. PA/SI was initiated at Sites 47 and 48. Fuel recovery continued and an optimization study was completed at Site 16F.

In FY90, the installation formed a technical review committee, completed a community relations plan, and established an information repository containing a copy of the administrative record. In FY95, the TRC was converted to a Restoration Advisory Board (RAB). The CRP was updated in FY98.

FY01 Restoration Progress

The installation completed PA/SI fieldwork at Sites 47 and 48. Optimization study recommendations were implemented at Site 16F. A proposed plan was issued and a public meeting held for Sites 3 and 10. Emergency ordnance disposal is conducted on a limited basis at the explosives and ordnance range. A Subpart X RCRA permit application is under negotiation with the New Jersey Department of Environmental Protection. The cost of completing environmental restoration at this installatin has changed significantly because of estimating and technical criteria.

A RAB site tour was conducted.

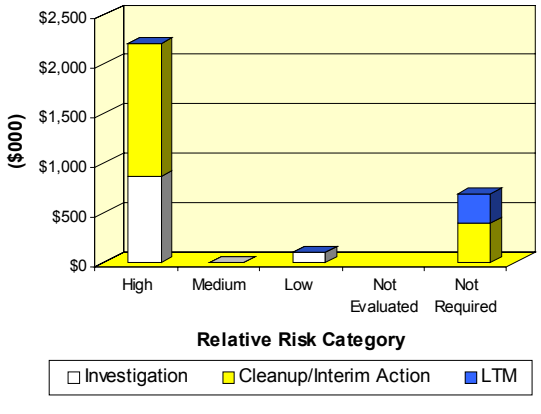
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Begin RI/FS at Site 48 in FY02
- Begin RA at Site 13 in FY02
- Complete 5-year review in FY02

FY02 Funding by Phase and Relative Risk



Edwards Air Force Base

Kern County, California

NPL

FFID:	CA957172450400	**Contaminants:**	Solvents, VOCs, petroleum hydrocarbons, POLs, rocket fuel, potential CWM, and heavy metals
Size:	301,000 acres	**Media Affected:**	Groundwater, soil, surface water, and sediment
Mission:	Conduct aerospace research, development, test, and evaluation, and provide support to United States and allies	**Funding to Date:**	$193.8 million
		Estimated Cost to Completion (Completion Year):	$190.2 million (FY2015)
HRS Score:	33.62; placed on NPL in August 1990	**Final RIP/RC Date for ER Sites:**	FY2006
IAG Status:	Federal facility agreement signed in 1990	**Five-Year Review Status:**	NA

Progress to Date

In FY93, preliminary assessment and site inspection studies identified solid waste management units and the following site types at this installation: underground storage tanks (USTs), fuel pipelines, landfills, hazardous waste disposal areas, and wastewater and surface water runoff collection areas.

The Edwards Installation Restoration program (IRP) comprises 461 sites and areas of concern (AOCs), and 90 sites and AOCs are currently being investigated. Forty-five sites and AOCs are in the cleanup, operations, construction, Record of Decision, or decision document (DD) stages; two sites are in long-term management (LTM); and 324 require no further investigation (NFI).

Interim remedial actions (IRAs) included installing 10 groundwater extraction and treatment systems to remove JP-4 jet fuel and solvents, removing over 350 USTs and numerous drums of hazardous waste, stabilizing soil to immobilize dioxin and heavy metals, capping the fire fighting training facility, using bioventing at 12 sites, and installing 7 soil vapor extraction (SVE) and treatment systems. Over 1.5 million pounds of contaminants has been recycled or destroyed.

In FY96, a UST site was cleaned and closed ahead of schedule using bioventing. At Operable Unit (OU) 1, two dual extraction systems (DESs) were built to treat petroleum hydrocarbon and volatile organic compound (VOC) contamination in groundwater and soil. At OU2, a bioventing system was installed and construction began on a DES. DDs were signed for 40 AOCs in OUs 1 and 2.

In FY97, 24 early actions and 15 site cleanups occurred. In FY98, five engineering evaluations and cost analyses (EE/CAs) and three treatability study (TS) work plans were approved by the regulatory agencies. Eight sites at OU2 were cleaned through excavation, asphalt recycling, and soil stabilization, and bioventing systems were installed at five sites. A two-phase treatment system at Site 45 reduced contaminants to below regulatory action levels, and the treatment system was moved to Site 11. In FY99, a pump-and-treat system was installed at Site 37 in OU4. A basewide ecological risk assessment (ERA) and validation study began at Sites 25, 37, and 133.

In FY00, LTM of groundwater contaminant plumes and other groundwater studies were performed in all 10 OUs. Investigation and screening of over 20 sites and AOCs were conducted. New soil or groundwater treatment systems were installed at Sites 14, 18, and 23. Preliminary results of the validation study at Sites 25, 37, and 133 determined that solvents in shallow groundwater have no adverse effects on plants and burrowing animals. Soil stabilization was used to remediate metals-contaminated soil at Site 96. A mobile DES was used to remove soil and groundwater contamination at five sites. An EE/CA recommending excavation of potential chemical warfare material (CWM) from Site 426 was released to the regulatory agencies for comment. The EE/CA for the Site 25 plume control IRA and the action memorandum became final. NFI letters were signed for 64 sites and AOCs.

The installation's Restoration Advisory Board (RAB) remains active. A monthly newsletter and a Web site provide resources and increase RAB visibility.

FY01 Restoration Progress

The installation continued to use innovative technologies to remediate IRP sites. An ion exchange resin pilot-scale test at Site 285 was completed. Development of a cost-reduction strategy using in situ chemical sensors for LTM was initiated. Multiple mobile dual extraction events were performed at the five sites in OU1. The EE/CA for Site 426 was completed and an IRA work plan was prepared. Groundwater treatment systems for chlorinated solvent contamination were installed and began operation at Sites 25 and 133. A bioventing and air-sparging system was installed at Sites 71 and 74. NFI letters were signed for 104 sites and AOCs. A procedure was developed for investigating potential CWM sites using archival research and aerial photo searches, without use of costly field activities.

The inactive-landfill-cover construction for Site 13 was delayed for design modifications needed to address the unavailability of suitable cap materials and the resulting cost increase.

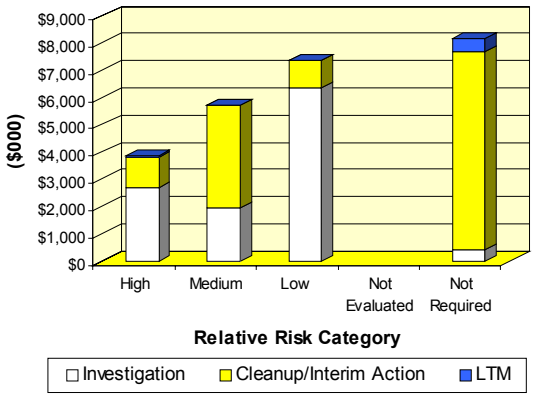
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Begin a full-scale exchange resin technology TS for treating perchlorate at Site 285 in FY02
- Partner with Sandia National Laboratory, NASA/JPL, and others to field test in-well chemistry sampling and telemetry technology for remote monitoring of remediation sites in FY02
- Excavate trenches at Site 426 and prepare an EE/CA to evaluate construction of an engineered waste consolidation unit at Site 443 to consolidate excavated chemical warfare agent–impacted soil and debris in FY02
- Perform a steam-injection-in-fractured-bedrock TS at Site 61 through an EPA partnership in FY02

FY02 Funding by Phase and Relative Risk



Eielson Air Force Base

Fairbanks, North Star Borough, Alaska

NPL

FFID:	AK057302864600	**Funding to Date:**	$52.9 million
Size:	19,790 acres	**Estimated Cost to Completion (Completion Year):**	$7.4 million (FY2012)
Mission:	Provide tactical air support to Pacific Air Forces	**Final RIP/RC Date for ER Sites:**	FY1998
HRS Score:	48.14; placed on NPL in November 1989	**Five-Year Review Status:**	Planned
IAG Status:	IAG signed in May 1991		
Contaminants:	Metals, POLs, VOCs, PCBs, and solvents		
Media Affected:	Groundwater and soil		

Progress to Date

Environmental studies at Eielson Air Force Base began in FY82. By FY93, the installation had identified 64 sites. Thirty-one of the sites were grouped into six operable units (OUs); 24 sites were investigated and determined to require no further action (NFA).

Sites include fire training areas, landfills, spill sites, aboveground storage tanks, underground storage tanks (USTs), and disposal pits. Primary contaminants affecting groundwater and soil are petroleum/oil/lubricants (POL), benzene, and chlorinated solvents.

In FY90 and FY91, four USTs were removed, and POL-contaminated soil was removed and incinerated. Bioventing was implemented at two POL sites. In FY94, a mobile wastewater treatment system was set up to treat monitoring-well purge water.

In FY95, the installation began fate-and-transport modeling for lead-contaminated sites at OU2. A remedial action (RA) for landfill capping, bioventing, natural attenuation, soil vapor extraction (SVE), and remediation of lead contamination began at OUs 3, 4, and 5. Also in FY95, the installation converted its technical review committee to a Restoration Advisory Board (RAB).

In FY96, remedial design was conducted for polychlorinated biphenyl (PCB) contamination at SS-067. Bioventing and SVE began at OUs 1 and 2. The installation also completed removal actions for lead and POL soil contamination at OU2. A cesspool and a dry well were removed.

In FY97, remedial efforts were completed at all federal facility agreement sites except Site SS-067. All Records of Decision (RODs) for the base's Installation Restoration program (IRP) had been signed by this point. Limited field investigations (LFIs) and response actions were completed at 44 areas of concern (AOCs); more than 3,000 drums were removed and disposed of; and over 218,000 pounds of lead-contaminated sand was removed from a firing range.

In FY98, the installation reached the construction complete phase of the CERCLA process, and the preliminary closeout report received EPA signature. Cleanup efforts at the Chena River site were completed. In addition, the Eielson IRP underwent its first 5-year ROD review, and the installation obtained EPA signature on the OU2 and OU3, OU4, and OU5 ROD amendments. Remediation at Site SS-067 was completed. During an AOC LFI/response action, 245 drums were removed.

In FY99, the installation completed response actions at three of the four remaining AOCs. An investigation began at the fourth site to determine the nature and extent of groundwater contamination. A total of 250 drums were removed from AOC 003. Building 500 was demolished under the Clean Sweep program. Asbestos and building debris were removed and disposed of.

In FY00, the installation completed characterization and delineation of the contaminant plume for AOC 029. Annual long-term operations (LTO) and long-term management (LTM) were accomplished. Institutional controls were enforced during all base construction activities at IRP sites. Contaminant characterization was completed at Site OT-008.

FY01 Restoration Progress

The Phase I remedial process optimization was completed, as was annual LTO/LTM. Biannual RAB meetings were held. Institutional controls at IRP sites were enforced. The cost of completing environmental restoration has changed significantly at this installation because of estimating criteria.

Because Site OT-008 is located off Air Force property and was determined to be a former Army anti-aircraft artillery site, the site was referred to the U.S. Army Corps of Engineers FUDS Program, for further action.

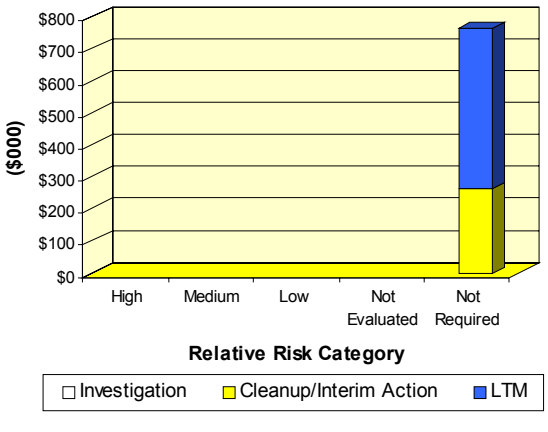
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Begin site validation process for AOC 029 in FY02, with aim of including the site in the sitewide monitoring program beginning in FY03
- Continue annual LTO/LTM at active sites in FY02 and FY03
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk



El Toro Marine Corps Air Station

Irvine, California

NPL/BRAC 1993

FFID:	CA917302320800	**Contaminants:**	TCE and other VOCs, petroleum hydrocarbons, PCBs, pesticides, and herbicides
Size:	4,714 acres	**Media Affected:**	Groundwater and soil
Mission:	Serve as the primary Marine Corps jet fighter facility on the West Coast; provide materials and support for Marine Corps aviation activities; provide housing for Marine Corps personnel	**Funding to Date:**	$71.9 million
		Estimated Cost to Completion (Completion Year):	$74.0 million (FY2034)
		Final RIP/RC Date for BRAC-ER Sites:	FY2006
		Five-Year Review Status:	NA
HRS Score:	40.83; placed on NPL in February 1990		
IAG Status:	Federal facility agreement signed in October 1990		

Progress to Date

In July 1993, the BRAC Commission recommended closure of this installation and a transfer of its aircraft, personnel, equipment, and support to Miramar Naval Air Station and Camp Pendleton Marine Corps Base. The installation was placed on the National Priorities List (NPL) in February 1990.

Studies at the station have identified 25 CERCLA sites, 455 areas of concern, and 400 underground storage tanks (USTs). The CERCLA sites were grouped into three operable units (OUs): volatile organic compound (VOC)–contaminated regional groundwater (OU1), sites contributing to groundwater contamination (OU2), and all remaining CERCLA sites (OU3). In FY89, a groundwater treatment system was installed. A RCRA facility assessment and a Phase I remedial investigation and feasibility study (RI/FS) were completed in FY93.

In FY94, a BRAC cleanup team was formed and a BRAC cleanup plan was developed. From FY94 to FY97, the installation began remediation at two landfills. Forty-one inactive USTs were removed in FY95. An environmental baseline survey indicated that approximately 63 percent of the installation property was eligible for designation as uncontaminated under CERFA.

In FY96, the local redevelopment authority approved proposals to convert the installation to a commercial airport. The installation completed the RI for OU1 and OU2. Soil vapor extraction (SVE) systems began operating in two UST areas. During FY97, a no action Record of Decision (ROD) was signed for 11 OU3 sites and an interim ROD was completed for the VOC Source Area vadose zone. The RI for Site 16 was completed.

In FY98, the RI/FS for OU3 was completed and a draft proposed plan (PP) was submitted for regulator review. The FS for OU2A gained regulatory concurrence. The FS and the PP for OU2B and OU2C landfill sites were completed. The CERCLA long-term groundwater monitoring plan was sent to the regulators for review.

In FY99, the PP for Sites 8, 11, and 12 was issued, and the final ROD for Site 11 was completed. The draft ROD for Sites 3 and 5 was also issued. All USTs were taken out of service. Regulatory closure letters have been received for 307 USTs. Thirty-two inactive USTs were removed, and 10 UST sites were investigated. Most oil-water separators were removed.

In FY00, the installation removed 19 inactive USTs and began closure-in-place for five. The final interim ROD for Sites 2 and 17 was completed. Remedial design (RD) has initiated for Sites 2 and 17. Remediation of the vadose zone trichloroethene (TCE) release at Site 24 and confirmation vadose zone sampling were completed. RI was completed for Sites 7 and 14. The primary JP-5 fuel pipelines were cleaned, hydrostatically tested, and closed. Regulatory concurrence on No Further Action (NFA) status was achieved for 36 UST sites, 12 aerial-photograph anomaly sites (APHO), 12 aboveground storage tank (AST) sites , and 23 oil-water separator sites. Remediation using SVE and bioventing began at UST Group 651, former UST Site 364A, and the tank farm.

The installation's technical review committee, formed in FY90, was converted to a Restoration Advisory Board (RAB) in FY94. In FY96, the installation updated its community relations plan.

FY01 Restoration Progress

The installation's historical radiological assessment was completed, and radiological surveys began. The final ROD for NFA at Installation Restoration program (IRP) Sites 7 and 14 was published. The IRP reached a desalter settlement agreement with the Department of Justice and two local water districts, allowing the program to move forward with the PP. RI work for Site 1 began. Verification and remediation activities at various locations of concern, including UST Group 651, Tank 398, Tank Farm 555, and MSC R1/Anomaly Area 3, were performed. NFA status was achieved for 22 compliance sites, including 9 ASTs, 4 USTs and 7 APHOs. Use of a multiphase extraction pilot test for the treatment of VOCs in soil and groundwater at Site 16 expedited the overall project cleanup schedule.

Because the radiological survey work was incomplete, the final RODs for IRP Sites 3, 5, 8, and 12 were not completed. The signing of the ROD for Sites 18 and 24 was delayed until signature of the settlement agreement could be accomplished.

The RAB met regularly, providing review of and comment on technical documents.

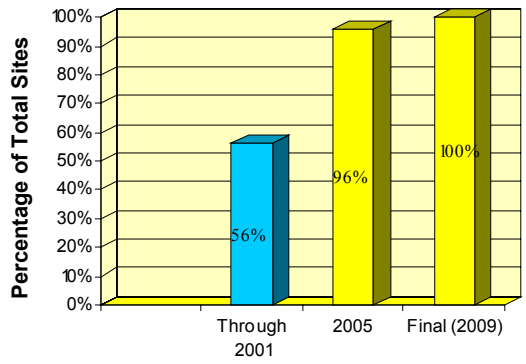
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Publish ROD for IRP Sites 18 and 24 in FY02
- Publish ROD for landfill IRP Sites 3 and 5 in FY02
- Complete radiological survey and any associated remediation in FY02
- Publish ROD for IRP Sites 8 and 12 in FY02
- Complete RD for landfill IRP Sites 2 and 17 in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year

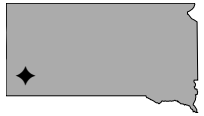


Ellsworth Air Force Base

Rapid City, South Dakota

NPL

FFID:	SD857212464400	**Media Affected:**	Groundwater and soil
Size:	4,858 acres	**Funding to Date:**	$62.0 million
Mission:	Maintain a combat-ready force capable of executing long-range bombardment operations	**Estimated Cost to Completion (Completion Year):**	$30.7 million (FY2028)
		Final RIP/RC Date for ER Sites:	FY2003
HRS Score:	33.62; placed on NPL in August 1990	**Five-Year Review Status:**	Completed
IAG Status:	Federal facility agreement signed in January 1992		
Contaminants:	Solvents, POLs, lead, and low-level radioactive waste		



Progress to Date

Environmental studies conducted from FY85 to FY87 identified 20 sites at Ellsworth Air Force Base. Site types include landfills, underground storage tanks (USTs), maintenance areas, a fire training area, and a low-level radioactive waste burial site. Groundwater and soil contamination resulted from releases of trichloroethene (TCE) and petroleum/oil/lubricants (POL) at these sites. Sites at the installation were grouped into 12 operable units (OUs).

In FY91, the installation removed 72 USTs and constructed a pilot-scale groundwater treatment plant for TCE and POL contamination. In FY93, 160 UST sites were evaluated and 31 USTs were removed, including 5 USTs from the low-level radioactive waste burial site.

In FY94, remedial design began for OUs 1, 2, 4, and 9 through 12. An additional 100 USTs were investigated and closed. A Restoration Advisory Board was formed. In FY95, the installation completed the final feasibility study (FS) for OUs 1, 2, 4, 9, 10, and 12 and began interim remedial actions, including groundwater extraction and treatment and soil vapor extraction. The installation's drinking water supply line was extended to off-base residences with contaminated drinking water wells. Twelve USTs and 4,000 cubic yards of contaminated soil were removed, completing the UST investigation and removal program.

During FY96, a final FS report and a proposed plan (PP) for OUs 3, 5, 7, and 8 were completed, along with the remedial investigation (RI) and FS report and the PP for OU11. Remedial actions (RAs) started for OUs 1 through 5, 7 through 10, and 12.

Construction of a groundwater extraction and treatment system began for OU11, and RA construction was completed at OU6. Records of Decision (RODs) were signed for OUs 1 through 10 and OU12.

In FY97, the ROD for OU11 was signed, and the RA began. RAs were completed for OUs 1 through 5, 8, and 12. Long-term management (LTM) started for OUs 3, 5, 6, 7, 8, and 12 and for WP-22. Remedial action operations (RA-O) started for OUs 1, 2, 4, and 11 and non–National Priorities List (NPL) Sites SS-8, ST-10, and ST-14. The installation also removed unexploded ordnance from Site OT-18 (former Badlands Bombing Range) using non–Environmental Restoration Account funds, before starting the environmental restoration program investigation.

In FY98, the RA at OU11 continued, and the drinking water program extended the water line 26,640 feet on the eastern part of the base. In FY99, work was completed on the preliminary assessments and site inspections for OT-18 and ST-26, and the LTM for WP-22.

In FY00, an RI was completed and monitoring began at Site ST-26. An RI/FS was started for Site OT-18. A 5-year review was completed for 13 ROD sites, with the regulatory agencies concurring that all sites were protective of human health and the environment, subject to landfill cap landslide repairs. The repairs were started at LF-05. Remediation of basewide groundwater contamination (OU11) continued.

FY01 Restoration Progress

The installation finished groundwater cleanup and water line extension at OU11 and placed the site under RA-O. LTM and RA-O continued at selected sites. The RI/FS for Site OT-18 continued. Repairs to LF-05 continued. The RI for RW-27 began.

Military Munitions Response Program Progress

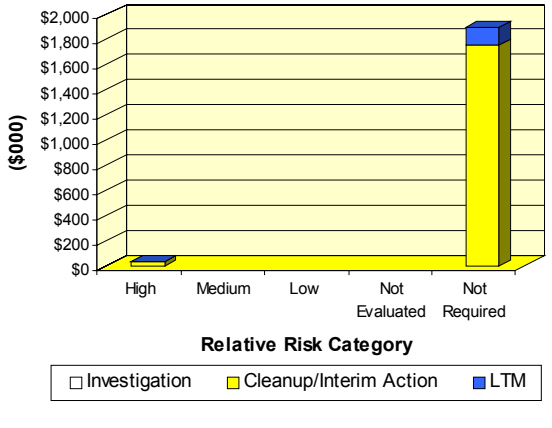
In FY01, a comprehensive range inventory was initiated. This inventory was designed to be an annual, iterative effort. To supply data for the inventory, a detailed questionnaire was completed that collected data on the types of munitions used, the range's environmental status, and the type and level of external stakeholder interest.

Munitions response and range cleanup actions have been delayed, pending funding availability and guidance refinement. As funding becomes available and guidance is refined, ranges will be cleaned up based on risk to human health and the environment.

Plan of Action

- Finish RI/FS for OT-18 and continue repairs to LF-05 in FY02
- Continue RI and perform interim remedial action free-product removal at RW-27 in FY02
- Continue LTM and RA-O at selected sites in FY02 and FY03
- Complete RI for RW-27 in FY03
- Finish repairs to LF-05 in FY03

FY02 Funding by Phase and Relative Risk



Elmendorf Air Force Base

Anchorage, Alaska

NPL

FFID:	AK057302864900	**Funding to Date:**	$69.1 million
Size:	13,130 acres	**Estimated Cost to Completion (Completion Year):**	$43.2 million (FY2034)
Mission:	Headquarters Alaskan Command	**Final RIP/RC Date for ER Sites:**	FY2009
HRS Score:	45.91; placed on NPL in August 1990	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement signed in 1991		
Contaminants:	VOCs, heavy metals, POLs, and solvents		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Environmental studies completed between FY83 and FY98 identified 84 sites at this installation, including old construction landfills, petroleum spill sites, and underground storage tanks (USTs). Thirty-seven sites, which are grouped into six operable units (OUs), are covered by the federal facility agreement. An additional 39 sites are covered by an agreement with the State of Alaska.

In FY92, asphalt recovery was completed at SS10 in OU4. In FY93, the installation constructed a groundwater treatment system at OU2. In FY94, the installation removed polychlorinated biphenyl (PCB)–contaminated sediment from a stormwater ditch in OU3. Bioventing treatability studies (TSs) were completed at three sites, an intrinsic remedial TS was completed for OU4, and a Record of Decision (ROD) was signed for OU1.

In FY95, the installation continued remedial investigation and feasibility study work in OU6 and completed RODs for OU2, OU4, and OU5. Removal actions were conducted at a pesticide storage facility in OU7 and at an asphalt seep area in OU1. The installation began the operation of bioventing systems at eight UST sites and long-term management of groundwater. The installation also formed a Restoration Advisory Board (RAB).

In FY96, the installation prepared remedial designs (RDs) for OU6. It also closed the four USTs and removed associated pipeline at OU2, conducted a PCB TS for OU3, installed bioventing systems at OU4, and began constructing an engineered wetland at OU5.

In FY97, RODs were signed for OUs 3 and 6. RDs were completed for remediation of PCBs at OU3. The installation began TSs for a two-phase high-vacuum extraction (HVE) system at SD15 in OU6. It also closed one bioventing system and removed 13,800 feet of pipeline at ST32. The RAB charter was rewritten to focus on all environmental activities, beginning the transition to a Community Advisory Board. Elmendorf's RAB received the Pentagon Crystal Award.

In FY98, limited field investigations began for nine areas of concern (AOCs). A 5-year remedy review was conducted, and remedial action (RA) completion reports for OUs 1, 2, 4, 5, and 6 were completed. Removal of 11,000 feet of the North Jet pipeline was completed.

In FY99, PCB removal and the RA completion report for OU3 were completed, with no further work required. Shutdown of the groundwater treatment system at OU2 was completed, the annual beach sweep was conducted, and the installation developed a comprehensive orientation manual for the RAB.

In FY00, an RA at ST74 was completed, resulting in the closure of one bioventing system. The installation's community relations plan was revised. RA at SS80 was completed, and an engineering evaluation and cost analysis (EE/CA) was initiated at SS83 and DP98. The installation evaluated LF04 for a long-term solution to beach erosion, conducted additional site evaluation at WP14, and closed AOC OT82. Elmendorf received the General Thomas D. White Restoration Award for the fourth year in a row and also received the FY99 Secretary of Defense Environmental Security Award for environmental cleanup.

FY01 Restoration Progress

The groundwater model for OU2 was completed. Remedial action operations (RA-O) of 20 bioventing systems, the engineered wetland system at OU5, and the HVE system at SD15 continued. The annual beach sweep at LF04 was conducted. The site characterization investigation reports were completed for SS83 and DP98, determining that further site characterization was necessary for DP98. An expedited removal action was completed at SA100. The cost of completing environmental restoration has changed significantly at this installation because of technical issues.

The planned RA of an abandoned hydrant system at OT92 was delayed because the higher relative risk associated with DP98 made the latter site a higher priority.

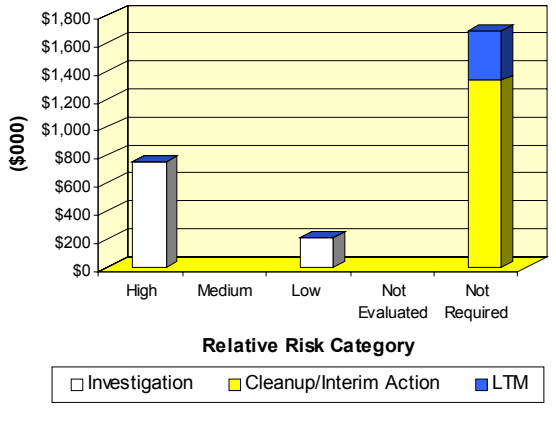
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete Phase II of EE/CA at SS83 in FY02
- Continue RA-O of 19 bioventing systems, the engineered wetland system at OU5, and the HVE system at SD15 and conduct the annual beach sweep at LF04 in FY02
- Finish remedial investigation (RI) of SA99 in FY03
- Complete RI/feasibility study of DP98 in FY03
- Complete second 5-year review in FY03

FY02 Funding by Phase and Relative Risk



England Air Force Base

Alexandria, Louisiana

BRAC 1991

FFID:	LA657002445200	**Media Affected:**	Groundwater and soil
Size:	2,282 acres	**Funding to Date:**	$32.5 million
Mission:	Used as a tactical fighter wing	**Estimated Cost to Completion (Completion Year):**	$9.4 million (FY2010)
HRS Score:	NA	**Final RIP/RC Date for BRAC-ER Sites:**	FY2001
IAG Status:	None	**Five-Year Review Status:**	Planned
Contaminants:	Industrial waste, spent solvents, fuels, waste oil, paints, pesticides, alkali, low-level radioactive waste, chlorine gas, PCBs, TCE, and medical waste		

Progress to Date

In July 1991, the BRAC Commission recommended closure of England Air Force Base. The installation closed in December 1992.

Since FY82, studies have identified 43 sites at the installation, including landfills, underground storage tanks, aboveground storage tanks (ASTs), fire training areas, oil-water separators, a sewage treatment pond, a low-level radiation site, and gas training kit burial sites. In FY92, a RCRA facility assessment identified 59 solid waste management units (SWMUs) and 5 areas of concern. In FY93, a BRAC cleanup team was formed.

In FY94, the installation formed a Restoration Advisory Board and completed the Phase I RCRA facility investigation (RFI).

In FY95, the installation updated its BRAC cleanup plan and completed a basewide lease. The installation also began fieldwork for a Phase II environmental baseline survey, completed a lead-based paint survey of houses and schools, and completed an AST cleaning project. The installation began interim actions (IAs) at several sites and completed closure of an aircraft refueling and hydrant system and cleanup of a chlorine gas sterilizer and the medical waste incinerator.

In FY96, the installation replaced the fire station oil-water separator and completed cleanup at the civil engineering drainage ditch, the low-level radiation site, the hospital polychlorinated biphenyl (PCB) site, and the jet engine shop. Delineation of a trichloroethene (TCE) groundwater plume began.

In FY97, the installation completed a corrective measures study (CMS) for RFI sites and completed the IA at the fire training site and three other contaminated-soil sites. SWMU 41 was closed and capped.

In FY98, a Phase I ecological survey was completed for some sites. The installation obtained concurrence from EPA and the Louisiana Department of Environmental Quality on human health risk assessment and ecological risk assessment consensus statements and a final comprehensive background study report. Fourteen sites were closed and officially transferred to the local reuse authority; an additional 141 sites were closed.

In FY99, fieldwork was completed at the chemical burial mound. The installation completed a removal action for Sites SS-39 and OTH-2505. Contaminated sludge was removed and septic tanks were cleaned at Buildings 1631 and 2607. Contaminated soil was removed at Building 2614. Nineteen additional sites were closed.

In FY00, characterization and a CMS of the TCE plume were completed. The installation completed delineation of contamination at two oil-water separators and the 50-acre wastewater lagoon and completed a removal action at a golf course area site (ST-06). Site investigations at restoration sites and an interim removal action for lead and chromium beneath the water towers were initiated.

FY01 Restoration Progress

The installation completed site investigations at restoration sites. The interim removal action for lead and chromium beneath the two water towers was completed. The remedial action for the petroleum/oil/lubricant area and the removal of additional soil along underground fuel lines were completed. A hazardous waste permit renewal application was completed. Long-term management (LTM) began at some sites. A decision document to support meeting the last remedy-in-place milestone was finished. The cost of completing environmental restoration has changed significantly at this installation because of technical and regulatory issues.

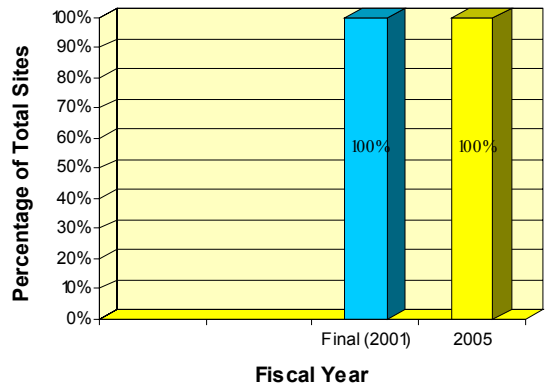
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Complete post-closure care plans for SS-45 (TCE plume), SWMU 41 (LF-15), and SWMU 27 in FY02
- Conduct quarterly LTM for SS-45, LF-15, and SWMU 27 in FY02
- Complete site and documentation research in preparation for future Operating Properly and Successfully determinations for SS-45, LF-15, and SWMU 27 in FY02
- In FY02, complete modification to hazardous waste permit to delete sites that have been closed
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year

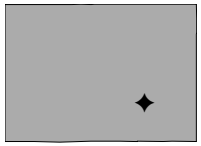


F. E. Warren Air Force Base

Cheyenne, Wyoming

NPL

FFID:	WY857212417900	**Contaminants:**	Oil, solvents, metals, acids, petroleum, and explosives residues
Size:	5,866 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Provide operational and security support for intercontinental ballistic missiles and perform aerospace rescues	**Funding to Date:**	$87.5 million
		Estimated Cost to Completion (Completion Year):	$100.0 million (FY2028)
		Final RIP/RC Date for ER Sites:	FY2011
HRS Score:	39.23; placed on NPL in February 1990	**Five-Year Review Status:**	NA
IAG Status:	FFA signed in September 1991; Modification 11 signed in July 1998		



Progress to Date

The Air Force began restoration activities at F.E. Warren Air Force Base in FY84. Between 1984 and 1989, trichloroethene (TCE)-contaminated soil was removed from Spill Site 4 (SS-4) and soil was removed from the acid dry well site, and SS-1 and SS-7. The discovery of TCE-contaminated groundwater caused the base to be placed on the National Priorities List (NPL) in FY90. That same year, a bioventing system to reduce soil hydrocarbon concentrations was installed at SS-1. The next year, a remedial investigation (RI) confirmed the presence of contamination at 20 sites, later grouped into 12 operable units. The RI also identified five plumes of TCE-contaminated groundwater. In FY92, the installation signed a no-further-remedial-action planned Record of Decision (ROD) for soil on the acid dry well site.

FY95 activities included signing of a no action ROD for soil at SS-1 through SS-7 and Fire Protection Training Area (FPTA) 2, signing of an interim remedial action (IRA) ROD for a RCRA C cover at Landfill 6 (LF-6), installation of a packed-tower air stripper for a treatability study for TCE-contaminated groundwater at SS-7, initiation of bioventing of petroleum hydrocarbon–contaminated soil at FPTA-1, and formation of a Restoration Advisory Board (RAB). The following year, the LF-2C time-critical removal action design was reevaluated and a non-time-critical removal action design was initiated.

In FY97, an engineering evaluation and cost analysis, an action memorandum, and a removal action design for excavating LF-2C waste were completed. IRA RODs were signed for the construction of a RCRA D cap at LF-5A and a passive reactive (iron filings) wall to treat contaminated groundwater at SS-7. Construction was completed on an IRA to provide city drinking water to residents of Nob Hill near the base. LF-6's evapotranspiration cover design was modified with an impermeable geosynthetic clay liner (GCL).

During FY98, the installation's environmental restoration program was realigned under the Wing Commander. The cover at LF-5A and excavation and waste removal actions for LF-2C were completed ahead of federal facility agreement (FFA) requirements. To facilitate investigations, the base was divided into six zones of potential contamination.

In FY99, the iron filings wall at SS-7 was installed, ahead of work plan requirements. The GCL cover for LF-6 was completed. The basewide Type Ia 5-year review was completed, indicating that all remedial actions (RAs) continued to be protective of human health and the environment.

In FY00, the removal actions and on-base consolidation of Landfills 2A, 2B, 3, and 5B and the RIs for Zones A, B, and C were completed. Feasibility studies (FSs) were initiated for Zones A, B, and C. Long-term management (LTM) of the acid dry well sites was completed, with no further action required. Zones D1, D2, and D3 were combined and redesignated as Zone D Sources and Zone D Groundwater. Comprehensive RI work began on Zone D Sources, Zone D Groundwater, and Zone E.

FY01 Restoration Progress

Zone D groundwater data collection was completed and the RI Report preparation is under way. The Zone D groundwater FS was initiated. The initial field investigation for Zone D Sources and Zone E was completed. RI report preparation began for both Zone D Sources and Zone E. The LF-2A and LF-2B site reclamation was completed. LTM of LF-5A, the waste consolidation area, LF- 6, and SS-7 continued. A supplemental preliminary assessment and site inspection (PA/SI) was initiated. The Zone B ROD was completed and signed, and remedial designs for Zone A, B, and C were initiated. The cost of completing environmental restoration has changed significantly at this installation because of estimating criteria.

The Zone A and Zone C RODs were not signed as planned. The Zone A ROD is in the final stage, and the Zone C ROD was signed by EPA, and the state in FY01 and by the Air Force in December 2001. The authority delegated to the Air Force Space Command Vice Commander to sign these RODs was removed. Both the Air Force and EPA Region 8 took a series of agreed-upon extensions at various stages of the Zone A and C development process; these did not affect the FFA schedule.

Meetings and training for the RAB continued. Partnering meetings with the AF, EPA, the state, contractors, and project managers continued on a monthly basis.

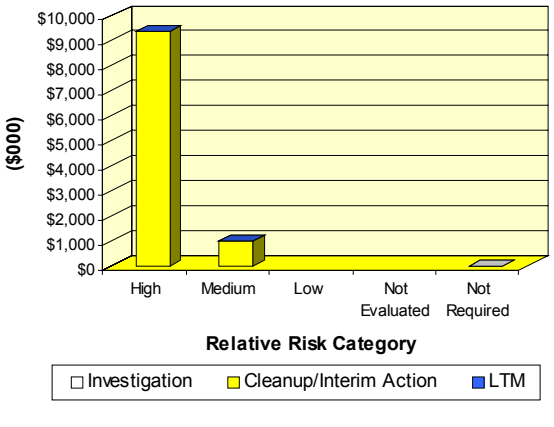
Military Munitions Response ProgramProgress

In FY01, a comprehensive range inventory was initiated. This inventory was designed to be an annual, iterative effort. To

Plan of Action

- Begin SS-7 source area removal action in FY02
- Begin construction of the Zone B and C final RA in FY02
- Begin Zone A final RA in FY02
- Complete supplemental PA/SI in FY02

FY02 Funding by Phase and Relative Risk



Fairchild Air Force Base

Spokane County, Washington

NPL

FFID:	WA057212464700	**Media Affected:**	Groundwater and soil
Size:	4,300 acres	**Funding to Date:**	$39.8 million
Mission:	Provide aerial refueling and airlift services	**Estimated Cost to Completion (Completion Year):**	$27.3 million (FY2026)
HRS Score:	31.98; placed on NPL in March 1989	**Final RIP/RC Date for ER Sites:**	FY2005
IAG Status:	IAG signed in 1990	**Five-Year Review Status:**	Completed
Contaminants:	Solvents, fuels, electroplating chemicals, cleaning solutions, corrosives, photographic chemicals, paints, thinners, pesticide residues, and PCBs		

Progress to Date

Environmental studies since FY85 have identified 37 sites at this installation, including contaminated fire training areas, landfills, radioactive waste sites, spill sites, waste pits, disposal pits, and ditches.

In FY92, interim actions included removal of 1,600 cubic yards of soil contaminated with fuels and oils. Drinking water was provided to members of the local community to replace drinking water contaminated by trichloroethene (TCE) leaching from the Craig Road landfill. By FY93, the installation had identified 30 sites and completed remedial investigation and feasibility study (RI/FS) activities at 8 sites. The Air Force signed two Records of Decision (RODs). Two sites required no further action, two required long-term management (LTM) or institutional controls, and four required cleanup.

In FY94, the installation completed remedial designs (RDs) for two sites, began RD at a third site, and started construction on a remedial action (RA) at a base landfill.

In FY95, the installation formed a Restoration Advisory Board (RAB). It also completed construction of a landfill cap and expansion of an extraction and treatment system to contain a TCE-contaminated groundwater plume at the Craig Road landfill. The installation also began a preliminary assessment and site inspection (PA/SI) of nine areas of concern (AOCs) and the two remaining original sites.

The installation completed an RI/FS for 20 sites in FY96, and the Air Force signed a ROD for the sites. Because of contamination identified during the PA/SI, seven AOCs were transferred to the Installation Restoration Program. In FY97, groundwater air-sparging and soil bioventing systems were implemented at the former fire training area. The final public health assessment report was released, validating the base's cleanup program.

In FY98, construction and interim removal actions were completed at the wastewater lagoons, a petroleum/oil/lubricants bulk storage area, and the former fire training area.

In FY99, the installation, in cooperation with EPA and the state, began a 5-year review to ensure that selected remedies protected human health and the environment. Interim removal actions were completed at the waste storage area, waste fuel operations, a fuel transfer facility, and arsenic ditches and culverts.

In FY00, RI/FS fieldwork began at SD-37 for basewide oil-water separators. A partial site delisting was coordinated with and will be considered by Washington State and EPA. Twenty-two sites will be removed from the National Priorities List (NPL).

FY01 Restoration Progress

The installation obtained needed funding for Site SS-39, and the RI/FS is now under way. LTM, and operations and maintenance for groundwater treatment plants, groundwater air sparging, soil bioventing systems, and basewide groundwater sampling, continued. The 5-year review was completed and signed by EPA. The base discovered and removed 30 buried drums containing 800 gallons of hazardous waste before the waste could leach into the groundwater table. Food-grade soy bean oil was added as a carbon source before the excavated area was backfilled, to remediate TCE throughout the groundwater plume. The installation and the Air Force Center for Environmental Excellence completed a phytoremediation pilot project. The cost of completing environmental restoration has changed significantly at this installation because of regulatory issues.

The Fairchild RAB teamed with the U.S. Army Corps of Engineers (USACE), Seattle District, on a FUDS presentation. The base provided USACE with this public platform in order to inform the local community of the cleanup progress surrounding the FUDS property.

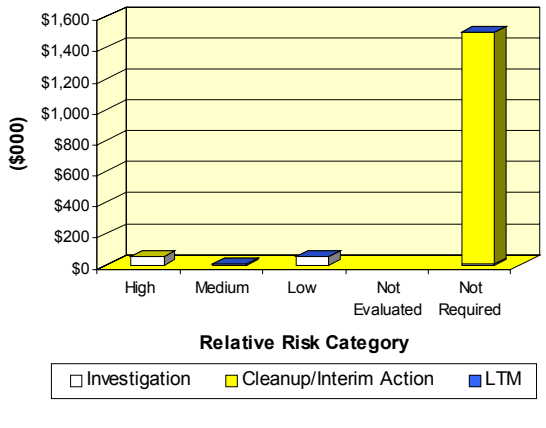
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete RI/FS for Sites SS-39 and SD-37 in FY03
- Award Priority 3 ROD project in FY02, with estimated completion date in FY03
- Begin RD/RA for Sites SS-39 and SD-37 after RI/FS completion at sites, with an estimated completion date of FY04–FY05

FY02 Funding by Phase and Relative Risk



Fike-Artel Chemical

Nitro, West Virginia

NPL

FFID:	WV39799F789200	**Funding to Date:**	$0.6 million
Size:	12 acres of former 16,000-acre government plant	**Estimated Cost to Completion (Completion Year):**	$2.0 million (FY2057)
Mission:	Manufactured smokeless powder (private party operated a batch chemical plant)	**Final RIP/RC Date for ER Sites:**	FY2006
		Final RIP/RC Date for MMRP Sites:	FY2057
HRS Score:	36.3; placed on NPL in September 1983	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	Dioxin, organic and inorganic chemicals, and metals		
Media Affected:	Groundwater and soil		

Progress to Date

Environmental restoration sites at Fike-Artel Chemical were grouped into five operable units (OUs): disposal of storage tank and drum contents (OU1); decontamination and disposal of storage tanks, surface drums, and aboveground structures (OU2); removal of buried drums (OU3); remedial investigation and feasibility study (RI/FS) of groundwater and soil (OU4); and RI of the cooperative sewage treatment plant (OU5). Private-sector potentially responsible parties (PRPs) and EPA are leading all environmental restoration activities.

In FY93, an RI was completed for OU1. Twenty PRPs signed an agreement with EPA to remove 7,000 to 16,000 buried containers from OU3.

In FY95, an interim action was conducted to remove underground storage tanks (USTs) and aboveground storage containers (OUs 1, 2, and 3). RI activities were completed for OU2 and started for OU5, and RI/FS activities began for OU4.

In FY96, USTs and buildings were demolished and removed. Final allocation of liability was achieved, and a principal agreement was signed. The consent decree for OU4 was filed in court. The RI work plan was submitted to EPA for approval.

In FY97, the PRPs and EPA established a consent decree. The PRPs (private and government) revised the RI/FS work plan for OU4, and the plan was submitted to EPA for review. In addition, the PRPs completed a UST removal action for OU5. In FY98, the PRPs received EPA approval on the Phase I RI/FS work plan and began soil and groundwater sampling.

In FY99, implementation of Phase I of the RI/FS work plan was completed. A prospective purchaser agreement was executed by EPA, the Department of Justice, and the Nitro Redevelopment Authority to allow industrial redevelopment of the property. The Y2K compliance plan was executed.

In FY00, the approved Phase II RI/FS work plan was implemented. The draft RI for soil and groundwater was prepared for agency review. The stormwater treatment system is operating in compliance with permit requirements.

FY01 Restoration Progress

The installation completed an additional groundwater study. The FS and risk assessment were completed. The EPA ROD was submitted. Additional sampling was conducted to characterize waste and media at Lagoon 3. The cap design for Lagoon 3 was completed. The stormwater treatment system operated in compliance with permit requirements. The Nitro Redevelopment Authority was aided in obtaining all deeds associated with land tracts.

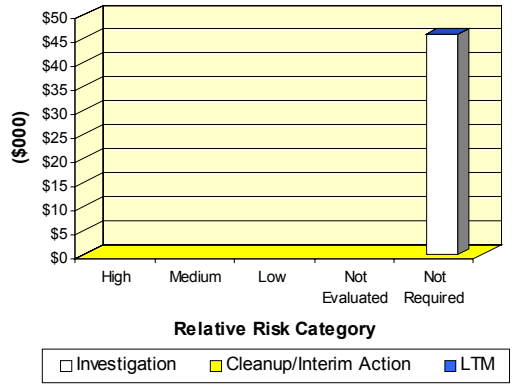
Military Munitions Response Program Progress

A Military Munitions Response project was approved in FY96. In FY01, the estimate for funding of a future project was reviewed and updated. An engineering evaluation and cost analysis will be scheduled as funding and cleanup priorities allow.

Plan of Action

- PRPs are to issue notice to implement or decline the remedies in the ROD in FY02
- Implement agreed on ROD remedies in FY02
- Continue operation of stormwater treatment system in FY02
- Conduct 5-year review of ROD remedies in FY02

FY02 Funding by Phase and Relative Risk

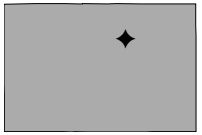


Fitzsimons Army Medical Center
U.S. Army Operations Fitzsimons

Aurora, Colorado

BRAC 1995

FFID:	CO821162033300	**Funding to Date:**	$21.1 million
Size:	580 acres	**Estimated Cost to Completion (Completion Year):**	$0 million (FY2002)
Mission:	Provided medical services, training, and research	**Final RIP/RC Date for BRAC-ER Sites:**	FY2002
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	Petroleum hydrocarbons, asbestos, lead-based paint, and radioactive waste		
Media Affected:	Groundwater and soil		



Progress to Date

In July 1995, the BRAC Commission recommended closure of all facilities at Fitzsimons Army Medical Center except the Edgar J. McWhethy Army Reserve Center. The Army will transfer ownership of excess property by FY03.

Studies at the installation identified several sites posing environmental concerns, including aboveground storage tanks (ASTs), underground storage tanks (USTs), landfills, clinical areas, pesticide and herbicide facilities, a wastewater treatment plant, and maintenance areas. The Army formed a BRAC cleanup team (BCT) to investigate and ensure cleanup of all areas of concern and to facilitate property transfer to the Fitzsimons Redevelopment Authority. The BCT meets biweekly. In FY95, EPA and the state regulatory agency reviewed the scope of work for an environmental baseline survey and the BRAC cleanup plan.

The installation commander formed a Restoration Advisory Board (RAB) in FY96. The installation also completed a community relations plan. Before beginning excavation at a low-level radioactive waste landfill (Landfill 5), the installation held a media day to address community concerns. No radioactivity was detected. It then removed the storage tanks and associated contaminated soil from the UST area associated with the former heating plant. It then received approval of the closure documents for the UST area.

In FY97, the installation initiated groundwater and site inspection studies for all sites. In FY98, it completed studies at four landfills that had been closed before 1972: the golf course, pesticide and herbicide facilities, the optical fabrication laboratory, and clinical and maintenance facilities. The Army completed Nuclear Regulatory Commission (NRC) decommissioning and forwarded a license termination request to the NRC. Remediation began at the Army and Air Force Exchange Service (AAFES) service station and at other AST and UST locations. The BCT reviewed and approved four findings of suitability to transfer (FOSTs) and four findings of suitability to lease.

In FY99, an independent technical review concurred with the approach used by Fitzsimons for the salvage yard, the wastewater treatment plant (WWTP), and the landfills. The installation completed a draft work plan for closure of the WWTP. The Army completed cleanup of the salvage yard and an interim removal action at the former AAFES service station.

In FY00, the installation completed fieldwork for the Directorate of Public Works and Directorate of Logistics (DPW/DOL) maintenance areas, the Directorate of Clinical Investigations (DCI) clinical facilities, and the optical fabrication laboratory. The installation also completed the risk assessments for all areas except the greenhouse area and closed the remaining UST and AST sites. The work and FOST for closure of the perinatal research facility were completed, and the BCT reviewed and approved two other FOSTs, which facilitated the transfer of 159 acres.

FY01 Restoration Progress

The BCT approved a risk assessment and began a remedial action (RA) at the greenhouse area. All RAs at the DPW/DOL area were completed. The Army completed remedial work at the WWTP, and the BCT concurred on a no further action (NFA) designation for the site. Testing at Building 821 determined that the remedial system had cleaned up soil sufficiently, and the BCT concurred on a NFA designation. Completed groundwater and soil testing at the Building 135 remedial system revealed that the remediation of the site was complete. Therefore, the Army completed the Operating Properly and Successfully documentation for the remediation system. The Army completed the draft remedial investigation and feasibility study and risk assessment for Landfills 1, 2, 3, and 4. The City of Aurora expressed interest in an early transfer with privatization for Landfills 1, 2, and 4. The Army and the city completed an environmental services cooperative agreement. The city will assume remediation responsibilities upon transfer. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria.

The RAB participated in the early transfer and all RA discussions, and completed a site tour of remedial and redevelopment activities.

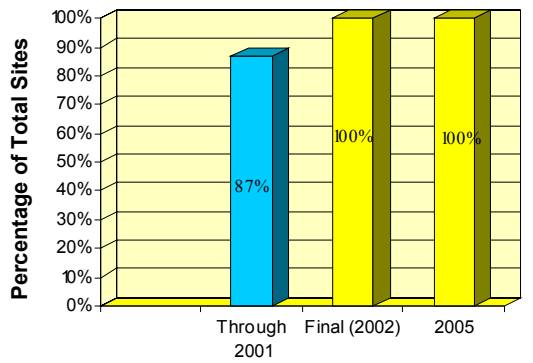
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete the RA at the greenhouse area in FY02
- Close all sites and transfer all property with the exception of the landfills included in the early transfer in FY02
- Complete finding of suitability for early transfer in FY02 and transfer property in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Former Nansemond Ordnance Depot — *Suffolk, Virginia* — NPL

FFID:	VA39799F156700	**Funding to Date:**	$16.2 million
Size:	975 acres	**Estimated Cost to Completion (Completion Year):**	$14.9 million (FY2013)
Mission:	Served as ordnance depot	**Final RIP/RC Date for ER Sites:**	FY2013
HRS Score:	70.0; placed on NPL in July 1999	**Final RIP/RC Date for MMRP Sites:**	FY2005
IAG Status:	IAG under negotiation	**Five-Year Review Status:**	NA
Contaminants:	TNT, solvents, fuels, pesticides, and OE		
Media Affected:	Soil, groundwater, and sediment		

Progress to Date

The Former Nansemond Ordnance Depot (FNOD) consists of approximately 975 acres on the James River, at the mouth of the Nansemond River. The property was acquired by the Army between 1917 and 1929. The Army used the depot from World War I until November 1950. The Army leased the property to the Navy from 1950 to 1960. In 1960, the property was excessed and conveyed to the Beaszley Foundation, Inc. Currently, Tidewater Community College; the General Electric Company (GE); Dominion Lands, Inc.; Continental Bridgeway Office Park; SYSCO Food Services; Hampton Roads Sanitation District; and Interstate 664 occupy the property.

Between 1987 and 1992 the U.S. Army Corps of Engineers (USACE) removed approximately 30 tons of contaminated soil from the property.

In FY97, USACE conducted the property's first Restoration Advisory Board (RAB) meeting.

In FY98, USACE, EPA Region 3, the Biological Technical Assistance Group, and the Virginia Department of Environmental Quality (VDEQ) began partnering efforts.

In FY99, EPA placed FNOD on the National Priorities List (NPL). In addition, USACE conducted a removal action at the impregnite kit area on Dominion Lands property. USACE also conducted a geophysical investigation at the James River source area.

In FY00, USACE completed the main burning ground and the horseshoe-shaped pond Phase I remedial investigations (RIs). It also performed a baseline ecological assessment across the property and developed a geographic information system to facilitate communication with the regulatory agencies.

FY01 Restoration Progress

USACE completed removal actions at the Nansemond and James River beachfronts and the Track K source area, and conducted preliminary sampling. USACE also completed the offshore ecological risk analysis; additional work to support a Record of Decision (ROD) is planned. USACE began work on an interim land use control (LUC) ROD and initiated site inspection (SI) work for Streeter Creek, TCC Lake, and J Lake. A better understanding of the 6 source areas and 21 additional areas of concern caused a significant reduction in the estimated cost of completing environmental restoration.

RI work at the TNT area was delayed pending performance of background studies and an ecological risk assessment. SI work at Streeter Creek, TCC lake, and J Lake was delayed pending risk assessment completion.

The Army established a Web site for FNOD and conducted a public information meeting. It also added bimonthly partnering meetings with the state and federal regulators to ongoing bimonthly pre-RAB project team meetings.

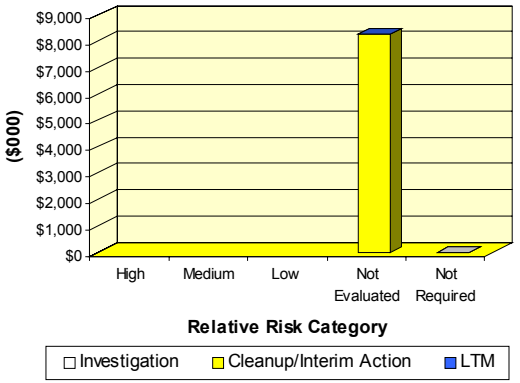
Military Munitions Response Program Progress

In FY87, a small piece of crystalline TNT was found by a young boy collecting rocks in the area. Between 1987 and 1992, several tons of crystalline TNT and several hundred pounds of other ordnance and explosives (OE) were removed. In FY99, USACE contracted with the Navy to search for OE around two World War II piers. No OE was detected. In FY00, USACE completed ordnance clearance on the Dominion Lands property. Ordnance removal continued at the main burning ground. In FY01, USACE completed offshore OE investigations, including investigations of suspected unexploded ordnance near the Monitor Merrimac Bridge Tunnel. OE removal actions on GE and Tidewater Community College property are under way. These removal actions were not completed as planned, because initial estimates of volume and removal rate were inaccurate.

Plan of Action

- Continue OE removal actions on GE, Dominion Lands, and Tidewater Community College properties in FY02
- Complete and sign the interim ROD for LUCs in FY02
- Complete negotiations on the interagency agreement in FY02
- Complete closeout documentation of impregnite kit and Track K dump area in FY02
- Complete main burning ground, horseshoe-shaped pond, and TNT area RIs in FY03

FY02 Funding by Phase and Relative Risk



Former Weldon Spring Ordnance Works

St. Charles County, Missouri

NPL

FFID:	MO79799F037400	**Funding to Date:**	$206.6 million
Size:	17,232 acres	**Estimated Cost to Completion (Completion Year):**	$27.1 million (FY2017)
Mission:	Manufactured TNT and DNT during World War II	**Final RIP/RC Date for ER Sites:**	FY2017
HRS Score:	30.26; placed on NPL in February 1990	**Five-Year Review Status:**	NA
IAG Status:	IAG signed in 1990; amended in August 1991		
Contaminants:	TNT, DNT, lead, asbestos, PCBs, and PAHs		
Media Affected:	Groundwater and soil		

Progress to Date

From 1941 to 1944, the Weldon Spring Ordnance Works produced explosives for the armed services. The Army currently occupies the 1,655-acre Weldon Spring Training Area. The majority of the remaining property is owned by the state and is maintained as a wildlife area and an agricultural research facility of the University of Missouri. A parcel covering approximately 200 acres was acquired by the Atomic Energy Commission in the early 1950s and used for a uranium ore feed material plant. DoD provides partial funding for the cleanup of this site, which is being investigated and remediated by DOE as a separate National Priorities List (NPL) site.

Two operable units (OUs) exist at the ordnance works: OU1, soil and pipeline (lagoons, landfills, burning grounds, contaminated soil, and underground wastewater pipelines), and OU2, groundwater. Contaminants subject to OU1 cleanup are TNT, DNT, lead, polychlorinated biphenyls (PCBs), and polyaromatic hydrocarbons (PAHs). Non-NPL projects include building demolition and debris removal (BD/DR) of Water Treatment Plant No. 2.

The U.S. Army Corps of Engineers (USACE) conducted several studies that relate to remediation efforts at the site: a biodegradation research study (FY92); a historical survey of activities (FY94); and a study of genetic effects on organisms. Remedial investigation (RI) of OU1 began in FY88; and RI of OU2 began in FY91.

In FY95, USACE started the remedial design (RD) for OU1. USACE worked with DOE to prepare joint RI and feasibility study (FS) work plans for OU2 and to conduct quarterly groundwater monitoring.

In FY96, the OU1 Record of Decision was signed and USACE completed the RD. The joint RI/FS and proposed plan (PP) for OU2 were submitted in FY97. A Restoration Advisory Board (RAB) was established in FY97 and quarterly RAB meetings began.

In FY98, OU1 remedial action (RA) fieldwork began. The Missouri Department of Natural Resources (MDNR) found the DOE/USACE joint OU2 FS and PP to be unacceptable. Due to technical differences between the DoD and the DOE sites, the agencies agreed to proceed independently with each FS and PP for OU2. The RD and the construction phase of the BD/DR for Water Treatment Plant No. 2 were completed.

In FY99, OU1 soil and pipeline incineration activities were completed. However, contaminated soil was found to remain in an area that had been remediated. Groundwater monitoring continued and became focused on determining the response of nitroaromatic concentrations to the OU1 RA.

In FY00, OU1 RA work continued, including stabilization and disposal of stockpiled lead-contaminated soil, supplemental DNT characterization of selected areas per EPA requirements, and excavation and disposal of DNT-contaminated soil. The remedy for disposal of the rest of the contaminated soil was changed to disposal in the adjacent DOE containment cell, which was to be documented in an explanation of significant differences (ESD).

FY01 Restoration Progress

The construction associated with OU1 was completed after EPA identified a new area containing TNT-contaminated soil, which required additional remediation. EPA confirmatory sampling identified an area requiring excavation of DNT- and lead-contaminated soil. The estimated cost of completing environmental restoration at this installation has changed significantly because of estimating criteria and regulatory issues.

The ESD for OU1 was completed. OU2 groundwater monitoring continued. Discussions with EPA and MDNR about the OU2 FS and PP also continued. Quarterly groundwater monitoring will continue for approximately 36 months before submission of a revised FS and PP, to acquire data that are representative of post-RA groundwater conditions.

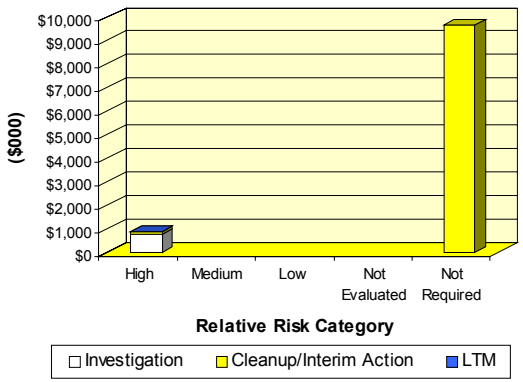
Military Munitions Response Program Progress

USACE has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete the OU1 closure report
- Submit signed ESD to regulatory agencies
- Complete potentially responsible party payments to DOE
- Continue groundwater monitoring in FY02–FY03

FY02 Funding by Phase and Relative Risk



FFID:	AR621372018700	**Funding to Date:**	$28.6 million
Size:	71,359 acres	**Estimated Cost to Completion (Completion Year):**	$1.4 million (FY2001)
Mission:	Light infantry and mobilization	**Final RIP/RC Date for BRAC-ER Sites:**	FY2001
HRS Score:	NA	**Final RIP/RC Date for MMRP SIte:**	FY1999
IAG Status:	None	**Five-Year Review Status:**	Planned
Contaminants:	POLs, DDT, chlordane, and TCE		
Media Affected:	Groundwater and soil		

Progress to Date

In July 1995, the BRAC Commission recommended closure of Fort Chaffee, except for the minimum essential buildings and ranges for a Reserve component training enclave. The BRAC parcel available for transfer is approximately 7,012 acres. The installation closed at the end of FY97.

Primary site types include underground storage tanks (USTs), a fire training area, landfills, and hazardous waste and hazardous material storage areas. Primary contaminants of concern include petroleum/oil/lubricants in groundwater and soil; solvents in groundwater; and pesticides in soil.

The community formed a local redevelopment authority in FY95. In FY96, the installation formed a BRAC cleanup team (BCT) and a Restoration Advisory Board. The installation also completed a RCRA facility investigation. The draft final environmental baseline survey report was submitted to the regulatory agencies. The Army began investigations at the North POW Landfill.

In FY97, the installation removed USTs from the BRAC parcel. The BCT completed and implemented the open burning and open detonation unit closure work plan. It also completed work plans for closing the hazardous waste storage facility and the Air National Guard burn pit. Phase I of the site inspection began, as did work on removing post-wide USTs, oil-water separators, wash racks, and fuel fill stands. Version 2 of the BRAC cleanup plan was completed in late 1997.

In FY98, the installation conducted removal actions at Building 5830 and Building 402/403 UST sites. The installation also removed all USTs and oil-water separators, and the west area fuel fill stands and transmission lines. It completed Relative Risk Site Evaluations for all sites except Sites 2 and 45. The installation completed an unexploded ordnance archive search and a site visit for BRAC property. It also completed the RCRA closure evaluation of the hazardous waste storage facility.

In FY99, the installation completed all previously funded work on the enclave sites, passing full responsibility for the sites to the National Guard. The BCT agreed to prioritize all environmental sites and to address them in four no further action (NFA) Records of Decision (RODs) and one limited action ROD. RODs I, II, and III were completed, which cleared 37 sites from the enclave and BRAC excess property. The Army completed a finding of suitability to transfer (FOST) for 4,617 acres of CERFA-uncontaminated acreage.

In FY00, presumptive remedies through non-time-critical removal actions were implemented at two landfill sites. The Army initiated cap construction at landfill site 1 and completed the cap for landfill site 32. The Army split FOST II into two parts (FOSTs II and III) because of regulator concern about possible contamination from adjacent property. FOST II was completed for 1,453 acres, and FOST III, for 973 acres. These FOST were transmitted to EPA and the Arkansas Department of Environmental Quality for final concurrence. The installation completed RODs IIID and IV for NFA, clearing an additional eight sites on enclave and excess property. The installation initiated cleanup of two additional environmental sites when land within the enclave was designated for transfer to the public.

FY01 Restoration Progress

The Army completed FOST IV, freeing an additional 83 acres for transfer. Construction of the cap at Landfill 1 was completed. The installation completed characterization and remediation of two sites, Pesticide Handling Area Building 477 (FTCH-042), and the HW Satellite Accumulation Point Building 460 (FTCH-21E), ahead of schedule with soil removals at both sites. The soil removal action at FTCH-21E was completed on an accelerated schedule by using innovative sampling and monitoring technology. In addition, the installation used an expedited site characterization approach whereby the direction of fieldwork is developed on a day-by-day basis from the results of data collected. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

The installation completed remedial fieldwork at landfill site 1. Fort Chaffee met its remedy-in-place date through excellent partnering with regulators, innovative field techniques and adept use of streamlining processes.

ROD V and FOST V were delayed to accommodate accelerated schedules for sites FTCH-21E and FTCH-042.

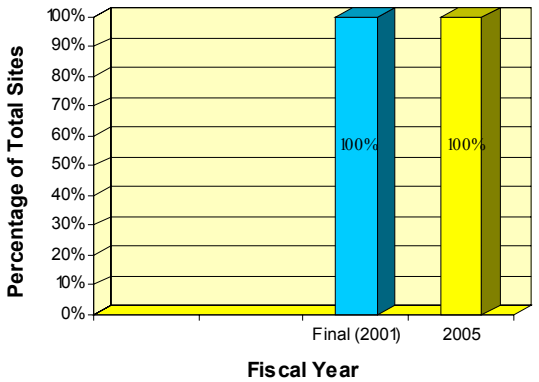
Military Munitions Response Program Progress

The U.S. Army Corps of Engineers completed an archive search report (ASR) for the installation in FY99. A No Further DoD Action explosive safety submission was issued as a result of the ASR.

Plan of Action

- Close out all sites, generating all final closeout reports in FY02
- Develop land use control implementation plan in FY02
- Complete FOST V in FY02
- Complete proposed plan V and ROD V in FY02
- Complete groundwater monitoring plans for three sites in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Fort Crowder–Pools Prairie

Newton County, Missouri

NPL

FFID:	MO79799F034700	**IAG Status:**	None
Size:	42,786 acres	**Contaminants:**	VOCs, including TCE and carbon tetrachloride
Mission:	Served as World War II Signal Corps training facility; Korean conflict–era reception station; disciplinary barracks; Atlas missile rocket engine manufacture and testing facility; and jet engine and component manufacture and repair facility	**Media Affected:**	Groundwater and soil
		Funding to Date:	$0.7 million
		Estimated Cost to Completion (Completion Year):	$36.4 million (FY2040)
		Final RIP/RC Date for ER Sites:	FY2007
		Final RIP/RC Date for MMRP Sites:	FY2040
HRS Score:	50.00; placed on NPL in October 1999	**Five-Year Review Status:**	NA

Progress to Date

The former Fort Crowder is located near the city of Neosho, in southwestern Missouri. The Army used the property during World War II as a Signal Corps training center and again during the Korean conflict as a reception station. In 1956, approximately 3,650 acres was transferred to the Air Force for the establishment of Air Force Plant 65. Approximately 4,358 acres was leased to the Missouri National Guard (MNG) for a training facility, known as Camp Crowder. The remainder of the property reverted to ownership by private parties and local municipalities and now is used for farming, light industry, an airport, a landfill, and a community college.

Air Force Plant 65 operated until 1968 as an Atlas missile manufacturing and testing facility, and later, until 1980, as a jet engine overhaul and testing facility. Plant 65 was a government-owned, contractor-operated facility. The operating contractors were the Rocketdyne Division of North American Aviation (now Boeing) and Continental Aviation (now Allegheny Technologies).

The U.S. Army Corps of Engineers (USACE), Kansas City District, began investigating the property as a FUDS project in 1991. A site investigation was completed in 1993, and a remedial investigation (RI) began in 1995.

Trichloroethene (TCE) was discovered in private wells near the property in 1995. USACE, Kansas City District, provided bottled water to residents with affected wells, and initiated a potentially responsible party (PRP) project to determine the extent of the DoD's liability. The Missouri Department of Natural Resources and EPA Region 7 conducted further investigations on the property and tested additional wells on adjacent property.

EPA named Boeing, Allegheny Technologies, DoD, Premier Turbines, and MNG as PRPs in 1997. The PRPs negotiated an administrative order on consent for a removal action in 1998. The Pools Prairie site was placed on the National Priorities List (NPL) on October 18, 1999. A portion of Air Force Plant 65 is located on the federally owned Camp Crowder. The National Guard Bureau is directing a removal action on this property and is planning an RI and a feasibility study.

USACE, Kansas City District, signed two administrative orders on consent for removal actions in 1999. A private PRP's execution of a removal action to connect approximately 225 residents to city water was monitored. A second removal action by a private PRP was monitored as well.

In FY00, USACE contributed to planning the technical aspects of an additional source removal action. USACE also continued to monitor and review the successful execution of two administrative orders.

FY01 Restoration Progress

The PRP group completed planning and began an alternate dispute resolution (ADR) process. USACE continued technical and legal support to the Department of Justice (DOJ). It also monitored and reviewed work performed by PRPs and participated in planning a pilot study.

USACE participated in negotiating an administrative order on consent for a removal action. EPA has not been successful in gaining participation by all the PRPs; negotiations are ongoing. Planning and negotiations for an RI were delayed, pending EPA facilitation of these negotiations.

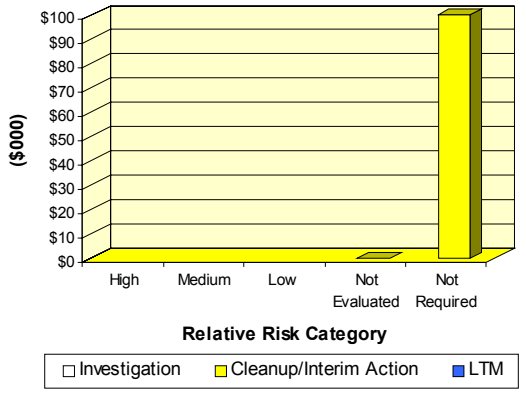
Military Munitions Response Program Progress

The estimate for funding of a future military munitions response project was reviewed and updated. An engineering evaluation and cost analysis is scheduled for approximately FY18.

Plan of Action

- Provide technical and legal support to DOJ in FY02
- Participate in and conclude an ADR process in FY02
- Continue planning and negotiations for a removal action and an RI in FY02–FY03
- Monitor execution of outstanding administrative orders on consent by private PRPs in FY02–FY03

FY02 Funding by Phase and Relative Risk



Fort Devens

Fort Devens, Massachusetts

NPL/BRAC 1991

FFID:	MA121402027000	**Funding to Date:**	$112.5 million
Size:	9,930 acres	**Estimated Cost to Completion (Completion Year):**	$32.8 million (FY2015)
Mission:	Support Reserve component training	**Final RIP/RC Date for BRAC-ER Sites:**	FY2005
HRS Score:	42.24; placed on NPL in November 1989	**Final RIP/RC Date for MMRP Sites:**	FY1993
IAG Status:	IAG signed in November 1991	**Five-Year Review Status:**	Completed/Planned
Contaminants:	VOCs, heavy metals, petroleum products, PCBs, pesticides, herbicides, and explosive compounds		
Media Affected:	Groundwater and soil		

Progress to Date

In July 1991, the BRAC Commission recommended that Fort Devens close and establish a Reserve enclave. In FY96, the Army closed Fort Devens, replacing it with the Devens Reserve Forces Training Area, which assumed the remaining Army mission.

Environmental investigations since FY89 identified 77 sites with 324 BRAC areas of concern (AOCs), including landfills, vehicle and equipment maintenance and storage yards, the Defense Reutilization and Marketing Office scrap yard, motor pools, and underground storage tanks (USTs). Investigations revealed soil and groundwater contamination.

In FY94, the commander formed a Restoration Advisory Board (RAB) and a BRAC cleanup team. In FY95, the installation began several interim actions, including removal of USTs and installation of a soil vapor extraction system. The installation also completed two Records of Decision (RODs) for the Shepley's Hill Landfill Operable Unit (OU) and the Barnum Road Maintenance Yards OU. An environmental impact study was completed, and an enhanced preliminary assessment identified 10 areas requiring evaluation.

In FY96, the Army and regulators signed a ROD for the South Post impact area. The installation completed radiological surveys for 98 percent of affected buildings on the property.

In FY97, the Army and EPA approved a no further action (NFA) ROD for AOC 63AX. The installation completed the remedial investigation (RI), feasibility study (FS), and proposed plan (PP) for AOCs 32 and 43A. It also completed the explosive ordnance survey.

In FY98, the Army and EPA approved a ROD for AOCs 32 and 43A. Supplemental RIs began at AOC 50 and AOC 57. The installation completed an interim removal action at AOC 69W and issued a PP for addressing landfill consolidation and remediation at seven sites.

In FY99, the installation signed two RODs for eight sites. The Army transferred an 836-acre parcel to the U.S. Fish and Wildlife Service and issued a revised PP for AOC 69W. The Army also conducted removal actions at AOCs 32, 43A, and 57 and installed microwells for long-term monitoring at Shepley's Hill Landfill. An NFA decision document (DD) was signed for the former maintenance shop. Final RI/FSs for AOCs 50 and 57 were initiated.

In FY00, the installation completed RIs for AOCs 50 and 57. The Army made the final decision to remediate the landfill sites, with on-site consolidation, and began remedy construction. The installation completed the final draft report for the 5-year reviews of all ROD sites. An NFA DD was signed for AOC 61Z, a former waste accumulation area. The installation conducted a removal action at AOC 17, the former railroad house. At present, 421 acres remain under lease pending environmental remediation. In FY97-FY99, the Army conveyed 222 acres to the U.S. Bureau of Prisons; 22 acres to the U.S. Department of Labor; and 836 acres to the U.S. Fish and Wildlife Service.

FY01 Restoration Progress

The installation completed the FS and the ROD for AOC 57. Construction continued on the permanent on-site landfill, but weather delayed placement of the clay base. The draft FS for AOC 50 was completed. The installation obtained approval of the final 5-year review report. Excavation of AOCs 9, 11, 40, and 41 and SAs 12 and 13 for transport to a permanent landfill began. The Army signed an environmental services cooperative agreement with the local redevelopment authority for housing demolition in the former military housing areas and the removal of pesticide-contaminated soil. The cost of completing environmental restoration at this installation increased significantly due to regulatory issues.

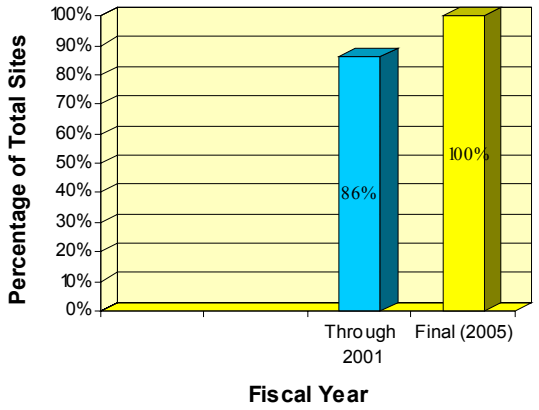
Military Munitions Response Program Progress

In FY93, an investigation for the possible UXO at training areas and ranges was conducted. No ordanance was found during the investigation.

Plan of Action

- Complete final FS and ROD for AOC 50 in FY02
- Complete construction of permanent on-site landfill in FY02
- Complete excavation of AOCs 9, 11, 40, and 41 and SAs 12 and 13 and transport to permanent landfill in FY02
- Complete removal of pesticide-contaminated soil underneath demolished military housing in FY02
- Initiate a ROD amendment or explanation of significant differences for the Shepley's Hill Landfill in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Fort Dix

Pemberton Township, New Jersey

NPL

FFID:	NJ221042027500	**Funding to Date:**	$8.1 million
Size:	31,065 acres	**Estimated Cost to Completion (Completion Year):**	$10.5 million (FY2007)
Mission:	Provide training and Reserve support	**Final RIP/RC Date for ER Sites:**	FY2007
HRS Score:	37.40; placed on NPL in July 1987	**Five-Year Review Status:**	Completed/Planned
IAG Status:	Federal facility agreement signed in September 1991		
Contaminants:	Heavy metals, POLs, chlorinated solvents, and PCBs		
Media Affected:	Groundwater, surface water, sediment, and surface and subsurface soil		

Progress to Date

Remedial investigation (RI) of the Fort Dix sanitary landfill began in FY79, leading to installation of groundwater monitoring wells around the perimeter. EPA placed the landfill on the National Priorities List (NPL) in FY87. A Record of Decision (ROD) for the landfill was signed in FY91. The remedial design (RD) was developed in FY92. In FY93, the installation performed site characterization and field screening at 16 other sites, including storage areas; underground storage tanks (USTs); landfills; lagoons; impact areas; and an incinerator with suspected heavy metals, petroleum/oil/lubricants, and chlorinated solvents. USTs and associated contaminated soil were removed from seven sites.

In FY94 and FY95, the installation built a cap over the sanitary landfill and began long-term management (LTM) of groundwater, surface water, and sediment. In FY95, the BRAC Commission recommended realignment of Fort Dix, with retention of some land and facilities for Reserve component training. In FY96, the Fort Dix Commander formed a Restoration Advisory Board.

In FY97, the installation completed an RI at the Magazine 1 (MAG-1) area. In FY98, it completed an environmental investigation and an alternatives analysis of 19 sites and began RI at 9 other environmental restoration (ER) sites. The Army completed an RI, a feasibility study (FS), and a natural attenuation (NA) addendum for golf course sites and completed the FS for the MAG-1 site. The installation removed 80 abandoned USTs and began evaluating the contaminated sites. It also started an RI/FS for the New Egypt Armory site.

In FY99, an RI/FS began for the range landfill, the ANC-2 landfill, and leaking UST sites with residual contamination. The Army Environmental Center conducted an independent technical review of five ER sites. The sanitary landfill was added to EPA's Construction Complete list. The preliminary remedial action closeout report and the 5-year review report for the landfill were completed.

In FY00, Fort Dix petitioned EPA to remove the sanitary landfill from the NPL and reduce the scope of monitoring as a result of data showing the remedy is place has been effective. Four abandoned USTs were removed, and investigations of 30 abandoned-UST sites with residual contamination began. Fort Dix completed final proposed plans (PPs) and draft RODs for the ANC-9 landfill and the golf course pesticide mixing and storage area. Draft no further action (NFA) PPs for several areas were submitted for review. The installation completed the final RI and the draft FS for the Armament Research and Development Center (ARDC) test facility. EPA agreed to remove the leaking tank sites at the golf course, the area north of Dogwood Lake, the taxi stand, and the pathological waste landfill site from CERCLA investigation, with investigation continuing under state regulations.

FY01 Restoration Progress

The Army reached an agreement with regulators on a remedy for the taxi stand site, Property Disposal Office (PDO) landfill, EPIC-8 landfill, ARDC site, and MAG-1 site. The installation completed site investigations of residual contamination at Buildings 7061 and 5390, and New Egypt Armory. Monitoring continued at the sanitary landfill and the installation awaits EPA response concerning its removal from the NPL. PPs for the EPIC-8 landfill and PDO landfill were completed. The installation received an NFA letter and a covenant not to sue from the New Jersey Department of Environmental Protection (NJDEP) for five former hydrocarbon spill sites, two motor pool spill sites, the MAG-2 area, and the old sewage treatment plant site. It also reached agreement with EPA that the pathological waste landfill is not a CERCLA site; NJDEP agreed to the site's cleanup under state solid waste regulations. EPA also agreed that PCB transformers are not CERCLA sites; they will be evaluated under NJDEP spill regulations. An NFA PP for the hazardous waste storage area, Bivouac 5 wash rack, paint shop, and PCB transformer storage area was completed. The estimated cost of completing environmental restoration at this installation has changed significantly because of technical and regulatory issues.

EPA, NJDEP, and Pinelands Commission are reviewing a PP for monitored NA for the range impact area 4400 Area spill site. No USTs required removal. Investigation of previously removed USTs was completed.

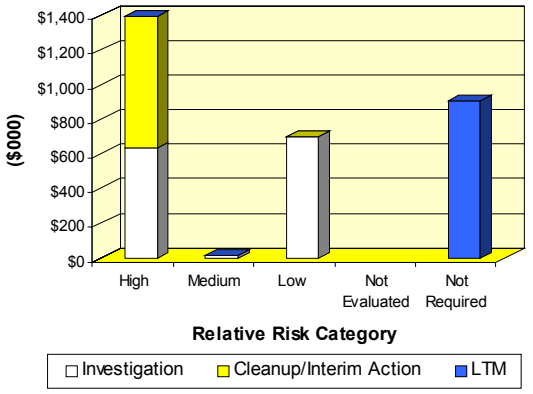
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Start RD and remedial action at taxi stand site and RI/FS at pesticide control shop in FY02
- Complete RI/FS for New Egypt Armory and UST remedial report for Building 5390, and 7061 and the golf course leaking tank site in FY02
- Complete ROD for EPIC-8 landfill, PDO landfill, hazardous waste storage area, paint shop, PCB transformer storage area, Bivouac 5 wash rack, MAG-1 area, golf course pesticide mixing area, boiler blow-down area, ARDC site, and fire training area in FY02
- Continue pursuing deletion of Fort Dix sanitary landfill from NPL in FY02

FY02 Funding by Phase and Relative Risk



FFID:	NJ221402027500	**Funding to Date:**	$30.6 million
Size:	31,065 acres	**Estimated Cost to Completion (Completion Year):**	$0 million (FY2001)
Mission:	Provide training and Reserve support	**Final RIP/RC Date for BRAC-ER Sites:**	FY2001
HRS Score:	NA	**Final RIP/RC Date for MMRP Sites:**	FY2000
IAG Status:	Federal facility agreement signed in 1991	**Five-Year Review Status:**	NA
Contaminants:	Chlorinated solvents, heavy metals, PCBs, and asbestos		
Media Affected:	Groundwater, surface water, sediment, and surface and subsurface soil		

Progress to Date

In July 1995, the BRAC Commission recommended realignment of Fort Dix and transfer of excess property.

In FY95, the installation formed a BRAC cleanup team. It then began developing a BRAC cleanup plan (BCP) and an environmental baseline survey (EBS). It also began archive searches to investigate the possible presence of radioactive materials and conducted a polychlorinated biphenyl (PCB) survey. In FY97, the BCP, the EBS, the PCB survey, and an investigation of BRAC underground storage tank (UST) sites were completed.

In FY98, the installation began a hazardous waste site inspection (SI), a PCB sampling investigation, and an asbestos sampling survey. It also completed a radiological site investigation and finished asbestos abatement for one BRAC building. An Environmental Condition of Property (ECOP) document was completed for a transfer of property to Air Force. The installation completed the final BRAC UST report.

In FY99, the installation completed a radiological archive search and the final ECOP documents for transfer of property to the Air Force, Navy, Coast Guard, and Federal Bureau of Prisons. The installation also initiated an SI at Facility 5675.

In FY00, the installation completed draft investigation reports for two potential UST sites. The asbestos abatement for BRAC Building 8401 was completed. The installation completed an asbestos survey and prepared a draft EBS for additional BRAC property (Walson Hospital complex). A draft EBS report and a draft ECOP document for additional BRAC property (Buildings 5651, 5653, and 5654) were completed.

FY01 Restoration Progress

Sampling results from an investigation at Facility 5675 demonstrated that groundwater remediation is not needed. The installation conducted an asbestos inspection and sampling survey of Walson Hospital complex Buildings 5250, 5251, and 5252. Asbestos abatement at the Walson Hospital heating plant and mid-state correctional facility (MSCF) Building 8401 was completed.

The Army excavated a geophysical survey anomaly in Parcel 31 (U.S. Coast Guard Area); no USTs or hazardous substances were encountered. The installation submitted the draft investigation and UST closure report (Parcel 48) for regulatory review. It removed the two USTs identified by the investigation and performed soil sampling. Supplemental EBSs were prepared for the Walson Hospital complex and property to be transferred. The installation completed the ECOP document for property transfer of Buildings 5651, 5653, and 5654.

Changes in work scope caused a delay in PCB remediation. Additional PCB delineation sampling at the MSCF Building 8401 was delayed because the extent of contamination was greater than anticipated. The delay in the completion of the EBS delayed the asbestos abatement of Walson Hospital complex Buildings 5250, 5251, and 5252. Remediation delayed the preparation of the U.S. Army Forces Command's (FORSCOM's) separate FOSTs for the Walson Hospital complex and the MSCF.

The Restoration Advisory Board met regularly and reviewed technical documents. The installation maintains a partnership with regulatory authorities.

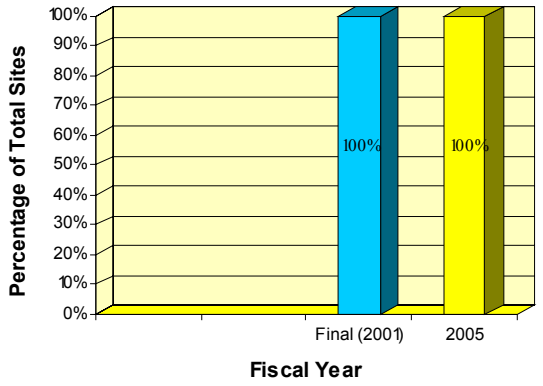
Military Munitions Response Program Progress

In FY01, a final SI report for ordnance for the MSCF Building 8401 was completed and no ordnance was foun. An inventory of closed, transferred, and transferring ranges is under way.

Plan of Action

- Complete asbestos abatement at the Walson Hospital complex (Building 5250) in FY02
- Complete investigation and related reports for Walson Hospital complex, Parcels 23 and 48, and Facilities 5656 and 5675 in FY02
- Conduct investigation and remediation for PCBs at the Air Mobility Warfare Center and the MSCF in FY02
- Prepare separate FOSTs for the Walson Hospital complex and the MSCF (preparation by FORSCOM) in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Fort Eustis

Newport News, Virginia

NPL

FFID:	VA321372032100	**Contaminants:**	Petroleum products, PCBs, VOCs, pesticides, and heavy metals
Size:	8,228 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	House the Army Transportation Training Center; provide training in rail, marine, and all other modes of transportation involved in amphibious operations	**Funding to Date:**	$45.4 million
		Estimated Cost to Completion (Completion Year):	$2.1 million (FY2010)
		Final RIP/RC Date for ER Sites:	FY2006
HRS Score:	50.00; placed on NPL in December 1994	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement under negotiation		

Progress to Date

Fort Eustis is home to the Army Transportation Center, where officers and enlisted soldiers receive education and training in all modes of transportation, aviation maintenance, logistics and deployment doctrine, and research.

Investigations have identified 27 sites at the installation, including landfills, underground storage tanks (USTs), pesticide storage areas, range and impact areas, and surface impoundments. The migration of contaminants from some sites to creeks and estuaries, and the potential migration through surface water and the upper water table to the James River, are the greatest concerns at the installation. Analysis of samples indicated the presence of polychlorinated biphenyls (PCBs), pesticides, polyaromatic hydrocarbons, and lead in surface water and sediment.

In FY90, a remedial investigation began for four sites near estuaries. In FY92, the Army completed a preliminary assessment and a site inspection (SI) at eight more sites, where suspected soil contaminants included fuel and oils, pesticides, and volatile organic compounds (VOCs).

In FY94, the installation completed interim remedial actions for removal of contaminated soil at the Felker Airfield Tank Farm and a waste-oil storage tank site. It also completed cleanup at the two landfills. In FY95, the state approved a corrective action plan (CAP) involving installation of pneumatic pumps and passive skimmers to recover petroleum products from groundwater at the helicopter maintenance area UST site.

In FY96, the installation established an administrative record and set up information repositories at three local libraries. The state regulatory agency approved another CAP for installation of a free-product recovery system at the gas station UST site. The Agency for Toxic Substances and Disease Registry published a final public health assessment that indicated that the Fort Eustis National Priorities List (NPL) site poses no apparent risk to public health. In FY97, Fort Eustis capped a pesticide storage yard with asphalt, limiting exposure to contaminated soil.

In FY98, the Army constructed a methane soil vapor extraction system at one closed landfill and installed a methane collection trench at another closed landfill. EPA reviewed three RI reports for four estuary sites, a fire training area, a buried sludge site, and a pesticide storage area. The installation completed investigation and field efforts at Eustis Lake and the pesticide storage area and submitted the reports to EPA and the state.

In FY99, the installation completed the capping of contaminated sediment at the 3-acre lake. Two aerators were installed in the lake to enhance water quality by increasing dissolved oxygen levels. The installation placed advertisements in two local newspapers to determine interest in the formation of a Restoration Advisory Board (RAB). Very limited interest was generated, and the installation determined that a RAB was not necessary.

In FY00, the installation completed removal of over 6,000 tons of PCB-contaminated sediment from Bailey Creek. The installation also prepared draft work plans for the fire training area and Bailey Creek. It also updated the community relations plan.

FY01 Restoration Progress

The installation developed a Web site, which provides the local community with cleanup information through access to administrative record documents. The free-product recovery system is operating at two UST sites. Long-term monitoring of groundwater and surface water at one closed landfill and operation of a methane vapor extraction system at another closed landfill continue. Fort Eustis completed a feasibility study (FS) and proposed plan, held a public meeting, and completed a Record of Decision (ROD) for the pesticide storage area. The installation held two technical review committee meetings off post that were open to the public. Once again, no interest was expressed in the formation of a RAB. A deep monitoring well was installed, and sediment, soil, and groundwater samples were collected at the fire training area. Sediment, fish, and clam samples were collected in Bailey Creek for human health and ecological risk assessments. The cost of completing environmental restoration at this installation increased significantly due to technical and regulatory issues.

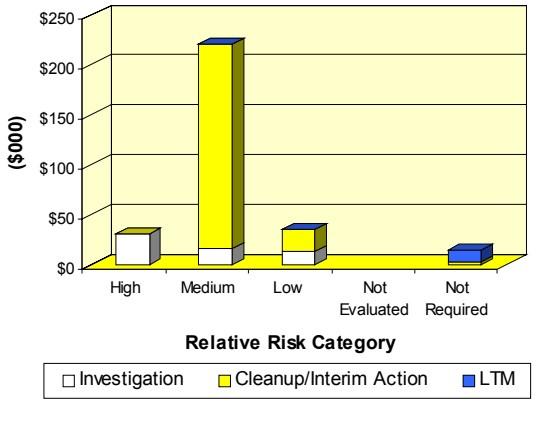
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete FS for Brown's Lake and Bailey Creek and SI for Third Port UST site in FY02
- Develop alternatives for regrading landfill cap in FY02
- Complete ROD for three sites in FY02 and FY03
- Conduct additional sampling, develop risk assessment, and submit reports to EPA and the state for Felker Airfield Tank Farm and Mislead Island Creek in FY02 and FY03
- Conduct cleanup at pesticide storage yard oil and sludge holding pond in FY02 and FY03

FY02 Funding by Phase and Relative Risk



Fort George G. Meade

Fort Meade, Maryland

NPL/BRAC 1988

FFID:	MD321022056700	**Funding to Date:**	$69.1 million
Size:	13,680 acres	**Estimated Cost to Completion (Completion Year):**	$4.1 million (FY2004)
Mission:	Serve as administrative post for various DoD tenants	**Final RIP/RC Date for BRAC-ER Sites:**	FY2002
HRS Score:	52.0; placed on NPL in July 1998	**Final RIP/RC Date for ER Sites:**	FY2003
IAG Status:	Federal facility agreement under negotiation	**Final RIP/RC Date for MMRP Sites:**	FY2004
Contaminants:	Heavy metals, petroleum hydrocarbons, VOCs, and UXO	**Five-Year Review Status:**	Planned
Media Affected:	Groundwater and soil		

Progress to Date

In December 1988, the BRAC Commission recommended closing the Fort Meade range and training areas and realigning Fort Meade as an administrative center. The National Security Agency is the primary tenant. In July 1995, the commission recommended additional realignment, reducing Kimbrough Army Community Hospital to a clinic.

In FY81, Fort Meade began investigating its sanitary landfill. In 1996, the Army closed the landfill and capped the remaining cells. Investigations, beginning in FY88, identified several areas of concern, including landfills, petroleum and hazardous waste storage areas, aboveground storage tanks (ASTs), underground storage tanks (USTs), asbestos-containing material in structures, and unexploded ordnance (UXO).

In FY90, the installation removed contaminated soil and mapped groundwater contamination at the former post laundry. In FY91, Fort Meade removed a leaking AST and established a pump-and-treat system. The Army shut down the system in 1997.

In FY92, groundwater contamination from a leaching acid neutralization pit at a former battery shop was discovered. The installation removed the building and pit and has monitored the groundwater since the removals. In FY94, the installation removed approximately 120 drums of petroleum products from a former storage and salvage yard. The installation also formed a BRAC cleanup team in FY94 and a Restoration Advisory Board (RAB) in FY95.

In FY96, a preliminary assessment discovered groundwater contaminated by fuel oil and substances from former spill areas. The Army transferred the site to the Architect of the Capitol. Fort Meade also began an installationwide ecological risk assessment.

In FY97, the installation completed an environmental baseline survey, a finding of suitability to lease (FOSL), and cleanup at the medical waste site.

In FY98, a site inspection (SI) revealed a former incinerator site. EPA placed Fort Meade on the National Priorities List (NPL) in July 1998. The installation issued a final remedial investigation (RI) report for four sites and a draft RI for two sites.

In FY99, Fort Meade began quarterly monitoring at the post laundry. The installation completed capping of the active sanitary landfill and completed RIs and feasibility studies (FSs) at the trap and skeet range and the incinerator site. No further action (NFA) is planned at the incinerator site. The installation completed the proposed plan (PP), a final RI report for two sites, and two NFA Records of Decision (RODs) for Tipton Airfield. EPA delisted the Tipton Airfield parcel from the NPL in November 1999. Between FY99 and FY00, two rounds of soil and groundwater investigations were completed at the solid waste management unit (SWMU) locations. In FY00, the installation completed the PP and NFA ROD for the clean fill dump.

FY01 Restoration Progress

The installation continued RI/FS activities and discussions with the regulatory community concerning the ordnance demolition area (ODA). Long-term monitoring began at the Tipton Airfield and the clean fill dump site. Initial screening of SWMUs throughout the installation continued. The installation has almost completed its site management plan (SMP) and federal facility agreement (FFA). The cost of completing environmental restoration at this installation increased significantly due to technical issues.

The PP and decision document (DD) for the ODA were delayed by regulatory discussions. Closeout of SWMUs was delayed for completion of additional investigations. The post laundry FS and ROD were not completed as planned due to significant EPA comments on the risk assessment and the priority given to off-post contamination.

Formal partnering, stakeholder involvement, and regular RAB meetings continued in order to expedite decision making and increase public and stakeholder participation.

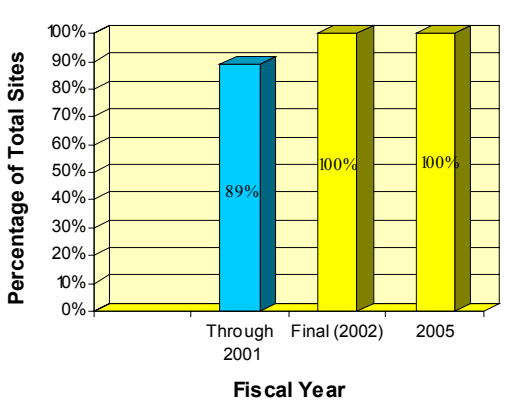
Military Munitions Response Program Progress

The Military Munitions Response Program is new this fiscal year. Previously, response activities related to UXO have occurred in support of reuse. The installation conducted UXO surveys in FY94 and FY95 and completed a UXO risk assessment. It also completed a UXO project at Tipton Airfield in FY97. It completed the engineering evaluation and cost analysis and action memorandum for ordnance and explosives at the Patuxent Research Refuge North Tract. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete RI/FS, PP, and DD for ODA in FY02
- Continue long-term monitoring activities at the clean fill dump and Tipton Airfield in FY02
- Initiate follow-up investigations of SWMUs requiring further action in FY02
- Begin site closeout process for NFA SWMUs in FY02
- Complete the SMP and the FFA in FY02
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



FFID:	AK021452215500	**Media Affected:**	Groundwater and soil
Size:	640,000 acres	**Funding to Date:**	$27.0 million
Mission:	Support Army training, cold weather testing, and cold weather training	**Estimated Cost to Completion (Completion Year):**	$1.1 million (FY2001)
HRS Score:	NA	**Final RIP/RC Date for BRAC-ER Sites:**	FY2001
IAG Status:	None	**Final RIP/RC Date for ER Sites:**	FY2000
Contaminants:	POLs, pesticides, solvents, and radionuclides	**Five-Year Review Status:**	Planned

Progress to Date

In July 1995, the BRAC Commission recommended realignment of Fort Greely. The Army will complete realignment by FY02. Site types at the installation include underground storage tanks (USTs), fire training areas, and a radioactive wastewater line from a decommissioned nuclear power plant. Soil contaminants from leaking USTs and associated piping include petroleum/oil/lubricants (POLs). Pesticides, such as DDE and DDT, also have contaminated soil at the installation.

To reduce environmental risk, the installation conducted interim actions, including removal of USTs and POL-contaminated soil. The installation also used land treatment, bioventing, and low-temperature thermal desorption to remediate contaminated soil.

During FY95, the community formed a local redevelopment authority to develop a land reuse plan for the installation. In FY96, the commander formed a Restoration Advisory Board (RAB) and a BRAC cleanup team (BCT) to investigate and ensure cleanup of all areas of concern as designated by an environmental baseline survey (EBS).

In FY97, the Army held a kick-off partnering session with regulators to provide early buy-in to field investigations. The BCT produced a BRAC cleanup plan (BCP), concurred in the designation of CERFA-clean acreage, and set cleanup levels for the radioactive wastewater line removal. In FY98, no further action (NFA) documents were prepared for four parcels.

In FY99, the installation removed all contaminated soil and debris associated with the radioactive wastewater pipeline. Remedial efforts began at several EBS sites. A metals background study was initiated. The Army drilled nine monitoring wells associated with old landfills and large petroleum spills. Investigations were started at two sites, and removal actions began at two other sites.

In FY00, the installation completed version 2 of the BCP and finished removal actions at Sites 30 and 102 (thermally treated soil). Site investigations of all sites were completed. The BCT signed NFA documents for 33 of the 37 eligible sites. The installation closed the dilution well after quarterly sampling demonstrated clean groundwater and completed the confirmation sampling of the nuclear waste pipeline corridor.

FY01 Restoration Progress

The installation completed final confirmation sampling of the radioactive debris storage yard. All remaining soil and debris were shipped from the installation. The BCT resolved all regulatory issues regarding alternate cleanup levels for the migration-to-groundwater pathway. The installation initiated long-term monitoring of groundwater. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria.

A delayed final soil leachability model report delayed the planned BCT signature on the remaining NFA parcels. Planned decision documents and institutional controls were not completed due to delays in completing a risk evaluation report.

The RAB reviewed regulatory agency and community documents and provides advice to the installation.

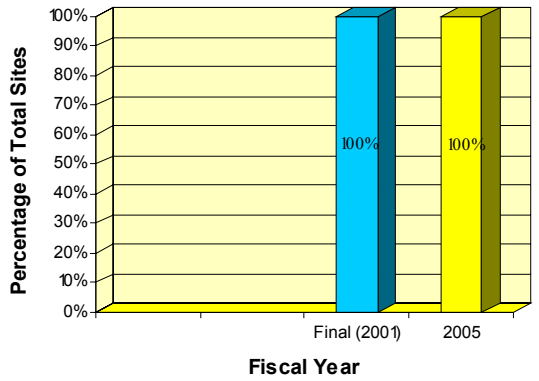
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Obtain BCT signature on remaining eligible parcels in FY02
- Issue decision documents and implement institutional controls in FY02
- Obtain concurrence on proposed plans and site closeout in FY02
- Continue long-term monitoring of groundwater in FY02 and FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Fort Lewis
Logistics Center

Fort Lewis, Washington

NPL

FFID:	WA021402050600	**IAG Status:**	IAG signed in January 1990
Size:	86,176 acres	**Contaminants:**	VOCs, PCBs, heavy metals, waste oils and fuels, coal liquefaction wastes, PAHs, solvents, and battery electrolytes
Mission:	Provide I Corps Headquarters; plan and execute Pacific, NATO, or other contingency missions; provide troop training, airfield, medical center, and logistics	**Media Affected:**	Groundwater and soil
		Funding to Date:	$54.2 million
HRS Score:	42.78 (Landfill No. 5); placed on NPL in July 1987; delisted from NPL in May 1995; 35.48 (Logistics Center); placed on NPL in November 1989	**Estimated Cost to Completion (Completion Year):**	$34.6 million (FY2041)
		Final RIP/RC Date for ER Sites:	FY2007
		Five-Year Review Status:	Completed/Planned

Progress to Date

Two Fort Lewis sites, Landfill No. 5 and the Logistics Center, were placed on the National Priorities List (NPL) after investigations revealed soil and groundwater contamination. Additional sites include landfills, disposal pits, contaminated buildings, abandoned ranges, and spill sites. Primary contaminants include organic solvents, heavy metals, and fuels.

The Army and regulators signed a Record of Decision (ROD) for the Logistics Center NPL site in FY90. In FY92, a ROD for the Landfill No. 5 NPL site was signed specifying no further action and long-term management. EPA removed Landfill No. 5 from the NPL in FY95. At Landfill No. 2, the source of contamination for the Logistics Center, an interim remedy consisting of two groundwater extraction and treatment systems became operational in FY95.

A ROD was signed in FY94 for Landfill No. 4. The remedial action (RA) for contaminated soil at the solvent-refined coal plant was completed in FY97. A 5-year review was completed in FY97 for the Logistics Center ROD. In FY98, EPA approved the use of innovative technologies at the Logistics Center to accelerate cleanups and reduce program life-cycle costs. The Landfill No. 4 air-sparging and soil vapor extraction system operated for 2 years and was shut down in FY99.

In FY99, planning began on a treatability test for six-phase soil heating at Landfill No. 2. The clay cap at the polychlorinated biphenyl (PCB) dump site was inspected and found serviceable, and a new fence was installed around the area.

In FY00, the Army completed site closeout at Vancouver Barracks. An old explosive ordnance disposal site remedial investigation (RI) was completed. The installation continued groundwater sampling at Landfill No. 1 and Landfill No. 4 and source investigation at Landfill No. 2. The contract to remove containerized sources (drums of trichloroethene (TCE)) from Landfill No. 2 was completed. The Logistics Center lower aquifer was investigated for TCE contamination. The installation's contractor completed the old explosive ordnance disposal site remedial investigation (RI).

FY01 Restoration Progress

Removal of 29,000 pounds of TCE in drums (Logistics Center contaminating source) and 250 tons of RCRA waste occurred during the Landfill No. 2 vadose zone source removal project. The engineering evaluation and cost analysis report for Landfill No. 2 and Logistics Center remediation was completed. The Army is using Stratiprobe tools and sonic drilling to characterize source contamination in the unconfined aquifer at Landfill No. 2. The two pump-and-treat systems at the Logistics Center continued operation. Innovative biotechnology treatment of dense nonaqueous phase liquid was approved by EPA Region 10. The monitoring of Landfill No. 4 contaminants (TCE) continued. A 5-year review is planned. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

The installation completed RI of Miller Hill and Engineer Bluff former firing ranges and forwarded it to state the regulators. Restoration Advisory Board solicitation was delayed due to Web site construction for the Installation Restoration Program.

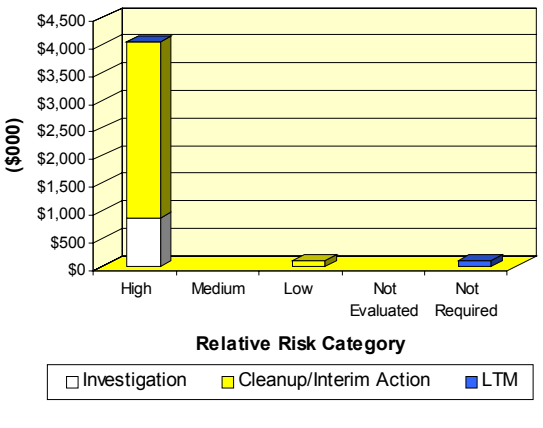
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete 5-year review in FY02
- Complete Phase II RI at Landfill No. 2 in FY02
- Complete thermal specifications for TCE source removal in vadose zone for contractor bid in FY02
- Complete six lower aquifer wells to assist in monitoring lower aquifer TCE plume FY02
- Operate two pump-and-treat systems at the Logistics Center for containment and treatment of upper aquifer TCE plume in FY02

FY02 Funding by Phase and Relative Risk



Fort McClellan

Anniston, Alabama

BRAC 1995

FFID:	AL421372056200	**Media Affected:**	Groundwater and soil
Size:	41,191 acres	**Funding to Date:**	$86.5 million
Mission:	House the U.S. Army Chemical School, the U.S. Army Military Police School, and the DoD Polygraph Institute	**Estimated Cost to Completion (Completion Year):**	$142.0 million (FY2020)
		Final RIP/RC Date for BRAC-ER Sites:	FY2007
HRS Score:	NA	**Final RIP/RC Date for ER Sites:**	FY2004
IAG Status:	None	**Final RIP/RC Date for MMRP Sites:**	FY2014
Contaminants:	VOCs, SVOCs, pesticides, explosives, metals, UXO, radioactive sources, and non-stockpile chemical material	**Five-Year Review Status:**	NA

Progress to Date

In July 1995, the BRAC Commission recommended closure of most Fort McClellan facilities. The Army will retain the minimum essential land and facilities for a Reserve component enclave and essential facilities for auxiliary support of the chemical demilitarization operation at Anniston Army Depot.

Studies since FY90 have identified the following site types at Fort McClellan: maintenance facility areas; training and range areas; underground storage tanks (USTs); landfills; incinerators; storage handling areas for toxic and hazardous materials; and chemical agent and radioactive substance training, storage, and disposal areas. Trichloroethene and 1,1,2,2-tetrachloroethane are the main contaminants affecting groundwater.

From FY90 to FY92, the installation conducted an enhanced preliminary assessment, which identified 67 sites, and performed site inspections (SIs) at 17 of these sites. In FY95, the installation conducted remedial investigation (RI) activities at 12 of the 17 sites. EPA concluded that environmental conditions at Fort McClellan did not warrant its placement on the National Priorities List. In addition, the Army established information repositories at three locations, and the community formed a local redevelopment authority.

In FY96, the Army completed required remediation of the hot cell for closeout of the Nuclear Regulatory Commission (NRC) license and formed a BRAC cleanup team and a Restoration Advisory Board. In FY97, the installation screened 11 sites for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs). It also removed 11 USTs, replaced 13 USTs, and conducted a postwide background metals survey to supplement the RI report.

In FY98, the installation completed BRAC cleanup plan version l and an environmental baseline survey. The installationwide work plan and a sampling and analysis plan were also completed.

In FY99, the installation completed fieldwork for 57 previously unevaluated parcels. The Army published a Record of Decision for its environmental impact statement in the *Federal Register*. It also performed removal actions for four indoor pistol ranges, and prepared a finding of suitability to lease (FOSL) for leasing 355 acres to the City of Anniston for parks and recreation.

In FY00, the installation completed a radiological historical site assessment for the eastern bypass. The U.S. Fish and Wildlife Service and Fort McClellan signed a memorandum of agreement, establishing natural and cultural resource management responsibilities for the undeveloped main post property. Thirty-three SIs for Category 7 parcels were completed. The Army conducted radiological release surveys for 28 radiological commodity storage sites. The installation conducted an engineering evaluation and cost analysis (EE/CA) to evaluate potential cleanup methods and associated costs for remediating lead-contaminated soil and sediment at three small-arms ranges and one skeet range. USTs were removed from a former gas station. The installation completed a FOSL for leasing 2,387 acres to the Joint Powers Authority. The Army approved a finding of suitability to transfer (FOST) for 1,971 acres; the first transfer of 1,297 acres occurred on December 12, 2000.

FY01 Restoration Progress

The Army Environmental Center (AEC) technical assistance team reviewed the draft fill area EE/CA report. The team presented its findings and recommendations on the EE/CA and received regulatory comments. Decommissioning activities at Rideout Field burial mound began. The Environmental Condition of Property determination for two federal-to-federal transfers – 19.3 acres to the Department of Health and Human Services and 64.27 acres to the Department of Justice–was approved. The BRAC cleanup team BCT reviewed and approved four FOSTs for 301 acres. The cost of completing environmental restoration at this installation increased significantly due to technical and estimating criteria issues.

Completion of the fill-area EE/CA was delayed, pending reconciliation of the regulator comments.

Military Munitions Response Program Progress

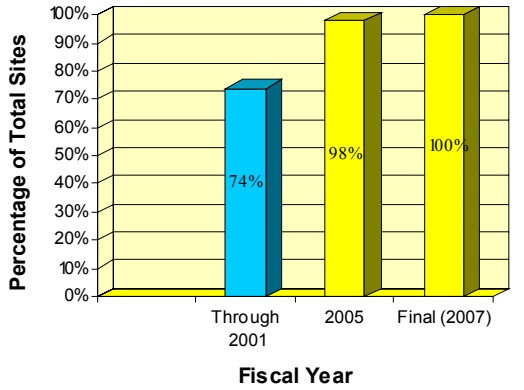
The Military Munitions Response program is new this fiscal year. Previously, response activities related to unexploded ordnance (UXO) have occurred in support of reuse. In FY99, the installation completed a draft EE/CA work plan for UXO-contaminated properties. It also submitted the final chemical warfare material site safety submission and EE/CA work plan to the DoD Explosives Safety Board. In FY00, the installation completed the ordnance and explosives EE/CA for the eastern bypass. EE/CA efforts are under way for four UXO areas in FY01.

An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete decommissioning activities at Rideout Field burial mound in FY02
- Complete EE/CA for 11 fill areas in FY02
- Complete EE/CA for chemical warfare material sites in FY02
- Continue EE/CA on UXO-contaminated areas through FY03
- Complete site investigations for historical ranges in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Fort Monmouth

Monmouth County, New Jersey

BRAC 1993

FFID:	NJ221382059700	**Media Affected:**	Groundwater and soil
Size:	1,350 acres	**Funding to Date:**	$19.7 million
Mission:	House the Headquarters of the Army Communications and Electronics Command	**Estimated Cost to Completion (Completion Year):**	$4.6 million (FY2008)
		Final RIP/RC Date for BRAC-ER Sites:	FY2001
HRS Score:	NA	**Final RIP/RC Date for ER Sites:**	FY2001
IAG Status:	None	**Five-Year Review Status:**	NA
Contaminants:	VOCs, petroleum hydrocarbons, heavy metals, and pesticides		

Progress to Date

In July 1993, the BRAC Commission recommended realignment of Fort Monmouth. This realignment resulted in the closure of the Evans Area; transfer of part of the Charles Wood Area to the Navy; and relocation of personnel from the leased space, Evans Area, and Vint Hill Farms Station to the main post and Charles Wood Area. To speed transfer, the Army divided the Fort Monmouth BRAC property into three parcels: the Charles Wood Housing Area and two parcels in the Evans Area.

Studies identified 37 sites in three areas. In FY94, an enhanced preliminary assessment of the BRAC parcels identified 32 sites in the Evans Area and 8 sites in the Olmstead Housing Area. Prominent sites are landfills, underground storage tanks (USTs), hazardous waste storage areas, polychlorinated biphenyl (PCB) spill areas, asbestos areas, and radiological storage and spill areas. Contaminants in groundwater and soil include chlorinated solvents, volatile organic compounds (VOCs), and heavy metals.

In FY94, the installation formed a BRAC cleanup team and completed version 1 of the BRAC cleanup plan. In FY95, the Army determined that one site in the Evans Area and two sites in the Olmstead Housing Area required no further action.

In FY96, the installation completed site inspections (SIs), the final SI report for all sites, and a radiological site characterization work plan. The installation's land reuse plan and the survey for asbestos-containing material were also completed. In addition, the installation formed a Restoration Advisory Board. In FY97, the Army developed remediation plans for nine sites. A draft finding of suitability to transfer (FOST) and a draft updated environmental baseline survey report were prepared for the early conveyance of land north of Laurel Gully Brook.

In FY98, the Army drafted a second supplemental environmental assessment and a finding of no significant impact. A supplemental SI report was completed. The installation completed radiological soil sample analysis at the antenna field in Parcel E.

In FY99, the installation decommissioned the sewage treatment plant site and removed underground neutralization tanks. Archaeological field investigations for Parcels A, B, and E uncovered human remains, believed to be Native American in origin. The Army initiated contact with the federally recognized tribes, in accordance with the Native American Graves Protection and Repatriation Act.

In FY00, the Army completed a preliminary groundwater model in Parcels A, B, C, and D. It completed removal actions for metals- and PCB-contaminated soil at the metal plating facility. It also assessed the PCB spill site and issued a contract for the site's remediation. All cleanup activities at UST sites and mercury remediation for the sewer system were completed. The installation completed the FOST for Parcel E.

FY01 Restoration Progress

The installation completed radiological disposal actions and obtained Nuclear Regulatory Commission unrestricted use approval for the remainder of the Evans Area. The Army completed removal action reports for the metal plating facility, mercury remediation sites, and UST sites. No Further Action (NFA) letters were issued by the New Jersey Department of Environmental Protection (NJDEP) for these projects. PCB soil contamination was detected in the area adjoining the electrical substation (Building 9112) and the adjacent residential properties. A time-critical removal action began. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

The Army is preparing installationwide decision documents for all areas requiring environmental evaluation. Mercury remediation/demolition and reporting activities for Buildings 9045 and 9401 were completed, and an NFA determination was issued by NJDEP. The Army also received NJDEP approval of the Groundwater Classification Exception Area application. EPA determined that an Operating Properly and Successfully ruling was not required. The installation received approval of environmental documentation and the FOST and BRAC disposal support package for Parcels A, A' and E. The Army completed the historic and cultural resources memorandum of agreement with the New Jersey State Historic Preservation Office and the Advisory Council on Historic Preservation.

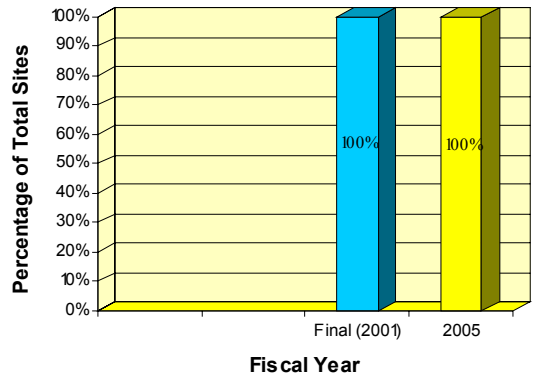
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete remediation of PCB soil contamination in FY02
- Complete the chemical storage remediation project impacting Parcels C and D of the Evans Area in FY02
- Convey 162 acres of Evans Area in FY02
- Complete Parcel F and Parcel G environmental and conveyance documentation for scheduled transfer/sale in FY02
- Complete Parcel C and D environmental and conveyance documentation for scheduled transfer in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Fort Ord
Presidio of Monterey

Marina, California

NPL/BRAC 1991

FFID:	CA921372067600	**Contaminants:**	VOCs, petroleum hydrocarbons, heavy metals, and pesticides
Size:	27,827 acres	**Media Affected:**	Groundwater and soil
Mission:	Housed 7th Infantry Division (Light); supports the Defense Language Institute Foreign Language Center, currently at the Presidion of Monterey, California	**Funding to Date:**	$234.0 million
		Estimated Cost to Completion (Completion Year):	$327.9 million (FY2033)
		Final RIP/RC Date for BRAC-ER Sites:	FY2008
HRS Score:	42.24; placed on NPL in February 1990	**Final RIP/RC Date for MMRP Sites:**	FY2022
IAG Status:	Federal facility agreement signed in July 1990	**Five-Year Review Status:**	Completed/Planned

Progress to Date

From 1917 to 1994, Fort Ord served primarily as a training and staging installation for infantry units. In July 1991, the BRAC Commission recommended closing Fort Ord and moving the 7th Infantry Division (Light) to Fort Lewis, Washington. The Army closed Fort Ord in September 1994.

In FY87, a hydrogeological investigation identified the Fort Ord sanitary landfills as potential sources of contamination for the city of Marina's backup drinking water supply. In FY89, a remedial investigation and feasibility study (RI/FS) began for the landfills. In FY90, studies identified 61 sites, including landfills, underground storage tanks, motor pools, family housing areas, a fire training area, an 8,000-acre impact area, and an ordnance and explosives (OE) disposal area. The installation discovered that petroleum hydrocarbons and volatile organic compounds (VOCs) were migrating into groundwater.

In FY94, the installation converted its technical review committee (TRC) to a Restoration Advisory Board (RAB) and formed a BRAC cleanup team (BCT). In FY95, the installation constructed a groundwater treatment system at the post landfill and completed a Record of Decision (ROD) for Fritzsche Army Air Field (FAAF) Operable Unit (OU) 1.

In FY96, the Army completed proposed plans (PPs) and a ROD for the RI sites and remediation of lead-contaminated soil at the Beach Ranges Site 3. In FY97, the BCT completed a ROD for remedial sites, an interim ROD for Site 3, and an explanation of significant differences for OU2.

In FY98, the installation completed waste removal at six sites and closure and cap construction for 143 acres of the 150-acre landfill. It also consolidated over 300,000 cubic yards of waste into OU2 and recycled over 750,000 pounds of lead from Site 3. The installation completed removal actions at Sites 34 and 39a for clean closure. In FY99, installation constructed a groundwater pump-and-treat system for Site 12. The installation reestablished the TRC and dissolved the RAB but developed alternative public outreach initiatives to provide for public input. A 5-year review was conducted for OU1.

In FY00, the installation completed the construction enhancement for the OU2 groundwater systems. The installation completed Fort Ord's first economic development conveyance for the transfer of 245 acres. The Army completed a finding of suitability for early transfer (FOSET) for the FAAF OU, which was approved by the EPA. The FAAF OU transfer will mark the Army's first use of the Department of Toxic Substances Control's (DTSC's) Covenant to Restrict Use of Property, which was developed and signed by the Army and DTSC.

FY01 Restoration Progress

The installation continued off-post groundwater investigation and operation of the three groundwater treatment facilities. The results of the investigation further defined the limits of a carbon tetrachloride contamination plume. The installation prepared and reviewed two FOSETs and one finding of suitability to transfer and completed a 5-year review for OU1. RCRA clean closure of the Defense Reutilization and Marketing was completed and certified by the State of California. The cost of completing environmental restoration at this installation increased significantly due to regulatory issues.

Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. Previously, clearance of OE has occurred in support of reuse. In FY98, the EPA and California EPA concurred on the Phase I engineering evaluation and cost analysis and action memorandum 1 for the 12 No Action OE sites. In FY99, the installation began a multiphase RI/FS for OE, and the Army established a Strategic Management Analysis Requirement Technology team to address OE cleanup. In FY00, the PP for Track 0 of the four-part OE RI/FS was published. The installation completed a 350-acre OE removal action to support the early transfer of the Del Rey Oaks parcel. An OE investigation in support of the York School lease was also completed.

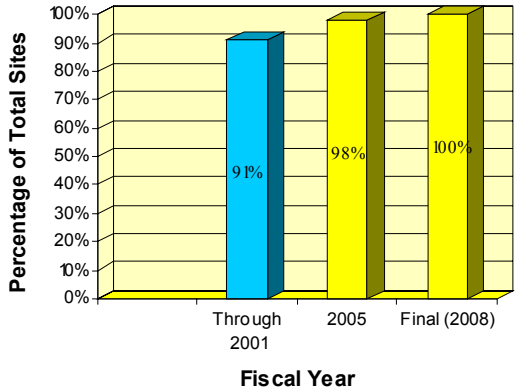
In FY01, a site security/school safety program plan for OE sites which has been in place for several years, was formally documented. The installation issued an ordnance detection and discrimination study in support of the OE RI/FS for the entire installation. The non-time-critical removal actions for priority OE sites (where burning vegetation is required) were delayed as a result of a recent federal court decision. Fort Ord must complete a RI/FS and sign a ROD before OE cleanup in certain areas can proceed. The ROD for no further action regarding OE investigation (Track 0) and continued development of the three remaining parts of the four-phase OE RI/FS-associated studies were delayed due to regulatory issues.

An inventory of closed, transferred and transferring ranges will be developed in the future.

Plan of Action

- Begin pilot study for Site 39 lead cleanup in FY02
- Complete surface clearance of OE open (nonvegetated) areas to address imminent threats to human health and the environment in FY02
- Issue the PP for the Track 1 OE RI/FS in FY02
- Sign the ROD for the Track 0 OE sites in FY02
- Conduct installationwide 5-year review in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Fort Pickett

Blackstone, Virginia

BRAC 1995

FFID:	VA321402070500	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	45,160 acres	**Funding to Date:**	$7.8 million
Mission:	Provide training support for active and Reserve component units of all Services	**Estimated Cost to Completion (Completion Year):**	$3.3 million (FY2002)
		Final RIP/RC Date for BRAC-ER Sites:	FY2002
HRS Score:	NA	**Final RIP/RC Date for MMRP Sites:**	FY1997
IAG Status:	None	**Five-Year Review Status:**	NA
Contaminants:	Petroleum hydrocarbons, metals, pesticides, PCBs, dioxins, and furans		

Progress to Date

In July 1995, the BRAC Commission recommended closure of Fort Pickett except for essential training areas and facilities used for Reserve components. The installation closed on September 30, 1997. The Army transferred training and maneuver areas and part of the cantonment area to the National Guard (42,297 acres). The remaining area (2,863 acres) has been designated as excess BRAC property.

Site types include underground storage tanks (USTs), petroleum spills, old salvage yards, motor pools, and firefighter training areas. Petroleum hydrocarbons are the primary contaminants affecting groundwater, surface water, sediment, and soil.

During FY95, the local community formed a local redevelopment Authority (LRA). In FY96, the Army formed a BRAC cleanup team and a Restoration Advisory Board. The LRA developed a land reuse plan. The installation performed an environmental baseline survey (EBS).

In FY96, the Army performed an environmental assessment and a remedial investigation (RI) of the 5-mile gasoline pipeline. The installation began a survey of all radioactive materials stored on the installation to support closeout of the Nuclear Regulatory Commission license.

In FY97, the installation completed an asbestos survey for buildings in the excess area and the removal, replacement, and disposal of polychlorinated biphenyl (PCB)–containing transformers. It also completed an unexploded ordnance archive search and report. Fort Pickett initiated a multisite preliminary assessment and site inspection for the BRAC excess property.

In FY98, the installation initiated feasibility studies at the former firefighter training area and the former service station. The Army completed findings of suitability to lease for Blackstone Army Airfield and support facilities and for eight buildings and the surrounding property. Abatement of friable asbestos was completed in all buildings in the excess area.

In FY99, the BRAC environmental office completed a time-critical removal action at the former salvage yard. The Army conducted seven small removal actions for CERCLA-regulated wastes, effectively serving as final remedial actions at these locations.

In FY00, the installation completed a finding of suitability to transfer and a supplemental EBS document for 2,792 acres of the excess property. The installation also transferred 1,608 acres of excess property to the Nottoway County LRA. In addition, it completed draft RIs for the former firefighter training area, the former storage compound, and the former service station and a Phase I RI for the former salvage yard. The installation also achieved closure of the underground gasoline pipeline and closed all of the petroleum release sites adjacent to the pipeline after completion of several site assessment reports.

FY01 Restoration Progress

The installation completed a site characterization report for Former Fuel Station #1 and began a quarterly monitoring program at the site. It also completed the RIs at the storage compound, the firefighter training area, and the former service station. The draft Phase II RI at the salvage yard was completed, and the RI at the motor pools began. The installation completed four removal actions at isolated contamination areas and a removal action at the firefighter training area.

The Army assigned 1,182 acres to the U.S. Department of Education for a public benefit conveyance.

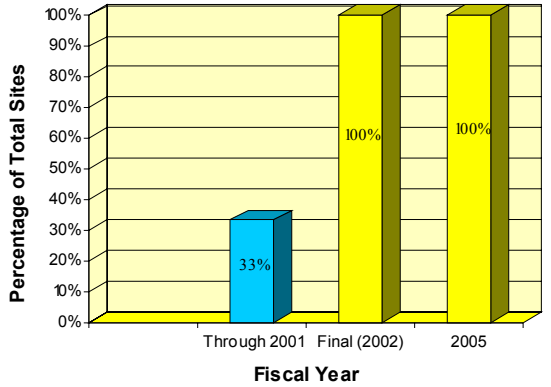
Military Munitions Response Program Progress

In FY97, the installation conducted an investigation for presence of UXO. No ordnance was found during the investigation.

Plan of Action

- Complete RI at motor pools (EBS-115 and EBS-124) in FY02
- Award guaranteed fixed price remediation contract to complete restoration work at salvage yard in FY02
- Complete proposed plans and decision documents for the former service station and the firefighter training area in FY02
- Transfer 10 former environmental sites (approximately 12 acres) to the Nottoway County LRA and Virginia Polytechnic Institute and State University, including 5 small removal action sites, 3 family housing units, the former service station, and the firefighter training area, in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Fort Richardson — *Anchorage, Alaska* — NPL

FFID:	AK021452215700	**Funding to Date:**	$73.1 million
Size:	64,470 acres	**Estimated Cost to Completion (Completion Year):**	$20.1 million (FY2008)
Mission:	Support and sustain forces assigned to U.S. Army Alaska	**Final RIP/RC Date for ER Sites:**	FY2007
HRS Score:	50.00; placed on NPL in May 1994	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement signed in December 1994		
Contaminants:	White phosphorus, PCBs, heavy metals, POLs, solvents, dioxins, chemical agents, UXO, explosives, and pesticides		
Media Affected:	Groundwater and soil		

Progress to Date

Since World War II, Fort Richardson has supported combat unit training and operations. These activities contaminated soil, surface water, sediment, and groundwater with petroleum/oil/lubricants (POLs), solvents, and polychlorinated biphenyls (PCBs). Parts of a 2,500-acre wetland serving as an ordnance impact area are contaminated with white phosphorus. Preliminary assessments and site inspections ending in FY93 identified 38 contaminated sites. Removal actions addressed PCB contamination in soil, underground storage tank sites, two drum burial sites, and soil contaminated with volatile organic compounds and chemical agents. The Army treated POL-contaminated soil by thermal desorption.

In FY95, the installation conducted remedial investigations (RIs) for Operable Unit (OU) A (for three potential source areas) and OU B (former disposal site for chemical agent identification sets and other small munitions). The Army installed groundwater monitoring wells in the disposal area. The installation conducted a focused treatability study (TS) of dredging white phosphorus contamination at OU C, the Eagle River Flats Area, and completed a preliminary source evaluation in OU D at nine potential source areas.

During FY96, the installation began a pond draining and pumping TS for OU C. Evaluations of petroleum sites were completed, and more than 20 sites were closed with negotiated alternate cleanup levels.

In FY97, the installation completed a TS for heat-enhanced soil vapor extraction (SVE) at OU B. Records of Decision (RODs) were signed for OUs A and B. All OU A sites were transferred to a State of Alaska POL agreement, and were thus determined to be no further action (NFA) sites under CERCLA.

In FY98, the installation completed a postwide risk assessment and incorporated the results into the OU D RI and feasibility study (FS) report. The installation signed a ROD for OU C and also drained six ponds at Eagle River Flats, thereby reducing white phosphorus levels. A six-phase soil heating system was used to remove chlorinated solvents from soil at the Poleline Road Disposal Area. The Army remediated two stockpiles of solvent-contaminated soil using heat-enhanced SVE. The installation formed a Restoration Advisory Board (RAB) and held the first public meeting.

In FY99, the Army drained six ponds at OU C and started the RI/FS for OU D.

In FY00, the Army, the Alaska Department of Environmental Conservation, and EPA signed the OU D ROD. Ten of 12 OU D sites were determined to require NFA. Two sites (Building 35-752 and a burial site discovered during investigation of OU D) were recommended for further investigation under a new OU. This new OU, OU E, contains two sites. The installation used ground-penetrating radar to delineate and identify potential areas of contamination in the OU E sites.

FY01 Restoration Progress

A review of all data collected for OU B showed that heat-enhanced SVE had significantly reduced contamination at the site, so that no additional active treatment was required. The OU B and OU C remedies are operational and functional and remedial action (RA) reports with exit strategies were started, with the goal of achieving construction complete status. The installation conducted pre-RI investigations (geophysical studies and groundwater sampling) at OU E sites and developed the RI/FS management plan.

The RAB met quarterly and went on a site visit to OU C.

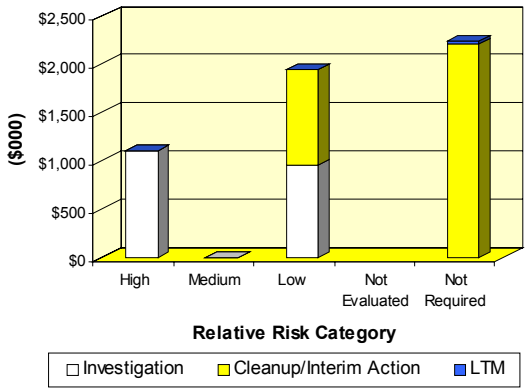
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Begin RI for OU E during FY02
- Complete exit strategy and RA report for OU C and OU B in FY02
- Achieve construction complete status for OU B and OU C in FY02
- Develop a scope of work and perform the 5-year review in FY02
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk



Fort Riley

Junction City, Kansas

NPL

FFID:	KS721402075600	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	100,656 acres	**Funding to Date:**	$57.4 million
Mission:	Training, readiness, and deployability, headquarters for three brigades; mobilize and deploy active and Reserve component units	**Estimated Cost to Completion (Completion Year):**	$28.9 million (FY2012)
		Final RIP/RC Date for ER Sites:	FY2011
		Five-Year Review Status:	Under Way/ Planned
HRS Score:	33.79; placed on NPL in August 1990		
IAG Status:	IAG effective June 1991		
Contaminants:	Solvents, pesticides, and lead		

Progress to Date

Environmental studies from FY74 through FY86 identified a former pesticide storage facility, a dry cleaning facility and a closed landfill at Fort Riley. Additional sites include a former firing range, two former landfill areas, an open burning/open detonation (OB/OD) range, and a former fire training area.

The installation has identified five operable units (OUs): the Southwest Funston Landfill (OU1), the pesticide storage facility (OU2), the dry cleaning facility (OU3), the former fire training area (OU4), and the 354 Area solvent detection site (OU5). Groundwater contamination from OU4 extended off post. Each year, EPA and state regulators help develop the installation action plan (IAP).

Remedial investigation and feasibility studies (RI/FSs) began at OU1 and OU2 in FY91, and at OU3 in FY92. From FY94 to FY95, the installation stabilized the riverbank at OU1, conducted removal actions at OU2 and a former range site, and performed soil vapor extraction pilot tests at OU3 and OU4.

In FY96, the installation conducted soil investigations at OU4. In FY97, the Army obtained signatures on the final Records of Decision (RODs) for OU1 and OU2, which call for institutional controls. The RI was initiated for OU5, and cleanup of fuel-oil contaminated utility trenches in the 6200 Family Housing Area was completed.

In FY98, the Army submitted the draft proposed plan (PP) for OU3 to the regulators. The Army also completed the engineering evaluation and cost analysis (EE/CA) for OU4, which was followed by a public comment period and signing of the action memorandum (AM). An EE/CA for an early groundwater action at OU4 was also drafted. The installation completed decision memorandums for many No Action and No Further Action sites. It also completed an EE/CA and initiated the design for riverbank stabilization at Forsyth Landfill Area 2.

In FY99, the installation prepared the draft groundwater modeling report for the Camp Funston groundwater evaluation project and completed the RI/FS work plan for OU5. The Phase I RI field investigations for OU5 were expanded because ground water screening showed an additional source area upgradient of the planned study area. The installation completed an AM for Forsyth Landfill Area 2.

In FY00, the installation completed removal action construction for the Southeast Funston Landfill and incinerator. It also completed Forsyth Landfill Area 2 riverbank stabilization Phase I construction. The installation expanded investigations, performed data evaluation, and initiated a work plan addendum for OU5. The U.S. Geological Survey issued a water resources report on the groundwater modeling of the Kansas River Valley aided by the installation. The installation operated a free-product recovery pilot system near a tank farm. Direct-push screening technology, including soil gas sampling, soil sampling, and groundwater sampling with on-site analysis, was used to delineate the nature and extent of contamination at OU5.

FY01 Restoration Progress

The installation performed additional site screening at OU3 and, following consultation with regulators, reopened the RI/FS. The RI report for OU4 was approved in April 2001. The installation negotiated revised schedules with the regulators for OU3, OU4, and OU5 following the IAP development meeting in May. The Army initiated the first 5-year review, focusing on OU1 and OU2. The installation also initiated a new project to repair excessive settlement at OU1. The hot-spot removal for OU5 was deferred for completion of additional RI investigations. The installation began investigations at the petroleum/oil/lubricants tank farm; it deferred investigations at the abandoned gas line site due to scheduling conflicts. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

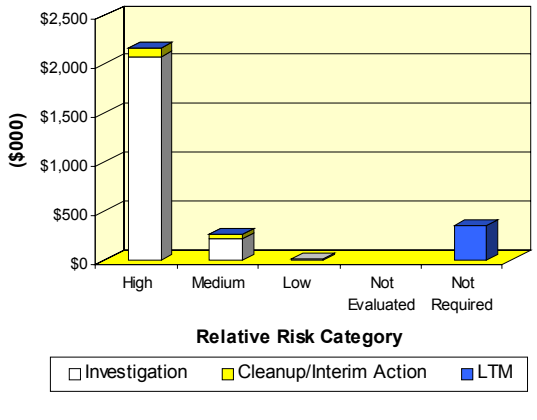
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete a work plan addendum and perform additional RI/FS investigations at OU3 in FY02
- Develop remedial action objectives and continue FS for OU4 in FY02
- Initiate an EE/CA for potential hot-spot removal at OU5 in FY02
- Complete first 5-year review, focusing on OU1, in FY02
- Complete RI addendum and initiate revised FS for OU3 in FY03
- Complete RI and initiate FS for OU5 in FY03

FY02 Funding by Phase and Relative Risk



FFID:	MD321022075800	**Funding to Date:**	$3.7 million
Size:	1,374 acres	**Estimated Cost to Completion (Completion Year):**	$8.5 million (FY2004)
Mission:	Supported Site R underground facility	**Final RIP/RC Date for BRAC-ER Sites:**	FY2004
HRS Score:	NA	**Final RIP/RC Date for ER Sites:**	FY1993
IAG Status:	None	**Final RIP/RC Date for MMRP Sites:**	FY2004
Contaminants:	UXO, heavy metals, and asbestos	**Five-Year Review Status:**	NA
Media Affected:	Groundwater and soil		

Progress to Date

In July 1995, the BRAC Commission recommended the closure of Fort Ritchie. The installation closed on September 30, 1998.

Environmental contamination at Fort Ritchie resulted from underground storage tanks (USTs), various firing ranges, and a skeet range. The ranges may contain unexploded ordnance (UXO). Housing units and administrative buildings contain asbestos and lead-based paint. Interim actions at the installation have included removal or replacement of USTs, relining of sewer lines with plastic, removal of falling lead paint and high-hazard friable asbestos, and closure of an incinerator. The Army also cleaned up a gasoline spill in FY92.

Measures to improve communication and decision making at the installation include forming a planning group, conducting meetings at the town hall, conducting quarterly in-progress reviews, establishing hot lines to answer employee questions, and relaying installation updates to the local news media.

In FY96, the Army formed a BRAC cleanup team to investigate and ensure cleanup of all areas of concern and allow transfer of all BRAC parcels. The commander also formed a Restoration Advisory Board. An environmental baseline survey was completed. The installations supporting U.S. Army Corps of Engineers (USACE) district negotiated a total environmental restoration contract for all restoration work. In FY97, the installation initiated hazardous, toxic, and radioactive waste sampling.

In FY98, the installation completed a revised draft site inspection report and BRAC cleanup plan version 2. In addition, the installation signed a programmatic agreement for historic district preservation and completed the environmental impact statement and a Record of Decision. The installation completed a finding of suitability to lease for all non-UXO property.

In FY99, the installation completed a groundwater monitoring report for the former gas station. The Army completed removal actions at 19 UST sites, the incinerator, and the Reservoir Road area to expedite cleanup. An engineering evaluation and cost analysis (EE/CA) was completed for the Directorate of Public Works (DPW) maintenance area and the incinerator area.

The installation developed work plans and sampling and analysis plans for the golf shop, lakes, and the motor pool. The Army made more than 300 acres of non-UXO property available for reuse.

In FY00, the installation began sampling in lakes to determine the human health risk associated with eating fish from the lakes. The removal action in the administrative area and the decision documents (DDs) for the autocraft shop and the former hospital area were completed.

FY01 Restoration Progress

The Army completed the DPW maintenance area removal action. The installation completed DDs for no further action on Operable Units 1, 2, 3, 7, 9, 11, and 15. The memorandum of agreement for property transfer was completed. Sampling results from the fish studies indicated that the risk associated with eating fish from the lakes is acceptable.

The Army completed the finding of suitability to transfer for all non-UXO property; however, the transfer was delayed due to legal issues and tenant disputes.

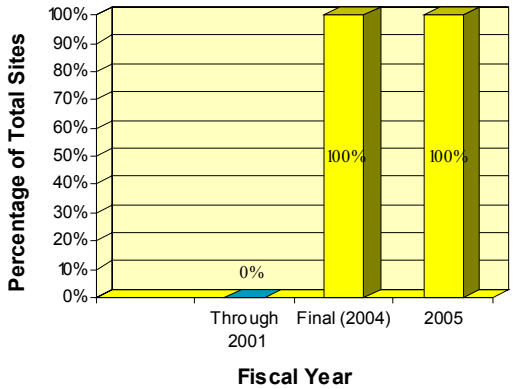
Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. Previously, response activities related to UXO have occurred in support of reuse. In FY97, the installation completed the UXO archive search with the help of USACE, St. Louis District. In FY98, the installation completed UXO sampling and the UXO interim characterization report. In FY99, a final EE/CA was published for the ordnance and explosives (OE) impact area. In FY00, the installation completed an OE action memorandum. In FY01, the installation completed an OE safety submission and work plan, and the removal action started. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete motor pool treatability study and develop corrective action plan (CAP) in FY02
- Continue OE removal action in FY02
- Complete burn pit delineation and develop CAP in FY02
- Resolve tenant disputes and transfer non-UXO property in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



FFID:	IL521402083800	**Media Affected:**	Groundwater and soil
Size:	715 acres	**Funding to Date:**	$55.4 million
Mission:	Provided administrative and logistical support; nonexcess property currently used as Army Reserve installation and Navy housing area	**Estimated Cost to Completion (Completion Year):**	$7.2 million (FY2001)
		Final RIP/RC Date for BRAC-ER Sites:	FY2001
		Final RIP/RC Date for MMRP Sites:	FY2001
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	Fuel hydrocarbons, PAHs, metals, and UXO		

Progress to Date

In December 1988, the BRAC Commission recommended closure of Fort Sheridan. The fort's missions have included cavalry and infantry training, Nike systems maintenance, and administrative and logistical support. Currently, the Army uses 104 acres for an Army Reserve installation.

Sites include landfills, pesticide storage areas, hazardous material storage areas, underground storage tanks (USTs), polychlorinated biphenyl–containing transformers, and unexploded ordnance (UXO) areas. Petroleum hydrocarbons, volatile organic compounds, and polyaromatic hydrocarbons affect groundwater and soil. Early actions have included removal of USTs and contaminated soil. Remedial investigation and feasibility study (RI/FS) activities, beginning in FY90, identified groundwater and soil contamination at seven landfills and coal storage areas.

In FY94, the installation completed an environmental baseline survey (EBS), and the commander formed a BRAC cleanup team (BCT).

FY95 actions included removal of petroleum-contaminated soil from Building 208. The Army approved a land reuse plan prepared by the local redevelopment authority. The installation formed a Restoration Advisory Board (RAB).

In FY96, the Army completed a time-critical removal action involving removal of contaminated sediment from Buildings 43 and 368. The Army removed several USTs on excess property, conducted asbestos abatement for excess-area buildings, and completed a radiological closeout survey.

In FY97, the Army completed the decision document (DD) for the Landfill 6 and 7 interim remedial action (IRA). It began removal action construction for the coal storage areas and a blacksmith shop on excess property. In addition, the installation prepared a RI, a proposed plan (PP), and a no action DD for Landfills 3 and 4. The Army conducted lead-based paint hazard abatement for excess property. It also completed a site-specific EBS for property transfers and leases.

In FY98, the installation prepared two RI reports for the remainder of the excess property.

In FY99, the installation prepared a no action DD for the remainder of the excess property and an EBS and finding of suitability to transfer for excess property. The RAB submitted a Technical Assistance for Public Participation (TAPP) application for installation approval.

In FY00, the installation completed the Phase III RI for nonsurplus property and prepared a no action DD for several study areas within that property. The FS for the remaining nonsurplus study areas is still under review. The TAPP contractor independently evaluated Landfill 6 and 7 IRA design plans as requested by the RAB.

FY01 Restoration Progress

The installation updated the nonsurplus DoD OU property RI report with Phase III RI data. The installation completed the FS for the DoD OU property study areas. The PP for these areas was not completed; however, the PP and DD were contracted out through a guaranteed fixed-price remediation (GFPR) contract. The Army also awarded contracts for the remdial designs (RD) and remedial actions (RA) for the DoD OU property. The Landfill 6 and 7 IRA cap designs were completed and a GFPR contract was awarded for the final RA for cap construction. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues.

The RAB met quarterly. The BCT plans to meet monthly to review technical issues and documents in order to complete restoration activities.

Military Munitions Response Program Progress

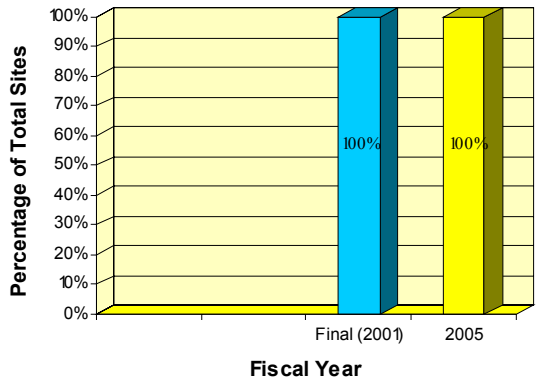
The Military Munitions Response program is new this fiscal year. Previously, clearance of UXO has occurred in support of reuse. In FY94, an installation survey identified UXO at the former artillery range at the north end of the fort. The installation performed a UXO clearance in FY96. In FY98, UXO clearance at the former rifle range was completed.

An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete the DoD OU FS, PP, and DD in FY02
- Complete the final Landfill 6 and 7 cap design and complete cap construction in FY02
- Initiate RD for Landfills 1 and 5 in FY02 and complete RA in FY03
- Initiate RD for CSA 3, CSA 4, VES 8, and the water tower in FY02 and complete RA in FY03
- Complete a 5-year review in FY04

BRAC Sites Achieving RIP or RC Per Fiscal Year



FFID:	NY221022089700	**Media Affected:**	Groundwater and soil
Size:	175 acres	**Funding to Date:**	$0.9 million
Mission:	Provided administrative and logistical support and housing; nonexcess property currently used as an Army Reserve enclave	**Estimated Cost to Completion (Completion Year):**	$0 million (FY1998)
		Final RIP/RC Date for BRAC-ER Sites:	FY1998
		Five-Year Review Status:	NA
HRS Score:	NA		
IAG Status:	None		
Contaminants:	Fuel hydrocarbons and metals		

Progress to Date

In 1995, the BRAC Commission recommended closing Fort Totten except for use as an enclave for the U.S. Army Reserve.

In 1989, the installation initiated a broad Installation Restoration program. The Army conducted several preliminary studies, including groundwater sampling at the former landfill area and soil sampling throughout the installation. The installation completed several interim remedial actions and removals. Actions include removing and replacing polychlorinated biphenyl–containing transformers, removing and replacing tanks, and removing petroleum-contaminated soil.

In FY96, the installation initiated the BRAC environmental restoration process by submitting a draft environmental baseline survey (EBS) report to the regulatory agencies for review. The Army performed an unexploded ordnance archive search, along with a limited field survey.

In FY97, the Army completed the EBS and began an environmental investigation. The BRAC cleanup team (BCT) expedited document review by implementing a 15-day review process. It also coordinated decision making with Restoration Advisory Board members. The Army identified 100 acres of CERFA-uncontaminated acreage at the installation for transfer.

In FY98, the Army completed cleanup of the Old Fort Area. The BCT determined that further monitoring of groundwater wells was unnecessary. The installation received regulatory concurrence on all CERFA-uncontaminated acreage.

In FY99, a programmatic agreement to address cultural resource issues was revised to reflect the comments of the State Historic Preservation Office, the New York City Landmarks Preservation Commission, the City of New York, the Department of Education, and the National Park Service. The Army completed a final environmental assessment for the disposal and reuse action, as required by NEPA, resulting in a finding of no significant impact.

In FY00, the installation removed 11 fuel oil underground storage tanks (USTs). Soil was sampled at five former UST sites to determine a further course of action. The installation began preparing a draft finding of suitability to transfer (FOST).

FY01 Restoration Progress

The Army and the City of New York completed the cultural resources programmatic agreement. Additional groundwater monitoring is required at five former UST sites, and additional soil removal is necessary at one former UST site. The installation prepared a draft FOST and requested public and regulatory review and comments. The installation is now in the process of incorporating comments into the final FOST.

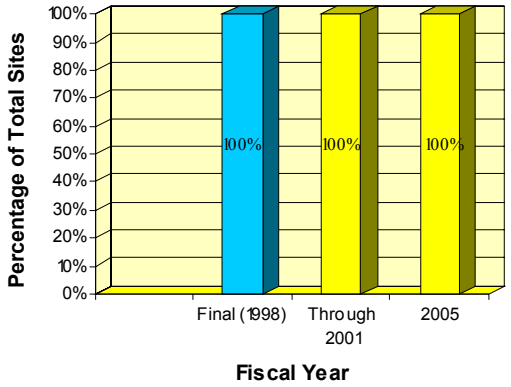
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete environmental documentation required for property transfer, consisting of the FOST and the base disposal support package, in FY02
- Continue groundwater monitoring at five former UST sites and complete soil removal at one former UST site in FY02
- Complete public benefit conveyance of the excess property through sponsoring federal agencies of the Departments of Education, Interior, and Health and Human Services in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Fort Wainwright

Fairbanks, Alaska

NPL

FFID:	AK021452242600	**Funding to Date:**	$115.7 million
Size:	917,993 acres	**Estimated Cost to Completion (Completion Year):**	$38.9 million (FY2009)
Mission:	Headquarters of the 6th Light Infantry Division	**Final RIP/RC Date for ER Sites:**	FY2003
HRS Score:	50.00; placed on NPL in August 1990	**Five-Year Review Status:**	Completed/ Planned
IAG Status:	Federal facility agreement signed in November 1991		
Contaminants:	POLs, heavy metals, solvents, pesticides, paints, UXO, ordnance compounds, and chemical agents		
Media Affected:	Groundwater and soil		

Progress to Date

Since World War II, Fort Wainwright has housed light infantry brigades, most recently the 1st Brigade, 6th Infantry Division (Light).

Studies at the installation identified a chemical agent dump, drum burial sites, underground storage tanks, a railroad car off-loading facility, an open burning and open detonation area, a former ordnance disposal site, solvent groundwater plumes, petroleum/ oil/lubricant (POL) plumes, and pesticide-contaminated soil. The installation divided sites into five operable units (OUs).

In FY93 and FY94, the Army removed drums and contaminated soil. In FY93, the installation completed site inspections at 30 sites, 15 of which required no further action. In FY94 and FY95, the installation conducted remedial investigation and feasibility study (FS) activities, including characterization of POL and solvent groundwater plumes and fieldwork for a former landfill. The chemical agent dump site was addressed separately under an interim Record of Decision (ROD).

In FY96, the Army and regulators signed RODs for groundwater contamination in OU3 and soil and groundwater contamination in OU4, and remedial design (RD) began. The Army completed a removal action at the fire training pits and closed the site.

In FY97, the installation completed the FS, proposed plan, and ROD for OU1 and initiated RD for OU1 and OU2. The Army and regulators signed the ROD for OU2. The installation completed the draft FS and initiated treatability studies (TSs), including installation of a horizontal well, at OU5.

In FY98, OU4 achieved construction complete status. The installation began additional TSs at OU5. Removal of an old retaining structure at OU5 led to removal and treatment of 650 cubic yards of contaminated soil and 1,700 gallons of product.

In FY99, the installation completed the remedial action report (RAR) for OU2 and achieved construction complete. An air-sparging (AS) curtain was installed at the river to treat potential contamination moving off post.

In FY00, the installation completed a draft RAR for OU1, obtained long-term management (LTM) plan agreements from the state on petroleum-contaminated sites, and completed draft operations and maintenance (O&M) reports for OU1, OU2, and OU4. The Chena River Aquatic Assessment Program continued remediation of petroleum-contaminated sites under state agreement and provision of bottled water to neighboring churches. The RD at OU5 was completed. The installation completed a draft RAR for OU5. Additional remediation systems were installed at OU5 to enhance Chena River protection. The installation also removed and recycled old AS/soil vapor extraction systems for reuse at other sites.

The installation established a technical review committee in FY90. In FY97, it established a Restoration Advisory Board, which meets quarterly.

FY01 Restoration Progress

The Army awarded a contract to continue the evaluation of Chena River. It also continued to negotiate an explanation of significant differences (ESD) for OU3 covering product recovery of fuel that was discovered after the signing of the ROD. Also related to the ESD, all source areas were found to be more extensive than anticipated and to require additional treatment systems. When the ESD is negotiated, the installation will complete draft RARs and O&M reports with exit strategies. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues.

The first 5-year review was completed. This review concluded that the remedies implemented to date are effective. The Army awarded a contract to complete a comprehensive exit strategy for all OUs. OU1 attained construction complete status. An O&M plan was approved by the restoration program managers, detailing LTM requirements and an exit strategy for this OU, resulting in a decrease in monitoring frequency.

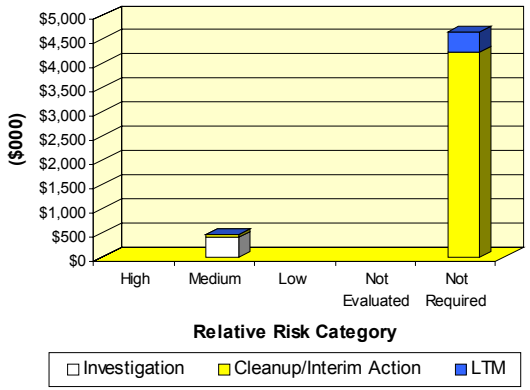
Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. Previously, response activities related to unexploded ordnance have occurred in support of the Installation Restoration program. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- In FY02, complete negotiations with EPA and the state regarding the OU3 ESD, complete a remedial action along with an O&M plan with an exit strategy, and achieve remedial action operations for areas of OU3 and systems evaluated for shutdown
- Update the land use control policy to meet the requirements in the RODs in FY02
- Operate and optimize product recovery at Birch Hill, using groundwater modeling to identify locations where off-post contamination is occurring, in FY02
- Complete a comprehensive exit strategy that can be used at all source areas in FY02

FY02 Funding by Phase and Reltative Risk

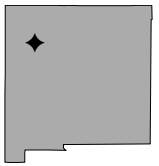


Fort Wingate

Gallup, New Mexico

BRAC 1988

FFID:	NM621382097400	**Contaminants:**	Explosive compounds, UXO, PCBs, pesticides, heavy metals, asbestos, and lead-based paint
Size:	22,120 acres	**Media Affected:**	Groundwater and soil
Mission:	Stored, shipped, and received ammunition components and disposed of obsolete or deteriorated explosives and ammunition	**Funding to Date:**	$32.6 million
		Estimated Cost to Completion (Completion Year):	$17.1 million (FY2005)
HRS Score:	NA	**Final RIP/RC Date for BRAC Sites:**	FY2005
IAG Status:	None	**Final RIP/RC Date for Non-BRAC Sites:**	FY2002
		Five-Year Review Status:	Planned



Progress to Date

In 1988, the BRAC Commission recommended closure of Fort Wingate. The installation was required to store, test, and demilitarize munitions. Restoration efforts have focused on land affected by ordnance-related wastes, unexploded ordnance (UXO), and other contaminants. The affected areas are the open burning and open detonation (OB/OD) ground, soil at a pistol range, pesticide-contaminated soil at Building 5, explosives-contaminated soil at the former bomb washout plant lagoons, polychlorinated biphenyl (PCB) contamination in Buildings 501 and 11, the former bomb washout plant (Building 503), and three unpermitted solid waste landfills.

In FY94, the installation formed a BRAC cleanup team and a Restoration Advisory Board. In FY95, the installation revised its BRAC cleanup plan. Remedial designs (RDs) were completed for the pistol range and for Building 5 soil.

In FY96, the installation conducted additional fieldwork for a remedial investigation (RI) and feasibility study and completed field investigations at the three unpermitted solid waste landfills. Groundwater contamination was detected at the former TNT washout plant.

In FY98, the installation completed RDs for the Group C and central landfills. The Army remediated PCB-contaminated soil at Buildings 536 and 537 and excavated and disposed of pesticide-contaminated soil from Building 5. The field program confirmed the extent of explosives contamination in groundwater and defined the northern extent of nitrite and nitrate groundwater contamination at the former TNT washout plant. The Army installed monitoring wells at the bomb washout plant site and the OB/OD unit. The installation demolished Buildings 501 and 503 and disposed of PCB-contaminated building materials.

In FY99, the installation completed asbestos abatement in 8 buildings and an assessment survey report on 29 buildings. It also completed an RD for Building 11, the investigation at the disposal pits at Functional Test Range (FTR) 1, and an installationwide surface water assessment. The installation developed and coordinated a draft application for a post-closure care permit with the Department of Interior (DOI) and submitted it for regulatory approval. The Army remediated the Group C and central landfills and completed the RD for the western landfill. Remedial actions (RAs) for the pistol range and the coal tar storage sites were also completed.

In FY00, the southern property received regulatory approval for No Further Action status. The installation was able to transfer the entire property to the Bureau of Land Management after a fence was built around the OB/OD site to control site access. The post-closure permit application was submitted to the regulators. The final report for a soil background study was submitted for regulatory review. The installation completed RAs for the Group C and central landfills.

FY01 Restoration Progress

The Army completed an RA at the western landfill. The RIs for Building 537 and Building 9 were completed. The installation conducted a complete investigation of septic tanks and completed a full investigation of Building 542. The installation awarded a contract for asbestos remediation at the administrative buildings. Partnering efforts are ongoing with the DoD, DOI, other federal facilities, and regulators. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues.

The remediation of the TNT pits was delayed, pending regulatory review and comments on the final RCRA facility investigation report. The remediation of PCBs in Building 11 was delayed by regulatory issues.

Military Munitions Response Program Progress

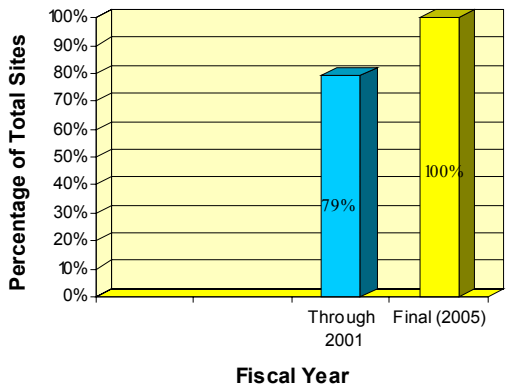
The Military Munitions Response program is new this fiscal year. Previously, clearance of UXO has occurred in support of reuse. In FY94, the Army conducted a removal action to clear UXO from Indian tribal lands adjacent to the OB/OD area. In FY99, the UXO clearance for the southeastern and southern side of the OB/OD site concluded.

An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete RD and RA for Building 537 in FY02
- Complete RA at FTRI 1 in FY03
- Complete RD at TNT leaching beds in FY03
- Complete RA at Building 530 in FY03
- Complete RD at RCRA burning ground soil in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Fort Worth JRB Naval Air Station
Carswell Air Force Base

Fort Worth, Texas **BRAC 1991**

FFID:	TX657002404200	**Contaminants:**	Waste oils, POLs, JP-4 jet fuel, solvents, TCE cleaners, and low-level radioactive material
Size:	2,579 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Housed 7th Bombardment Wing, 436th Training Squadron and Detachment 1, and 1365th Audiovisual Squadron	**Funding to Date:**	$37.8 million
		Estimated Cost to Completion (Completion Year):	$22.8 million (FY2026)
HRS Score:	NA	**Final RIP/RC Date for BRAC-ER Sites:**	FY2001
IAG Status:	None	**Final RIP/RC Date for ER Sites:**	FY2006
		Five-Year Review Status:	Planned

Progress to Date

In July 1991, the BRAC Commission recommended closure of Carswell Air Force Base. The installation closed in FY93 but was reopened in FY94 after the BRAC Commission recommended its realignment as a Joint Reserve base. The installation name is now Fort Worth JRB Naval Air Station, and all restoration activity is a shared responsibility between the Air Force Base Conversion Agency and the Air Force Center for Environmental Excellence (AFCEE).

Studies since FY84 have identified the following site types at the installation: underground storage tanks (USTs), landfills, fire training areas, waste burial areas, contaminated groundwater plumes, contaminated ditches, and oil-water separators. The primary contaminants are petroleum hydrocarbons in ground water, surface water, sediment, and soil, and trichloroethene (TCE) in groundwater and soil. The installation is a joint-use base, which uses both BRAC and Environmental Restoration Account (ERA) funds to reach cleanup goals.

In FY89, a RCRA facility assessment was conducted. In FY92, RCRA facility investigation (RFI) activities were completed for 13 solid waste management units (SWMUs). Contaminated soil was removed; remedial investigations (RIs) were completed for several sites; and cleanups were completed for a petroleum/oil/lubricant tank farm, a fire training area, and a stormwater ditch. Several USTs were removed, and the installation began a basewide RI for TCE-contaminated groundwater.

In FY94, an environmental baseline survey was completed. RFIs were completed at five sites in FY95. The installation removed or upgraded 23 USTs and abandoned in place a hydrant refueling system. The installation also formed a BRAC cleanup team and a Restoration Advisory Board.

In FY96, cleanup activities were completed at the maintenance yard at the golf course. In addition, the risk assessment was completed at Fire Training Area No. 2, which was later closed. The installation completed cleanup at 20 hazardous waste storage units, 23 oil-water separators, and a polychlorinated biphenyl transformer storage area.

In FY97, the RI for the unnamed stream project was completed. Risk assessments began at Landfills 4 and 5. The remedial design for the base service station was completed, a risk assessment was conducted, and closure of the service station was submitted for approval. No further action (NFA) at the service station is required.

In FY99, background studies were completed for all SWMUs and areas of concern. Some sites located within the active base were transferred to the ERA program. The maintenance yard and pesticide rinse area at the golf course and the recreational vehicle family camping site have received NFA approval letters.

In FY00, the installation completed interim remedial actions and submitted the draft RFI and closure report for Landfills 4, 5, and 8, and Waste Pile 7. Phase II investigations of the base sanitary sewer system were initiated. Housing areas were transferred to the local redevelopment authority (LRA). The installation partially funded a focused feasibility study (FFS) with Air Force Plant 4 to address the groundwater contamination in the golf course area.

FY01 Restoration Progress

The installation continued transferring sites located within the active base to the ERA program. It also received concurrence from regulatory agencies for NFA at 7 BRAC sites. No BRAC sites remain open at this time. The sewer investigation was completed, but some additional hot spot removal remains. A hazardous waste permit modification to change the status of BRAC sites was completed. The horse stables area was transferred to the LRA. Long-term management began at several sites. The decision document in support of attainment of the land reuse implementation plan milestone was completed. The cost of completing environmental restoration has changed significantly at this installation because of technical and regulatory issues.

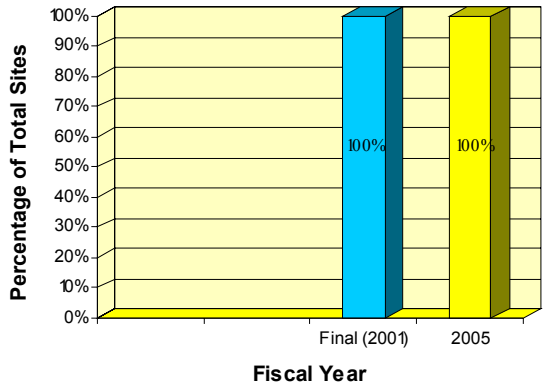
Military Munitions Response Program Progress

In FY95, the Air Force performed an unexploded ordnance removal action covering 230 acres at the installation. The removal action included small arms cartridges and scrap metal cleared to a depth of 10 feet.

Plan of Action

- Complete removal action at sanitary sewer system in FY02
- Install permeable reactive barrier in coordination with AFCEE Environmental Restoration Division (ERD) and the Aeronautical System Command (ASC) to reduce or eliminate contaminated groundwater flow onto BRAC property in FY02
- Complete FFS in coordination with AFCEE/ERD and ASC to determine plan to remediate basewide groundwater TCE plume migrating onto BRAC property in FY02
- Complete modification to close BRAC sites on RCRA/HSWA permit in FY02
- Complete site and documentation research in preparation for future Operating Properly and Successfully determinations for the TCE plume under BRAC Property 6 in FY02
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Fridley Naval Industrial Reserve Ordnance Plant

Fridley, Minnesota

NPL

FFID:	MN517002291400	**Funding to Date:**	$32.4 million
Size:	82.6 acres	**Estimated Cost to Completion (Completion Year):**	$9.6 million (FY2014)
Mission:	Design and manufacture advanced weapons systems	**Final RIP/RC Date for ER Sites:**	FY2002
HRS Score:	30.83; placed on NPL in November 1989	**Five-Year Review Status:**	Under Way
IAG Status:	Federal facility agreement signed in March 1991		
Contaminants:	POLs, VOCs, SVOCs, metals, and cyanide		
Media Affected:	Groundwater and soil		

Progress to Date

Investigations conducted at this government-owned, contractor-operated installation between FY83 and FY88 identified trichloroethene (TCE) in groundwater. The facility was placed on the National Priorities List (NPL) in FY90 because of the TCE contamination in the groundwater, which discharges into the Mississippi River upstream from the Minneapolis drinking water plant.

Site types include waste disposal pits and trenches, source areas beneath the main industrial plant, a foundry core butt disposal area, and sitewide groundwater contamination. Wastes and contaminants associated with these site types include petroleum/oil/lubricants, solvents, plating sludge, construction debris, and foundry sands.

Studies in FY83 and FY91 identified five sites at the plant. These were subsequently grouped into three operable units (OUs): OU1 (Site 5), sitewide groundwater; OU2 (Sites 1, 2, and 4), source areas outside of the plant buildings; and OU3 (Site 3), source areas under the main industrial plant. Sites 1 and 2 have achieved Response Complete status. OU1 feasibility study activities were completed in FY88, and a Record of Decision (ROD) was signed in FY90. The ROD included a remedial action to provide hydraulic containment and recovery of all future off-site migration of contaminated groundwater. In FY96, the installation combined OU2 and OU3 to effectively manage cleanup.

In FY97, the installation finished removing drums from Site 4 and issued a site management plan.

In FY98, a 5-year review of the groundwater remedy for Site 5 and groundwater treatment facility (GWTF) construction were completed. In FY99, the installation issued the final remedial investigation (RI) report, including the human health risk assessment, for OU2 and Site 3. Wells were installed at Anoka County Park. The Agency for Toxic Substances and Disease Registry completed a public health assessment.

In FY00, the installation completed evaluation of on-site and residual off-site groundwater contamination. A GWTF upgrade was initiated, and evaluation of remedies for groundwater contamination in Anoka County Park began. The installation continued implementing the groundwater remedy.

The installation formed a technical review committee in FY93 and converted it to a Restoration Advisory Board in FY95. The community relations plan was prepared in FY91 and updated in 1997. An administrative record was also compiled, and an information repository established, in FY95.

FY01 Restoration Progress

The installation completed the RI and the risk assessment for OU2 and OU3; these are now awaiting regulatory approval. The GWTF upgrade was completed. The work plan for the pilot-scale enhanced bioremediation project was completed for Anoka County Park. A diffusion sampler study for groundwater sampling was completed; implementation is awaiting further analysis requested by regulators. Implementation of the remedy for discharging National Pollutant Discharge Elimination System effluent into the Mississippi River continued. Major portions of the 5-year review requirements were completed. The cost of completing environmental restoration at this installation has increased significantly due to changes in technical criteria.

Regulatory delays in reviewing the risk assessment for OU2 and OU3 prevented completion of the proposed plan (PP) and ROD. Regulatory delays in reviewing the work plan/sampling plan delayed the start of construction on the Anoka County Park project.

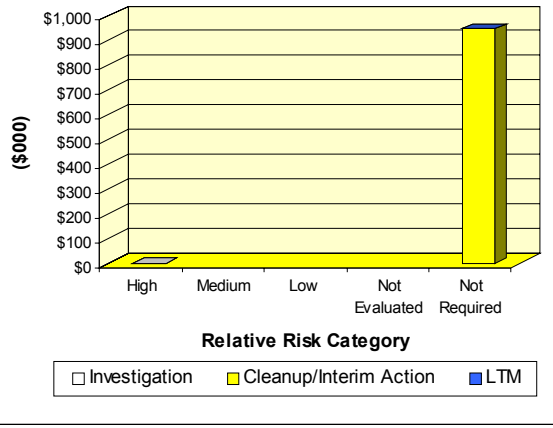
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Continue remedial action operations (RA-O) of the sitewide groundwater remedy for OU1 in FY02
- Obtain regulatory approval of RI and risk assessment, and complete PP and ROD, for OU2 and OU3 in FY02, anticipating land use controls for OUs 1, 2, and 3
- Establish data quality objectives for groundwater monitoring, diffusion samplers, and exit strategy in FY02
- Finalize remedy selection for Adak petroleum sites in FY02
- Evaluate results of the pilot-scale enhanced bioremediation project for Anoka County Park in FY02; determine objectives for proceeding to a full-scale project in FY02–FY03
- Ensure the effectiveness of the selected remedies through evaluation of RA-O/long-term management in FY02–FY03

FY02 Funding by Phase and Relative Risk



Gentile Air Force Station
Defense Electronics Supply Center, Dayton

Kettering, Ohio

BRAC 1993

FFID:	OH597152435700	**Media Affected:**	Groundwater and soil
Size:	162 acres	**Funding to Date:**	$8.2 million
Mission:	Provided logistical support to the military services by supplying electrical and electronic material	**Estimated Cost to Completion (Completion Year):**	$3.6 million (FY2005)
		Final RIP/RC Date for BRAC-ER Sites:	FY2002
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	Residual petroleum/oil/lubricants, solvents, coal pile runoff (VOCs and SVOCs), and metals		

Progress to Date

In July 1993, the BRAC Commission recommended closure of the Defense Electronics Supply Center (Gentile Air Force Station) and relocation of its mission to the Defense Construction Supply Center in Columbus, Ohio. The installation closed in December 1996.

An environmental baseline survey (EBS) completed in FY94 identified 9 sites and 48 areas of concern (AOCs) at the installation. Prominent site types included underground storage tanks (USTs); areas of past industrial operations; and landfills containing construction debris, hardfill, waste oil, solvents, asbestos, low-level radioactive waste, and a subsurface material suspected to be paint thinner. Releases from these sites have contaminated soil and groundwater.

In FY93, the installation's reuse committee helped prepare a market survey. The findings of this survey were later incorporated into an award-winning reuse plan. The installation's BRAC cleanup team (BCT) developed a plan for investigating sites and AOCs. A Restoration Advisory Board was formed in FY94.

In FY95, all but one of the remaining polychlorinated biphenyl–containing transformers were removed from the installation. In FY96, the installation completed an environmental impact statement, updated the installationwide EBS, and completed a Record of Decision. In addition, remedial design and remedial action (RA) activities began at the installation. Phase I of the remedial investigation and feasibility study (RI/FS) was completed. In FY97, no further remedial action planned (NFRAP) documents were signed for 23 sites. All USTs were removed by the end of FY97.

In FY98, an engineering evaluation and cost analysis was initiated for Site SD001, Little Beaver Creek. Parcels A, C, and D were transferred to the local redevelopment authority (LRA). Long-term management (LTM) began at Site WP026. Sites SS014, SS020, SS028, and SS030 were evaluated in a supplemental RI (SRI). The BRAC cleanup plan was updated. The DLA's involvement in environmental restoration at the installation was terminated at the end of FY98 by a memorandum of agreement with the Air Force Base Conversion Agency.

In FY99, the removal action for LF008 began. Parcel F (17 acres) was transferred. In FY00, the BCT signed a decision document (DD) selecting LTM as the final remedy for Parcel B groundwater. The removal actions at Sites SD001(C1) and LF008(D1) were completed, and the final removal action report for LF008 was published. The SRI report for Parcel E was published.

FY01 Restoration Progress

Parcel B was transferred to the LRA, and LTM began. The final removal action report was published and the draft DD was started for Site SD001. The final second annual groundwater monitoring report for Site WP026 (R2) was published. Draft NFRAP DDs for four Installation Restoration Program (IRP) sites in Parcel E were prepared and sent out for regulatory review. Two other IRP sites in Parcel E were closed with signed NFRAP DDs. The draft final focused FS (FFS) report was prepared. Also a pilot study was initiated for Parcel E soil and groundwater treatment at Sites LF008 and SS035 (C7).

The RA work plans for Parcel E were delayed due to the pilot study. The third annual groundwater monitoring report was deferred 1 year to include another round of sampling. The 5-year review is planned. The cost of completing environmental restoration has changed significantly at this installation because of technical and regulatory issues.

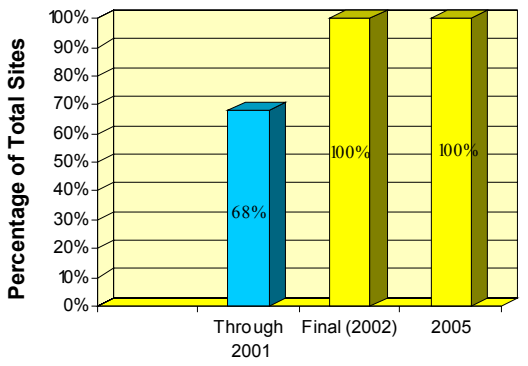
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Finalize FFS and DD and begin RA for Parcel E soil and groundwater at Sites LF008 and SS035 in FY02
- Close four IRP sites in Parcel E with NFRAP DDs signed by BCT in FY02
- Finalize the DD for Site SD001 in FY02
- Finalize Site WP026 (R2) third annual report and conduct semiannual groundwater LTM at Site WP026 (Parcel A) and Site SS028 (Parcel B) in FY02
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



George Air Force Base

Victorville, California

NPL/BRAC 1988

FFID:	CA957002445300	**Funding to Date:**	$78.5 million
Size:	5,062 acres	**Estimated Cost to Completion (Completion Year):**	$116.3 million (FY2031)
Mission:	Provided tactical fighter operations support	**Final RIP/RC Date for BRAC-ER Sites:**	FY2004
HRS Score:	33.62; placed on NPL in February 1990	**Five-Year Review Status:**	Completed/Planned
IAG Status:	Federal facility agreement signed in October 1990		
Contaminants:	POLs, VOCs, and lead		
Media Affected:	Groundwater and soil		

Progress to Date

Environmental studies conducted at George Air Force Base since FY81 have identified the following site types: landfills, petroleum spill sites, underground storage tanks (USTs), waste storage and disposal units, and fire training areas. These sites were grouped into three operable units (OUs).

Remedial investigation and feasibility study (RI/FS) activities began in FY84. The installation has completed Relative Risk Site Evaluations at all sites. Interim actions at the installation have included removal of more than 80 USTs and contaminated soil, and cleanup and closure of a hazardous waste storage yard. In FY91, a RCRA facility assessment identified 113 solid waste management units. In FY92, the installation prepared an engineering evaluation and cost analysis and installed a pumping system at OU2. A BRAC cleanup team (BCT) was formed. Also in FY92, the installation's technical review committee was converted to a Restoration Advisory Board, which meets monthly. The installation closed on December 15, 1992.

In FY93, the installation completed a final draft FS and a proposed plan (PP) for OU1 and began an environmental baseline survey. In FY94, the Air Force and regulatory agencies signed a final Record of Decision (ROD) for OU1.

In FY95, the installation removed 30 oil-water separators and associated contaminated soil, began operation of bioventing systems at seven fuel-contaminated sites, and removed and disposed of soil from a low-level radioactive waste disposal site. All basewide RI/FS fieldwork was completed, and a draft report was issued.

In FY96, mobile recovery units were developed to remove JP-4 jet fuel from contaminated groundwater at OU2. Removal of the liquid fuel distribution system and of all known USTs was completed. The installation also began cleanup by bioventing at six fuel spill sites.

In FY97, the installation completed all landfill closures and landfill surface rehabilitation projects. Phase II construction of the OU1 treatment system also began. In FY98, the ROD for OU3 was signed. A basewide sampling and analysis plan was completed.

In FY99, approximately 20,000 gallons of free product was removed from OU2. A remedial action was implemented at OT-51, and a basewide groundwater monitoring project was approved. Long-term operations and monitoring continued at OU1 and OU2. In addition, all remaining UST locations were identified.

In FY00, construction and installation of the soil vapor extraction pilot system for OU2 were completed. A CERCLA-mandated 5-year review of the overall cleanup program was completed. Closeout of bioventing site WP-17 was completed, and all work plans were submitted to the BCT for approval. The installation initiated sampling at identified UST sites.

FY01 Restoration Progress

The installation is in the process of updating the model for the OU1 groundwater monitoring system. The OU2 RI/FS, PP, and ROD are being finalized. These items were delayed due to regulator concerns.

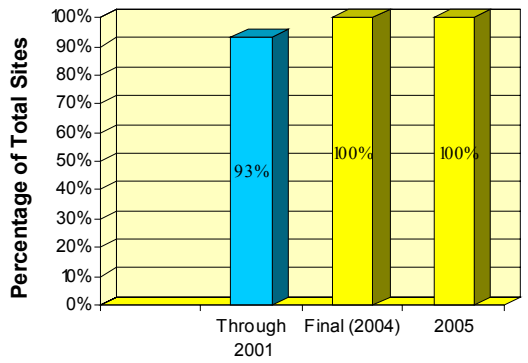
Military Munitions Response Program Progress

The Air Force performed unexploded ordnance removal actions in FY93 and FY96, encompassing 320 acres of the installation.

Plan of Action

- Update model for OU1 groundwater monitoring system in FY02
- Finalize OU2 RI/FS, PP, and ROD in FY03
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Glenview Naval Air Station and Libertyville Training Site

Glenview, Illinois

BRAC 1993

FFID:	IL517002293000 and IL517009999900	**Contaminants:**	Petroleum hydrocarbons, heavy metals, PCBs, solvents, asbestos, and waste activated sludge
Size:	1,451 acres (1,287 acres at Glenview; 164 acres at Libertyville)	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Provided accommodations for aircraft; conducted flight and general training; served as a Nike missile location (Libertyville site)	**Funding to Date:**	$26.5 million
		Estimated Cost to Completion (Completion Year):	$3.6 million (FY2000)
		Final RIP/RC Date for BRAC-ER Sites:	FY2000
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	None		

Progress to Date

Glenview was established in 1937 to provide accommodations for Service aircraft. In World War II, the station was used for flight training. In 1946, it became a Reserve Command training facility. Libertyville was a flight training site and a Nike missile air defense location. In July 1993, the BRAC Commission recommended closure of Glenview Naval Air Station (except for 93 acres of housing property) and the Libertyville Training Site. Closure occurred in FY95.

Forty-three sites were identified at the two bases: 33 CERCLA sites and two underground storage tank (UST) sites at Glenview; 7 CERCLA sites and 1 UST site at Libertyville. The sites that present the greatest risk are firefighter training areas, landfills, fuel storage areas, and areas where waste was disposed of on the land surface.

Between FY88 and FY92, nine potentially contaminated sites were identified at Glenview. Between FY92 and FY94, the installation completed an interim removal action for five of seven CERCLA sites at Libertyville. An environmental baseline survey was completed for the two bases. The installation's BRAC cleanup team, which formed in FY93, works closely with two local redevelopment authorities (LRAs). A BRAC cleanup plan was completed in FY94, and a land reuse plan was completed in FY95.

During FY95, the installation initiated site inspection (SI) activities at 16 sites and remedial investigation (RI) and feasibility study activities at 4 sites. In FY96, it initiated SIs at three sites and replaced contaminated soil with clean fill in parts of the airfield. During FY97, the installation began an SI at 7 Libertyville sites, began an RI and conducted an interim remedial action (IRA) at 7 Glenview sites, and completed an SI at 20 Glenview sites. In FY98, Glenview completed an SI at two sites, an RI at one site, and an IRA at one site. Eight sites at Glenview were designated for no further action (NFA). At Libertyville, restoration activities included SIs at five sites, an IRA at one site, and UST removal at another site. Three sites at Libertyville were designated for NFA.

In FY99, IRAs at five sites and an engineering evaluation and cost analysis (EE/CA) for nine Glenview sites and one Libertyville site were completed. RIs at 3 Glenview sites and IRAs at 11 Glenview sites and 1 Libertyville site were also completed. All fieldwork at Glenview was completed. All USTs have been removed from Glenview and Libertyville. SIs at six Glenview sites were completed.

In FY00, the installation completed IRAs for seven Glenview sites, one Libertyville site, and Libertyville Parcel 3. An SI was also completed for the one Libertyville site. Two closure reports on USTs were also completed, as was a remedial action (RA) at one Libertyville site. An EE/CA and a work plan were completed for Parcel 4. Documentation for the remaining Glenview sites was transferred to the LRA.

Two Restoration Advisory Boards (RABs) were formed. The Navy prepared the Libertyville community relations plan (CRP) in FY93 and the Glenview CRP in FY95.

FY01 Restoration Progress

The installation completed an RA at two Glenview sites. Two sites were removed from Parcel 5C, and separate findings of suitability to transfer were completed. The decision document (DD) for Libertyville Parcel 3 was finalized. The RA, closure report, proposed plan (PP), and DD for Libertyville Parcel 4 were completed. The estimated cost of completing environmental restoration at this installation changed significantly because of estimating issues regarding site characterization sampling at two sites.

The RAB remains active, and the installation actively partners with EPA and Illinois EPA.

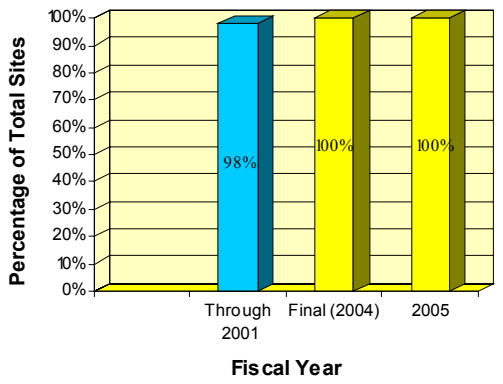
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete environmental cleaning inside of three silos in FY02
- Reopen investigation of former transferred Site 7 in Parcel 3 in FY02
- Complete investigation, RAs, closure reports, and PPs for Libertyville Site 6A in FY02–FY03
- Finalize DD for Libertyville Parcel 4 in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Griffiss Air Force Base

Rome, New York

NPL/BRAC 1993

FFID:	NY257002445100	**Funding to Date:**	$107.0 million
Size:	3,638 acres	**Estimated Cost to Completion (Completion Year):**	$62.5 million (FY2036)
Mission:	Operate air refueling and long-range bombardment facility	**Final RIP/RC Date for BRAC-ER Sites:**	FY2005
HRS Score:	34.20; placed on NPL in July 1987	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement signed in June 1990		
Contaminants:	VOCs, heavy metals, PCBs, grease, degreasers, caustic cleaners, dyes, penetrants, pesticides, and solvents		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

In FY81, a preliminary assessment and a site inspection identified 54 sites at Griffiss Air Force Base. Site types include landfills, underground storage tanks (USTs), fire training areas, disposal pits, and spill areas. Possible off-site groundwater contamination was identified.

Interim actions conducted at the facility between FY86 and FY91 included modification of a landfill cap and removal of contaminated soil and USTs from a tank farm, various disposal pits, and the area adjacent to an aircraft nosedock. During FY91 and FY92, an alternate water distribution system was constructed to serve community residents outside of the installation. Remedial investigations (RIs) of areas of concern (AOCs) began in FY93.

In FY95, the installation completed an environmental baseline survey and a final reuse plan was submitted. A BRAC cleanup team and a Restoration Advisory Board were formed. A local redevelopment authority was formed to address socioeconomic issues related to closure of the installation. The installation's BRAC cleanup plan was completed.

In 1996, the installation completed an environmental impact statement and issued a final reuse Record of Decision (ROD) for realignment. In FY96, the installation began feasibility study (FS) activities and the design of an interim remedial action (IRA) for seven AOCs.

In FY97, the final RI report was completed for 31 AOCs. Thirteen draft proposed plans (PPs) for no further action (NFA) were submitted. The FS process began with submission of the draft Remedial Alternative Development and Screening Report.

In FY98, IRAs were completed at three of the seven IRA sites. Five RODs were submitted. The final remedial designs for the landfills began. The Close Spill Sites program began with submission of the draft Phase I work plan. A RCRA closure report was submitted for 76 areas.

In FY99, the installation completed IRAs for five sites and prepared closure documents. The Landfill Consolidation program was completed. The AOC expanded site inspection (ESI) was completed, and an addendum was reviewed by regulators. The PP was completed for Landfill 1, and five NFA/institutional control RODs were completed.

A total of 54,030 tons of polychlorinated biphenyl (PCB)–contaminated soil and 11,785 tons of lead-contaminated soil were removed. Of the 368 identified USTs, 332 have been removed, and 54,000 tons of petroleum-contaminated soil was remediated using the land-farming process.

Technical Assistance for Public Participation program assistance was provided for review of the final PPs for CERCLA sites. A RCRA closure report was submitted for five additional sites. Concurrence has been received on the closure of the first 76 sites.

In FY00, the AOC ESI was completed. The installation also began IRAs at the ST26 Building 43 refueling station and received final approval on all RCRA site closures.

FY01 Restoration Progress

The installation executed the Landfill 6 ROD. RODs have now been issued for all landfills, and landfill closure plans are being prepared. An additional five RODs have been signed and six PPs were submitted. IRAs began at three sites. A contract to remediate petroleum-contaminated soil was awarded. IRAs for Building 789 and the Pumphouse 5 site were completed.

The installation postponed completion of the planned FS for the creeks in order to perform additional sampling, which was necessary to determine the exact extent of required excavation. The cost of completing environmental restoration has changed significantly at this installation because of technical criteria issues.

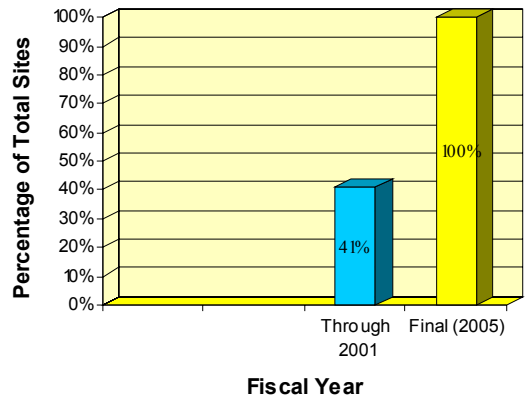
Military Munitions Response Program Progress

In FY97, the Air Force performed an unexploded ordnance removal action covering 13 acres at the installation. The removal action included grenades, small arms cartridges, flares, and scrap metal.

Plan of Action

- Initiate treatability study for four trichloroethene plumes in FY02
- Complete FS for creeks in FY02
- Award contract to remediate creeks in FY02
- Execute six RODs and submit five PPs in FY02
- Execute five RODs in FY03
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Grissom Air Force Base

Peru, Indiana

BRAC 1991

FFID:	IN557212447200	**Contaminants:**	Potential radiation contamination, PCBs, and lead-based paint
Size:	2,722 acres	**Media Affected:**	Groundwater and soil
Mission:	House a refueling wing; formerly housed a bombardment wing	**Funding to Date:**	$14.2 million
		Estimated Cost to Completion (Completion Year):	$14.1 million (FY2025)
HRS Score:	NA	**Final RIP/RC Date for BRAC-ER Sites:**	FY2003
IAG Status:	None	**Final RIP/RC Date for ER Sites:**	FY2010
Contaminants:	Household and industrial waste, spent solvents, fuels, waste oil, pesticides, lead, munitions, asbestos	**Five-Year Review Status:**	Planned

Progress to Date

In July 1991, the BRAC Commission recommended realignment of Grissom Air Force Base. When the installation was realigned in September 1994, the Air Force retained approximately 1,400 acres for military activities and returned 1,300 acres to the community for redevelopment. Grissom is a joint-use base, which uses both BRAC and Environmental Restoration Account funds to reach cleanup goals. The installation has closed 37 BRAC areas of concern (AOCs) with no further action (NFA) and achieved site closeout at two Installation Restoration program (IRP) sites. The IRP remedial investigation and feasibility study (RI/FS) activities began in FY91.

In FY94, the installation formed a BRAC cleanup team (BCT) and prepared a BRAC cleanup plan (BCP). The basewide environmental baseline survey (EBS) was completed. The installation also completed supplemental EBSs for specific parcels.

In FY95, the installation began using ex situ bioremediation, natural attenuation (NA), and geoprobe technology. Site characterization and corrective action plans began at underground storage tank (UST) sites in the former military family housing area and at the BX gas station. The installation formed a Restoration Advisory Board (RAB).

In FY96, the installation completed an asbestos survey of BRAC buildings. An economic development conveyance was signed.

In FY97, investigation of 9 AOC sites and 40 oil-water separators and removal of USTs were completed. The installation completed the first finding of suitability for early transfer.

In FY98, an unexploded ordnance statement of clearance was issued for the munitions burn and burial area, and an environmental investigation was completed at that site. Projects at Oil-Water Separator 896, the interim hazardous waste storage site, and former leaking UST sites were initiated. The BCT reached consensus on closure, with NFA, of the firing-in butt.

In FY99, monitored NA was initiated to address groundwater contamination at the BX and flightline gas stations. The munitions burn and burial area report was finalized with a no further remedial action planned (NFRAP) decision document (DD). A methane gas study was completed for both BRAC landfills. Nine NFRAP documents were signed to close out AOCs, and findings of suitability to transfer were signed. The military family housing UST sites were closed, with NFA required. The BCP abstract was updated.

In FY00, the installation finalized the focused FS and began quarterly groundwater monitoring at the two fire protection training areas (FPTAs). The remedy-in-place (RIP) DD for Landfill 1 was signed. Soil removal and closure of the abandoned UST site (ST009) were completed. The field investigation of the former interim RCRA hazardous waste storage area was completed. The remedy for the indoor and outdoor small-arms firing ranges was completed, and the sites will close with NFA. Phase I of the investigation at the B-58 aircraft site was completed. In pursuit of a certificate of clearance for the firing-in butt, the Army Corps of Engineers initiated a records search for the former use of the site.

FY01 Restoration Progress

The focused site assessment at the Central Heat Plant (CHP) was initiated. The RI/FS was started for the polychlorinated biphenyl (PCB) site. Removal actions were completed for the buried B-58 site. The DD for the remedy at Landfill 2was signed. The DD for the abandoned UST site is in draft final form. Fieldwork was completed and the report is pending for the undocumented storage tank at Building 512. Environmental restoration to facilitate conveyance of 79 acres was completed. Clearance of the former grenade training range and the firing-in butt was completed. The signature of the DD for the remedy at FPTAs 1 and 2 is pending. The BCT was briefed on decisions to create new sites and clean up existing sites. The BCT reviewed all planning documents and reports.

The DDs for the FPTAs and the abandoned UST site were delayed due to discussions on the format and language in the documents. The RAB met quarterly. The cost of completing environmental restoration has changed significantly at this installation because of technical criteria issues.

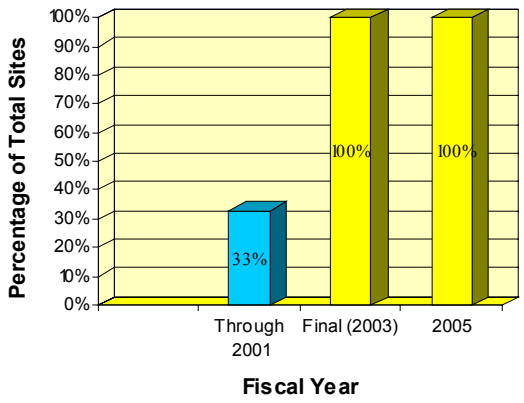
Military Munitions Response Program Progress

In FY98, the Air Force performed an unexploded ordnance removal action covering 4 acres of the installation. The removal action included grenades, small arms cartridges, flares, and scrap metal.

Plan of Action

- Sign DDs for FPTAs 1 and 2, abandoned UST site, and PBC site in FY02
- Close B-58 burial site in FY02
- Complete the RI/FS and interim removal action at the CHP in FY02
- Establish concurrence with the state on the remedy for the BX gas station, flightline gas station, and Building 14 in FY02
- Initiate further site investigation of the oil-water separator at former Building 122 in FY02
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Guam Apra Harbor Complex

Apra Harbor, Guam

BRAC 1995

FFID:	GU917002753200, GU917002758300, GU917002758500, and GU917002757600	**IAG Status:**	IAG signed in 1993
		Contaminants:	PCBs, POLs, solvents, pesticides, and heavy metals
Size:	2,981 acres	**Media Affected:**	Groundwater and soil
Mission:	Maintained and operated facilities; provided services and materials; stored and issued weapons and ordnance in support of the operating forces of the Navy and shore activities; provided services for Guam Naval Activities	**Funding to Date:**	$106.6 million
		Estimated Cost to Completion (Completion Year):	$38.6 million (FY2015)
		Final RIP/RC Date for BRAC-ER Sites:	FY2001
		Final RIP/RC Date for ER Sites:	FY2012
HRS Score:	NA	**Five-Year Review Status:**	Planned

Progress to Date

This facility consists of Navy commands in the Apra Harbor area and the former Naval Magazine area southeast of the harbor. The BRAC Commission recommended four of the commands (Guam Naval Activities (NAVACTS), Naval Fleet and Industrial Supply Center (FISC), Naval Ship Repair Facility (NSRF), and Public Works Center (PWC)) for realignment or closure in 1995. NSRF ceased operations in September 1997.

Operations that contributed to contamination were support, photographic and printing shops, a dry cleaning plant, power plants and boilers, pest control operations, and chemical and medical laboratories. Wastes were stored and disposed of in landfills and wastewater treatment plants. The four commands have 29 CERCLA sites, 21 RCRA sites, and 3 BRAC sites. Sixteen sites are Response Complete. A human health risk assessment (HHRA) and an ecological risk assessment (ERA) have been prepared.

In FY99, corrective measures implementation (CMI) was conducted at two NAVACTS sites. The engineering evaluation and cost analysis and the design for the seawall to stabilize the cliff were completed for Site 1, and construction began. Investigations were completed for Areas of Concern (AOC) 2 and 21. CMI at Sites 16 and 17 was completed, and requests for no further action (NFA) were submitted.

At FISC, the investigation at Site 33 was completed and NFA was required. The Guam EPA accepted the closure report for Solid Waste Management Unit (SWMU) 12. At NSRF, the removal action at Site 25 was completed and the site is undergoing long-term management as part of the groundwater study (AOC 1). At PWC, an interim remedial action (IRA) for Site 16 and investigations at AOC 1 were completed. The CMI for SWMU 1 was completed, and preparation of a closure report began. A screening ERA for SWMU 11 was initiated.

In FY00, the installation completed design and began construction of a landfill cap at NAVACTS Site 1. A removal action at NAVACTS AOC 2 was completed. An IRA at NAVACTS Site 4 was initiated. The draft revised screening ERA was completed for FISC Site 19. Groundwater sampling was conducted at PWC Site 17. Maintenance and monitoring continued at Site 28-10.

The complex completed a joint community relations plan in FY92. A local information repository was established in FY94. The complex converted its technical review committee to a Restoration Advisory Board in FY95. During FY96, the BRAC cleanup team completed an environmental baseline survey and a BRAC cleanup plan. In FY97, regulators and the Navy created a memorandum of understanding.

FY01 Restoration Progress

The installation completed the screening ERA for PWC SWMU 11 and the CMI for NAVACTS SWMU 26. Construction of the seawall and the landfill cap at NAVACTS Site 1 and fieldwork for the IRA at NAVACTS Site 4 were completed. Two rounds of groundwater monitoring were conducted at NAVACTS Site 31. Closure reports for NAVACTS SWMUs 16 and 17, FISC SWMU 12, and PWC SWMU 1 have been partially completed. The estimated cost of completing environmental restoration at this installation changed significantly because of estimating criteria. A new site, Site 26 (Building 27 boiler facility), was added to NSRF.

Remedial actions (RAs) at NAVACTS AOCs 1 and 3 were delayed so the work at the two could be combined to provide cost savings. Site closeout for NAVACTS SWMU 49, NAVACTS AOC 2, and PWC AOC 1 is awaiting regulatory concurrence. The RI for PWC Site 17 is awaiting regulatory comments before finalization.

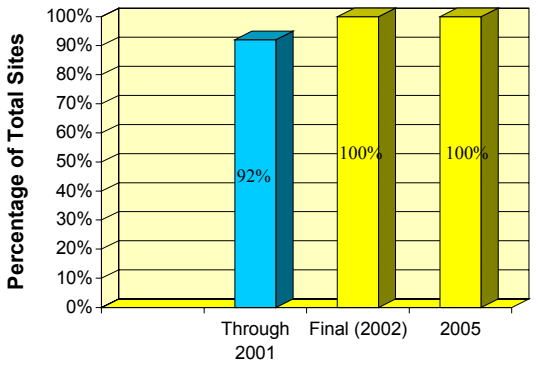
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete the IRA at NAVACTS Site 4, and conduct fish sampling for the screening HHRA at NAVACTS Site 1 in FY02
- Complete RAs at NAVACTS AOCs 1 and 3 in FY02
- Complete site closeout for NAVACTS SWMU 49, NAVACTS AOC 2, and PWC AOC 1 in FY02
- Complete RI for PWC Site 17 in FY02
- Begin removal action at PWC Site 17 in FY02
- Obtain Guam EPA concurrence on NAVACTS SWMUs 16 and 17, FISC SWMU 12, PWC SWMU 1, PWC SWMU 11, and NAVACTS SWMU 26 closure reports in FY02
- Complete the 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Hamilton Army Airfield

Novato, California

BRAC 1988

FFID:	CA921402303800	**Funding to Date:**	$32.1 million
Size:	669 acres	**Estimated Cost to Completion (Completion Year):**	$1.3 million (FY2002)
Mission:	Conducted Reserve training	**Final RIP/RC Date for BRAC-ER Sites:**	FY2002
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	Metals, VOCs, SVOCs, fuel hydrocarbons, POLs, PCBs, PAHs, and pesticides		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

In December 1988, the BRAC Commission recommended closure of about 700 acres at Hamilton Army Airfield, as well as relocation of the airfield's mission. There are eight areas at the installation: a former petroleum/oil/lubricant (POL) hill area, a hospital complex, five "out parcels" (A-2, A-3, A-4, A-5, and A-6), and the main airfield parcel. Out Parcels A-2, A-3, A-5, and A-6 were transferred to the City of Novato in 1996.

Investigations at the main airfield parcel addressed tidal wetlands, a perimeter drainage ditch, underground storage tanks (USTs), burn pits, aboveground storage tanks, onshore and offshore fuel lines, a former sewage treatment plant, a pump station, an aircraft maintenance and storage facility, the east levee construction debris disposal site, a POLs area, and a revetment area. Metals, petroleum hydrocarbons, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, and polychlorinated biphenyls (PCBs) are the main contaminants of concern.

In FY94, the installation formed a BRAC cleanup team (BCT) and a Restoration Advisory Board (RAB). To facilitate cleanup, the BCT conducted a bottom-up review of the installation's restoration program.

During FY95, the installation completed a draft environmental impact statement. Additional remedial investigation (RI) work continued at five sites. Installation cleanup actions included removal of USTs and soil contaminated with petroleum constituents and PCBs.

In FY96, the Army continued RI and feasibility study (FS) activities on the main airfield BRAC parcel. In addition, the local reuse authority selected a wetlands reuse plan for the BRAC airfield parcel. In FY97, the Army removed two USTs.

In FY98, the Army submitted the comprehensive RI report to the regulatory agencies for review. An interim removal action work plan was prepared, and fieldwork was initiated for several sites that were identified in the RI report. The Army completed the design for the onshore fuel line remedy and removed the fuel line. The offshore fuel line was flushed, sealed, and abandoned in place.

In FY99, the installation completed a fate-and-transport study. The regulators approved the offshore fuel line closure report which concluded that the site requires no further action. The Army began removal actions for several sites inside the perimeter levee.

In FY00, the installation completed interim removal actions for airfield sites. Closure reports for Parcel A-4, the POL hill, and the hospital area were prepared and submitted to the regulators for review.

FY01 Restoration Progress

The installation completed a sampling plan for the coastal salt marsh sites and collected samples. The Record of Decision (ROD) for the airfield was issued for public comment. The installation completed closure reports for Parcel A-4 and the hospital area. BRAC cleanup activities were identified and fieldwork was scheduled. The cost of completing environmental restoration at this installation increased significantly due to regulatory issues.

Additional sampling for the coastal marsh sites delayed the focused FS (FFS) and ROD. Issues with the regulatory agencies and the future property owner delayed the findings of suitability to transfer (FOSTs) for the airfield parcel, the POL hill, the hospital area, and Parcel A-4.

The RAB technical review subcommittee provided a review of the ROD document. Work is ongoing through regulatory partnerships to resolve outstanding issues related to environmental restoration.

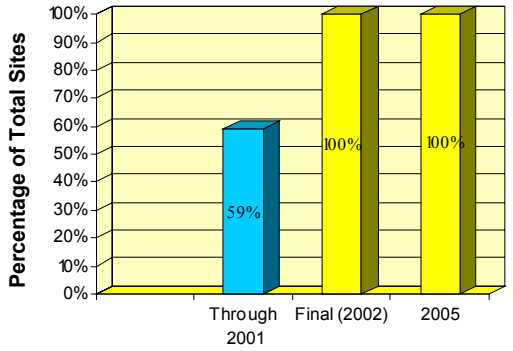
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete the ROD and final required remedial actions (RAs), except for long-term monitoring, for airfield sites in FY02
- Complete sampling, FS, and ROD for coastal salt marsh sites in FY02
- Complete finding of suitability for early transfer for the main airfield property in FY02. Complete the FOSTs for and transfer of the hospital hill area and Parcel A-4 in FY02
- Complete closure report, corrective action plan and FOST for POL hill in FY02
- Complete the BRAC final RA required in the ROD, except for long-term monitoring, for coastal salt marsh sites in FY03
- Complete early transfer of 644 acres in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Hanscom Air Force Base

Bedford, Massachusetts

NPL

FFID:	MA157172442400	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	826 acres	**Funding to Date:**	$32.6 million
Mission:	Support Electronic System Center	**Estimated Cost to Completion (Completion Year):**	$13.8 million (FY2020)
HRS Score:	50.00; placed on NPL in May 1994	**Final RIP/RC Date for ER Sites:**	FY2002
IAG Status:	Federal faciltiy agreement under negotiation	**Five-Year Review Status:**	Planned
Contaminants:	VOCs, chlorinated solvents, gasoline, jet fuel, tetraethyl lead, PCBs, and mercury		

Progress to Date

Operations at Hanscom Air Force Base have involved generation, use, and disposal of numerous hazardous substances. Possible sources of contamination include a former industrial wastewater treatment system, a former filter bed/landfill area, a jet fuel residue and tank sludge area, two landfills, three former fire training areas, a paint waste disposal area, a mercury spill area, the former aviation fuel handling and storage facilities, underground storage tanks (USTs), and fuel spill areas. Studies beginning in the early 1980s identified 22 sites. Fourteen of these sites have been closed out, remedies are in place at seven sites, and a removal action is under way at the remaining site.

Activities through FY94 included final remedial actions (RAs) at Operable Unit (OU) 2, the closed municipal waste landfill, and at the mercury release site and removal actions and installation of a groundwater collection and treatment system to remove volatile organic compounds (VOCs) at OU1. In addition, removal actions were performed at UST sites. In FY95, the installation began a removal action (groundwater/product recovery and soil vapor extraction) at the former aviation fuel system site (OU3/Installation Restoration program (IRP) Site 21) and converted its technical review committee to a Restoration Advisory Board (RAB).

In FY97, the installation automated the groundwater recovery and treatment system at OU1. A human health risk assessment (HHRA) and an ecological risk assessment (ERA) were completed for OU2, and Massachusetts Contingency Plan (MCP) documentation was filed to establish natural attenuation (NA) as the final remedy for the Army and Air Force Exchange Service (AAFES) service station UST site. A 5-year review was completed for the OU2 remedy, which concluded that the remedy was protective of human health and the environment.

In FY98, the installation completed site inspections at two UST sites and a remedial investigation (RI) at the former filter bed/landfill site (OU3/IRP Site 6). In FY99, it completed the HHRA and ERA for OU3/IRP Site 6 and the ERA for OU1. MCP documentation was filed to establish NA as the final remedy for the base motor pool UST site. In FY00, the installation completed a supplemental RI, HHRA, and ERA for OU3/IRP Site 21 and finished a focused feasibility study (FFS) and a proposed plan (PP) for OU3/IRP Site 6. Also in FY00, an FFS and an interim PP were completed for OU1.

FY01 Restoration Progress

The installation finalized the Record of Decision (ROD) and completed design and construction of the final remedy for OU3/IRP Site 6. The interim ROD to convert the OU1 system to an interim final remedy was finalized. The no further remedial action planned (NFRAP) decision documents for two UST sites were also finalized. The feasibility study for OU3/IRP Site 21 was completed, and the ROD for this site entered the signature phase. Regulator concurrence on the closeout of nine sites was received. The installation began remedial action operations (RA-O) at OU1 and OU3/IRP Site 6. RA-O at OU2 (capped municipal waste landfill), the AAFES service station, and base motor pool sites continued. In addition, the removal action at OU3/IRP Site 21 continued.

The RAB met two times, and a public hearing was held.

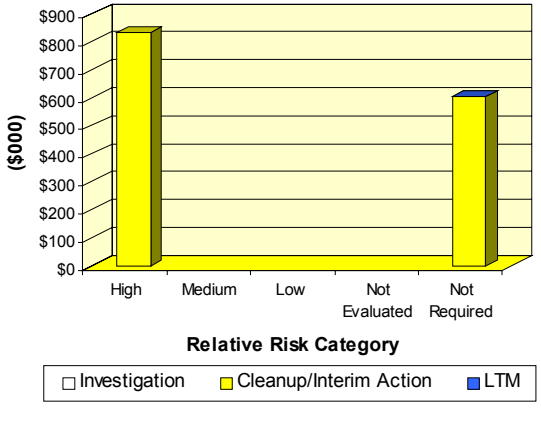
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Continue RA-O at OU1, OU2, OU3/IRP Site 6, the AAFES service station, and base motor pool sites in FY02
- Finalize ROD, complete design and construction of final remedy, and begin RA-O for OU3/IRP Site 21in FY02
- Continue removal action at OU3/IRP Site 21 until replaced by final remedy in FY02
- Complete 5-year review in FY02

FY02 Funding by Phase and Relative Risk



Hastings Groundwater Contamination Site
Formerly Blaine Naval Ammunition Depot

Hastings, Nebraska **NPL**

FFID:	NE79799F041100	**Funding to Date:**	$64.8 million
Size:	48,753 acres	**Estimated Cost to Completion (Completion Year):**	$85.3 million (FY2030)
Mission:	Produce, load, and store ammunition	**Final RIP/RC Date for ER Sites:**	FY2008
HRS Score:	42.24; placed on NPL in June 1986	**Final RIP/RC Date for MMRP Sites:**	FY2029
IAG Status:	IAG (effective September 1998)	**Five-Year Review Status:**	NA
Contaminants:	UXO, VOCs, PAHs, and heavy metals		
Media Affected:	Groundwater and soil		

Progress to Date

Operations at the Blaine Naval Ammunition Depot (NAD) subsite contributed to groundwater and soil contamination at the Hastings Groundwater Contamination Site. The U.S. Army Corps of Engineers (USACE) designated five operable units (OUs) at the property: three OUs for the 2,900-acre Hastings East Industrial Park (HEIP) area (OU4, soil; OU8, vadose zone; and OU14, groundwater); one OU for the former naval yard dump, the explosives disposal area, and the bomb and mine complex production facility (OU16); and one OU for a 44,500-acre area that consists of all areas of the former NAD not included in the other OUs (OU15).

Soil sampling, installation of monitoring wells, and geophysical surveys were conducted for the remedial investigation (RI) of the HEIP area. EPA signed a Record of Decision (ROD) for removal of surface soil. In FY95, EPA signed an amendment to this ROD. RI, feasibility study (FS), and remedial design (RD) activities were conducted for two OUs. A time-critical removal action (TCRA) was conducted to remove a source of groundwater contamination. Engineering evaluations and cost analyses (EE/CAs) were performed to assess alternatives for environmental restoration in several areas.

In FY96, an RD for soil vapor extraction (SVE) and remediation of surface soil at the HEIP area was completed. USACE completed an air-sparging (AS) pilot study as part of the RI/FS for OU14 and began the TCRA for the AS facility. A comprehensive RI began for OU5. A TCRA for subsurface soil and drums was conducted at the naval yard dump. In addition, a remedial action (RA) for surface soil and a removal action were initiated at the HEIP area.

In FY97, a sitewide groundwater baseline risk assessment began. During FY98, the OU4 RA was completed. The Army signed a federal facility agreement.

In FY99, the Restoration Advisory Board (RAB) received training through a Technical Assistance for Public Participation grant. The OU14 ecological risk assessment (ERA) was completed. The OU16 final draft removal action report for the explosives disposal area was submitted.

In FY00, a final OU4 technical memorandum addressing carcinogenic polyaromatic hydrocarbons (cPAHs) was submitted, and a proposed plan (PP) was issued. Construction of the OU8 Phase II SVE systems was completed, and the systems are operating. The draft-final FS for groundwater contamination at OU14 was submitted, and the ERA for OU15 was approved by EPA. The draft-final EE/CA for OU15 was submitted, and the OU16 EE/CA was completed. The Hastings Project Web page was developed as a communication tool for RAB members and the general public.

FY01 Restoration Progress

The draft ROD for cPAH-contaminated surface soil (OU4, OU15, and OU16) was submitted. Completion of the final ROD has been delayed, pending resolution of technical issues. The cPAH predesign investigations of residential properties were completed. The revision to the groundwater contamination FS was prepared. Preparation of the PP and ROD is on hold, pending resolution of applicable or relevant and appropriate requirements and remediation alternative issues. The RD and soil removal action at the OU16 bomb and mine complex were completed, as were the RDs for the OU15 removal actions (Area 10 SVE and pistol/rifle range soil removal). The OU8 Phase II SVE performance evaluation was finalized and Phase II SVE systems continued to operate. The naval yard dump system was moved to Area 10 (OU15) for future SVE remediation efforts. The estimated cost of completing environmental restoration at this installation has changed significantly because of technical issues.

The RAB meets quarterly. Meetings include presentations and training.

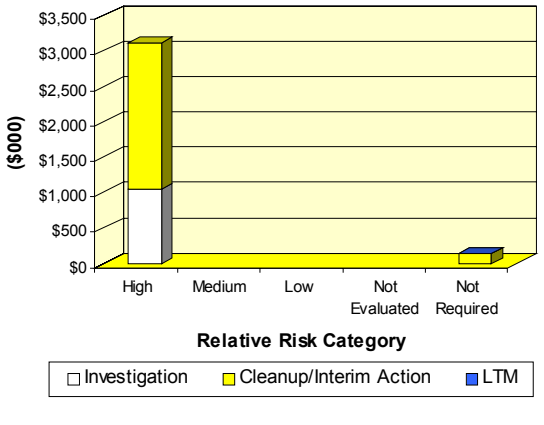
Military Munitions Response Program Progress

A Military Munitions Response program (MMRP) project was approved in FY96. The associated EE/CA was completed in FY99, finding no need for further action. An MMRP review was conducted in FY01.

Plan of Action

- Complete the PP and ROD for OUs 8 and 14 and begin the design for the groundwater remediation system in FY02–FY03
- Resolve the technical issues related to the cPAH-contaminated surfaces, complete design, and begin remediation in FY02
- Complete the PP and ROD for OU4 in FY02
- Complete OU15 removal actions in FY02
- Complete No Action RODs for OU15 and OU16 in FY03

FY02 Funding by Phase and Relative Risk

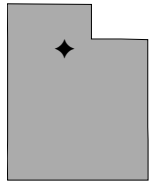


Hill Air Force Base

Ogden, Utah

NPL

FFID:	UT857172435000	**Funding to Date:**	$154.5 million
Size:	6,666 acres	**Estimated Cost to Completion (Completion Year):**	$293.0 million (FY2049)
Mission:	Provide logistics support for weapons systems	**Final RIP/RC Date for ER Sites:**	FY2009
HRS Score:	49.94; placed on NPL in July 1987	**Five-Year Review Status:**	Planned
IAG Status:	IAG signed in April 1991		
Contaminants:	Solvents, sulfuric acid, chromic acid, metals, and petroleum wastes		
Media Affected:	Groundwater, surface water, sediment, and soil		



Progress to Date

Between FY82 and FY87, preliminary assessment and site inspection activities were completed at Hill Air Force Base (AFB). Since FY87, 106 sites have been identified. Forty of these sites have been grouped into 11 operable units (OUs). Site types include disposal pits, landfills, surface impoundments, underground storage tanks (USTs), fire training areas, firing ranges, discharge and wastewater ponds, a contaminated building, a munitions dump, and spill sites.

The base has installed 12 systems to treat groundwater contaminated with trichloroethene (TCE) in 8 separate plumes, capped 3 landfills, capped a former wastewater pond at OU3, and installed 4 treatment systems for springs contaminated with TCE. The installation also completed decision documents (DDs) for 68 sites and signed Records of Decision (RODs) for 6 OUs. The installation formed a Restoration Advisory Board (RAB) in FY95. Partnerships with the RAB and regulatory agencies have continued to grow. The RAB has created several focus groups to provide specific input for the cleanup process. This approach is intended to provide early input, thus avoiding future delays.

In FY95, the installation began work on the remedial investigation and feasibility study for OUs 5 and 6 and implemented Phase I of the interim remedial action at OU8. In FY96, a ROD was signed for Chemical Pit 3 (OU2), and construction of a containment system began. Four UST sites were closed, and five DDs and the ROD for OU2 were completed. The installation also completed remedial design (RD) and remedial action (RA) activities at OU7 and completed the design and implemented the RA for upgrading the horizontal drain system at Landfill 1.

In FY97, a ROD was signed for OU6, and the RD phase began. More than 200 areas of concern in OU9 were investigated and closed, requiring no further action. In FY98, a hydraulic barrier was constructed and began operating at OU2; over 42,000 gallons of solvent has been removed, with a 98 percent removal efficiency. An asphalt cap was constructed for OU3. At off-base areas with groundwater contamination, a natural attenuation (NA) cleanup strategy was employed, and an innovative aeration curtain was used to prevent contamination from moving into one local community. A ROD was signed for six sites in OU1. A 5-year review was completed.

In FY99, a groundwater collection trench and a spring collection and treatment system were installed at OU2. A groundwater pump-and-treat system and an NA and monitoring system were installed at OU6. At OU8, a groundwater pump-and-treat system was installed. Construction design was completed for six sites in OU1, and three sites were closed.

In FY00, construction of groundwater collection and treatment systems began at six cleanup sites in OU1. In addition, NA has been implemented at some off-base areas of OU1. The installation closed seven sites, and final RAs were completed at eight sites.

FY01 Restoration Progress

The base reduced on-site treatment costs through partnership with local sewer districts. Hill AFB completed final RAs at five sites and closed six sites. Progress continued on an innovative cleanup agreement for the Utah Test and Training Range (UTTR). The schedule for the next 5-year review was maintained. The cost of completing environmental restoration has changed significantly at this installation because of estimating criteria.

Partnering with regulatory agencies and the RAB continued. Five RAB meetings were held, and regulatory and RAB participation in numerous community meetings continued.

Military Munitions Response Program Progress

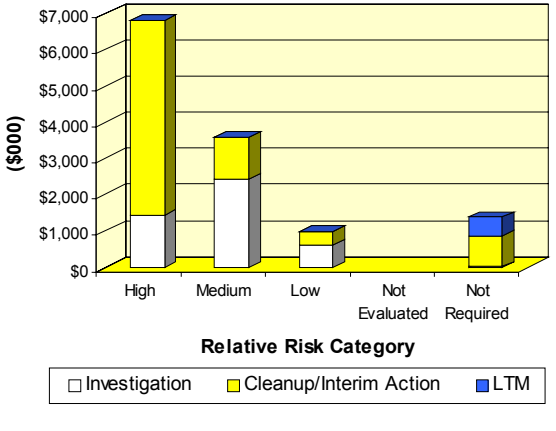
In FY01, a comprehensive range inventory was initiated. This inventory was designed to be an annual, iterative effort. To supply data for the inventory, a detailed questionnaire was completed that collected data on the types of munitions used, the range's environmental status, and the type and level of external stakeholder interest.

Munitions response and range cleanup actions have been delayed, pending funding availability and guidance refinement. As funding becomes available and guidance is refined, ranges will be cleaned up based on risk to human health and the environment.

Plan of Action

- Sign innovative cleanup agreement for the UTTR in FY02
- Continue partnering with regulatory agencies and fostering RAB involvement in FY02–FY03
- Complete 5-year review in FY03
- Complete RAs for one site in FY02 and six sites in FY03
- Close one site in FY02 and two sites in FY03

FY02 Funding by Phase and Relative Risk



FFID:	MA121402280500	**Funding to Date:**	$3.2 million
Size:	125 acres	**Estimated Cost to Completion (Completion Year):**	$0 million (FY2001)
Mission:	Served as a naval ammunition depot and Army Reserve center	**Final RIP/RC Date for BRAC-ER Sites:**	FY2001
		Five-Year Review Status:	NA
HRS Score:	NA		
IAG Status:	None		
Contaminants:	POLs, heavy metals, VOCs, PCBs, asbestos		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

In July 1995, the BRAC Commission recommended closure of Hingham Annex, a subinstallation of Devens Reserve Forces Training Area. The annex is now inactive.

Studies have identified the following site types at the annex: underground storage tanks (USTs), aboveground storage tanks (ASTs), spill sites, waste disposal areas, sewage filter beds, storage areas for polychlorinated biphenyl (PCB)–containing transformers, and areas with asbestos-containing materials (ACM). Investigations to date have revealed groundwater and soil contaminated with volatile organic compounds (VOCs) and heavy metals.

Interim actions at the installation have included removal of USTs; ASTs; an oil-water separator; contaminated soil, including contaminated soil from an area that held PCB-containing electrical transformers; and ACM (building insulation and roofing tiles). The Army also used an innovative technology, asphalt batching, to remediate contaminated soil.

In FY93, the Army formed a BRAC cleanup team. During FY95, a Phase II screening site inspection (SSI) was completed. In FY96, the installation removed soil contaminated with petroleum, oil, and lubricants (POL). It also conducted an environmental baseline survey.

The Army completed the final BRAC cleanup plan in FY97. Seven early actions were completed for asbestos at the Building 25 AST, the Building 25 transformer area, the waste disposal area, the Building 54 transformer area, the Building 90 AST, and the Building 90 PCB transformer. The installation conducted an unexploded ordnance archives search to support a recommendation of no further action and prepared a report on the results. It also performed release abatement measures while conducting a Phase II comprehensive site assessment (CSA) and an SSI.

In FY98, the installation submitted a human health risk assessment to state regulators for review. A toxicity study was completed at two sites to address potential risks identified in an ecological risk assessment. The installation removed contaminated soil from several sites. A NEPA survey and a cultural resources investigation were completed.

In FY99, the installation completed a removal action at one POL-contaminated site, release abatement measures, and the final Phase II SSI. The installation also conducted topographical surveys and asbestos abatement.

In FY00, the installation removed additional asbestos. It also completed a final draft sampling and analysis plan to address all sites requiring additional investigation. The U.S. Army Forces Command proposed that Hingham procure a guaranteed fixed-price remediation (GFPR) contract to address all remaining environmental issues.

Public participation/involvement is planned for the Hingham Annex project. Community members will be invited to attend project milestone presentations associated with the GFPR effort. Because of the short execution time frame for the efforts, a Restoration Advisory Board is not being formed. Increased community outreach will be achieved through monthly progress presentations.

FY01 Restoration Progress

The installation completed the final sampling and analysis plan for the Phase II CSA. The installation awarded a GFPR contract. The GFPR contractor initiated remediation work based on the final sampling and analysis plan.

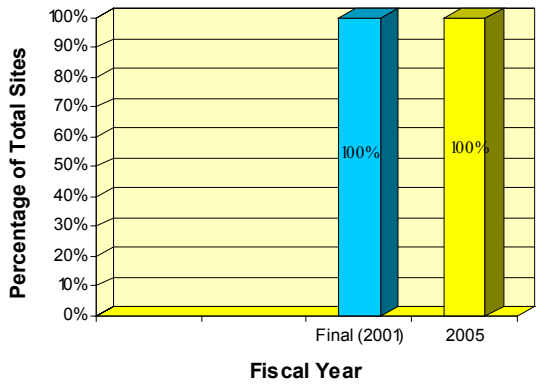
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete site closure in accordance with the Massachusetts Contingency Plan in FY02
- Initiate a public conveyance site transfer in FY02
- In FY02, increase public participation by inviting the community to attend and participate in the GFPR progress briefings.

BRAC Sites Achieving RIP or RC Per Fiscal Year

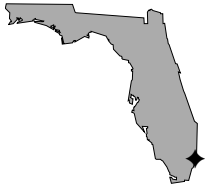


Homestead Air Force Base

Homestead, Florida

NPL/BRAC 1993

FFID:	FL457212403700	**Funding to Date:**	$25.6 million
Size:	2,940 acres	**Estimated Cost to Completion (Completion Year):**	$9.2 million (FY2014)
Mission:	Housed the Air Combat Command 31st Fighter Wing	**Final RIP/RC Date for BRAC-ER Sites:**	FY2003
HRS Score:	42.40; placed on NPL in August 1990	**Final RIP/RC Date for ER Sites:**	FY2002
IAG Status:	Federal facility agreement signed in March 1991	**Five-Year Review Status:**	Planned
Contaminants:	Metals, VOCs, cyanide, pesticides, solvents, and PCBs		
Media Affected:	Groundwater and soil		



Progress to Date

In July 1993, the BRAC Commission recommended that Homestead Air Force Base be realigned. Subsequently, the 31st Fighter Wing was inactivated, and all other operations except Air Force Reserve activities were relocated. Homestead is a joint-use base that uses both BRAC and Environmental Restoration Account funds to reach cleanup goals.

In FY86, a preliminary assessment and site inspection identified 26 sites in three major areas of concern: the fire training area, the residual pesticide disposal area, and the electroplating waste disposal area. Sites include the JP-4 jet fuel leak area, a landfill, a polychlorinated biphenyl (PCB) spill area, underground storage tanks (USTs), aboveground storage tanks (ASTs), and oil-water separators. In FY87, remedial investigation and feasibility study (RI/FS) activities began. Interim actions have included removal of USTs and contaminated soil, groundwater extraction and treatment, and removal of oil-water separators.

After experiencing hurricane damage in 1992, the installation conducted an environmental baseline survey (EBS), which concluded in FY94. The EBS revealed more than 540 potentially contaminated sites. By FY95, 400 sites had been closed. By the end of FY95, the installation had removed and disposed of 240 USTs, 99 ASTs, and 142,000 cubic yards of petroleum-contaminated soil. A removal action for soil contaminated with lead at the fire training area also was completed.

From FY95 through FY96, the installation conducted interim remedial actions (IRAs) at 13 sites. In FY96, the remaining sites identified in the EBS were consolidated into 30 operable units (OUs) and 5 major fuel areas. In FY97, removal actions were completed at seven OUs.

In FY98, remedial bioventing systems were installed at three former fuel sites. A bioventing system was also installed at six former JP-4 fuel pump house sites. A Record of Decision (ROD) was signed, and the remedial action (RA) work plan approved, for OU2. A corrective action plan was completed for Site SS-15A. RI/FSs were completed for OUs 18, 22, 26, 28, and 29. A proposed plan (PP) was completed for five OUs.

In FY99, a ROD was signed and RAs were completed for OUs 18, 26, 28, and 29. RAs were also completed at OU2 and Site SS-15A, and RAs with no further action (NFA) recommended were completed at two sites in SS-20, Buildings 900 and 966. The installation completed the RI for OU1.

In FY00, remedial action plans were completed for OUs 20/21, 30, and 31. Closeout of SS-20; Building 766; and one site within SS-15B, Pump House 4, was completed, with NFA required.

A Restoration Advisory Board (RAB), formed in FY94, was chartered in FY96.

FY01 Restoration Progress

IRAs were completed for OUs 20/21, 30, and 31. Building 711 was closed out. The installation held quarterly BRAC Cleanup Team meetings; more frequent meetings will be held if necessary.

The reuse plan was not updated because it is still under preparation by the local redevelopment authority. Memorandum of agreement (MOA) issues are still under negotiation.

Completion of the FS, PP, and ROD for OU11 was delayed due to disagreements with regulators concerning parts of the remedy. The RODs were not signed and the RAs were delayed for OUs 20, 21, 30, and 31 because EPA and the Florida Department of Environmental Protection require a MOA with the Air Force before they will sign the RODs.

Several RAB meetings were held, which focused primarily on updating the RAB members on ongoing activity. The cost of completing environmental restoration has changed significantly at this installation because of technical and regulatory issues.

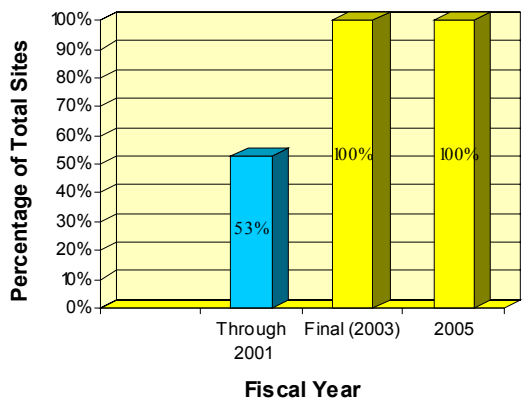
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Complete 5-year review in FY02
- Complete the FS, PP, and ROD for OU11 in FY02
- Sign the RODs and complete the RAs for OUs 20/21, 30, and 31 in FY02
- Complete RA for OU11 in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Hunters Point Annex–Treasure Island Naval Station *San Francisco, California* NPL/BRAC 1991

FFID:	CA917002278400	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	934 acres	**Funding to Date:**	$192.7 million
Mission:	Repaired and maintained ships	**Estimated Cost to Completion (Completion Year):**	$119.0 million (FY2015)
HRS Score:	48.77; placed on NPL in November 1989	**Final RIP/RC Date for BRAC-ER Sites:**	FY2009
IAG Status:	Federal facility agreement signed in September 1990 and revised in January 1992	**Five-Year Review Status:**	Planned
Contaminants:	Heavy metals, PCBs, petroleum hydrocarbons, VOCs, and SVOCs		

Progress to Date

In July 1991, the BRAC Commission recommended closure of this installation. The station ceased operations on April 1, 1994. It is now in caretaker status and is the responsibility of the Naval Facilities Engineering Command's Engineering Field Activity West. Parts of the installation have been leased to private parties.

The installation divided the property into six geographic areas, Parcels A through F, to facilitate studies, cleanup, and the transfer of the property. Environmental studies identified 78 CERCLA sites. Site types include landfills and land disposal areas, containing primarily heavy metals and volatile organic compounds (VOCs).

In FY91 and FY93, 36 underground storage tanks were removed, and 10 were closed in place. The installation demonstrated an innovative technology for recycling sand-blasting grit generated by ship-cleaning operations. This grit contains low levels of copper and lead. A full-scale demonstration was completed in FY93, allowing the Navy to use the technology at other installations.

In FY96, the installation completed a basewide environmental baseline survey. A Record of Decision (ROD) for no further action was signed for Parcel A. The installation has completed nine interim removal actions at sites throughout the shipyard. In FY98, the installation completed draft feasibility studies (FSs) for all parcels. Interim removal actions were completed for Parcels B, C, D, and E. In FY99, the installation began a risk management analysis at Parcels B through E. Parcel F was investigated under a regional approach covering offshore sediment at multiple naval facilities on San Francisco Bay.

In FY00, the installation completed NEPA and California Environmental Quality Act (CEQA) documents. The installation also submitted the Parcel B draft final land use control implementation plan (LUCIP) for review. An action memorandum (AM) to remove steam lines, fuel lines, and contaminated soil from Parcels C and D was developed. An AM was also developed for the remediation of low-level radioactive contamination at four buildings in Parcels D and E. A work plan was developed for performance of soil vapor extraction (SVE) and groundwater chemical oxidation treatability studies (TSs) at Parcels B, C, and E.

A BRAC cleanup team was formed in FY94. The installation's technical review committee was converted to a Restoration Advisory Board. The installation prepared its BRAC cleanup plan in FY94 and updates it regularly. The installation's FY89 community relations plan was revised in FY97.

FY01 Restoration Progress

The installation's NEPA ROD was signed. The finding of suitability to transfer (FOST) for Parcel A was completed and the parcel was tendered to the City of San Francisco. A time-critical removal action is currently addressing the contaminated soil sites and Parcels C and D. A removal action to excavate, and dispose of off-site, low-level radioactive soil and debris from three Parcel E buildings and one Parcel D building progressed. A 14-acre interim cap was installed at the Parcel E industrial landfill. The cost of completing environmental restoration at this installation increased significantly due to technical and regulatory issues.

Remediation is still under way at Parcel B, delaying the property transfer. The SVE TS was extended to ensure optimal results at all sites. Implementation of the chemical oxidation TS was delayed to address regulatory concerns; a revised work plan is now under regulatory review. Fixed-price remediation of Parcels C and D was delayed because of lack of responsive contract bidders. The FS and the proposed plan for Parcel F were delayed by seasonal data collection requirements.

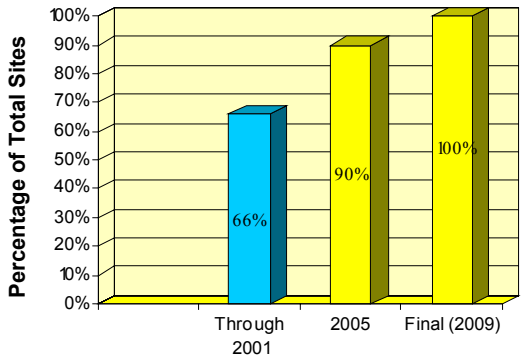
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Convey Parcel A in FY02
- Complete time-critical removal action report for Parcels C and D in FY02
- Complete FS and draft proposed plan for Parcel D in FY02
- Complete a 5-year review for Parcel B ROD in FY03
- Complete remedial action, LUCIP, FOST, and conveyance of Parcel B in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Indian Head Naval Surface Warfare Center *Indian Head, Maryland* NPL

FFID:	MD317002410900	**Contaminants:**	Waste propellants, explosives, acids, paints, solvents, heavy metals, low-level radioactive material, TCE, and industrial wastewater
Size:	3,423 acres (923 acres at Stump Neck Annex)	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Provide services in energetics through engineering, operational support, manufacturing technology, and production, and conduct research, development, and testing of energetic and ordnance devices	**Funding to Date:**	$19.0 million
		Estimated Cost to Completion (Completion Year):	$54.2 million (FY2014)
		Final RIP/RC Date for ER Sites:	FY2014
HRS Score:	50.00; placed on NPL in February 1995	**Five-Year Review Status:**	NA
IAG Status:	Signed federal facility agreement		

Progress to Date

This installation provides services in energetics for all warfare centers, including engineering, fleet and operational support, manufacturing technology, limited production, and industrial base support. It produces and handles complex chemicals to accomplish this mission. Lead, silver, and mercury are the primary contaminants of concern.

In FY83, a preliminary assessment (PA) identified 29 potential CERCLA sites. Silver-contaminated soil was removed at the x-ray building at Site 5 in FY91. In FY92, a supplemental PA identified 17 additional sites, 2 of which were recommended for no further study. Soil was remediated in one downgradient swale at Site 5, and a site inspection (SI) was completed at Site 42.

In FY93, a site characterization report for mercury-contaminated soil was completed at Site 8 for Building 766. An engineering evaluation and cost analysis for the removal action was completed, and a weir was installed at the discharge point to prevent migration of mercury farther downstream. In FY94, an SI was completed at 14 sites, and 2 more sites were identified.

In FY95, the installation remediated another downgradient swale at Site 5. A removal action for excavation of the mercury-contaminated soil at Building 766 was completed. The installation began removing trichloroethene-contaminated soil from Site 57 (Building 292).

In FY96, the installation initiated remedial investigation and feasibility study (RI/FS) activities at 14 sites and began project closeout reports at Site 56. In FY97, an RI/FS was conducted. In FY98, a draft RI report was completed for five sites. An RI for Site 57 was initiated, and work plans for RIs at Sites 47 and 53 were completed. In FY99, a removal action was completed at Site 57. RI fieldwork was completed at Site 47. The final report for Sites 12, 41, 42, and 44 was completed, and an FS was initiated.

In FY00, the installation completed work plans for the RI fieldwork at Sites 15, 16, 49, and 53. The RI fieldwork at Sites 11, 13, 17, 21, and 25 was completed. Draft proposed plans and Records of Decision (RODs) were completed for Sites 12, 41, and 44. The remedial action construction contractor completed the constructability and implementability analysis for Sites 12 and 42.

A technical review committee was formed in FY93 and converted to a Restoration Advisory Board in FY95. The installation prepared a community relations plan and established an information repository. In FY98, the administrative record was converted to an electronic format.

FY01 Restoration Progress

The installation reached a federal facility agreement with EPA. The remedial design (RD) for Site 12 was completed and remedial action (RA) initiated, through extensive partnering with regulators. The 65 percent RD for Site 41 was completed. Fieldwork for the Mattawoman Creek baseline risk assessment (BRA) was completed. A rapid sediment screening technique was implemented to assist with work plan development and a toxicity identification evaluation demonstration was conducted to gather toxicity data on discharges to the creek. Issues regarding the background study were resolved through partnering and fieldwork.

RODs for Sites 12, 41, and 44 were prepared; however, signing was delayed by regulatory issues. Completion of the FS for Site 57 was delayed by the site's complexity and work plan modifications in support of proposed remedial technologies. The FS for Sites 11, 13, 17, 21, and 25 was delayed because the RI was not finalized. Site 13 will be recommended for no further action, while the others will continue with the FS.

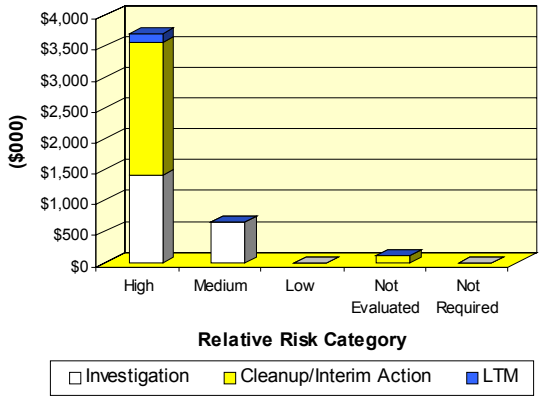
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete Mattawoman Creek BRA in FY02
- Complete desk audit of 28 FFA areas of concern in FY02
- Complete FSs for Sites 11, 15, 16, 17, 21, 25, 49, 50, 53, 54, 55, and 57 in FY02 and for Sites 6, 39, and 45 in FY03
- Sign RODs for Sites 5, 12, 41, 42, and 44 in FY02 and for Sites 13 and 57 in FY03
- Complete RAs for Site 12 in FY02 and for Site 41 in FY03

FY02 Funding by Phase and Relative Risk



Indianapolis Naval Air Warfare Center — *Indianapolis, Indiana* — BRAC 1995

FFID:	IN517002349900	**Contaminants:**	Solvents, degreasers, alcohol, chemical laboratory waste, pesticides, wastewater, heavy metals, acids, POLs, PCBs, and VOCs
Size:	185 acres	**Media Affected:**	Groundwater and soil
Mission:	Conduct research, development, engineering, and limited manufacturing of aviation electronics and of missile, space-borne, undersea, and surface weapons systems, and related equipment	**Funding to Date:**	$1.6 million
		Estimated Cost to Completion (Completion Year):	$0.2 million (FY2003)
		Final RIP/RC Date for BRAC-ER Sites:	FY2001
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	None		

Progress to Date

Indianapolis Naval Air Warfare Center, Aircraft Division (NAWCAD) was commissioned in 1942 as a naval ordnance plant. Its mission was later redefined to add space, undersea, and surface weapons. Typical operations conducted at the facility included machining; electroplating; degreasing of metal parts; carpentry; painting; operation of photographic laboratories; testing and evaluation; destruction of documents; and storage of supplies, materials, and fuels. In July 1995, the BRAC Commission recommended closure of NAWCAD.

The installation completed a preliminary assessment in FY88. In FY90, two underground storage tank (UST) sites were identified. Site assessments for these sites were completed in FY92, and the sites were designated response complete. In FY96, the installation delineated Site 1 and began a remedial investigation (RI) and a feasibility study (FS). Eighteen areas of concern (AOCs) were identified, and sampling began.

In FY95, the installation initiated an environmental baseline survey (EBS). Thirty-eight AOCs were found to require further investigation; these were consolidated into 18 AOCs and 16 UST sites. The NAWC Indianapolis Reuse Planning Authority formed and completed a preliminary privatizing business plan. A BRAC cleanup team was formed in FY96. In FY97, the installation completed closure of the hazardous waste transfer facility. Draft baseline human health and ecological risk assessments were completed.

In FY98, the Navy prepared an EBS for transfer and a finding of suitability to transfer (FOST). A finding of no significant impact was executed. The Navy also completed five process closures in accordance with state requirements. A closure letter from the state was received for 30 UST sites. Decision documents (DDs) were prepared for eight AOCs, recommending either no further action or use of institutional controls.

In FY99, polychlorinated biphenyls (PCBs) were found in construction materials at Building 1000. The FOST for parcel 1A was finalized. The environmental assessment was completed. An engineering evaluation and cost analysis (EE/CA) was completed, and an interim remedial action (IRA) was conducted. DDs for Group 1 and an RI report were finalized.

In FY00, the installation prepared an EE/CA action memorandum. The final Phase II RI report and a FOST for Parcel 1A were completed. A remedial action was conducted for Site 1. A final FS and proposed plan were completed. A government radioactive materials survey was also completed. The BRAC cleanup plan was revised. Initial transfer of property was completed.

A Restoration Advisory Board was formed in FY96. The installation also established an information repository and completed a community relations plan.

FY01 Restoration Progress

The installation completed the first round of groundwater sampling and the work plan for PCB decontamination. The FOST was completed for Parcel 2A, which consists of 19.9 acres. The IRAs for AOC 10 and 17 were completed; DDs will follow. The cost of completing environmental restoration at this installation has changed significantly based on estimation criteria issues and site characterization.

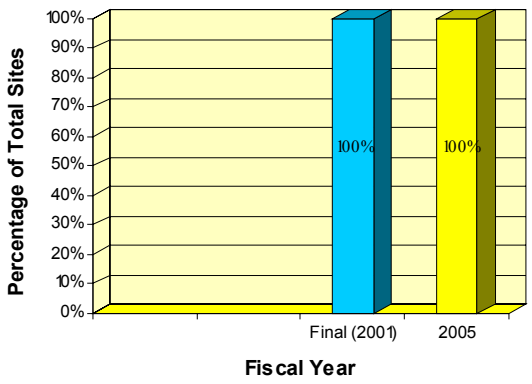
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete PCB cleanup of Building 1000 in FY02
- Prepare FOST (Parcel 2B) in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Iowa Army Ammunition Plant

Middletown, Iowa

NPL

FFID:	IA721382044500	**Funding to Date:**	$59.7 million
Size:	19,011 acres	**Estimated Cost to Completion (Completion Year):**	$43.4 million (FY2028)
Mission:	Load, assemble, and pack munitions	**Final RIP/RC Date for ER Sites:**	FY2009
HRS Score:	29.73; placed on NPL in August 1990	**Five-Year Review Status:**	Planned
IAG Status:	IAG signed in December 1990		
Contaminants:	Explosives, heavy metals, and VOCs		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

In 1941, the Army constructed the Iowa Army Ammunition Plant to load, assemble, and pack various conventional ammunition and fusing systems. During operations, industrial process wastewater and by-products were disposed of at the installation. Site types include surface impoundments, production areas, landfills, and a fire training pit. Soil and groundwater contamination resulted primarily from disposal of explosives and heavy metal–containing wastes directly on soil. The installation also identified small amounts of contamination by volatile organic compounds (VOCs).

Environmental studies have identified 42 restoration sites. Of those sites, 41 require further action. In FY92, remedial investigation (RI) and feasibility study activities began. In FY96, the installation completed its RI; however, supplemental RI efforts have since been initiated. Restoration activities through FY00 included closing one cell in the inert landfill, removing aboveground treatment tanks, removing lead-contaminated soil from a production line, and cleaning up an abandoned coal storage yard.

The installation funded a project connecting local residences to a public water supply because of off-post environmental impacts. Other restoration activities involved excavation and off-site incineration of pesticide-contaminated soil and excavation of explosives-contaminated sumps. The Army created wetlands and began phytoremediation to clean up residual contamination. It also removed contaminated soil from the former Line 1 impoundment area and the Line 800 lagoon, capped five landfill cells, initiated an off-post groundwater study and supplemental RI groundwater activities around the Line 800 lagoon, and completed an interim soil Record of Decision (ROD) and a final ROD addressing soil remediation. The installation further completed soil removal at the east burn pads, the north burn pads landfill, and the fire training pit. It completed treatment of soil from the fire training pit, using low-temperature thermal desorption. In FY00, the installation completed the cap extension at the inert disposal area and final removal of soil from around production buildings at Lines 5A/5B. The installation has three operable units (OUs): a soil OU (OU1), a groundwater OU (OU3), and an overall OU (OU4).

The installation's Restoration Advisory Board has reviewed documents, provided input to the community relations plan, conducted an Earth Day tour of restoration sites, and helped establish project priorities.

FY01 Restoration Progress

The installation completed soil removal at the west burn pads. It also successfully implemented a study of off-post groundwater and RI activities for the Line 800 pink water lagoon. Treatment of explosives-contaminated soil from the west burn pads area was completed; metals treatment for the same soil is under way. Evaluations related to past Atomic Energy Commission (AEC) activities began. Various sites are being reviewed for possible inclusion in the FUSRAP program. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues.

Project reprioritization delayed the start of soil removal at Production Lines 4A/B and 800, and the roundhouse polychlorinated biphenyl (PCB) site. Soil removal at Lines 6, 8, and 9, and the deactivation furnace was also delayed due to reprioritization of work based on congressional and public interest in possible radiological contamination from past AEC activities.

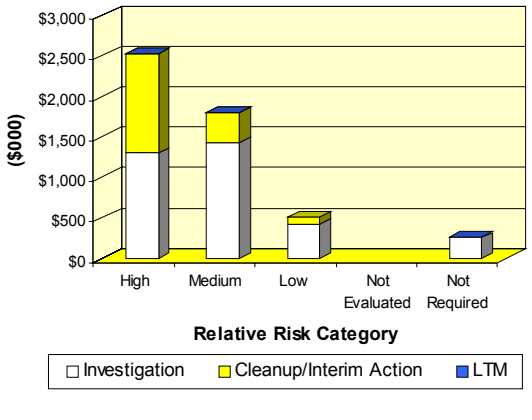
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete soil removal at Production Lines 4A/B and 800, and the roundhouse PCB site in FY02
- Continue study of off-post groundwater and perform RI activities for the Line 800 pink water lagoon in FY02
- Complete metals treatment for soil from the west burn pads area in FY02
- Complete soil removal at Lines 6, 8, and 9, and the deactivation furnace in FY03

FY02 Funding by Phase and Relative Risk



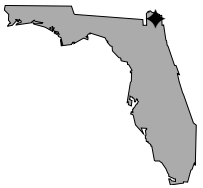
Jacksonville Naval Air Station

Jacksonville, Florida

NPL

FFID:	FL417002441200
Size:	3,820 acres
Mission:	Maintain and operate facilities; provide services and materials to support aviation activities and aircraft overhaul operations
HRS Score:	31.02; placed on NPL in November 1989
IAG Status:	Federal facility agreement signed in October 1990
Contaminants:	Waste solvents, acids and caustics, cyanide, heavy

Contaminants:	metals, POLs, low-level radioactive wastes, oil, paint, PCBs, pesticides, phenols, and radioisotopes
Media Affected:	Groundwater, surface water, sediment, and soil
Funding to Date:	$72.8 million
Estimated Cost to Completion (Completion Year):	$24.9 million (FY2017)
Final RIP/RC Date for ER Sites:	FY2014
Five-Year Review Status:	Completed



Progress to Date

Jacksonville Naval Air Station includes the following site types: fire fighting training areas, waste storage and disposal areas, transformer storage areas, radioactive-waste disposal areas, and other miscellaneous support and maintenance areas. Typical operations have generated solvents, sludge (from on-site treatment plants), and low-level radioactive waste, which have migrated into nearby soil and local groundwater supplies.

The installation contains 47 CERCLA sites, 20 underground storage tank (UST) sites, and 3 RCRA solid waste management units (SWMUs). To expedite cleanup, three operable units (OUs) were defined: OU1, two disposal pits; OU2, the wastewater treatment plant area; and OU3, the industrial area.

During three interim remedial actions (IRAs) in FY94, the installation erected fences at five sites and removed soil from one. A Record of Decision (ROD) was signed for two sites. An interim ROD was signed for one site in FY95.

During FY96, the installation continued remedial investigation and feasibility study (RI/FS) activities at six sites, and completed preliminary assessments and site inspections (PA/SIs) for three sites, RI/FSs for two sites, and engineering evaluations and cost analyses for six sites. It also completed two IRAs. A site assessment, two closure action plans, and an IRA were completed for UST sites. Corrective measures implementation (CMI) was completed at one SWMU. Five IRAs were initiated. In FY97, the installation completed the remedial design (RD) and remedial action for OU1 and completed the corrective action and IRA for UST 1. The installation also finished IRAs for Site 18 and SWMU 2.

In FY98, the installation conducted a baseline risk assessment and completed six RI/FS activities for OU2. It also completed two PA/SIs for potential sources of contamination (PSCs), one IRA to remove spreading groundwater contamination, one corrective action plan and corrective action, and the CMI and IRA for SWMU 1. UST 13 and Area A at UST 17 received No Further Action designations. In FY99, a full ecological risk assessment was conducted. The RI/FS for PSC 51 and Hangar 1000 began.

The ROD for OU2 was signed. A site assessment report (SAR) and a remedial action plan (RAP) were approved for UST 15.

In FY00, the RI/FS began for PSCs 46 and 47. The RI/FS and RODs were completed for OU3, PSC 16, and PSC 21. The installation sought a RCRA closure permit for Hangar 1000 and the T-56 wash area. A remedial system was implemented at UST 4. Work plans began on the SAR and RAP for UST 14.

The installation's technical review committee, which formed in FY88, was converted to a Restoration Advisory Board in FY95. In FY91, the installation completed its community relations plan and established an administrative record and an information repository.

FY01 Restoration Progress

The installation continued efforts to obtain a RCRA closure permit for Hangar 1000 and the T-56 wash area. The RI/FS for Hangar 1000, PSC 46, PSC 47, and PSC 51 is under way. The RDs for three sites were completed. The installation initiated an investigation at UST 14. Monitoring at T-56, the plating shop, and SWMU 1 is under way. Operations and maintenance began at the UST 15 remedial system. The installation completed a 5-year review as planned.

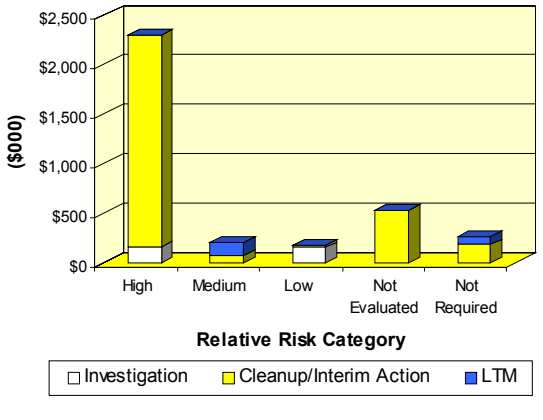
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Start IRA for PSC 46 in FY02
- Complete an SAR for UST 14 in FY02
- Continue RA for PSCs 11 (Building 780) and 48 and UST 15 in FY02–FY03 and for PSCs 11 (Areas B and G) and 15 (Area F) in FY03
- Complete RODs for PSCs 46, 51, and 52 in FY02 and for PSC 47 and PSC 11 (Areas A and E) in FY03
- Start RD for PSC 15 (Area F) in FY02 and for PSCs 11 (Areas A and E), 46, 47, 51, and 52 in FY03
- Start RA for PSCs 11 (Areas B & G and C & D) and 15 (Area F) and UST 14 in FY02 and for PSCs 46, 51, and 52 in FY03
- Complete RI/FS for PSCs 46, 47, 51, and 52 in FY02 and for PSC 11 (Areas A and E) in FY03

FY02 Funding by Phase and Relative Risk



Jefferson Proving Ground

Madison, Indiana

BRAC 1988

FFID:	IN521382045400	**Media Affected:**	Groundwater and soil
Size:	55,270 acres	**Funding to Date:**	$20.0 million
Mission:	Performed production acceptance testing of ammunition, weapons, and their components	**Estimated Cost to Completion (Completion Year):**	$8.7 million (FY2005)
		Final RIP/RC Date for BRAC-ER Sites:	FY2005
HRS Score:	NA	**Final RIP/RC Date for MMRP Sites:**	FY2002
IAG Status:	None	**Five-Year Review Status:**	NA
Contaminants:	Solvents, petroleum products, VOCs, PCBs, heavy metals, depleted uranium, and UXO		

Progress to Date

In December 1988, the BRAC Commission recommended closure of Jefferson Proving Ground and relocation of its mission to Yuma Proving Ground in Arizona. The installation closed on September 30, 1995.

Sites identified during environmental studies included landfill and disposal areas, hazardous waste storage areas, fire training areas, underground storage tanks (USTs), and buildings with asbestos-containing materials. Contaminants at the installation include depleted uranium, heavy metals, unexploded ordnance (UXO), solvents, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and petroleum hydrocarbons. Interim actions include installation of a landfill cap, removal of USTs, and excavation of contaminated soil.

In FY94, the installation formed a BRAC cleanup team (BCT) and a Restoration Advisory Board (RAB). It also submitted a draft Phase I remedial investigation (RI) report for sites south of the firing line. In FY95, the installation removed 18 USTs, treated contaminated soil in Bioremediation Cell No. 1, and constructed a landfill cap at Gate No. 19. The installation also surveyed and decontaminated depleted uranium support facilities.

In FY96, the installation submitted interim remedial action work plans for 10 sites to the regulatory agencies and began cleanup activities. The Army completed finding of suitability to transfer (FOST) and finding of suitability to lease reports for parts of the installation, in conjunction with the Record of Decision. The installation issued an updated community relations plan.

In FY98, the installation completed the Phase II RI report and submitted it for regulatory review. It also completed field studies for an ecological risk assessment. Relative Risk Site Evaluations continued for the remaining 10 sites.

In FY99, the Army completed a FOST for approximately 1,200 acres and submitted two additional FOSTs for public review. The Army approved the RAB's Technical Assistance for Public Participation (TAPP) application. The TAPP contract provides RAB community members with technical review and training services concerning the RI. The TAPP contractor provided a report on the Phase II RI to the RAB.

In FY00, the installation received regulatory concurrence from EPA Region 5 on the closure of the open burning unit. Work continued on technical memorandums for selected sites slated for future closure.

FY01 Restoration Progress

The transfer of the Defense Reutilization and Marketing Office (DRMO) area is near completion; the FOST is signed and the deed has been sent to the Army headquarters for signature. The Army completed the transfer of the central cantonment area (approximately 1,200 acres). The installation continues to work with competing local interests to resolve the transfer of a 300-acre western parcel. Additional RI fieldwork is ongoing at selected sites. The RAB continues to review documents.

Military Munitions Response Program Progress

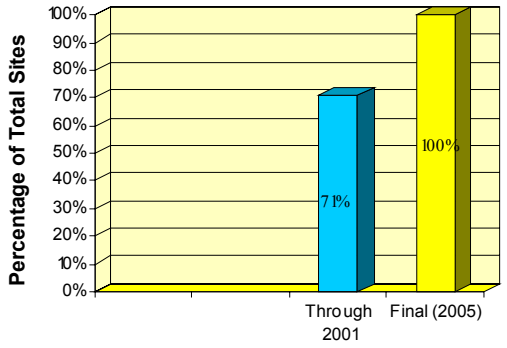
The Military Munitions Response program is new this fiscal year. Previously, clearance of UXO has occurred in support of reuse. In FY96, the installation initiated UXO removal operations and long-term management of the landfill at Gate No. 19. In FY99, the Army signed a UXO statement of clearance for the airfield area and completed the UXO clearance fieldwork for the eastern parcel. Phase II of the engineering evaluation and cost analysis for UXO clearance on the western parcel was completed.

An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete transfer of DRMO parcel in FY02
- Provide a draft revised FOST for the airfield area for public review in FY02
- Provide a draft FOST for northeastern parcel for public review in FY02
- Continue additional RI fieldwork at selected sites in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Jet Propulsion Laboratory — *Pasadena, California* — NPL

FFID:	CA99799F546700	**Funding to Date:**	$0.6 million
Size:	176 acres	**Estimated Cost to Completion (Completion Year):**	$0 (FY2000)
Mission:	Conduct research and develop aeronautics, rocketry, and space exploration technology	**Final RIP/RC Date for ER Sites:**	FY2000
		Five-Year Review Status:	NA
HRS Score:	50.00; placed on NPL in October 1992		
IAG Status:	IAG between NASA and EPA signed in 1992		
Contaminants:	VOCs and various inorganic chemicals		
Media Affected:	Groundwater		

Progress to Date

In 1980, samples from drinking water wells for the city of Pasadena were found to be contaminated with volatile organic compounds (VOCs), including trichloroethane, trichloroethene, and tetrachloroethene. NASA and the California Institute of Technology Jet Propulsion Laboratory initiated a study to determine whether the Jet Propulsion Laboratory was a source of the contaminants. A preliminary assessment and a site inspection were conducted, and an expanded site inspection was completed in FY90.

In October 1993, the Omaha District of the U.S. Army Corps of Engineers (USACE) proposed an interim settlement agreement to NASA and the California Institute of Technology Jet Propulsion Laboratory for DoD participation in funding environmental restoration activities.

The laboratory property was divided into three operable units (OUs): on-site groundwater contamination (OU1), on-site contamination sources (OU2), and off-site groundwater contamination (OU3). The installation also identified eight waste disposal areas. NASA prepared and submitted a remedial investigation and feasibility study (RI/FS) work plan to EPA for approval.

In FY94, RI/FS activities began, with the installation of groundwater monitoring wells at OU1. In FY95, an interim remedial action was implemented, involving installation of a groundwater treatment system for contaminated municipal wells. Five off-site groundwater monitoring wells were installed.

In FY96, NASA conducted a second round of groundwater sampling at five off-site monitoring wells. Three additional monitoring wells were installed to determine the direction of groundwater migration beneath the property. Four soil-gas probes were installed to determine the extent of vertical migration of contamination.

In FY97, a risk assessment analysis was developed. NASA also completed the on-site RI and began the FS. Pilot treatment plants for VOCs and perchlorates (a previously undetected contaminant of concern) were implemented.

In FY99, the groundwater hydrology modeling of Raymond Basin was completed. In addition, NASA and the Jet Propulsion Laboratory completed the final RIs for OU1, OU2, and OU3.

In FY00, two FS perchlorate pilot studies were completed. NASA transferred Superfund cleanup oversight for the Jet Propulsion Laboratory property to the Navy and its contractors.

FY01 Restoration Progress

The proposed plan and public meetings were completed for OU2. A draft Record of Decision (ROD) was completed. The remedial design (RD) and remedial action (RA) for OU2 will begin after the signing of the final ROD.

The final signing of the confidentiality agreement between NASA, USACE, the Department of Justice, and the California Institute of Technology took place. Cost-sharing negotiations are ongoing.

Sampling, analysis and fieldwork in support of the RI/FS study were performed for OU1 and OU3. The pilot studies for removal of perchlorate and VOCs from groundwater were completed at OU1, including US Filter's pilot study to remove perchlorate through a fluidized bed reactor. The soil vapor extraction pilot study at OU2 is under way and may be expanded to an RA as part of the final remedy.

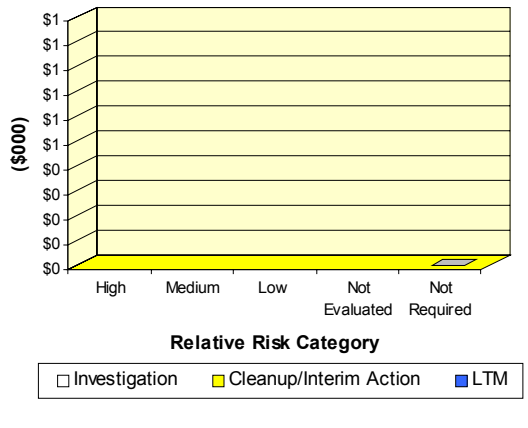
Military Munitions Response Program Progress

USACE has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete a ROD for OU2 and begin RD and RA work on OU2 in FY02
- Begin work on RA design for OU1 and OU3 in FY02
- Complete OU1 and OU3 FS and begin RD and RA work on the OUs in FY02
- Continue cost-sharing negotiations in FY02
- Complete the ROD for OU1 and OU3 by FY03

FY02 Funding by Phase and Relative Risk



Joliet Army Ammunition Plant
LAP Area and Manufacturing Area

Wilimington, Illinois **NPL**

FFID:	IL521382046000	**Contaminants:**	Explosives, heavy metals, VOCs, and PCBs
Size:	23,544 acres (currently 5,465 acres)	**Media Affected:**	Groundwater and soil
Mission:	Manufacture, load, assemble, and pack munitions and explosives	**Funding to Date:**	$49.4 million
		Estimated Cost to Completion (Completion Year):	$69.0 million (FY2010)
HRS Score:	35.23 (Loading, Assembling, and Packing Area); placed on NPL in March 1989 32.08 (Manufacturing Area); placed on NPL in July 1987	**Final RIP/RC Date for ER Sites:**	FY2010
		Five-Year Review Status:	Planned
IAG Status:	IAG signed in June 1989		

Progress to Date

The Army constructed Joliet Army Ammunition Plant in the early 1940s. It was then one of the largest munitions and explosives manufacturers in the Midwest. Installation operations included manufacturing explosives, and loading, assembling, and packing (LAP) munitions for shipment. EPA placed the 14,385-acre LAP Area and the 9,159-acre Manufacturing Area on the National Priorities List (NPL).

Environmental studies conducted between FY78 and FY88 identified 53 sites at Joliet. Prominent site types in the LAP and Manufacturing Areas include ash piles, landfills, open burning and detonation areas, and surface impoundments. The installation consolidated all sites into two operable units, one for groundwater contamination and another for contamination of soil.

During an FY85 interim remedial action, the Army removed more than 7 million gallons of explosives-contaminated water from the red water lagoon. The Army dredged the lagoon, removed the sludge and liner, and covered the entire area with a clay cap. In FY93, two ash piles were capped.

The installation completed Phase II remedial investigations for the Manufacturing Area (FY94) and the LAP Area (FY95), which the regulatory agencies approved. In FY94, the Joliet Arsenal Citizen Planning Commission developed and approved a future-land-use plan for the installation. In FY95, the installation formed a Restoration Advisory Board.

In FY96, more than 1,000 exterior-mounted, oil-filled electrical switches that contained polychlorinated biphenyls (PCBs) and 3 oil pits from the explosives burning ground were removed from the installation. The installation also removed petroleum- and PCB-contaminated soil from Site L6.

In FY97, the Army completed feasibility studies at all active study sites at the installation. The installation transferred more than 15,000 acres to the Forest Service, and 982 acres to the Department of Veterans Affairs. In FY98, the installation released an installationwide proposed plan.

In FY99, Joliet completed the installation-wide Record of Decision (ROD) and approved the associated remedial design and remedial action work plans. It also completed remediation of all but one PCB-contaminated site, finished excavation of the tetryl production area, and initiated a groundwater remedy.

In FY00, the Army built a bioremediation facility and excavated approximately 50,000 cubic yards of explosives-contaminated soil. The Army also made significant progress on the 3-year project to excavate contaminated soil in the TNT production area. Groundwater monitoring continued, and the Army recommended two sites for closure. A risk analysis study concerning the ecosystem was completed. The installation conveyed 2,013 acres to the State of Illinois for industrial park reuse.

FY01 Restoration Progress

The installation completed bioremediation of 35,000 tons of explosives-contaminated soil. It reduced bioremediation costs by using innovative technologies. The groundwater remedy is underway, as are management group work and actions to facilitate preparation of the final ROD for the future USDA lands. The installation conveyed 218 acres of remediated property to the State of Illinois for partial industrial reuse. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

Soil excavation of the red water treatment area, Group 4, and the test site was not completed due to an increase in project scope.

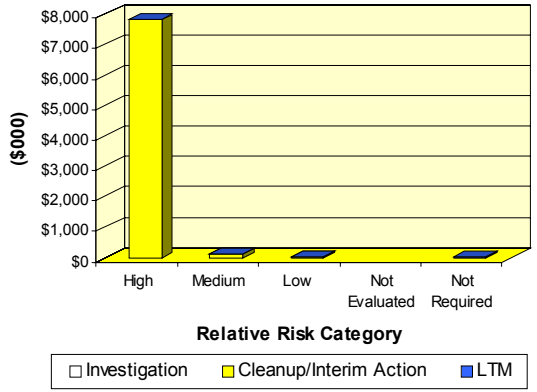
Military Munitions Response Program Progress

UXO clearance was was conducted at several sites on JOAAP in the LAP area. In addition, prior to the last tenant leaving the installation, their function test area was swept and UXO debris was removed prior to acceptance of the property by JOAPP. An inventory of closed, transferred and transferring ranges will be developed in the future.

Plan of Action

- Convey 455 acres to Will County, Illinois in FY02 for landfill reuse
- Bioremediate an additional 36,000 tons of explosives-contaminated soil in FY02
- Complete the ROD for future USDA lands in FY02
- Resume excavation of explosives-contaminated soil from TNT production area in FY02–FY03
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk



K.I. Sawyer Air Force Base

Gwinn, Michigan

BRAC 1993

FFID:	MI557002476000	**Funding to Date:**	$45.4 million
Size:	5,215 acres	**Estimated Cost to Completion (Completion Year):**	$41.3 million (FY2051)
Mission:	Conducted long-range bombardment, air refueling operations	**Final RIP/RC Date for BRAC-ER Sites:**	FY2003
		Five-Year Review Status:	Planned
HRS Score:	NA		
IAG Status:	None		
Contaminants:	Petroleum, pesticides, heavy metals, and solvents		
Media Affected:	Groundwater and soil		

Progress to Date

In July 1993, the BRAC Commission recommended closure of K.I. Sawyer Air Force Base, inactivation of the 410th Wing, and transfer of the base's mission. In September 1995, the installation closed.

Environmental studies have been in progress at the installation since FY84. Twenty-seven sites have been identified as requiring additional investigation. Sites include landfills, fire training areas, underground storage tanks (USTs), aboveground storage tank (AST) spill sites, drainage pits, and a drainage pond. Petroleum hydrocarbons, trichloroethene, tetrachloroethene, vinyl chloride, and heavy metals are the primary contaminants affecting soil and groundwater.

Interim remedial actions have included removal of USTs, removal and cleanup of contaminated soil, installation of 14 groundwater extraction wells, construction and operation of a groundwater treatment plant, removal of fuel from groundwater at the former petroleum/oil/lubricant (POL) storage area, and installation of bioventing systems. A fuel recovery trench is capturing free phase product at the leading edge of the POL area fuel plume. An impermeable cap was installed at Landfills 3 and 4. No Further Action closure documents were completed for 21 sites.

RCRA closure plans have been developed for the explosive ordnance disposal (EOD) range. The installation received regulatory concurrence on its environmental baseline survey in FY94. Also in FY94, a Restoration Advisory Board was formed. In FY95, the local redevelopment authority submitted a reuse plan.

Seven large aboveground fuel storage tanks and the aircraft hydrant refueling system have been removed. RCRA corrective measures were completed at two interim status hazardous waste storage facilities. Remedial action (RA) at the small-arms firing range was completed, and additional testing indicated no migration of lead into groundwater. Closeout was achieved for approximately 200 areas of concern (AOCs).

In FY98, remedial investigations were completed at FT-06, LF-01, LF-04, and ST-04. Several AOCs were closed out. Five regulated USTs were removed. Four remedial action plans (RAPs) were completed.

In FY99, RA at the EOD range included installation of a permeable membrane cover, clean cover material, topsoil, and vegetation. An upgraded contaminant capture system was installed at the leading edge of the ST-04 contaminant plume. A RAP was completed for LF-01, and a draft RAP was completed for ST-04. In addition, RA was completed at LF-01. Technical Assistance for Public Participation funding was used for technical review of documents for Sites ST-04, FT-06, and LF-01.

In FY00, long-term operations of the DP-02 pump-and-treat system continued. Eight large ASTs and associated underground product piping for Wells Bulk Fuel Terminal were removed. Long-term management of landfill caps was initiated. A draft RAP was completed for FT-06.

FY01 Restoration Progress

A full-scale soil vapor extraction system was installed to remediate solvent- and fuel-contaminated soil at FT-06. Operation of treatment systems and groundwater monitoring continued. At OT-13 (Wells Bulk Fuel Terminal), testing of soil was completed to better define the areas of heaviest contamination, and a draft screening-of-remedial-alternatives document was completed.

A final RAP for FT-06 was not completed because of the discovery of additional soil contamination. The RA for Wells Terminal was not completed because additional characterization of soil was required for completion of the alternatives evaluation. A final basewide master RAP was not submitted as planned to the State of Michigan, but a draft sitewide RAP was submitted for review, and comments are being incorporated in the final document.

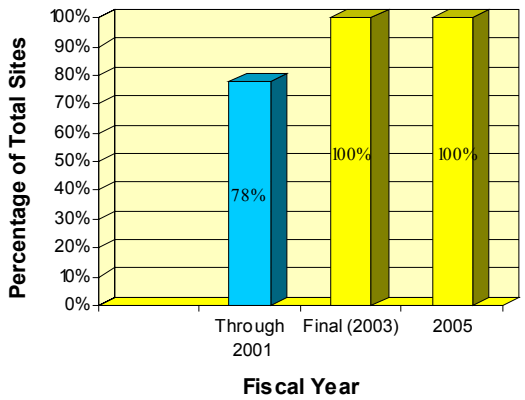
Military Munitions Response Program Progress

In FY95, the Air Force performed an unxploded ordnance (UXO) removal action covering 4 acres at the installation. The removal action included small arms cartridges, starter cartridges, and scrap metal.

Plan of Action

- Finalize RAP for FT-06 in FY02
- Complete RA alternative evaluation and RAP for Wells Terminal in FY02
- Submit basewide master RAP to the State of Michigan in FY02
- Continue to operate treatment systems and monitor groundwater in FY02
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Kelly Air Force Base

San Antonio, Texas

BRAC 1995

FFID:	TX657172433300	**Funding to Date:**	$171.0 million
Size:	3,997 acres	**Estimated Cost to Completion (Completion Year):**	$191.3 million (FY2019)
Mission:	Provide depot-level aircraft and engine repair	**Final RIP/RC Date for BRAC-ER Sites:**	FY2004
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	Metals, VOCs, and SVOCs		
Media Affected:	Groundwater and soil		

Progress to Date

In July 1995, the BRAC Commission recommended closure and realignment of Kelly Air Force Base (AFB). The Defense Distribution Depot, San Antonio, will be closed, and the airfield and all associated support activities will be realigned to Lackland AFB in Texas.

Investigations have identified 52 sites and several areas of interest on base, including landfills, spill sites, former fire training areas, low-level radioactive waste sites, underground storage tanks, aircraft maintenance areas, sludge lagoons, and sludge-spreading beds. Two former range sites were added to the program in FY98. Sites are separated into five zones: Zone 1, properties west of Leon Creek (to be realigned to Lackland AFB); Zone 2, south and west of the runway; Zone 3, industrial operations area; Zone 4, an area known as East Kelly; and Zone 5, flightline, warehouses, and administrative support operations (portions of which are to be realigned to Lackland AFB). Since 1996, Kelly has used both BRAC and Environmental Restoration Account funds to reach cleanup goals.

A basewide groundwater and surface water monitoring program began at Kelly AFB in FY94. By the end of FY95, final reports had been prepared for remedial investigation (RI) and feasibility study (FS) phases for 41 sites in Zones 1, 2, and 3.

A BRAC cleanup team formed in FY96, and the first BRAC cleanup plan was issued. In FY97, a Zone 4 site was remediated, and the property leased. The final Zone 5 RI report and the Zone 3 groundwater decision document were submitted for regulatory review.

In FY98, a state groundwater permit and compliance plan were issued. Arsenic-contaminated soil was removed from Site S-7 in East Kelly. A removal action began at a newly discovered source area, a spill site at the former metal plating shop. More than 1,000 gallons of dense nonaqueous phase liquid was removed. Investigations concluded at the Site MP source area.

In FY99, stormwater reroutes were completed for cross connections within the base. Delineation and characterization were completed for Zone 3, and sampling was conducted in the off-base area. Remedial actions were conducted for Zones 2 and 3. A slurry wall was installed for the former metal plating shop. A project was initiated to remove radioactive sources at RD-1. Bioaugmentation was implemented at a chlorinated solvent spill site in the industrial area of the base. A Technical Assistance for Public Participation grant allowed the base's Restoration Advisory Board to review the basewide groundwater assessment and the Agency for Toxic Substances and Disease Registry public health assessment.

In FY00, the Zone 1 and Zone 5 corrective measures study (CMS) reports were completed, as was the interim remedial action (IRA) for Site S-1. Construction on the Quintana Road stormwater culvert project, which includes a hydraulic barrier to prevent further migration of contaminated groundwater, continued. The IRA for Zone 4 groundwater was completed and is operational. Zone 2 and Zone 3 Installation Restoration Program (IRP) projects and several RCRA solid waste management unit closure projects were combined into a single comprehensive project. The Zone 4 soil RI and the off-base addendum were initiated.

FY01 Restoration Progress

IRP sites on property being realigned to Lackland AFB in Zone 1 and parts of Zone 5 were transferred. The installation removed an inactive electroplating facility suspected of being a major source of groundwater contamination for Zone 3. It also received input from community and the San Antonio City Council regarding a community-based solution for off-base groundwater contamination.

The Site S-4 IRA groundwater system was completed, but the corrective measures implementation (CMI) work plan was delayed due to the regulator approval process. The Zone 2, 3, and 4 CMS, the Site MP CMS, and the Zone 1 and Zone 5 CMI work plan were delayed due to the complexity of the RI/FS. The cost of completing environmental restoration has changed significantly at this installation because of technical and regulatory issues.

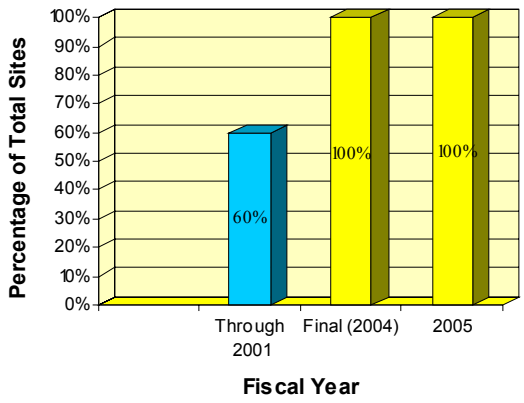
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Remove inactive portions of the former industrial wastewater treatment plant in FY02
- Install groundwater IRA to contain source of contamination from the former plating and engine rehabilitation facilities in FY02
- Install permeable reactive barrier to contain groundwater at base boundary and install bioaugmentation system to treat groundwater source in the warehouse area in FY02
- Install IRA at a former evaporation pit to remove contaminant source in FY02
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Keyport Naval Undersea Warfare Center — *Keyport, Washington* — NPL

FFID:	WA017002341900	**Funding to Date:**	$29.5 million
Size:	340 acres	**Estimated Cost to Completion (Completion Year):**	$24.7 million (FY2017)
Mission:	Test, prove, overhaul, and issue torpedoes	**Final RIP/RC Date for ER Sites:**	FY2007
HRS Score:	32.61; placed on NPL in October 1989	**Five-Year Review Status:**	Completed/Planned
IAG Status:	Federal facility agreement signed in 1990		
Contaminants:	VOCs, heavy metals, petroleum hydrocarbons, herbicides, fuel, PCBs, and pesticides		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

In September 1995, the BRAC Commission recommended realignment of this installation. The center's responsibility for maintaining combat system consoles and its general industrial workload were moved to Puget Sound Naval Shipyard.

Operations at the installation, including plating, torpedo refurbishing, and disposal, contributed to contamination at the property. Since FY84, environmental investigations at the installation have identified sites such as underground storage tanks, sumps, spill sites, a landfill, and an underground trench. Environmental investigations conducted under CERCLA identified 12 sites.

In FY92, an underground trench and several sumps were excavated, and chromium-contaminated soil was removed and replaced with clean fill at a chromate spill site. In FY93, the Navy completed remedial investigation (RI) and feasibility study activities for Operable Unit (OU) 2. Additional RI activities were initiated at Site 1 because of public concern. In FY94, a Record of Decision (ROD) was signed for OU2.

During FY96, the Navy completed confirmational groundwater sampling at Site 5 and sediment sampling at Site 9, making them no further action sites. Corrective measures, including removal of tanks and soil and in situ remediation of contaminated soil, were conducted at Site 23. In FY98, the Navy completed a focused feasibility study, a proposed plan, and a ROD for OU1.

In FY99, the Navy completed the remedial design and remedial action (RA) for sediment removal and started planning for phytoremediation and the tide gate upgrade for OU1. The Navy began a time-critical removal action (TCRA) at Building 21 in Site 23 to remove buried drums and associated contaminated soil. Total petroleum hydrocarbon–contaminated soil from Site 8 was treated and then made available for reuse in highway maintenance projects.

In FY00, the installation finalized an institutional control plan and began implementation. Long-term management (LTM) work plans were finalized and monitoring began for OU1. The 5-year review was completed. RA was completed at Site 8, and a final closure report was submitted. The TCRA at Site 23 was completed.

A technical review committee was formed in FY89 and converted to a Restoration Advisory Board in FY95. A community relations plan was completed in FY90 and updated in FY00.

FY01 Restoration Progress

The installation finalized the Site 23 TCRA report. Operations and maintenance continued at OU1. LTM conducted at OU1 and OU2 identified sediment issues that require resolution with regulators. The contingency plan for OU1 was delayed for further evaluation. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria and technical issues.

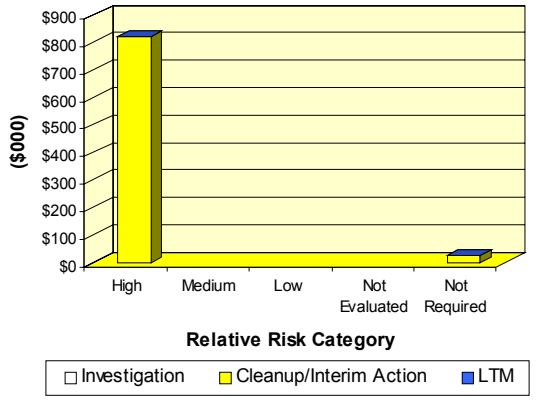
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Continue RA-operations at OU1 in FY02–FY03
- Continue LTM at OU1 and OU2 in FY02–FY03
- Begin and complete the OU1 contingency plan in FY02
- Resolve sediment issues at OU1 and OU2 in FY02
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk



Lake City Army Ammunition Plant
Northwest Lagoon

Independence, Missouri **NPL**

FFID:	MO721382048900	**Funding to Date:**	$68.7 million
Size:	3,935 acres	**Estimated Cost to Completion (Completion Year):**	$77.0 million (FY2028)
Mission:	Manufacture, store, and test small-arms munitions	**Final RIP/RC Date for ER Sites:**	FY2009
HRS Score:	33.62; placed on NPL in July 1987	**Five-Year Review Status:**	NA
IAG Status:	IAG signed in September 1989		
Contaminants:	Explosives, heavy metals, solvents, and POLs		
Media Affected:	Groundwater and soil		

Progress to Date

Operations at the Lake City Army Ammunition Plant, a government-owned, contractor-operated facility, include the manufacture, storage, and testing of small-arms munitions. Principal site types at the installation include abandoned disposal pits, sumps, firing ranges, old lagoons, old dumps, and closed RCRA lagoons and burning grounds. Environmental studies identified 73 sites, which were consolidated into 35 sites for further investigation. Sampling at seven representative areas identified groundwater contaminated with volatile organic compounds (VOCs), explosives, and heavy metals. After the plant was placed on the National Priorities List (NPL), it conducted a remedial investigation and feasibility study (RI/FS) focusing on four operable units (OUs), the Northeast Corner OU, Area 18, Area 8, and an installationwide OU. Area 8 was then incorporated into the installationwide OU.

In FY93, the installation drafted RI/FS reports for Area 18 and the Northeast Corner OU. In FY94, the installation completed the draft RI report for Area 8 and the installationwide OU and finished Relative Risk Site Evaluations. The installation completed an engineering evaluation and cost analysis (EE/CA), an action memorandum, and design documents in FY95.

In FY96, the installation initiated a removal action at Area 18. The Army completed the FS report for the Area 18 OU and submitted the proposed plan (PP) to the regulatory agencies. The installation also initiated removal actions for sumps, installationwide groundwater containment, and the capping and leachate collection system for the abandoned landfill in Area 16. The installation submitted a draft final FS for the Northeast Corner OU.

In FY97, the installation completed a pump-and-treat system for Area 18. It developed an EE/CA and an action memorandum for the leachate collection trench and a cap for the abandoned landfill in the Area 16/Northeast Corner OU. The commander formed a Restoration Advisory Board (RAB).

In FY98, the installation completed the final Record of Decision (ROD) for the Northeast Corner OU interim action. It also installed an extraction well at the northern boundary to prevent off-post migration of a contaminated groundwater plume. Installationwide characterization of groundwater was completed. Cleanup of depleted uranium at the firing range began under a Nuclear Regulatory Commission decommissioning plan.

In FY99, the installation completed the ROD for Area 18. It also initiated an interim remedial action (IRA) for noncontroversial metals-contaminated soil sites. In FY00, the installation completed the construction of the permeable reactive wall portion of the IRA in the Northeast Corner OU.

FY01 Restoration Progress

The installation awarded the contract for remediation of lead-contaminated soil in the Area 18 OU. The Army completed a design for a removal action at the Northeast Corner OU Area 16 abandoned landfill, which involves a landfill cover and leachate collection trench. Additional data collection and treatability studies (TSs) are under way for a complete installationwide OU interim action RI/FS, PP, and ROD. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

The Army prepared a work plan for additional investigation of VOC contamination at the Area 18 OU; however, regulator issues delayed the draft final report. The Northeast Corner OU IRA report was also delayed by regulator issues.

The installation held RAB meetings every 2 to 3 months.

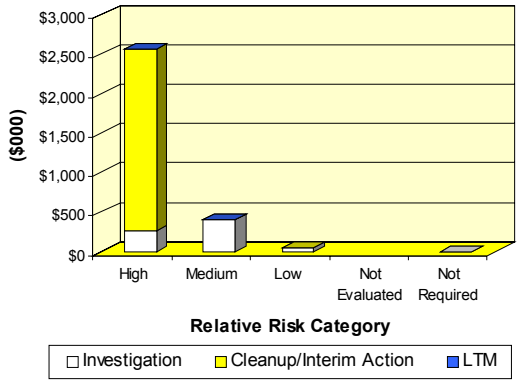
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- For the Area 18 OU, complete remedial action for lead-contaminated soil and complete additional investigation of VOC contamination in FY02
- For the Northeast Corner OU, complete a landfill cover and leachate collection trench removal action for the Area 16 abandoned landfill, and complete hydrologic investigations and implement corrective actions at the permeable reactive wall in FY02
- Complete Northeast Corner OU IRA report in FY02 and final action FS in FY03
- Complete installationwide OU interim action RI in FY03

FY02 Funding by Phase and Relative Risk



Lakehurst Naval Air Engineering Station — *Lakehurst, New Jersey* — NPL

FFID:	NJ217002727400	**Funding to Date:**	$44.8 million
Size:	7,382 acres	**Estimated Cost to Completion (Completion Year):**	$42.1 million (FY2045)
Mission:	Perform technology development and engineering	**Final RIP/RC Date for ER Sites:**	FY2000
HRS Score:	50.53; placed on NPL in July 1987	**Five-Year Review Status:**	Completed
IAG Status:	Federal facility agreement signed in October 1989		
Contaminants:	Fuels; PCBs; solvents, including TCE; and waste oils		
Media Affected:	Groundwater and soil		

Progress to Date

Historical operations at this installation involved handling, storage, and on-site disposal of hazardous substances. Forty-five potentially contaminated sites were identified. Investigations began in FY83, and the remedial investigation and feasibility study (FS) were completed by the end of FY95.

Contaminated soil, drums, tanks, and debris were removed from 23 sites. Innovative technologies have been implemented, including soil washing, asphalt batching, and solar-powered spray irrigation and sparge treatment systems. In FY93, the installation developed groundwater modeling, which supported the use of natural restoration as the remedy for a large trichloroethene (TCE) plume.

In FY96, remedial designs were completed for upgrades of the installation's four pump-and-treat systems, and Records of Decision (RODs) were completed for continued treatment of groundwater and soil in Areas C and H. FSs for Areas A/B, E, and K also were completed. A soil vapor extraction (SVE) system began operating at Site 13, and soil bioventing and vapor extraction systems began operating at Sites 16 and 17. During FY97, the installation created an aeration system and a surface water reservoir to treat groundwater and irrigate the station's golf course. RODs were completed for Areas A, B, E, and K.

In FY98, the groundwater recovery systems at Areas A, C, E, and H were modified. An SVE and groundwater sparge system was installed in Area E, a groundwater sparge wall was installed in Area A, and a free-product recovery trench was installed in Area C to accelerate groundwater remediation. The installation implemented solar-powered spray irrigation systems in Areas D and K to treat groundwater.

In FY99, a 3-year pilot project for natural restoration in Areas I and J was completed. By the end of FY99, the installation had final RODs in place for all sites. Contaminated soil at Site 42 was excavated and removed for off-site recycling.

In FY00, monitoring at Site 1 and the removal of free product and contaminated soil from Site 42 were completed. Operations continued for existing remediation systems.

FY01 Restoration Progress

A treatability study of bimetallic nanoscale particle (BNP) technology was completed to determine its effectiveness for treating Area I and J groundwater. Field testing of the technology is planned. The effectiveness of the technology for use in Area I and J must be proved before the National Priorities Laist (NPL) delisting process can begin. The installation completed the 5-year review report addressing soil at Sites 13, 16, 17, 28, 31, and 32 and groundwater at Areas A, B, C, D, E, H, I, J, and K. The installation continued operations and maintenance (O&M), monitoring, data interpretation, and reporting for four pump-and-treat systems, five SVE/bioventing/sparge systems, six spray irrigation systems, and one natural restoration site. A new SVE well was added to the Site 13 SVE system. Oxygen release compound (ORC) was injected at Sites 13, 16, 17, and 32 to accelerate remediation of groundwater in these areas.

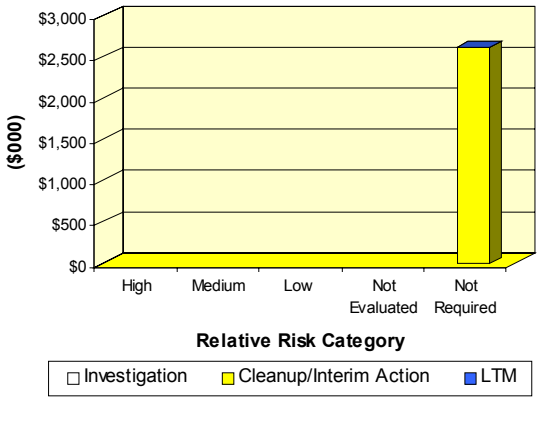
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Demonstrate that all remedies are operating properly and successfully to start the NPL delisting process in FY02
- Evaluate effectiveness of ORC injected at Sites 13, 16, 17, and 32 and reinject if required in FY02
- Obtain No Further Action determination for Site 28 in FY02
- Continue O&M, monitoring, data interpretation, and reporting for three pump-and-treat systems, four SVE/bioventing/sparge systems, six spray irrigation systems, and one natural restoration site in FY02–FY03
- Use BNP or another technology to treat areas of higher level groundwater contamination in Areas I and J in FY02–FY03

FY02 Funding by Phase and Relative Risk



Langley Air Force Base
Including NASA Langley Research Center

Hampton, Virginia **NPL**

FFID:	VA357212447700	**Contaminants:**	Petroleum products, chlordane, PCBs, heavy metals, and solvents
Size:	3,152 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Air Combat Command Headquarters, 1st Fighter Wing, 74th Tactical Control Facility, 480th Reonnaissance TechnicalGroup, and NASA Langley Research Center	**Funding to Date:**	$54.2 million
		Estimated Cost to Completion (Completion Year):	$33.9 million (FY2008)
		Final RIP/RC Date for ER Sites:	FY2007
HRS Score:	50.00; placed on NPL in May 1994	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement under negotiation		

Progress to Date

Langley Air Force Base has been an airfield and an aeronautical research center since 1917 and is the home base of the 1st Fighter Wing and Headquarters Air Combat Command.

In FY81, a preliminary assessment, a site inspection (SI), and additional studies identified 45 sites at the installation, including landfills, underground storage tanks (USTs), a bulk fuel distribution system, and storm sewers. Investigations have determined that contaminants are migrating into Tabbs Creek, the Back River, and ultimately the Chesapeake Bay.

In FY85, the installation discovered additional fuel contamination and free-product plumes. Subsequently, the installation replaced the fuel distribution system, investigated contaminated sediment in the storm sewers, and conducted removal actions to address free product at eight sites. Corrective action plans for the eight petroleum-contaminated sites were completed, and USTs at those sites were removed. Removal actions to remediate soil and groundwater contamination began at three other sites. Additional actions at the sites included removal of abandoned USTs and free product, and installation of a treatment plant to remove emulsified fuel from groundwater.

In FY93, the installation began remedial action construction at six sites. In FY95, it completed construction of a second groundwater extraction and treatment system. A soil vapor extraction system was implemented to remediate petroleum-contaminated soil near the BX gas station. The installation's Restoration Advisory Board participated in an oversight initiative, which involved formation of the Langley Partnership to improve communication and to set cleanup priorities. In FY96, remedial investigations (RIs) began at 13 sites and the installation completed SI activities at 33 sites and removal actions at 2 sites. In FY97, the installation implemented removal actions at three sites.

In FY98, the installation completed interim remedial actions for two sites, signed decision documents (DDs) designating no further remedial action planned (NFRAP) for three sites, and completed proposed plans (PPs) for two sites. Three areas of concern were established that later became environmental restoration program sites, making a total of 48 sites. Nine USTs were removed from three sites, and one petroleum/oil/lubricants (POL) site was closed with a NFRAP designation. A former wastewater treatment plant was removed to eliminate a pathway to the Back River.

In FY99, three Records of Decision (RODs), six DDs, and two no further action (NFA) letters were signed. The installation closed out eight sites. One removal action was completed, resulting in the closure of 85 monitoring wells. Free-product removal was conducted at 13 POL sites. The installation developed an interim groundwater approach, including RODs, for two sites. Three additional POL sites were closed. The installation developed an ecological summary report for all sites.

In FY00, RODs for OT-06 and LF-13 were signed. The installation finalized RIs for 14 sites, and draft PPs were submitted for eight sites.

FY01 Restoration Progress

DD for NFA on SS-24 was signed. RIs were completed for seven sites. Feasibility studies (FSs) were completed for 13 sites. PPs were completed for 14 sites. Five sites were closed. The 5-year review was completed. The cost of completing environmental restoration has changed significantly at this installation because of technical issues.

The planned memorandum of agreement (MOA) on land use controls was delayed due to changes in language and institutional controls policy.

Military Munitions Response Program Progress

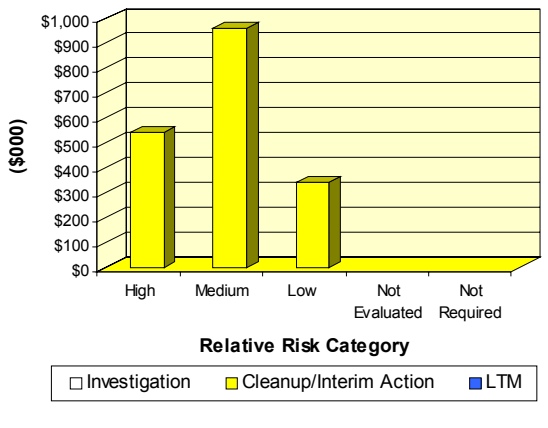
In FY01, a comprehensive range inventory was initiated. This inventory was designed to be an annual, iterative effort. To supply data for the inventory, a detailed questionnaire was completed that collected data on the types of munitions used, the range's environmental status, and the type and level of external stakeholder interest.

Munitions response and range cleanup actions have been delayed, pending funding availability and guidance refinement. As funding becomes available and guidance is refined, ranges will be cleaned up based on risk to human health and the environment.

Plan of Action

- Continue to negotiate the MOA in FY02
- Obtain signatures on RODs for 15 sites in FY02
- Complete remedial designs for seven sites in FY02
- Complete FSs for LF-17, WP-02, and WP-14 in FY02
- Complete PP for WP-08, LF-17, and OT-55 in FY02
- Complete RI for SS-63 in FY02
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk



Letterkenny Army Depot

Franklin County, Pennsylvania

NPL/BRAC 1995

FFID:	PA321382050300	**Contaminants:**	VOCs, POLs, PCBs, heavy metals, explosives, and asbestos
Size:	19,243 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Store, maintain, and decommission ammunition; rebuild and store tracked and wheeled vehicles; rebuild, store, and maintain missiles; provide warehousing and bulk storage	**Funding to Date:**	$105.9 million
		Estimated Cost to Completion (Completion Year):	$14.5 million (FY2008)
		Final RIP/RC Date for BRAC-ER Sites:	FY2005
HRS Score:	34.21 (Southeastern Area–SE); placed on NPL in July 1987	**Final RIP/RC Date for ER Sites:**	FY2008
	37.51 PDO; placed on NPL in March 1989	**Five-Year Review Status:**	Under Way/ Planned
IAG Status:	IAG signed in February 1989		

Progress to Date

Letterkenny Army Depot contains various contaminated sites, including disposal lagoons and trenches, oil burn pits, an open burning and open detonation area, an explosives washout plant, two scrap yards, landfills, industrial wastewater treatment plant lagoons, and industrial wastewater sewer lines. The National Priorities List (NPL) sites are in the southern part of the installation.

The installation has concentrated its remedial efforts on source removal, including excavation, low-temperature thermal treatment, and backfilling and capping of soil in the industrial wastewater treatment plant lagoons and the three K-Areas; emergency repairs to leaking industrial wastewater sewers; removal of the Property Disposal Office (PDO) fire training pit; and emergency removal of playground soil at the PDO area and of sediment contaminated with polychlorinated biphenyls (PCBs) in the Rocky Spring springhouse. In FY91, the installation signed a Record of Decision (ROD) for no further action for PDO Operable Unit (OU) 1. Remedial investigations and feasibility studies (RI/FSs) were expanded to 10 OUs in the southeastern (SE) area and 6 OUs in the PDO area.

In FY94, the Army completed the RI/FS for contaminated groundwater at PDO OU2 and began RI fieldwork at the mercury detections in Rocky Spring Lake and at five OUs in the SE area. In FY95, the installation completed a remedial action (RA) in the K-Area of the Disposal Area, treating volatile organic compound (VOC)–contaminated soil. A final ROD was prepared for PDO OU2.

In FY96, the installation began removing contaminated sediment from the Rowe Run and SE drainage sites and delineation and removal at the old PDO oil burn pit. In addition, the Army established a BRAC cleanup team (BCT), the community formed a local redevelopment authority, and the installation established a Restoration Advisory Board. In FY97, the installation completed three removal actions at the spill site in Area A, the industrial wastewater sewers, and the open truck storage area. A removal action was initiated at the former PDO oil burn pit.

In FY98, the installation prepared draft RI reports for SE OUs 2, 4, and 5. The Army signed a ROD for the Phase I parcel and prepared a proposed plan (PP). A Finding of No Significant Impact environmental assessment was signed. In FY99, long-term management began at PDO OUs 2, 4A, and 4B. The installation also completed a finding of suitability to transfer for Phase I BRAC parcels.

In FY00, the installation developed RI/FS and RA reports for sites LEAD-110, 114, and 126. The Army completed a draft focused feasibility study (FFS) for SE OU10 and submitted it to the regulators. The Army also reviewed a preliminary draft FFS for SE OU3. PCB removal at the Defense Reutilization and Marketing Office (DRMO) scrap yard was completed. The Army submitted a draft RI and risk assessment to the regulators for SE OU5.

FY01 Restoration Progress

The enhanced biodegradation project at Building 37 is under way. The installation completed the draft RI and risk assessments for SE OUs 2 and 4. Soil removal at the truck open storage area was successfully completed. The Army completed the Phase II limited depth transfer PP and ROD. The actual transfer was delayed due to the extended regulatory review time associated with this unique approach of using limited-depth transfer (only top 8 feet of soil are being transferred). The installation awarded the PDO scrap yard soil removal contract and completed the emergency soil removal at SE OU9 Landfill J. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

The soil removal at the lead ingot storage area was delayed due to contract modifications. Contract expiration and redefinition of the OU delayed the RI for SE OU6.

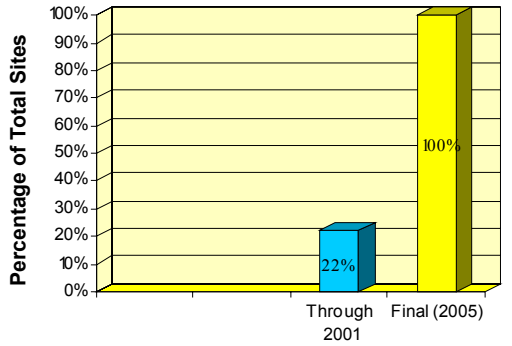
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete Phase II limited-depth transfer in FY02
- Initiate soil removal at old PDO scrap yard in FY02
- Decontaminate Buildings 651/652 in FY02
- Complete soil removal action for PDO OU5 and DRMO scrap yard PCBs in FY02
- Complete FFS, PP, and ROD for SE area OU11 and SE area OU VOC-contaminated groundwater in FY02–FY03
- Proposed additional uncontaminated acreage for Phase III transfer in FY02
- Complete SE area 5-year review in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



FFID:	KY421382050900	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	780 acres	**Funding to Date:**	$27.5 million
Mission:	Conducted light industrial operations, including paint stripping, metal plating, etching, and anodizing	**Estimated Cost to Completion (Completion Year):**	$4.5 million (FY2003)
		Final RIP/RC Date for BRAC-ER Sites:	FY2003
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	VOCs, SVOCs, heavy metals, PCBs, pesticides, herbicides, and asbestos		

Progress to Date

In December 1988, the BRAC Commission recommended closure of the Lexington Facility, Lexington-Bluegrass Army Depot (LBAD). The installation closed as scheduled in FY95.

In FY90, studies identified 67 sites requiring further investigation. A RCRA facility assessment identified 30 solid waste management units (SWMUs) and two areas of concern (AOCs).

The Army began fieldwork for a RCRA facility investigation (RFI) and a corrective measures study (CMS) in FY90. Sampling data from the initial phase of the RFI showed contaminated groundwater, soil, and sediment at 29 sites. The major AOCs were three landfills (new, old, and industrial and sanitary waste disposal), industrial waste lagoons, industrial wastewater treatment plants (IWTP) Area A, Area B, the north end of Building 135, and groundwater. The Phase I RFI and groundwater investigation demonstrated the need for soil cleanup.

In FY94, the Kentucky Department of Environmental Protection (KDEP) issued a corrective action order to the Army. The Army signed an interim lease with the Commonwealth of Kentucky for the depot, and the installation formed a BRAC cleanup team and completed an environmental baseline survey.

In FY95, the installation removed the last underground storage tanks, contaminated soil, polychlorinated biphenyl (PCB)–containing transformers, and asbestos. In FY96, the installation completed interim remedial actions (IRAs) at Area A, Area B, and the coal pile runoff area. In FY97, it completed removal of contaminated soil and sludge from the industrial waste lagoons.

In FY97, EPA and KDEP concurred on the final Phase I RFI and CMS documents. A Phase II installationwide groundwater investigation began. Interim measure work plans for several SWMUs were forwarded to KDEP and EPA for approval. The Army completed the cap on the three landfills; excavated contaminated soil from the lagoons, Area A, Area B, and an IWTP; and conducted remedial actions at other AOCs.

In FY98, LBAD established a Restoration Advisory Board. KDEP and EPA concurred on the transfer of structures listed in a Phase IIB finding of suitability to transfer (FOST). In FY99, the Army provided a draft RCRA statement of basis to KDEP and EPA on the three landfill sites and the Group II sites. The Army also provided a statement of basis to KDEP and EPA concerning institutional control sites (Buildings 3, 9, 42, and 46), Buildings 19 and 43, the golf course ponds, and Area A. The installation completed IRAs at Buildings 63, 130, 135, and 154; the new wastewater treatment plant; and the old wastewater treatment plant. It also completed version 3 of the BRAC cleanup plan.

In FY00, the installation issued statements of basis for 10 buildings; Areas A and C; the transformer spill near Building 223; the landing field; the calcium hydrate storage area; Vehicle Washrack II; and the golf course ponds. It submitted the Phase II RFI for soil and groundwater to the regulators and the Army Environmental Center. A management plan concerning lead cleanup standards was submitted to KDEP for review.

FY01 Restoration Progress

The Phase IIB transfer of five buildings and railroad infrastructure to the Commonwealth of Kentucky was completed. LBAD and KDEP agreed on cleanup standards for lead; PCB issues are still under discussion. A statement of basis was completed for the Vehicle Washrack I site, soil adjacent to Building 27, and the underground emergency holding tank site. The statement of basis for Phase II RFI/CMS sites was not completed as planned. Kentucky has delayed moving forward with the statement of basis until the Army implements land use control plans. The cost of completing environmental restoration at this installation increased significantly due to regulatory issues.

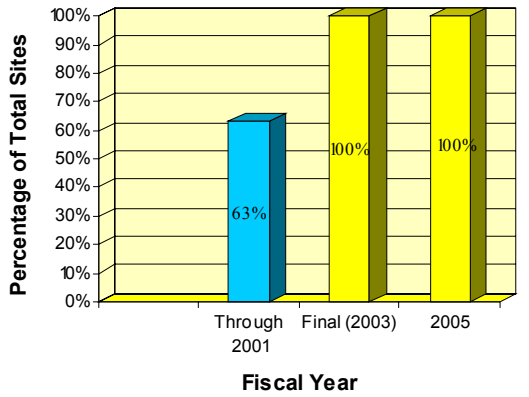
Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete Phase II RFI/CMS for soil and groundwater in FY02
- Develop a FOST for the public benefit conveyance (PBC) parcel in FY02
- Conduct PBC transfer in FY02
- Perform economic development conveyance transfer in FY03
- Complete the statement of basis for Phase II RFI/CMS sites in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Lone Star Army Ammunition Plant — *Texarkana, Texas* — NPL

FFID:	TX621382183100	**Funding to Date:**	$22.2 million
Size:	15,546 acres	**Estimated Cost to Completion (Completion Year):**	$2.4 million (FY2004)
Mission:	Load, assemble, and pack ammunition	**Final RIP/RC Date for ER Sites:**	FY2004
HRS Score:	31.85; placed on NPL in July 1987	**Five-Year Review Status:**	Planned
IAG Status:	IAG signed in September 1990		
Contaminants:	VOCs, petroleum, heavy metals, and explosives		
Media Affected:	Groundwater and soil		

Progress to Date

Lone Star Army Ammunition Plant loads and packs munitions. From 1943 to 1944, the old demolition area (ODA) was used to destroy faulty or nonstandard explosives. Environmental studies revealed explosives and metal contamination in the ODA. EPA therefore placed that area on the National Priorities List (NPL) in July 1987. The ODA is the only CERCLA site at the installation.

RCRA sites investigated include surface impoundments, landfills, fuel storage areas, and load lines. Investigations revealed soil contamination with solvents, metals, and explosives at some sites. At one site, groundwater is contaminated. Interim actions by the installation include closing two surface impoundments, installing industrial wastewater treatment facilities, and removing a bulk fuel storage area and the service station. In FY92, the installation began a RCRA facility investigation (RFI) for RCRA corrective action sites and completed a corrective action at one underground storage tank site.

In FY95, the installation conducted soil boring and installed monitoring wells, accompanied by analytical sampling, for the ODA Phase IV remedial investigation (RI). It also conducted groundwater investigations under RCRA at the two closed surface impoundments and performed soil and groundwater investigations at the bulk fuel storage area.

In FY96, RI activities in the ODA were completed. The installation took soil borings and established groundwater wells for the RFI. In FY97, the state approved a background survey report on ambient concentrations of contaminants for the installation.

In FY98, the Army decontaminated and removed cisterns and prepared closure reports. Contaminated soil at the paint filter site and RDX Pit K 2 was excavated. The installation also completed soil removal and decontamination at nine sites and completed two Relative Risk Site Evaluations. The installation solicited interest in forming a Restoration Advisory Board (RAB), but interest was insufficient. In FY99, all parties (EPA, the state, and the Army) signed the Record of Decision for the ODA, and the Army completed the Phase I RFI activities.

In FY00, the installation began RFI activities at 2 sites and Phase II RFI activities at 11 sites. The RFI activities at the G and O Ponds were completed, and the remedial design (RD) for the ODA began. Groundwater monitoring, required by an agreed order, was performed at two sites.

FY01 Restoration Progress

The Army began construction of the soil cover and erosion controls at the NPL site. The installation awarded the RD contract for Site 33 (G Ponds). The affected-property assessment report for the western inactive sanitary landfill was completed. The installation completed all fieldwork for RFIs; some reports still remain to be completed. The installation also resolicited the community for interest in establishing a RAB. Interest was again insufficient.

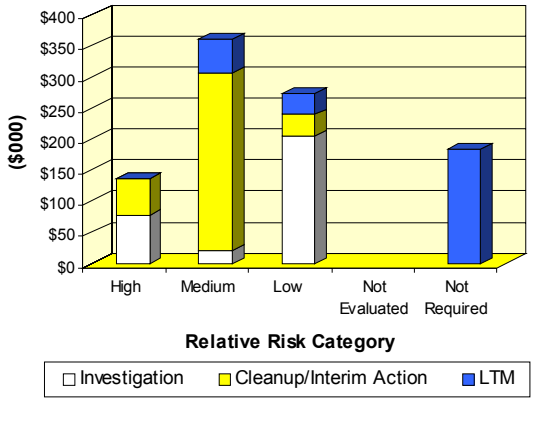
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete construction of soil cover erosion controls at NPL site in FY02
- Begin long-term monitoring at NPL site in FY02
- Begin RD at Sites 16 and 422 in FY02
- Begin remedial action at Site 33 in FY02
- Complete 5-year review in FY06

FY02 Funding by Phase and Relative Risk



Long Beach Naval Complex

Long Beach, California

BRAC 1991

FFID:	CA917002727200, CA917002755400, CA917002319000, and CA917002726700	**IAG Status:**	None
		Contaminants:	Solvents, acids, blasting grit, paint, heavy metals, and industrial liquid waste
Size:	1,563 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Provide logistics support; perform work in connection with construction, alteration, dry docking, and outfitting of ships and craft assigned; perform manufacturing, research, development, and test work	**Funding to Date:**	$58.9 million
		Estimated Cost to Completion (Completion Year):	$11.8 million (FY2014)
		Final RIP/RC Date for BRAC-ER Sites:	FY2013
		Final RIP/RC Date for ER Sites:	FY2014
HRS Score:	NA	**Five-Year Review Status:**	NA

Progress to Date

The Long Beach Naval Complex consists of the Long Beach Naval Shipyard (NSY), Naval Station (NS) Long Beach, and the Long Beach Naval Hospital (NAVHOSP). The BRAC Commission recommended closure of the NAVHOSP, the NS, and associated housing areas in FY91, and closure occurred in FY94. Closure of the NSY and associated housing areas was recommended in FY93 and occurred in FY97.

NSY and NS operations that contributed to contamination include ship and vehicle repair and maintenance, utility maintenance and operation, support shops, storage of petroleum products and hazardous materials, laundry and dry cleaning, steam plant operations, and air compressor operations. Portions of housing areas associated with the NSY were used to dispose of ship wastes, drilling mud, and construction debris. The primary sites of con-cern are disposal pits into which a variety of wastes were deposited.

In FY94, the installation formed a BRAC cleanup team (BCT), which completed a BRAC plan and an environmental baseline survey (EBS) for NS and NAVHOSP. In FY96, the installation completed the remedial investigation (RI) for NS Sites 1 through 6A and the engineering evaluation and cost analysis (EE/CA) and action memorandum (AM) for NS Site 3. Removal of arsenic-contaminated soil from Site 3 also was completed. At the former NS gas station, the installation began operating a soil vapor and liquid extraction and bioremediation system to clean up petroleum contaminants in soil and groundwater. In FY97, the installation began an interim remedial action (IRA) at Sites 2, 5, 11, and 12. The groundwater investigation for Site 6A began, and cleanup of Site 6B NSY was completed. EE/CAs for four sites and an EBS for NSY housing were completed.

In FY98, the installation completed an RI for Sites 8 through 13, an IRA at four sites, a site inspection for Site 14, and the feasibility study (FS) for Sites 3 through 6A. The FS for Sites 8, 10, and 11 was drafted, and the installation issued an EE/CA for Site 14. The RI for Site 7 and the proposed plan (PP) for Sites 3 through 6A were finalized. In FY99, the FS and the PP for Sites 1 and 2 were finalized. The Record of Decision (ROD) for Sites 3, 4, 5, and 6A was finalized. The draft FSs for Sites 7, 9, 12, and 13 were submitted for review.

In FY00, the installation completed a ROD for Sites 1 and 2 and began remedial design and remedial action for the sites. An AM for Site 14 was completed, and an IRA was initiated. A site management plan was drafted and sent to the regulatory agencies for review. All underground storage tanks (USTs) have been removed. Cleanup is under way at the two remaining UST sites. A federal facilities site remediation agreement was executed between the Department of the Navy and the California Department of Toxic Substances Control.

In FY94, the joint NS and NSY technical review committee was converted to a Restoration Advisory Board (RAB). The RAB reviewed Installation Restoration Program documents and attended bimonthly meetings. Monthly BCT meetings are conducted.

FY01 Restoration Progress

The installation completed long-term operations (LTO) and long-term management (LTM) for the year at Sites 1 and 2. The IRA at Site 14 was completed ahead of schedule. The estimated cost of completing environmental restoration at this installation has changed significantly because of technical issues.

The FS and the PP for Sites 8 through 13 were delayed due to regulatory review of the FS. The FS for Site 7 was delayed by regulatory issues.

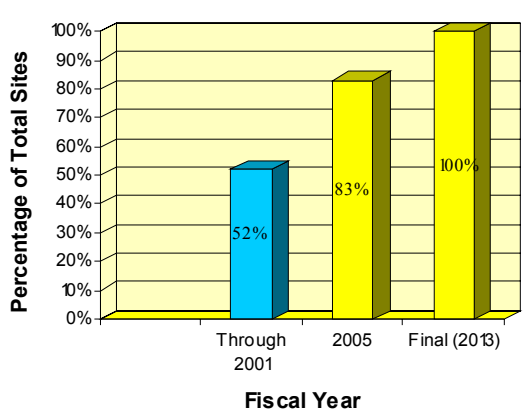
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete PPs and RODs for Sites 8 through 13 in FY02
- Continue Site 14 LTO/LTM in FY02–FY03
- Complete the FS and the PP for Site 7 in FY02 and the ROD in FY03
- Complete the Site 7 FS and PP in FY02 and the Site 7 and ROD in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Longhorn Army Ammunition Plant

Karnack, Texas

NPL

FFID:	TX621382052900	**Funding to Date:**	$72.5 million
Size:	580 acres	**Estimated Cost to Completion (Completion Year):**	$45.7 million (FY2038)
Mission:	Provided medical services, training, and research	**Final RIP/RC Date for ER Sites:**	FY2009
HRS Score:	NA	**Five-Year Review Status:**	Under Way/Planned
IAG Status:	None		
Contaminants:	Petroleum hydrocarbons, asbestos, lead-based paint, and radioactive waste		
Media Affected:	Groundwater and soil		

Progress to Date

Longhorn Army Ammunition Plant manufactured pyrotechnic and illuminating signal munitions and solid-propellant rocket motors. Environmental studies identified 50 sites at the plant, including storage areas, landfills, open burning grounds, industrial areas, burial pits, sumps, and wastewater treatment plants. Eighteen of these sites are eligible for the Installation Restoration program. The installation divided the sites into five groups.

In FY84, the Army constructed a landfill cap for an unlined evaporation pond, formerly known as the rocket motor washout pond. In FY91, the installation began a remedial investigation (RI) and feasibility study (FS) at 13 sites. Phase I of the RI was completed in FY93.

In FY94, the Army completed a pilot-scale study for groundwater extraction and treatment to remove trichloroethene and methylene chloride at Burning Ground No. 3, which includes the capped, unlined evaporation pond. During FY95, the installation completed three Records of Decision (RODs), one for Burning Ground No. 3, another for two landfills, and a third for two sites at which no further action was necessary.

In FY96, construction began on the burning ground treatment facility and the caps for Landfills 12 and 16. The installation completed the Phase II RI. A remedial action began for 84 wastewater sumps.

In FY97, the installation compiled data to complete the Group 1 RI and initiated Phase III of the RI for Groups 2 and 4. It also completed construction of the burning ground treatment facility and began treating groundwater and soil. A site inspection report for Group 5 recommended no further action (NFA) at two of the four sites. In addition, the Army initiated four interim actions and/or removal actions.

In FY98, the installation completed an NFA ROD for Group 1 sites and finished treatment of 30,000 cubic yards of source material. The Army completed the Landfill 12 cap. The installation commander attempted to form a Restoration Advisory Board, but interest was not sufficient to sustain the effort.

In FY99, the installation completed the capping of Landfill 16 and the fieldwork for the Group 2 and 4 RI/FSs. The Army completed the accelerated RI fieldwork for Site 16. Perchlorate was detected in groundwater, surface water, soil, and sediment at the installation. The Army awarded a Technical Assistance for Public Participation contract to determine the effects of on-post contamination on surface water entering Caddo Lake.

In FY00, the installation completed the bench-scale treatability study for treatment of perchlorate in the groundwater effluent from the groundwater treatment plant. Perchlorate investigations through Phase II fieldwork were completed. The Army completed the RI and the human health risk assessment reports for Site 16. Groundwater-to-surface-water modeling was completed for all watersheds at the plant.

FY01 Restoration Progress

The installation continued collecting and treating groundwater from the burning ground. A fluidized bed reactor was added for treatment of perchlorate 18 months ahead of the regulatory schedule. Perchlorate investigations continued, and the Army awarded a contract to continue additional investigations, in accordance with a dispute resolution agreement with EPA and the state. The installation completed RI reports for Group 2 and 4 sites and the Site 16 ecological risk assessment.

The FS, proposed plan (PP), and ROD for Site 16 were delay due to perchlorate contamination at the site.

The installation is in the process of updating the community relations plan and will resolicit interest in forming a RAB as part of this update.

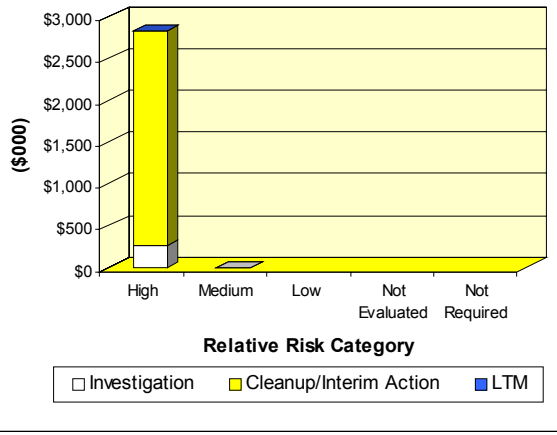
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete 5-year review for burning ground interim remedial action in FY02
- Continue perchlorate investigation of affected sites in FY02
- Complete FS report, PP, and ROD for Site 16 in FY02
- Complete Group 2 and 4 risk assessments in FY02
- Complete remedial design for Site 16 in FY03

FY02 Funding by Phase and Relative Risk



Loring Air Force Base

Limestone, Maine

NPL/BRAC 1991

FFID:	ME157002452200	**Media Affected:**	Groundwater and soil
Size:	9,477 acres	**Funding to Date:**	$123.6 million
Mission:	Support B-52 bombers and KC-135 tankers	**Estimated Cost to Completion (Completion Year):**	$104.4 million (FY2299)
HRS Score:	34.49; placed on NPL in February 1990	**Final RIP/RC Date for BRAC-ER Sites:**	FY2000
IAG Status:	Federal facility agreement signed in April 1991; revision signed in 1994	**Five-Year Review Status:**	Completed/Planned
Contaminants:	VOCs, waste fuels, oils, spent solvents, PCBs, pesticides, and heavy metals		

Progress to Date

Loring Air Force Base was established in 1952 to support B-52 bombers and KC-135 tankers. In July 1991, the BRAC Commission recommended closure of the base. The flightline and nose dock areas, where industrial shops and maintenance hangars were located, are the primary areas where wastes were released into soil and groundwater.

Environmental studies began at the base in FY84. Sites include spill areas, landfills, fire training areas, underground storage tanks (USTs), aboveground storage tanks, and low-level radioactive waste areas. In FY93, sites were grouped into 13 operable units (OUs). Interim remedial actions initiated in FY93 include removal of free product at three sites, source removal at two sites, and treatability studies of bioventing and solvent extraction.

In FY94, remedial actions (RAs) were completed for two OUs and an environmental baseline survey (EBS) was completed. A BRAC cleanup team (BCT) and a Restoration Advisory Board were formed.

In FY96, the installation demonstrated an innovative emission control system using soil vapor extraction at the base laundry. Landfill covers were completed at 2 sites, bioventing systems installed at 8 sites, interim actions completed at 15 sites, and numerous USTs removed. Polychlorinated biphenyl (PCB) cleanups began at an underground transformer site and the base drainage system. Four Records of Decision (RODs) were signed for 31 sites. A corrective action plan to address contamination at fuel tank sites was submitted to the state regulatory agency.

In FY97, the installation began remediation of the Surface Drainage OU and initiated the cleanup plan for pipeline extending from the installation to Searsport. Early removal actions took place at OU5 and at two pump houses in OU10.

In FY98, a ROD was completed for eight Installation Restoration Program sites. The BCT published an updated BRAC cleanup plan, and the installation completed the RA for basewide surface drainage. A remedial investigation and feasibility study for the Basewide Groundwater OU was completed. Cleanup of fuel spill sites was completed under Maine regulations. Investigative efforts at the base quarry revealed a buried drum disposal site. The BCT immediately executed a removal action, excavating and disposing of over 300 drums, some containing hazardous wastes. Characterization of the quarry was completed in FY99.

Also, in FY99, the last two installation RODs for the remaining 10 source control sites and the Basewide Groundwater OU were completed. A 5-year review began. In addition, a long-term groundwater monitoring plan was implemented, a wetland mitigation project was constructed, and a supplemental EBS and a finding of suitability to transfer (FOST) were drafted. Fuel spill cleanup along the 180-mile pipeline was initiated.

In FY00, the installation completed its last RA with the construction of Landfill 3. The first 5-year review was completed, and the remedies were certified as protective. Numerous sites were documented as suitable for unrestricted and unlimited access. The FOST for a 2,500-acre parcel was coordinated in support of the local redevelopment authority (LRA). An explanation of significant differences was developed for the quarry plume when long-term management identified contamination in a compliance boundary well. Two sites along the pipeline from Loring to Searsport were cleaned up.

FY01 Restoration Progress

The installation transferred 2,500 acres of airfield, business, and commercial property by deed to the LRA. The treatment system for the Argyle pump station spill site was installed. An institutional control management plan (ICMP) was initiated. The state initiated a pilot study at the base quarry to evaluate an innovative technology for remediation of dense nonaqueous phase liquid in bedrock. Groundwater monitoring continued and active soil cleanup systems were operated as planned.

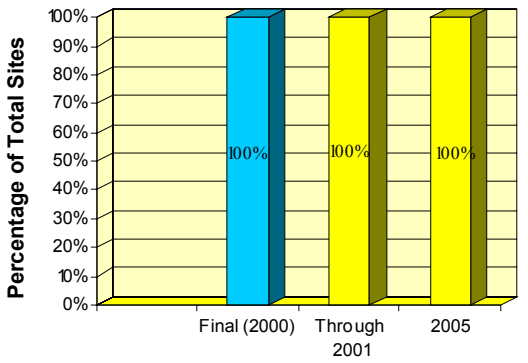
Military Munitions Response Program Progress

In FY00, the Air Force performed a removal action covering 40 acres at the installation. The removal action included small arms, 50-caliber, and starter cartridges, as well as grenades.

Plan of Action

- Develop action plan for additional petroleum cleanup at Mattawamkeag pump station in FY02
- Develop action plan for recently identified PCB contamination near east branch of Greenlaw Brook in FY02
- Complete ICMP in FY02
- Continue support of state pilot study effort at the former quarry in FY02
- Monitor groundwater and operate active soil cleanup systems in FY02
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Louisiana Army Ammunition Plant — *Doyline, Louisiana* — NPL

FFID:	LA621382053300	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	14,974 acres	**Funding to Date:**	$53.9 million
Mission:	Manufacture ammunition metal parts and maintain ammunition production facilities	**Estimated Cost to Completion (Completion Year):**	$11.5 million (FY2002)
		Final RIP/RC Date for ER Sites:	FY2002
HRS Score:	30.26; placed on NPL in March 1989	**Five-Year Review Status:**	Completed/Planned
IAG Status:	IAG signed in 1989		
Contaminants:	Oils, grease, degreasers, phosphates, solvents, metal plating sludges, acids, fly ash, TNT, RDX, and HMX		

Progress to Date

Sites identified at the Louisiana Army Ammunition Plant (LAAAP) include lagoons, burning grounds, and landfills contaminated with explosives and plating wastes. The Army identified seven sites during a preliminary assessment and site inspection in FY78 and completed a preliminary remedial investigation and feasibility study (RI/FS) in FY82. The installation initiated full-scale RI/FS activities at four of the seven sites in FY85. The studies identified no off-site contamination; however, groundwater-monitoring wells at the installation were contaminated with explosive compounds, such as TNT, RDX, and HMX.

The potential for off-site migration of contaminants required groundwater monitoring beyond the northern and southern boundaries of the installation, which still continues.

Between FY89 and FY90, the installation incinerated almost 102,000 tons of explosives-contaminated soil and treated more than 53 million gallons of contaminated water. The lagoons underwent RCRA closure and were revegetated. The installation monitors and maintains the vegetated protective cap and ensures its integrity.

The Army identified 13 additional sites in FY93 and FY94: the Y-line etching facility, 9 load-assemble-pack lines, and 3 test areas. In FY95, the installation began the RI at the load-assemble-pack lines and test areas and completed the RI at the Y-line etching facility. In FY94, the Army completed a 5-year review of the interim remedial action (IRA) at the Area P lagoons, evaluating the effectiveness of interim measures. The review confirmed that the source of the contamination had been removed. The installation established a partnership with the U.S. Army Corps of Engineers Waterways Experiment Station to study the feasibility of using natural attenuation (NA) to treat groundwater contaminated with explosives.

In FY96, the installation received approval from EPA for the Record of Decision (ROD) concerning soil at the first seven sites. A separate operable unit (OU) will address the installationwide groundwater. In addition, the installation completed the first phase of the RI at the load-assemble-pack lines and test areas.

In FY97, the installation completed the RI/FS for the Y-line etching facility. The RI/FS determined that there was no risk from contaminated soil at the site. The groundwater, however, is contaminated with trichloroethene.

In FY98, the installation initiated work on the ecological risk assessment (ERA) for soil and the installationwide groundwater RI. In FY99, the Army completed an NA study to aid in completion of the FS for the groundwater OU.

In FY00, the installation completed RI fieldwork for soil (LAAAP 09) and installationwide groundwater (LAAAP 10). It also completed a No Action ROD for soil at the Y-line etching facility.

The installation conducted a second 5-year review of the IRA at the Area P lagoons. EPA has approved this second review.

FY01 Restoration Progress

The RI/FS and the ROD for the installationwide groundwater OU were delayed by regulator concerns related to the ERA. The installation is working with regulators to resolve these concerns.

The installation is nearing completion of the remediation program and, based on past responses, it is not planning to resolicit interest in forming a Restoration Advisory Board.

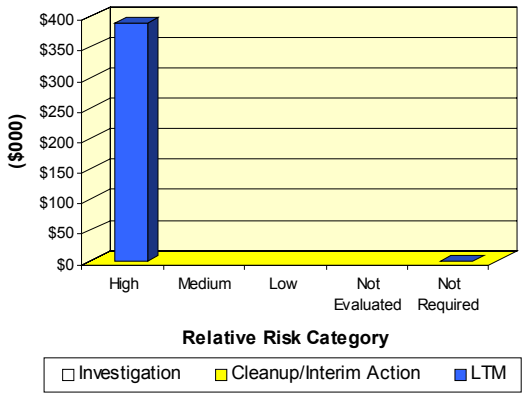
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

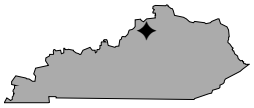
- Complete the RI/FS and ROD for the installationwide groundwater OU in FY02
- Complete the RI/FS, ERA, and ROD for the load line and test area soil and surface water in FY02
- Begin National Priorities List (NPL) deletion in FY03
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk



Louisville Naval Surface Warfare Center — *Louisville, Kentucky* — BRAC 1995

FFID:	KY417002417500	**Contaminants:**	nonchlorinated solvents, paint, pesticides, POLs and POLs sludge, plating waste, and PCBs
Size:	142 acres	**Media Affected:**	Groundwater, sediment, and soil
Mission:	Overhaul, repair, and manufacture weapon systems and components used on naval vessels	**Funding to Date:**	$17.2 million
HRS Score:	NA	**Estimated Cost to Completion (Completion Year):**	$6.0 million (FY2004)
IAG Status:	None	**Final RIP/RC Date for BRAC-ER Sites:**	FY2003
Contaminants:	Asbestos, chlorinated solvents, chemical agents, heavy metals, industrial liquid waste, industrial sludge,	**Five-Year Review Status:**	NA



Progress to Date

In July 1995, the BRAC Commission recommended closure of the Louisville Naval Surface Warfare Center. In August 1996, 85 percent of the property was leased to the Louisville/Jefferson County Redevelopment Authority as the Navy's first privatize-in-place installation. Raytheon and United Defense Louisville Plant contractors now work on naval ship weapon systems at the center using the facilities, equipment, and personnel previously employed by the Navy.

Operations contributing to contamination at this installation include machining, welding, draining of lubricating fluids, painting, electroplating, degreasing and cleaning of metals, and paint stripping. Site types include waste storage and disposal areas, manufacturing operations and disposal areas, and other miscellaneous support and maintenance activity areas. Contaminants have migrated into nearby soil, sediment, and groundwater.

The installation's RCRA Part B permit began in FY86. A pre-BRAC preliminary assessment and continuing investigation have identified 70 solid waste management units (SWMUs) and 18 areas of concern (AOCs). Many of these SWMUs and AOCs have sub-areas, accounting for more than 350 overlapping environmental sites.

In FY99, the BRAC program completed asbestos abatement, lead-based paint abatement, operational closure of sumps and pits, sewer system repairs, cleaning of various machines and equipment, removal and repair of oil-water separators, removal and remediation of underground and aboveground tanks, interim removal actions at nine hot-spot locations with soil contamination, and field sampling.

In FY00, all draft RCRA facility investigation (RFI) reports were completed. The human health risk assessment work plan was approved, and risk assessments were completed for the entire facility. Based on the risk assessments, interim removal actions were identified and initiated. A corrective measures study (CMS) work plan was submitted and approved. An environmental baseline survey for transfer was completed and approved. A screening-level ecological risk assessment was completed.

A Restoration Advisory Board (RAB) meets monthly. The restoration program is conducted by a BRAC cleanup team (BCT) partnering effort with the Navy, EPA Region 4, and the Kentucky Department of Environmental Protection.

FY01 Restoration Progress

Interim removal actions, including 121 surface and subsurface soil removals, were completed. EPA Region 4 and the Commonwealth of Kentucky approved all eight volumes of the RFI report. The Volume 2 (groundwater) CMS report was drafted and reviewed by the regulators, and is now undergoing revision. The corrective measure at SWMU 70 will be completed as an interim measure. A draft finding of suitability for early transfer was completed and reviewed by the public. The cost of completing environmental restoration at this installation has been reduced significantly because the completed risk assessments required less remediation than was initially estimated.

The RAB met quarterly and received presentations on ground water, surface soil, and subsurface soil removals, and early transfer updates. The RAB also participated in the public information meetings at the former station regarding the impending early transfer of the property from the Navy to the Louisville/Jefferson County Redevelopment Authority. The BCT met monthly to prepare and review the RFI reports, review progress on the interim measures, and prepare early transfer documents.

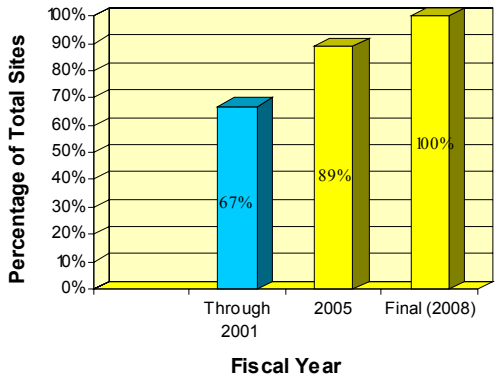
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete Volume 3 through 8 CMS reports in FY02
- Complete interim measure at SWMU 70 in FY02
- Initiate corrective measures implementation (CMI) at several sites in FY02
- Hold monthly BCT meetings to prepare and review CMS reports and begin CMI in FY02
- Continue to pursue early transfer of the property to the Louisville/Jefferson County Redevelopment Authority in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year

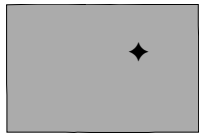


Lowry Air Force Base

Denver, Colorado

BRAC 1991

FFID:	CO857002413000	**Media Affected:**	Groundwater and soil
Size:	1,866 acres	**Funding to Date:**	$52.6 million
Mission:	Housed the 3400th Technical Training Wing; served as a technical training center	**Estimated Cost to Completion (Completion Year):**	$58.4 million (FY2030)
		Final RIP/RC Date for BRAC-ER Sites:	FY2004
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	IAG under negotiation		
Contaminants:	Waste oil, general refuse, fly ash, coal, metals, fuels, VOCs, solvents, and petroleum hydrocarbons		



Progress to Date

In 1991, the BRAC Commission recommended closure of all but 108 acres at Lowry. It was recommended that the 1001st Space Systems Squadron, the Defense Finance and Accounting Service, and the Air Force Reserve Personnel Center remain at Lowry in cantonment areas. The installation closed in September 1994.

Sites at the installation include fire training areas, landfills, a fly ash disposal area, coal storage yards, and underground storage tanks (USTs). Interim remedial actions have included removal of petroleum vessels, closure of off-base wells, operation of in situ bioventing systems, construction of an aboveground bioremediation land-treatment area, and operation of a pump-and-treat system and a dual-phase vapor extraction system. In FY94, the installation began a RCRA facility investigation and a basewide groundwater investigation to determine the extent of trichloroethene (TCE) contamination.

In FY95, the installation conducted Phase II site assessments for eight UST sites and installed bioventing systems at two petroleum-contaminated sites. A focused feasibility study was conducted to characterize a landfill before closure. An environmental baseline survey (EBS) was completed. In addition, the installation's technical review committee was converted to a Restoration Advisory Board (RAB), and a BRAC cleanup team (BCT) was formed.

In FY96, the facility assessment, fieldwork for 18 areas of concern, and Phase I of the basewide groundwater investigation were completed. The installation began remedial investigations (RIs) for five study areas and completed removal of all USTs.

In FY97, a local redevelopment authority (LRA) road project was used to cap part of a former coal storage yard. The EBS for the BRAC 95 parcel was completed, and an environmental impact statement was initiated. A hydraulic containment system for the TCE plume began operation. Final actions were completed at the fly ash disposal area, Operable Unit (OU) 3.

In FY98, the dual-phase vapor extraction system at the TCE source area began operation. The cleanup of contaminated soil and storage tanks at the auto hobby shop (OU4) was completed. Feasibility studies (FSs) at three sites and the landfill zone were completed. Remedial design for the remainder of the coal storage yard was initiated. Final delineation of groundwater contamination at OU5 was accomplished.

In FY99, the draft RI for basewide groundwater was completed. Long-term operations and maintenance began for the auto hobby shop and for basewide groundwater at the source area reduction and boundary area hydraulic containment systems. A Technical Assistance for Public Participation contract was awarded to the RAB for review of OU5 documentation.

In FY00, the remedial action (RA) for Coal Storage Zone West was completed. Removal actions for the UST, aboveground storage tank, and oil-water separator sites were completed, as was delineation of fire training zone hot spots.

FY01 Restoration Progress

The RA for the Coal Storage Zone East was completed. The LRA privatization proposal was considered. Progress was made by the Air Force Base Conversion Agency, the LRA, and regulatory agencies on all documents necessary for the privatization agreement. The initial characterization of groundwater-derived VOC contamination in off-base residential indoor air was completed; however, results of the study may indicate a need for expanded site characterization before RA can be started. The final basewide groundwater RI was completed with Air Force-acknowledged data gaps.

The RA for the fire training zone was delayed for additional sampling to detect potential dioxin contamination. Completion of the groundwater pilot studies was delayed for regulator approval of the work plan. The skeet range RA was not completed, due to unanticipated site conditions that considerably reduced the productivity of the lead shot harvesting equipment, rendering the equipment incapable of reaching the final cleanup goals. The firing range RA was delayed by extended BCT negotiations over appropriate site characterization and cleanup goals.

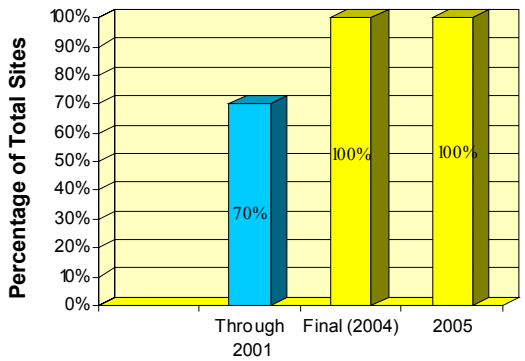
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Complete RAs for the firing and skeet ranges in FY02
- Complete delineation of fire training zone dioxin contamination and RA in FY02
- Determine whether agreements can be reached among multiple agencies, enabling privatization of environmental cleanup of basewide groundwater and the landfill zone in FY02
- For the basewide groundwater study, fill final RI data gaps and complete plume-specific FSs, complete pilot studies, and implement full-scale pilot study recommendations as an IRA, develop and construct IRA permeable reactive barrier design, and continue interim groundwater monitoring in FY02–FY03
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year

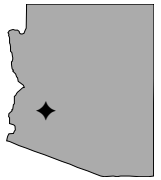


Luke Air Force Base

Glendale, Arizona

NPL

FFID:	AZ957152413300	**Funding to Date:**	$0.8 million
Size:	4,198 acres	**Estimated Cost to Completion (Completion Year):**	$0.4 million (FY2004)
Mission:	Provide advanced F-16 fighter training	**Final RIP/RC Date for ER Sites:**	FY2000
HRS Score:	37.93; placed on NPL in August 1990	**Five-Year Review Status:**	Under Way
IAG Status:	Federal facility agreement signed in September 1990		
Contaminants:	POLs, solvents, general refuse, lead, and chromium		
Media Affected:	Groundwater and soil		



Progress to Date

Historically, Luke Air Force Base has provided advanced training to fighter pilots. The current mission of the 56th Fighter Wing, the host unit at the installation, is to provide combat crew training for F-16 aircraft personnel in addition to aircraft maintenance, training, and engineering support.

Thirty-one sites were identified at the installation. These were consolidated into two operable units (OUs). Site types include fire training areas, disposal trenches, landfills, spill sites, and surface drainage canals. Soil is the primary affected medium. Petroleum/oil/lubricants, waste solvents, and waste oils have been identified in disposal trenches and in the fire training area. Interim actions have included removal of three underground storage tanks, use of soil vapor extraction (SVE) to clean up contaminated soil at the north fire training area, and stabilization of the bank of a landfill adjacent to the Agua Fria River.

In FY91 and FY92, the installation completed final remedial investigation (RI) and feasibility study (FS) work plans and field sampling plans. An interim RI report for OU1 and a final RI report for OU2 were approved by the regulatory agencies. In FY93, a new site at the fuel handling area was added to OU1 and a final FS report was approved by EPA and the state regulatory agency.

In FY94, the installation completed RI fieldwork and submitted a draft report to regulators. A Record of Decision (ROD) for OU2 was signed, directing cleanup of one site by soil bioremediation, and the continuing maintenance and inspection for 30 years of a concrete cap at another site. In FY95, the installation completed construction for the Phase I remedial action (RA) at OU2. The installation also began a treatability study of bioventing at OU1. A technical review committee was formed and converted to a Restoration Advisory Board (RAB).

In FY96, soil at OU2 was composted to treat off-base contamination with benzo(a)pyrene, and soil was sampled to support a Phase II remedial design for composting on-base contamination. The installation also deployed an internal combustion engine for SVE cleanup of soil contaminated with jet fuel in the bulk fuels storage area of OU1. In FY97, remediation of contamination at OU2 was completed.

In FY98, the installation was awarded the General Thomas D. White Environmental Restoration Award for Headquarters Air Education Training Command. The RI/FS was completed. Groundwater sampling and analysis began. The installation and the RAB developed a community outreach video to highlight restoration progress. In FY99, the basewide ROD was signed by regulators and the Air Force.

By the end of FY00, all planned RAs and institutional controls had been put in place. In FY00, LF-25 remediation was completed. The installation's long-term management (LTM) program began. National Priorities List (NPL) delisting-process review with EPA Region 9 continued. The installation was awarded the EPA Region 9 Environmental Achievement Award. The RAB met and voted to change its charter and become a Citizens Advisory Board.

FY01 Restoration Progress

LTM is under way at the installation. The 5-year review was initiated. The NPL delisting process was not completed as planned because EPA set new requirements; the 5-year review now must be completed before delisting approval.

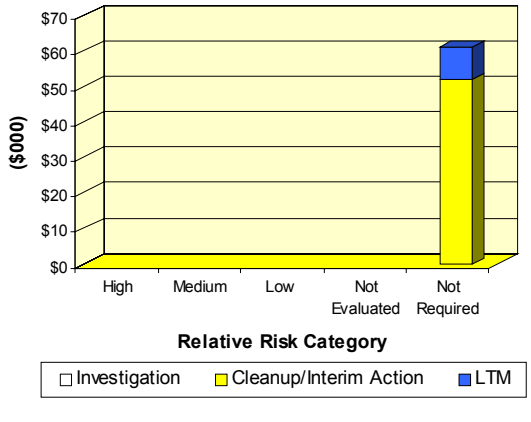
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete 5-year review in FY02
- Complete delisting process in FY02
- Continue LTM in FY02

FY02 Funding by Phase and Relative Risk



March Air Force Base

Riverside, California

NPL/BRAC 1993

FFID:	CA957212452700	**Funding to Date:**	$138.1 million
Size:	6,545 acres	**Estimated Cost to Completion (Completion Year):**	$32.0 million (FY2021)
Mission:	Maintain, repair, and refuel aircraft	**Final RIP/RC Date for BRAC-ER Sites:**	FY2002
HRS Score:	31.94; placed on NPL in November 1989	**Final RIP/RC Date for ER Sites:**	FY2007
IAG Status:	Federal facility agreement signed in September 1990	**Five-Year Review Status:**	Completed/Planned
Contaminants:	VOCs, POLs, and PCBs		
Media Affected:	Groundwater and soil		

Progress to Date

In July 1993, the BRAC Commission recommended that March Air Force Base undergo realignment. It was recommended that the installation serve as an Air Reserve base once realignment was completed. Base realignment occurred in April 1996.

Environmental studies at the installation began in FY84. A preliminary assessment and site inspection identified 28 sites, including three fire training areas, 7 inactive landfills, several underground storage tanks, an engine test cell (Site 18), sludge drying beds at a sewage treatment plant, and various spill sites. March is a joint-use base that uses both BRAC and Environmental Restoration Account funds to reach cleanup goals.

An engineering evaluation and cost analysis, a removal action, and a groundwater extraction and treatment system were completed to prevent off-base migration of contaminated groundwater. The installation also began a removal action for the Panero hydrant refueling system and treatment of contaminated soil. In FY91, sites were grouped into three operable units (OUs).

In FY94, generic remedies, including modified RCRA caps and stream modifications, were initiated at some landfill sites. Modified vapor extraction and recovery systems were used to clean up contaminants in soil and groundwater. The base technical review committee was converted to a Restoration Advisory Board. The installation also completed an environmental baseline survey.

In FY95, removal actions were conducted at five sites, and two landfills were closed. A soil vapor extraction pilot system was installed at Site 31 (solvent spill), and an air-sparging system was installed at Site 18. A Record of Decision (ROD) for OU1 was signed in FY96. Remedial actions (RAs) involving construction of a dual-phase treatment system for groundwater and trichloroethene-contaminated soil began for Site 31 and the related groundwater plume at OU1. Six landfill sites were cleaned up. Interim removal actions were completed at Site 25.

In FY97, interim remedial design began for a treatment system at Sites 2, 8, and 27. An interim removal action at Site 30 was completed.

In FY98, the OU2 proposed plan was approved and the draft final ROD was sent for review. The Groundwater Technical Working Group established requirements for obtaining EPA approval on an Operating Properly and Successfully (OP&S) designation for the OU1 groundwater treatment facility. Source investigation was completed at Sites 2, 8, and 27.

In FY99, a memorandum of agreement (MOA) was signed between the Air Force Reserve Command (AFRC) and the Air Force Base Conversion Agency for transferring the majority of environmental responsibility.

In FY00, the AFRC outlined the division of environmental cleanup responsibilities in a new MOA. Field activities were completed in support of the basewide remedial investigation and feasibility study (RI/FS). RA design was completed for plume capture of the OU1 plume.

FY01 Restoration Progress

RA design was completed for capture of the OU1 plume, and RA construction began, which will eventually lead to OP&S approval. The base continued to optimize the Installation Restoration Program long-term management and maintenance operations. A removal action work plan was completed for Site 43. Another site with methyl tertiary butyl ether (MTBE) contamination also entered remediation. A 5-year review was completed.

The draft final OU2 ROD was submitted; however, administrative concerns on post-closure institutional controls and land use covenant management delayed finalization of the OU2 ROD. The installation continues to submit all cleanup associated work plans to the BRAC cleanup team.

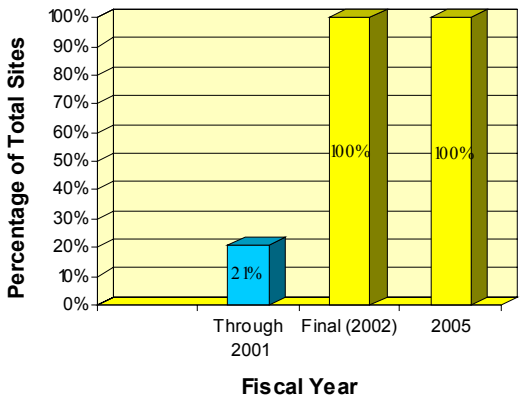
Military Munitions Response Program Progress

In FY96, the Air Force completed a unexploded ordnance (UXO) removal action over 50 acres of the installation. The removal action included several different types of UXO.

Plan of Action

- Continue the basewide RI/FS process in FY02
- Obtain approval for OU2 ROD in FY02
- Complete requirements for EPA OP&S approval in FY02
- Complete the Site 43 removal action in FY02
- Continue MTBE cleanup at Building 550 in FY02
- Complete OP&S approval for the OU1 Plume in FY02
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Mare Island Naval Shipyard

Vallejo, California

BRAC 1993

FFID:	CA917002477500	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	5,252 acres	**Funding to Date:**	$89.9 million
Mission:	Maintained and repaired ships and provided logistical support for assigned ship and service craft	**Estimated Cost to Completion (Completion Year):**	$107.3 million (FY2016)
		Final RIP/RC Date for BRAC-ER Sites:	FY2011
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	Federal facility agreement signed in September 1992		
Contaminants:	Heavy metals, VOCs, PCBs, pesticides, petroleum hydrocarbons, lead oxides, and UXO		

Progress to Date

In July 1993, the BRAC Commission recommended closure of Mare Island Naval Shipyard and relocation of the Combat Systems Technical School's Command Activity to Dam Neck, Virginia. The installation closed on April 1, 1996.

Investigations of chemical and munitions contamination were initiated in FY82. Ordnance sites include dredge ponds, storage areas, and the production area. Four offshore areas have identified munitions concerns. These areas have been surveyed, but the extent of potential munitions contamination has not been fully determined.

Studies since FY80 have identified 28 sites and 20 solid waste management units (SWMUs) at this installation. Sites 1 through 24 were divided into three operable units. The installation completed a preliminary assessment (PA) for 15 sites in FY83. In FY88, it completed a site inspection (SI) for one site and initiated remedial investigations (RIs) and feasibility studies (FSs) for 23 sites.

In FY90, the installation completed an initial site characterization for one underground storage tank (UST) site. In FY91, SIs were completed for 12 sites and PA/SIs were completed for 6 sites. In FY93, the installation completed interim remedial actions for six UST sites and one other site. In FY94, removal actions were completed for two sites. The installation also completed a land reuse plan.

In FY95, the installation initiated removal actions for five sites and completed a removal action for one site. The PA for munitions was completed and identified several areas of concern for further investigation. It also completed an environmental baseline survey. During FY96, the installation's BRAC cleanup team, which formed in FY94, completed a removal action for one site, began removal actions for two sites, and began a no further action Record of Decision (ROD) for one site. The team also completed removal actions for three sites and the Defense Reutilization and Marketing Office scrap yard. A memorandum of understanding was negotiated with the City of Vallejo, the U.S. Fish and Wildlife Service, and the Navy.

In FY97, an SI was completed addressing ordnance, and a removal action was conducted at the areas of greatest concern. This removal action continued through FY00. In FY98, the installation completed removal actions at Sites 5 and 8 and removed 43,000 lineal feet of fuel line. All radiological work was completed and approved by the regulatory agencies.

In FY99, removal actions at Sites 13, 16 B-4, and 17 and SWMUs 52 and 54 were completed, and all USTs were removed or closed in place. The installation completed the polychlorinated biphenyl (PCB) remediation program and field sampling for 20 SWMUs, and removal of all onshore unexploded ordnance.

In FY00, the installation issued the RI for IR-8. The transition of the cleanup team to Southwest Division from Engineering Field Activity West was completed. The early transfer of dredge ponds to a private developer is under negotiation. The installation received a cost proposal from the local redevelopment authority (LRA) for early transfer.

An administrative record and an information repository were established in FY90. The installation formed a technical review committee in FY90 and converted it to a Restoration Advisory Board (RAB) in FY94. The RAB received a Technical Assistance for Public Participation grant in FY99. The installation completed its community relations plan (CRP) in FY92 and updated it in FY94.

FY01 Restoration Progress

A CRP update is under way. A ROD was issued for IR-22. Removal of additional USTs and pipelines is in progress. Maintenance of the dredge ponds was completed. The eastern parcel early transfer and the western parcel finding of suitability to transfer were signed. Removal actions for the dredge ponds, south shore, and the production area were completed. After-action reports for these actions were submitted to the Naval Ordnance Safety and Security Activity. RI reports were submitted for the dredge ponds and IR-5. A detailed conceptual site model is being developed for the offshore sites.

The planned FS was delayed due to the early transfer of the eastern parcel. Transfer of a majority of the installation to the City of Vallejo was delayed due to extensive negotiations.

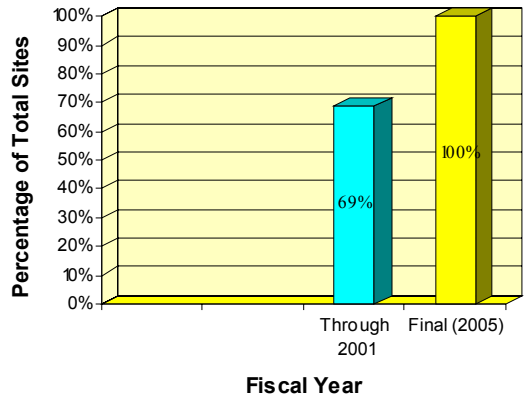
Military Munitions Response Program Progress

The installation has performed UXO response actions in support of the Installation Restoration program. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Transfer eastern parcel and western parcel to LRA in FY02
- Complete cleanup of stormwater lines in FY02
- Conduct removal action for shoreline area of south shore in FY02–FY03
- Conduct removal action for remaining outfall mass at Pond 4s in FY02–FY03
- Perform RI/FS for production area, south shore, and western magazine sites, and the Area H landfill in FY02–FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Massachusetts Military Reservation
Otis Air National Guard Base and Camp Edwards

Falmouth, Massachusetts **NPL**

FFID:	MA157282448700	**Contaminants:**	Waste solvents, emulsifiers, penetrants, photographic chemicals,and VOCs
Size:	22,000 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Provide Army and Air National Guard training, and support the East Coast Air Defense and Coast Guard Air and Sea Units	**Funding to Date:**	$385.6 million
		Estimated Cost to Completion (Completion Year):	$328.9 million (FY2030)
		Final RIP/RC Date for ER Sites:	FY2005
HRS Score:	45.93; placed on NPL in November 1989	**Five-Year Review Status:**	Completed/Planned
IAG Status:	FFA signed in July 1991and amended in February 2000		

Progress to Date

Studies have identified 84 sites at this installation, including chemical and fuel spill sites, storm drains, landfills, former firefighter training areas, coal yards, and underground drainage structures. Private and municipal wells near the installation were closed and replaced after off-base migration of groundwater contamination was detected. A 5-year review was completed at this installation.

From FY91 through FY95, removal actions for six sumps associated with the underground drainage structures were conducted, a groundwater extraction and treatment system was installed to contain a contaminant plume migrating from a former motor pool and storage yard, remedial investigation and feasibility study work began, the largest of four landfills was capped, and the Installation Restoration Program began to use thermal desorption to treat contaminated soil from several sites.

In FY95, an air-sparging system was implemented to remove subsurface soil contamination at Fuel Spill Site 12 (FS-12). In FY96, more than 180 underground drainage structures were removed. A private-well sampling program was expanded to monitor on- and off-base drinking water safety.

In FY97, the installation's federal facility agreement was amended. Final remediation and closure of Firefighter Training Area No. 1 occurred. A time-critical removal action was initiated in a Town of Falmouth river system to address the FS-28 plume that had upwelled into the river. Extraction, treatment, and reinjection systems were constructed for the SD-5 and FS-12 groundwater plumes.

In FY98, monitoring wells were installed to define the CS-19 source area and the FS-1 plume. The FS-12 source area remediation project was completed. Ecological studies were conducted on the FS-12, SD-5, and CS-10 plumes. A reactive iron-filings wall demonstration project was installed for the CS-10 plume. Four new plumes were defined.

In FY99, extraction, treatment, and reinjection systems were constructed for the CS-10, LF-1, and Ashumet Valley groundwater plumes. Two pilot projects were constructed in two river systems where cranberry bogs were affected by plumes. Recirculation wells were installed at two locations in the Town of Mashpee.

In FY00, Records of Decision (RODs) were issued for the FS-1, CS-4, CS-20, CS-21, and FS-13 groundwater plumes, and design and engineering activities began. Decision documents were issued for the SD-1, FS-3, FS-2, CS-6/FS-22, CS-6, CS-14, FS-14, and CS-3/FS-23 sites. Agreements were signed with the Bourne Water District and the Town of Falmouth for over 250 private-well conversions to municipal water. The cold-mix asphalt design for several source areas was completed. Remedial groundwater systems were installed for the SD-5 South, CS-10 Leading Edge, and Ashumet Valley plumes. Investigations included work on defining the CS-19 plume, phosphorus loading of Ashumet Pond, CS-10 contamination under and between Ashumet and Johns Ponds, and Fuel Spill 1 and Fuel Spill 12 plumes.

FY01 Restoration Progress

The installation issued RODs for the FS-28 and FS-29 plumes. Private-well sampling for over 300 residences near base plumes, and operation and maintenance of all remedial systems, continued. Contaminated soil from 25 source areas was excavated for treatment and disposal. Asphalt batching (previously planned) was replaced by more cost-effective disposal. Investigation work continued on defining the CS-19 plume. Design began for the CS-4, CS-20, and CS-21 groundwater treatment systems. Design of the FS-1 treatment system continued. Phosphorus inactivation compounds were added to Ashumet Pond to reduce nutrient loading. The FS-12 groundwater treatment system was modified to expand the capture zone to encompass areas of contamination found west of the previously defined FS-12 boundary. The final ROD process for several groundwater plumes was started.

Military Munitions Response Program Progress

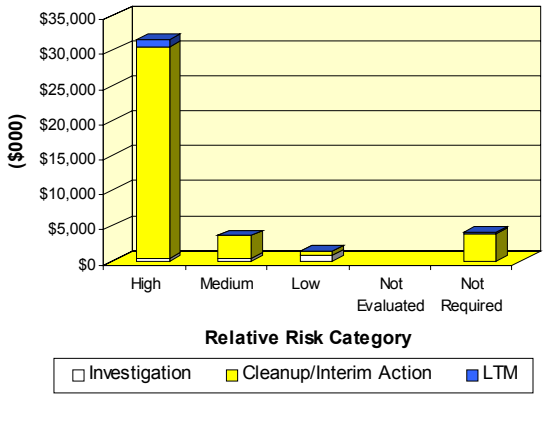
Unexploded ordnance response actions have been performed at the installation as part of compliance work. These response actions are not part of the Military Munitions Response program.

An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Continue the final ROD process for groundwater plumes at SD-5, Eastern Briarwood, Western Aquafarm, FS-12, Ashumet Valley, Landfill 1, and CS-10 in FY02
- Construct FS-1 treatment system modification in FY02
- Continue design of CS-4, CS-20, and CS-21 treatment systems in FY02
- Continue aggressive community involvement efforts, emphasizing stakeholder involvement, in FY02
- Begin 5-year review for submission in FY03

FY02 Funding by Phase and Relative Risk



Mather Air Force Base

Sacramento, California

NPL/BRAC 1988

FFID:	CA957002474300	**Funding to Date:**	$155.4 million
Size:	5,716 acres	**Estimated Cost to Completion (Completion Year):**	$132.6 million (FY2069)
Mission:	Provided navigation and electronic warfare officer training; housed SAC Bombing and Refueling Squadron	**Final RIP/RC Date for BRAC-ER Sites:**	FY2002
		Five-Year Review Status:	Completed/Planned
HRS Score:	28.90; placed on NPL in July 1987		
IAG Status:	IAG signed in 1989		
Contaminants:	Solvents, jet fuel, petroleum hydrocarbons, and lead		
Media Affected:	Groundwater and soil		

Progress to Date

In December 1988, the BRAC Commission recommended closure of Mather Air Force Base. Before becoming inactive in FY93, the installation housed the 323rd Flying Training Wing, an SAC wing, a Reserve air refueling group, and an Army National Guard aviation unit.

Studies have identified 89 sites at the installation, which were grouped into six operable units (OUs): OU1, aircraft control and warning system; OU2, groundwater; OU3, soil; OU4, landfill; OU5, basewide; and OU6, supplemental basewide. Site types include landfills, underground storage tanks (USTs), fire training areas, a trichloroethene disposal site, a weapons storage area, wash rack areas, spill areas, and waste pits.

Interim actions included removing USTs and contaminated soil, supplying an alternate water supply for nearby residents, removing sludge from a former wastewater treatment plant, removing petroleum product from soil by vapor extraction, and excavating pesticide contamination from drainage ditches.

In FY90, 48 solid waste management units and two areas of concern were identified. By FY94, remedial investigation and feasibility study (RI/FS) activities had concluded at OU1 and OU4. In FY94, regulatory agencies approved the Record of Decision (ROD) for OU1, and a Restoration Advisory Board and a BRAC cleanup team were formed.

In FY95, regulatory agencies approved the ROD for OU4. Construction was completed and remedial action (RA) began at OU1. Removal actions were initiated to remediate petroleum contamination at several sites. An environmental impact statement for property reuse and disposal was prepared. In FY96, regulatory agencies approved the ROD for OU2 and OU3. Three landfills were consolidated, and engineered caps were initiated at two of the landfills. The installation completed the RI for OU5.

By FY97, the installation had removed all identified substandard USTs. In FY97, Two oil-water separator sites were closed. Construction began on the pump-and-treat system for OU2. Soil vapor extraction (SVE) and bioventing in situ soil treatment systems were installed at 11 sites. The proposed plan (PP) for OU5 was released.

In FY98, the ROD for OU5 was signed. RA was selected for 7 of the OU's 15 sites. Groundwater pump-and-treat systems began operation at the Main Base/SAC Area plume, and construction of a pump-and-treat system began for the Site 7 plume. Construction occurred on 10 in situ treatment systems. A passive landfill gas control system was installed at Site 4. A removal action memorandum for drainage ditch Site 85 was signed, and excavation of contaminated sediment began. Contaminated sediment was removed from drainage ditch Sites 13 and 15. Four USTs were discovered and removed. The Mather off-base water supply contingency plan was completed.

In FY99, a finding of suitability for early transfer was approved for part of the economic development conveyance parcel. The waste pit at Site 7 was filled and capped. A removal action memorandum was issued for sites 80 and 88. Phase II of the Main Base/SAC plumes treatment system was expanded into off-base areas, and Phase III expansion augmented capture in on-base areas. Remediation of gun range Sites 86 and 87 was completed. At OU6, removal actions were completed for three sites, and a CERCLA 5-year review was completed.

In FY00, the base cleanup plan was updated. A focused FS and a PP were completed for OU6. Three remedial action reports (RARs) were completed for Sites 2, 13, and 65. The ROD for OU6 was initiated. Construction of the SVE system at Sites 18, 23, and 59 was completed, and system operation began.

FY01 Restoration Progress

Groundwater monitoring wells for the Phase IV remediation project were installed at 12 of 15 locations. Removal actions at Sites 80, 85, 88, and 89 were completed except for reclamation and reporting. The draft RA work plan and preliminary engineering report for Phase IV groundwater remediation was issued. The RAR for Site 62 and the draft RAR for Site 15 were completed.

Attainment of remedy-in-place status at Site 89 was delayed because the final draft OU6 ROD was delayed by institutional control (IC) management issues. The draft summary IC management plan was issued. The revised off-base water supply contingency plan was disputed by state regulators.

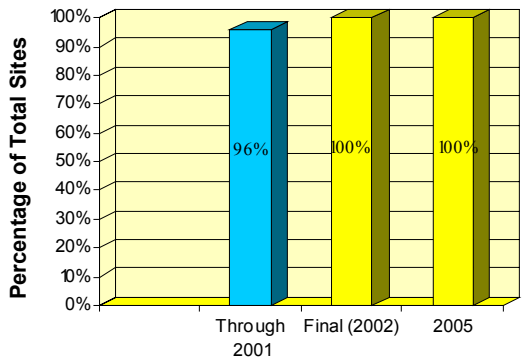
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Complete construction of Phase IV groundwater remediation and expand capture into additional off-base areas in FY02
- Plan Phase V project to address marginal areas of plume based on operation of Phase IV extraction system in FY02
- Complete RARs for northeast plume, and Sites 3 through 6, 20, 69, and 86 in FY02
- Complete closure of several sites with in situ vadose-zone treatment systems in FY02
- Complete Operating Properly and Successfully/Remedial Process Optimization evaluation and implementation in FY02
- Complete 5-year review of RAs in FY04

BRAC Sites Achieving RIP or RC Per Fiscal Year



McChord Air Force Base
Washrack/Treatment Area and American Lake Garden Tract

Tacoma, Washington **NPL**

FFID:	WA057182420000	**IAG Status:**	Consent decree with State of Washington signed in February 1992
Size:	4,638 acres	**Contaminants:**	VOCs, SVOCs, metals, POLs, pesticides, and radioactive waste
Mission:	Provide airlift services for troops, cargo, equipment, passengers, and mail	**Media Affected:**	Groundwater and soil
		Funding to Date:	$21.2 million
HRS Score:	31.94 (Area D); placed on NPL in September 1984, 42.24 (Washrack/Treatment Area); placed on NPL in July 1987; delisted from NPL in September 1996	**Estimated Cost to Completion (Completion Year):**	$12.7 million (FY2015)
		Final RIP/RC Date for ER Sites:	FY2004
		Five-Year Review Status:	Completed/Planned
IAG Status:	Federal facility agreement signed in August 1989;		

Progress to Date

Environmental studies identified 65 sites at this installation. Sites include fire training areas, spill areas, landfills, and waste pits. Two sites were placed on the National Priorities List (NPL): the Area D/American Lake Garden Tract (ALGT) and the Washrack/ Treatment Area (WTA). All 65 sites were classified as Remedy in Place by FY96.

Work began at the ALGT site in FY82, after trichloroethene (TCE) was detected in off-site residential wells. The installation completed a remedial investigation and feasibility study (RI/FS) for the ALGT site in FY91. By FY94, the installation had designed, constructed, and begun operating a groundwater treatment system at ALGT. The RI/FS for the WTA site was completed in FY92. The WTA Record of Decision (ROD) specified cleanup of fuel-contaminated groundwater and soil, and groundwater monitoring of the leach pits.

In FY95, McChord evaluated and recommended natural attenuation (NA) with long-term management (LTM) for two sites (SS-34 and WP-44). The state agreed. McChord implemented LTM of NA at the WTA site and requested that EPA remove the site from the NPL. In FY96, EPA removed the WTA site from the NPL. At the same time, the state listed six sites (including SS-34 and WP-44) on its Hazardous Sites List. In FY98, McChord completed an evaluation of NA as the remedy for chlorinated solvents at ALGT. In FY99, the installation, EPA, and the State of Washington performed 5-year reviews of the ALGT and the WTA.

McChord assessed the local community's interest in forming a Restoration Advisory Board (RAB) in FY95, FY96, FY98, and FY99. It found very little interest in forming a RAB, due to the maturity of the program and community trust in the installation.

In FY00, McChord found high levels of TCE in the shallow groundwater near the base boundary, below the northern sector of Site SS-34. TCE was also discovered off base, below a residential neighborhood and in a few private wells. The installation reopened Site SS-34, received funds for an RI/FS to investigate the TCE contamination, and paid to connect neighborhood properties with private wells to a public water supply.

FY01 Restoration Progress

The installation began a streamlined RI/FS of TCE contamination at the base boundary and in an off-base neighborhood. The LTM program continued. State regulators were encouraged to provide written concurrence on the closeout of 27 sites. Negotiations continued with the state to place the second of three extraction wells at ALGT site on standby.

Military Munitions Response Program Progress

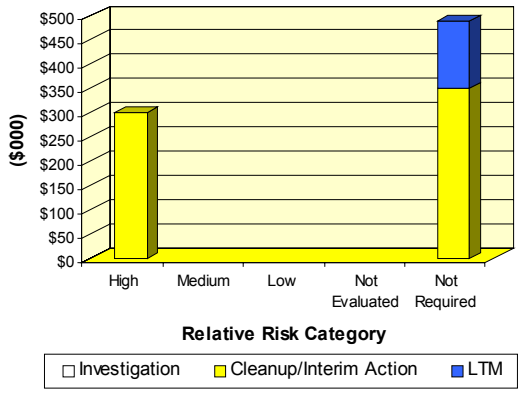
In FY01, a comprehensive range inventory was initiated. This inventory was designed to be an annual, iterative effort. To supply data for the inventory, a detailed questionnaire was completed that collected data on the types of munitions used, the range's environmental status, and the type and level of external stakeholder interest.

Munitions response and range cleanup actions have been delayed, pending funding availability and guidance refinement. As funding becomes available and guidance is refined, ranges will be cleaned up based on risk to human health and the environment.

Plan of Action

- Begin a streamlined remedial design (RD) for TCE contamination at the base boundary and in an off-base neighborhood in FY02 and complete the RD in FY03
- Start the remedial action for TCE contamination at the base boundary and in an off-base neighborhood in FY03
- Complete 5-year review as planned

FY02 Funding by Phase and Relatvie Risk



McClellan Air Force Base

Sacramento, California

NPL/BRAC 1995

FFID:	CA957172433700	**Contaminants:**	Phenols, chloroform, PCBs, and radioactive material
Size:	3,688 acres	**Media Affected:**	Groundwater and soil
Mission:	Provide logistics support for aircraft, missile, and space programs	**Funding to Date:**	$433.4 million
		Estimated Cost to Completion (Completion Year):	$579.0 million (FY2032)
HRS Score:	57.93; placed on NPL in July 1987	**Final RIP/RC Date for BRAC-ER Sites:**	FY2015
IAG Status:	IAG signed in 1989	**Five-Year Review Status:**	Completed/Planned
Contaminants:	Solvents, metal plating wastes, caustic cleaners and degreasers, paints, waste lubricants, photochemicals		

Progress to Date

Environmental contamination at McClellan Air Force Base has resulted from sumps near industrial operations, landfills, leaks near industrial waste lines, surface spills, and underground storage tanks (USTs). A study in FY79 detected groundwater contamination, leading to the closure of two on-base and three off-base drinking water wells. In addition to 373 acres of contaminated soil in the vadose zone, there are three large plumes, totaling over 660 acres, consisting primarily of trichloroethene-contaminated groundwater. A 5-year review was completed at the installation.

Sites at the installation were grouped into 11 operable units (OUs), including an installationwide groundwater OU. A streamlining effort resulted in the development of a basewide engineering evaluation and cost analysis (EE/CA) for implementing soil vapor extraction (SVE) at the base.

In FY93, the installation converted its technical review committee to a Restoration Advisory Board (RAB). An interim Record of Decision (ROD) was signed to address polychlorinated biphenyl (PCB) contamination at OU B1.

In FY95, the groundwater OU interim ROD was signed. The installation implemented 213 interim remedial actions, including a landfill cap, construction of a groundwater treatment plant, and demolition of an electroplating facility. The UST program removed or abandoned in place 210 USTs.

In FY97, a dual-phase extraction system was installed to treat volatile organic compound (VOC)–contaminated soil and groundwater. Thirty-six on- and off-base groundwater wells were decommissioned, eliminating possible conduits for additional soil and groundwater contamination. Thirteen USTs were removed, and 33,000 linear feet of piping associated with the industrial waste line was inspected and 4,000 feet repaired.

In FY98, three EE/CAs for SVE systems were completed, and fieldwork for an additional 10 EE/CAs began. Remedial investigations (RIs) were completed for five OUs, and a Phase I RI was completed for all 11 OUs.

In FY99, installation of the Phase II groundwater system was completed. Three SVE systems were installed, and SVE well installations at another 12 sites were completed. Twelve SVE EE/CAs were completed.

In FY00, five SVE systems were installed, and seven SVE sites were connected to the systems. The BRAC cleanup team completed six environmental baseline surveys and findings of suitability to lease, encompassing over 380 facilities. EE/CA removal actions at two radionuclide sites were initiated.

FY01 Restoration Progress

All environmental baseline reports were completed. Also, all groundwater and soil vapor treatment systems continued to work effectively. In addition, a time-critical removal action (TCRA) was initiated at CS-10 due to new radiological issues.

The VOC ROD was delayed by a disagreement over groundwater cleanup standards. A feasibility study began on the local redevelopment agency (LRA) initial parcel and small-volume RODs. The restructured RAB was active.

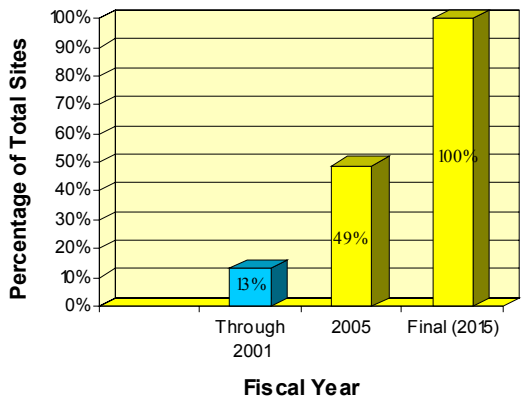
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Complete the No Further Action ROD in FY02
- Complete the LRA initial parcel ROD in FY02
- Complete the LRA initial parcel Finding of Suitability for Early Transfer in FY03
- Complete the CS-10 TCRA in FY03
- Complete the groundwater Phase III IROD design in FY03 and begin construction in FY04
- Complete 5-year review as planned in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



McGuire Air Force Base

Burlington County, New Jersey

NPL

FFID:	NJ257182401800	**Media Affected:**	Groundwater and soil
Size:	3,500 acres	**Funding to Date:**	$29.8 million
Mission:	Provide quick-response airlift capabilities for placing military forces into combat situations	**Estimated Cost to Completion (Completion Year):**	$15.2 million (FY2014)
		Final RIP/RC Date for ER Sites:	FY2012
HRS Score:	47.20; placed on NPL in October 1999	**Five-Year Review Status:**	Planned
IAG Status:	Federal faciltiy agreement under negotiation		
Contaminants:	VOCs, SVOCs, PAHs, BTEX, TPH, metals, PCBs, and pesticides		

Progress to Date

During the 1980s, 17 sites were identified at McGuire Air Force Base (AFB) and 6 sites were identified at the BOMARC facility, a remote location under McGuire AFB jurisdiction. These sites include landfills, waste piles, fire training areas, hazardous waste storage areas, and spill sites.

In the early 1990s, a remedial investigation and a feasibility study (RI/FS) identified cleanup requirements for some sites and recommended no further remedial action planned (NFRAP) status for others. The NFRAP sites were three landfills, a waste pile, and a spill site at McGuire AFB, and two discharge pits at the BOMARC facility.

In 1993, interim remedial actions (IRAs) were completed for four sites, which were then given NFRAP designations. Another site at McGuire AFB, the Civil Engineering Compound, was assigned NFRAP status after a site investigation. Soil containing pesticides was removed from a ditch, and an underground storage tank (UST) and surrounding soil containing spilled chemicals were removed. At the BOMARC facility, a transformer pad, soil containing polychlorinated biphenyls (PCBs), and a UST were removed.

In the mid-1990s, a basewide study at McGuire AFB identified seven areas of concern. Long-term management started at the three landfills that had received NFRAP designations in the early 1990s. Focused feasibility studies and treatability studies (TSs) delineated PCB contamination at the Defense Reutilization and Marketing Office (DRMO) yard, evaluated the feasibility of using a horizontal well for recovering free product (JP-4) at the bulk fuel storage area, and determined the need for a basewide background study and an ecological assessment (EA).

In 1998, a TS using pneumatic fracturing technology to increase the recovery rate of free product (JP-4) was completed at the bulk fuel storage area. In 1999, an IRA was completed at the DRMO yard and surface soil containing PCBs was removed. The basewide background study and the EA began.

In FY00, reports evaluating natural attenuation of a trichloroethene (TCE) groundwater plume and colloidal transport of radionuclides in groundwater at the BOMARC missile accident site were conducted. Two technical review committee (TRC) meetings were held to discuss the development of a federal facility agreement.

FY01 Restoration Progress

The basewide background study and EA continued, as did the RI/FS of the TCE groundwater plume. Partnering among contractors, service agent, action officer, and base personnel began, but requires regulator participation to be effective. The cost of completing environmental restoration has changed significantly at this installation because of estimating criteria.

The 5-year review has been postponed because of policy change. Operation of the free-product recovery equipment at the bulk fuel storage area was delayed because of a delay in EPA review of the work plan.

Two Restoration Advisory Board (RAB) meetings were held this year after issues concerning the BOMARC project were resolved.

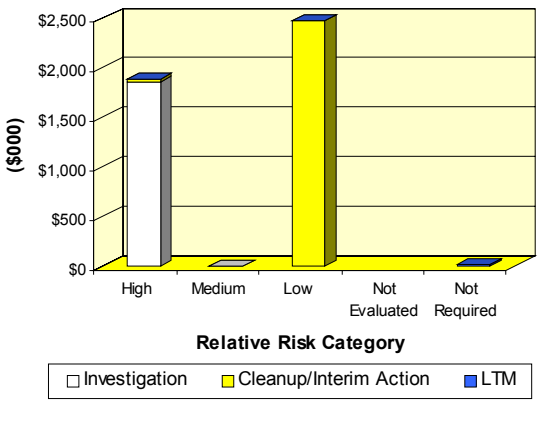
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Begin operation of the free-product recovery equipment in FY02
- Encourage regulator participation in TRC in FY02
- Continue to have quarterly RAB meetings in FY02
- Continue RI/FS study of the TCE groundwater plume in FY02–FY03
- Continue basewide study in FY02–FY03
- Begin cleanup of the BOMARC accident site in FY02–FY03

FY02 Funding by Phase and Relative Risk



Mechanicsburg Naval Inventory Control Point

Formerly Mechanicsburg Ships' Parts Control Center

Mechanicsburg, Pennsylvania

NPL

FFID:	PA317002210400	**Funding to Date:**	$26.0 million
Size:	824 acres	**Estimated Cost to Completion (Completion Year):**	$16.2 million (FY2016)
Mission:	Provide inventory management and supply support for weapons systems	**Final RIP/RC Date for ER Sites:**	FY2010
		Five-Year Review Status:	Planned
HRS Score:	50.00; placed on NPL in May 1994		
IAG Status:	Federal facility agreement under negotiation		
Contaminants:	PCBs, heavy metals, pesticides, VOCs, SVOCs, and dioxin		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Historical defense industrial and inventory disposal operations have caused contamination at this installation. Environmental investigations conducted since FY84 have identified 15 CERCLA sites.

In FY89, the installation completed a remedial investigation and feasibility study (RI/FS) for Site 9, the stormwater drainage ditch. Subsequently, removal actions were conducted to remove polychlorinated biphenyl (PCB)–contaminated soil from a portion of the ditch and to install fencing and a gabion dam. In FY92, the installation completed an RI/FS for Site 3. In FY93, the installation began removing contaminated soil from Site 3, then treating it through bioremediation. It completed an RI at Site 1. The remedial design (RD) for Site 9 was also completed in FY93; additional contaminated soil and sediment were removed in the remedial action (RA). At Site 10, the installation completed an RD/RA to remove leaking underground storage tanks and contaminated soil.

In FY95, a time-critical removal action was conducted at the Tredegar Industries, Inc., property next to the installation. Approximately 600 tons of PCB-contaminated soil was removed.

In FY96, the installation initiated a basewide ecological risk assessment (ERA). It also prepared a design for groundwater modeling of a landfill at Site 3 and began the focused FS (FFS). In FY97, a human health risk assessment at Site 1 was completed, an interim remedial action was initiated at Site 11, and an onboard review of work plans for site inspections (SIs) at Sites 12 through 15 was implemented.

In FY98, a site management plan was completed and the sediment and groundwater monitoring plans were finalized. An RA began at Site 3, and the installation completed soil modeling, a final FS, and an action memorandum (AM) for soil removal. The FS, the proposed remedial action plan, and the Record of Decision (ROD) for Site 1 were completed, as was the sediment control project at Site 11.

In FY99, the work plan and fieldwork for the Site 9 ERA were completed. The SI for Sites 12 to 15, a basewide quality assurance protection plan, and a basewide background report for soil were finalized. The Site 3 soil removal and closeout report and the Site 15 AM were also completed.

In FY00, the installation completed the FFS and the ROD for soil at Site 3. An AM and soil removal were completed for Site 15. A no further action (NFA) report for Site 7 and draft NFA reports for Sites 12, 13, and 14 were completed.

A technical review committee, formed in FY88, was converted to a Restoration Advisory Board (RAB) in FY95. The installation placed its administrative record on CD-ROM and completed a community relations plans in FY99.

FY01 Restoration Progress

The installation completed ERA fieldwork for Site 9 and soil removal at Site 14. An AM and soil removal at Site 15 were completed, as was SI fieldwork for four areas of concern (AOCs). An NFA report for Site 7 was also finished. Draft NFA documents for Sites 12, 13, and 14 and a 28-site AOC NFA document were completed. Negotiations continued toward a federal facility agreement (FFA). The cost of completing environmental restoration at this installation increased significantly because of technical issues.

The Site 3 groundwater RI and the NFA document for four AOCs were delayed due to regulatory review.

The RAB continued to meet quarterly. The RAB comments during briefings as a part of the planned RAB meetings. A partnering team, consisting of EPA, the Pennsylvania Department of Environmental Protection, and Navy personnel, meets monthly.

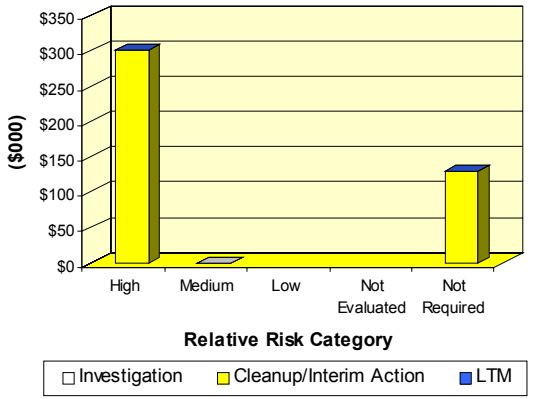
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete FFA in FY02
- Complete NFA documents for Sites 12, 13, 14, and 15 in FY02
- Complete SI for four AOCs in FY02
- Complete a groundwater RI for Site 3 in FY02
- Complete NFA document for four AOCs in FY02
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk



Midway Naval Air Facility

Midway Atoll

BRAC 1993

FFID:	MQ917002758400	**Funding to Date:**	$22.0 million
Size:	1,535 acres	**Estimated Cost to Completion (Completion Year):**	$0.2 million (FY2002)
Mission:	Provided aviation support services	**Final RIP/RC Date for BRAC-ER Sites:**	FY2002
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	Heavy metals, pesticides, PCBs, and POLs		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

In 1940, a naval station was established at Midway Island. In 1978, the station was redesignated as the Naval Air Facility Midway Island. The Navy operated and maintained the facility and provided services and materials to support aviation activities. Since FY88, studies at the facility have identified 42 sites, including landfills, disposal and storage areas, a former power plant, a rifle range, and pesticide spill areas.

In FY93, the BRAC Commission recommended closure of Midway as an active naval air facility. A Midway Island BRAC cleanup team (BCT) was formed to accelerate the cleanup and transfer of Midway Island. Also, in an effort to facilitate the transfer process, an information repository was established at the University of Hawaii at Manoa in FY95.

An environmental baseline survey was completed in FY94, and a human health risk assessment was completed for all 42 sites in FY95. An executive order transferring legal enforcement authority to the U.S. Fish and Wildlife Service (USFWS) was signed in 1996. On May 22, 1996, jurisdiction and control of Midway Island was transferred from the Navy to the USFWS. The BCT also finalized the BRAC cleanup plan.

In FY97, the baseline ecological risk assessment for one site was completed and remedial investigations and feasibility studies were performed for five sites. Removal actions were completed, involving removal of contaminated soil from eight sites, capping of landfills at two sites, removal of drums from four sites, removal of marine debris from four sites, and capping of abandoned outfalls at one site. Remediation was completed for soil and groundwater at 15 underground storage tank (UST) sites. By the end of FY97, all environmental work at Midway was complete, with the exception of long-term management (LTM) at Sites 1 and 2. Final base closure was completed on June 30, 1997.

In FY98, a final round of LTM was conducted at two sites on Sand Island, Bulky Waste Landfill (Site 1) and Runway Landfill (Site 2). Preliminary data indicated that no further action was required. An aviation gasoline line was found, properly cleaned, and abandoned in place, and drums of asphalt were removed and disposed of. In FY99, LTM revealed polychlorinated biphenyls (PCBs) around a beached tug and barge adjacent to the Bulky Waste Landfill (Site 1). In addition, beach erosion exposed two USTs on Eastern Island. Both USTs were removed.

In FY00, assessment of the site characterization identified the tug and barge as the probable source of PCB contamination. The BCT agreed on a removal action for the tug and barge and follow-up monitoring.

FY01 Restoration Progress

The installation removed and disposed of the abandoned boiler, landing craft mechanized, and the tug and barge. Total petroleum hydrocarbon–impacted soil associated with two previously removed USTs also was disposed of. Monitoring of the tug and barge area was discontinued because it was confirmed as the PCB source. The installation completed additional work to confirm closure of abandoned petroleum pipelines and construction of a cutoff wall to address an oil sheening problem observed at the Cargo Pier, Sand Island.

EPA, the National Marine Fisheries Service, and USFWS were kept informed of the project.

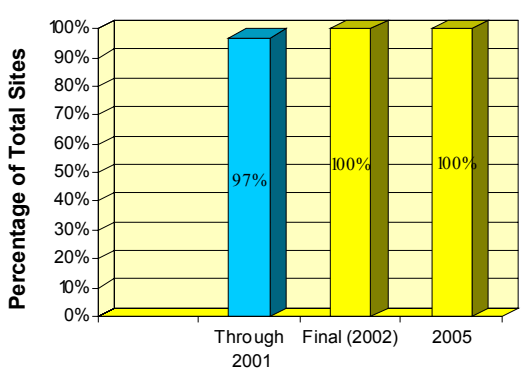
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Close out abandoned boiler, landing craft mechanized, and tug and barge at Site 1 in FY02
- Conduct 5-year review in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Milan Army Ammunition Plant

Milan, Tennessee

NPL

FFID:	TN421382058200	**Funding to Date:**	$114.5 million
Size:	22,357 acres	**Estimated Cost to Completion (Completion Year):**	$141.3 million (FY2037)
Mission:	Load, assemble, pack, ship, and demilitarize explosive ordnance	**Final RIP/RC Date for ER Sites:**	FY2009
		Five-Year Review Status:	Completed/Planned
HRS Score:	58.15; placed on NPL in July 1987		
IAG Status:	IAG signed in 1989		
Contaminants:	Munitions-related wastes		
Media Affected:	Groundwater and soil		

Progress to Date

Preliminary assessment and site inspection activities conducted at Milan Army Ammunition Plant in FY87 identified 25 sites requiring further investigation. Subsequent studies expanded the number of sites to 38. The installation grouped the sites into five operable units (OUs).

A remedial investigation (RI) and feasibility study (FS) began in FY88. EPA and state regulatory agencies approved the RI report in FY92. The report recommended no further action at three sites, remedial design and remedial action for the O-Line Ponds and associated groundwater, and collection of additional RI data for the remaining sites.

In FY91, the Army discovered the explosive compound RDX in the city of Milan's municipal water supply wells. In FY92, the Army and regulators signed a Record of Decision (ROD) for the construction of the OU1 groundwater treatment plant.

In FY93, an OU2 ROD was signed to extend a cap over the former O-Line Ponds soil to prevent further leaching of explosive contaminants into groundwater. Representatives of the Army, the City of Milan, EPA, and the State of Tennessee completed a contingency plan to ensure that safe drinking water would be available to residents. The city completed a new drinking water well field in 1998 using funds provided by the Army.

In FY94, the installation formed a Restoration Advisory Board. In addition, the Army and regulators signed a ROD for the construction of a groundwater treatment facility for the Northern Boundary Area (OU3) of the installation.

In FY95, a ROD was signed for construction of a bioremediation facility to treat contaminated soil in the Northern Industrial Areas. The Army constructed an industrial landfill for disposal of the bioremediated soil.

In FY99, the installation completed the construction for the OU3 groundwater treatment facility. The installation submitted two final RIs to the regulators for OU4 Regions 2 and 3 and OU5. The construction for the OU3 groundwater treatment facility was completed. The installation submitted two final RIs to the regulators for OU4 Regions 2 and 3 and OU5.

In FY00, the Army and regulators signed a ROD for construction of a groundwater treatment facility for the Western Boundary Area (OU4 Region 1) of the installation. RDX-contaminated groundwater from sumps and ditches within Line X (OU4 Region 1) had migrated from its source and now extended more than 6,000 feet laterally within the city of Milan. The installation completed the design of the OU4 Region 1 groundwater treatment plant, which uses extraction, treatment with granular activated carbon, and then surface discharge at 1,300 gallons per minute.

FY01 Restoration Progress

An explanation of significant differences (ESD) was used to modify the existing ROD for OU3 and OU4 soil, which allowed land application of treated explosives-contaminated soil after treatment. The ESD discontinued the land filling of this soil, which is now disposed of at the plant's ammunition destruction area. The Army completed the 5-year review. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues.

The draft FS for overall groundwater was approved, and the PP submitted to the regulators. The final PP was approved, and the draft ROD was submitted for OU5. The installation completed bioremediation of explosives-contaminated soil at Line E. Contaminated soil discovered at Line Z was excavated, and analysis of Areas M and N was completed.

The draft FS for the city of Milan (OU4 Regions 2 and 3) was approved. The Army is implementing recommendations provided by a Groundwater Extraction and Treatment Effectiveness Review Team.

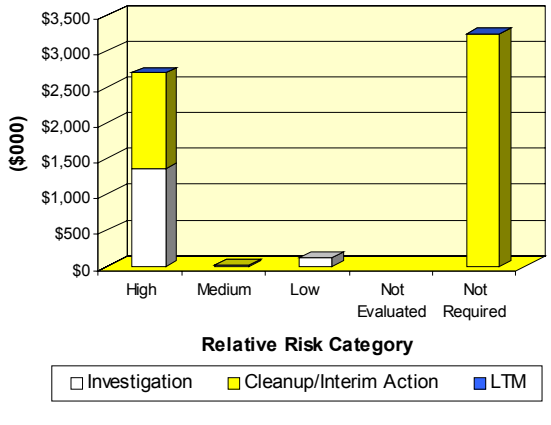
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future. Unexploded ordnance clearance activities are anticipated to support the OU5 soils remediation at the ammunition destruction area and Open Burning Grounds beginning in FY02.

Plan of Action

- Begin operating the OU4 groundwater treatment plant in FY02
- Complete composting of Line Z and analytical work for H-Line and the previously closed landfill in FY02
- In FY02, remediate the Y-103 rail classification yard contaminated from a previous release of hydrocarbons
- Continue operation of the OU1 and OU3 groundwater treatment plants in FY02

FY02 Funding by Phase and Relative Risk



Military Ocean Terminal, Bayonne

Bayonne, New Jersey

BRAC 1995

FFID:	NJ221352275200	**Funding to Date:**	$17.2 million
Size:	679 acres (437 acres of land, 242 acres of water)	**Estimated Cost to Completion (Completion Year):**	$0 million (FY2001)
Mission:	Managed movement of DoD cargo	**Final RIP/RC Date for BRAC-ER Sites:**	FY2001
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	Petroleum hydrocarbons, BTEX, VOCs, SVOCs, dieldrin, heavy metals, and PCBs		
Media Affected:	Groundwater and soil		

Progress to Date

In July 1995, the BRAC Commission recommended closure of Military Ocean Terminal, Bayonne. The Army ceased operations at the installation on September 30, 1999.

Beginning in FY89, the Army conducted a remedial investigation (RI) at 10 sites. These studies resulted in several interim removal actions, including closing the landfill, removing 450 tons of PCB- and diesel-contaminated soil, and removing and recertifying a number of PCB-containing transformers.

In FY96, the installation implemented NEPA requirements, and conducted an environmental impact statement (EIS) assessment, a cultural and natural resources investigation, and an environmental baseline survey. The installation also formed a BRAC cleanup team (BCT) and a Restoration Advisory Board (RAB).

In FY97, the installation completed version 1 of the BRAC cleanup plan and a final Environmental Condition of Property statement for a planned parcel transfer to the U.S. Coast Guard (USCG). The cultural resources inventory was completed and received regulatory concurrence. The installation conducted a basewide RI of 82 study areas, composed of 67 sites, within 22 operable units (OUs).

In FY98, the Army completed the draft decision document (DD) for the OU2 light rail parcel and finished the Relative Risk Site Evaluation for all applicable sites. The installation completed a final draft finding of suitability to lease (FOSL), excluding USCG property. Three abandoned USTs were removed from OU7/Lot 44. The Army completed the historic architectural inventory survey and removed additional PCB-contaminated soil from OU2. The BCT received concurrence for No Further Action (NFA) at 36 of 66 sites.

In FY99, the Army completed the radiological historic site assessment report, the basewide FOSL, and the EIS disposal and reuse report. The Army Environmental Center conducted an independent technical review of the installation's restoration program.

In FY00, the Army signed the BRAC interim master lease. It also completed the basewide supplemental RI and feasibility study (FS), baseline ecological evaluation, and sediment quality reports. In addition, the Army completed supplemental RI sampling and analysis at 12 CERFA Category 7 (unevaluated) sites. It completed a draft design basis investigation report that delineated additional contaminated sites. The installation removed 11 USTs, 2 oil-water separators, and 11 aboveground storage tanks. The Army completed the lead-based paint inspection and risk assessment work for Goldsboro Village. The installation completed the radiation sampling survey for Buildings 23, 73, and 203. It also completed asbestos abatement for Buildings 83A, 235A, and 100. The final groundwater reclassification report was completed.

FY01 Restoration Progress

PCB-impacted soil from OU2 will be remediated by a third party (BLRA) as a result of an environmental services cooperative agreement. The Army completed a basewide PCB sampling and analysis inventory, which indicated the absense of PCB-based equipment. The installation completed the draft wetland delineation report and a basewide supplemental RI/FS. The cost of completing environmental restoration at this installation increased significantly due to regulatory and estimating criteria issues.

The finding of suitability to transfer and the associated DD for the NFA clean parcels were signed. The NFA property was transferred to the Bayonne Local Redevelopment Authority (BLRA). The Army and Coast Guard signed an agreement transferring two land parcels (approximately 26 acres). An agreement was signed between the Army and the BLRA on the required actions for cleanup and remediation of the contaminated sites to include completion of cleanup for all contaminated parcels, 30-year groundwater monitoring, and 5-year reviews.

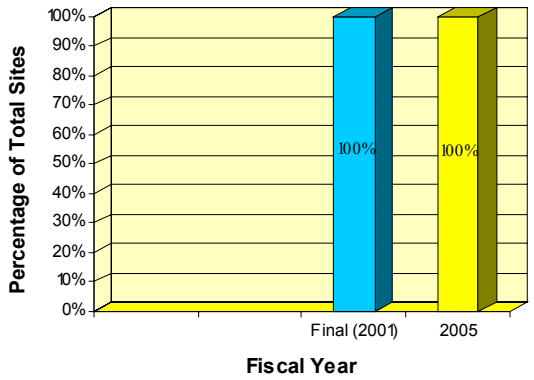
Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete wetland delineation report in FY02
- Respond to New Jersey Department of Environmental Protection comments and complete the radiological sampling survey in FY02
- Complete the proposed plan and DD for all contaminated sites in FY02
- Complete finding of suitability for early transfer documentation in FY02
- Complete groundwater sampling report for OU20 in FY02
- Transfer remaining contaminated property to BLRA under early transfer authority, third-party cleanup in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Moffett Field Naval Air Station

Sunnyvale, California

NPL/BRAC 1991

FFID:	CA917002323800	**Contaminants:**	PCBs, petroleum products, DDT, chlorinated cleaning solvents, and heavy metals
Size:	3,096.77 acres	**Media Affected:**	Groundwater, sediment, and soil
Mission:	Provided support for antisubmarine warfare training and patrol squadrons and served as headquarters for Commander Patrol Wings of the Pacific Fleet	**Funding to Date:**	$83.2 million
		Estimated Cost to Completion (Completion Year):	$101.5 million (FY2033)
HRS Score:	32.90; placed on NPL in July 1987	**Final RIP/RC Date for BRAC-ER Sites:**	FY2007
IAG Status:	Federal facility agreement signed in September 1990	**Five-Year Review Status:**	Planned

Progress to Date

In July 1991, the BRAC Commission recommended closure of Moffett Field Naval Air Station. The installation was closed on July 1, 1994, and was transferred to NASA. A portion of the installation was deemed a National Priorities List (NPL) site.

Environmental studies since FY84 have identified 34 sites at the installation. Site types include landfills, underground storage tanks (USTs), a burn pit, ditches, holding ponds, french drains, maintenance areas, and fuel spill sites. Contaminants include polychlorinated biphenyls (PCBs), petroleum products, DDT, chlorinated solvents, and heavy metals. The installation was divided into seven operable units (OUs). In FY90, initial site characterizations were completed for 3 UST sites, and 14 USTs were removed.

From FY90 to FY94, the installation removed four leaking USTs from one site, removed USTs from a second site, conducted groundwater remediation at three sites, and completed remedial investigations (RIs) for OUs 1, 2, and 5 and one other site.

During FY95, the installation completed a site inspection for one site, RIs for OU6 and three other sites, feasibility studies (FSs) for OUs 1 and 5, a Record of Decision (ROD) for no further action (NFA) for seven sites, and a remedial action (RA) for one site. The installation constructed and tested a bioventing treatment system for one site, a soil vapor extraction system for another site, and a recirculating in situ treatment system for a third site.

In FY96, the installation initiated FSs for two sites and OU6, signed a ROD, initiated remedial design (RD) for two sites, began a ROD for NFA, and removed all inactive USTs from one site. RD and groundwater treatment were completed for one site. The installation also completed an environmental business plan.

During FY97, the ROD for OU1 was signed, and the RD and RA for Site 2 were completed. The FS for OU6 was also completed along with a Phase II ecological risk assessment. In FY98, the installation completed construction of one RA at OU5. The Naval Air Manor property was transferred to a neighboring city.

In FY99, the installation completed landfill consolidation and construction of a cap, and finished construction of an RA at the west-side aquifer plume. Preliminary RD efforts began on the Site 22 landfill. The basewide FS was completed, and the basewide ROD went into development.

In FY00, closure reports were completed for numerous UST sites. Field investigation of Northern Channel (Site 27) was completed. Monitoring of ecological areas (Site 25) continued.

The installation completed a community relations plan (CRP) and established an information repository in FY89. In FY94, it formed a BRAC cleanup team and completed a BRAC cleanup plan, which was updated in FY97. The installation converted its technical review committee to a Restoration Advisory Board (RAB) in FY95.

FY01 Restoration Progress

The CRP update is under way. The federal facility agreement was revised to provide a detailed closure schedule, to refine the clean-up strategy, and to accelerate the remediation of Moffett Field in order to get the installation delisted from the NPL. Support of the NASA-Navy memorandum of agreement continued. The proposed plan (PP) was completed for the Site 22 landfill, and negotiations toward the ROD began with regulatory agencies.

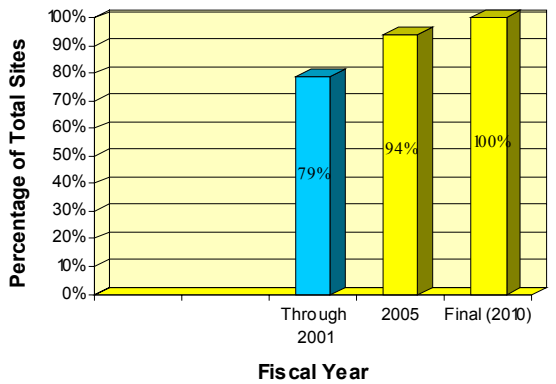
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Represent Moffett Field at the Community Bay Area RAB forum in FY02
- Complete closure of 35 petroleum sites in FY02
- Complete ROD and RD for Site 22, ROD for the proposed NFA sites, and PP for Site 25 in FY02
- Continue the site management plan for delisting Moffett Field from the NPL in FY02 and FY03
- Prepare a 5-year review for OU1 in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Moses Lake Wellfield Contamination Site
Formerly Larson Air Force Base

Moses Lake, Washington **NPL**

FFID:	WA09799F331700	**Funding to Date:**	$11.1 million
Size:	9,607 acres	**Estimated Cost to Completion (Completion Year):**	$1.6 million (FY2010)
Mission:	Served as tactical air command, air transport, and strategic air command base; provided pilot training	**Final RIP/RC Date for ER Sites:**	FY2010
		Five-Year Review Status:	NA
HRS Score:	50.00; placed on NPL in October 1992		
IAG Status:	IAG signed in March 1999		
Contaminants:	VOCs (specifically TCE)		
Media Affected:	Groundwater and soil		

Progress to Date

Larson Air Force Base (AFB) served as a tactical air command base, then as a military air transport facility, and later as a Strategic Air Command base. The installation was sold to the Port of Moses Lake in 1966 and is now operated by the Grant County Airport. Much of the former Larson AFB property serves as a regional aviation, industrial, and educational facility.

Environmental assessments, beginning in FY87, identified four sites that required further investigation: 11 underground storage tanks (USTs) and associated potentially contaminated soil; a trichloroethene (TCE)-contaminated groundwater plume; an area potentially containing low-level radioactive waste; and two disposal areas potentially containing tetraethyl lead. In 1988, the water from the Skyline Water District, south of the former Larson AFB, was found to be contaminated with TCE. Two City of Moses Lake potable-water wells were also found to have been contaminated with TCE. The city performed remedial actions at the wellfield, and concentrations of TCE were reduced below the levels established in the Federal Drinking Water Standards. Other private wells in the study area were contaminated above allowable federal levels.

In FY92, 11 USTs were excavated and removed from the site. In FY93, a Phase I remedial investigation (RI) was completed by the U.S. Army Corps of Engineers (USACE), Seattle District, to identify potential source areas. In FY94, three additional rounds of groundwater sampling were conducted. The Port of Moses Lake provided bottled water to the Skyline community from 1994 until July 1999 to reduce the risk of exposure to TCE-contaminated water. The contract for this water supply was taken over from the Port of Moses Lake by USACE in July 1999.

In FY94, USACE, Seattle District, completed an engineering evaluation and cost analysis to evaluate the Skyline drinking water system. In FY95, USACE, Omaha District, completed a search for potentially responsible parties and a cost allocation effort. USACE, Seattle District, completed the addendum to the Phase I RI, including additional groundwater sampling.

In FY97, the Omaha District Office of Counsel, in coordination with its Department of Justice attorney, negotiated with EPA Region 10 to decide who would take the lead for the RI and feasibility study (FS).

In FY99, an interagency agreement (IAG) was signed and RI/FS work began, to determine the extent of the TCE plume. Forty-seven groundwater monitoring wells were constructed, and several piezometers were installed. Real estate rights-of-entry were obtained for 70 local residences. Under directive from EPA, a potable-water pipeline, leading from the water distribution system of the city of Moses Lake to Skyline, was designed.

In FY00, several interim remedial actions (IRAs) were completed, including UST closures at the former eight-bay hangar facility, disposal of more than 100 55-gallon drums, and disposal of over 18,000 gallons of TCE-contaminated water in tanks. Additional sampling was performed for domestic water wells, increasing the number of homes requiring service on the bottled-water contract.

FY01 Restoration Progress

An IRA was completed at the former liquid oxygen generating plant site. Two sumps containing TCE-contaminated water and sludge, as well as the associated piping and contaminated soil, were removed and properly disposed of. RI work for the draft RI report is under way. Digital aerial photography was completed, with the interpretation still pending. Work completing well construction and the draft FS is ongoing. The estimated cost of completing environmental restoration at this installation has changed significantly because of estimating criteria issues.

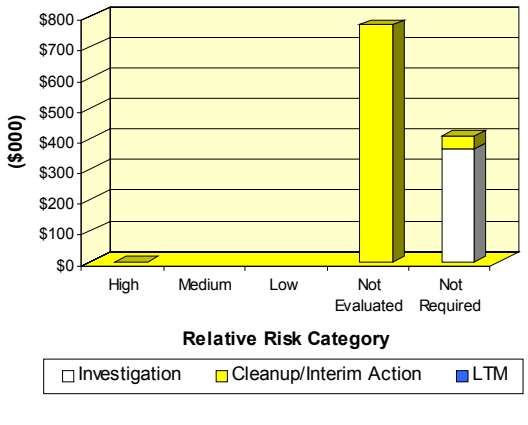
Military Munitions Response Program Progress

USACE has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete the draft RI in FY02
- Complete well construction in FY02
- Complete draft FS in FY02

FY02 Funding by Phase and Relative Risk



Mountain Home Air Force Base

Mountain Home, Idaho

NPL

FFID:	ID057212455700	**Funding to Date:**	$8.2 million
Size:	6,000 acres	**Estimated Cost to Completion (Completion Year):**	$4.4 million (FY2008)
Mission:	Provide composite combat air power worldwide	**Final RIP/RC Date for ER Sites:**	FY2004
HRS Score:	57.80; placed on NPL in August 1990	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement signed in January 1992		
Contaminants:	VOCs, POLs, and heavy metals		
Media Affected:	Groundwater and soil		

Progress to Date

Environmental studies conducted since FY83 have identified 32 sites at Mountain Home Air Force Base. Sites include landfills, fire training areas, a fuel hydrant system spill area, disposal pits, surface runoff areas, wash racks, ditches, underground storage tanks (USTs), petroleum/oil/lubricant lines, and a low-level radioactive material disposal site. To improve and accelerate site characterization, the installation grouped the sites into operable units (OUs).

Removal actions in FY91 and FY92 included clean closure and removal of 12 USTs. In FY93, the installation recommended no further action (NFA) for 15 of 21 sites in OU1. In FY92, remedial investigation (RI) activities were initiated for OU3 and OU6. An NFA Record of Decision (ROD) was signed for OU2 and OU4, and an interim remedial action (IRA) was conducted at OU5 (low-level radioactive material site). The IRA consisted of excavating 2 cubic yards of contaminated soil, a pipe, and six 55-gallon drums. The installation also capped 3 acres of one landfill in OU2. In FY95, the installation completed RI activities for OUs 1, 3, 5, and 6; the lagoon landfill; and Fire Training Area 8. A ROD was signed for these areas in FY96.

Regional groundwater monitoring was initiated to resolve uncertainties in the groundwater transport model. The perched water at Site ST-11, the flightline fuel spill site, is undergoing long-term management. In FY96, the installation submitted a request to EPA to delete the installation from the National Priorities List (NPL). EPA preferred to wait until a required 5-year review had taken place at Site ST-11 before beginning the delisting process. In FY00, the installation updated the community relations plan and continued to pursue deletion of the installation from the NPL.

The installation converted its technical review committee to a Restoration Advisory Board (RAB) in FY94. The installation holds semiannual RAB meetings and advertises the meetings in the local newspaper to increase public involvement.

FY01 Restoration Progress

The installation continued to monitor regional groundwater and the perched water at Site ST-11. The 5-year review was completed, and as a result, additional sampling will be accomplished for ST-11 and the regional groundwater. Three new areas of concern (AOCs) will be addressed by a site inspection (SI). Because of the identification of the new potential sites and the plan for additional sampling and analysis at ST-11, deletion from the NPL will not be revisited until the next 5-year review, scheduled for FY06. The cost of completing environmental restoration has changed significantly at this installation because of technical and regulatory issues.

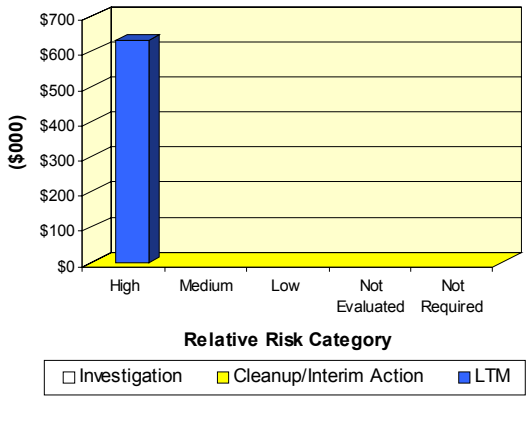
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Install additional wells to assist in monitoring regional groundwater in FY02
- Install additional wells to assist in monitoring perched groundwater at Site ST-11 in FY02
- Complete an SI for three AOCs to determine whether they qualify as sites in FY02
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk

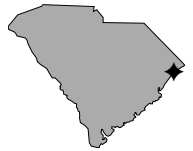


Myrtle Beach Air Force Base

Myrtle Beach, South Carolina

BRAC 1991

FFID:	SC457002482100	**Funding to Date:**	$44.4 million
Size:	3,937 acres	**Estimated Cost to Completion (Completion Year):**	$17.9 million (FY2028)
Mission:	Housed tactical fighter wing	**Final RIP/RC Date for BRAC-ER Sites:**	FY2002
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	Spent solvents, fuel, waste oil, VOCs, metals, asbestos, paints, POLs, and thinners		
Media Affected:	Groundwater and soil		



Progress to Date

In July 1991, the BRAC Commission recommended closure of Myrtle Beach Air Force Base. On March 31, 1993, the installation closed. Sites identified at the installation include landfills, weathering pits, fire training areas, drainage ditches, hazardous waste storage areas, maintenance areas, underground storage tanks (USTs), explosive ordnance areas, fuel storage areas, a small-arms firing range, and a lead-contaminated skeet range. Contaminants include petroleum hydrocarbons, heavy metals, and volatile organic compounds (VOCs). The installation has conducted preliminary assessments, site inspections, remedial investigations (RIs), and feasibility studies (FSs) for the identified sites.

Interim corrective measures (ICM) were initiated to treat a 50-acre trichloroethene-contaminated groundwater plume. The installation also began remedial design (RD) and treatability studies for the small-arms firing range and firing-in buttress sites. RCRA facility investigations (RFIs) have been implemented for the drainage ditches, the old entomology shop, the armament shop, and the old engine test cell. A joint management team assumed the role of a BRAC cleanup team in FY93.

In FY94, cleanup was completed at the skeet range. Interim measures included removal of contaminated soil at the weathering pit and removal of 28 USTs and 20 oil-water separators. The installation also formed a Restoration Advisory Board.

The BRAC cleanup plan was updated in FY96. In FY97, the installation completed RI/FS reports, selected cleanup technologies for several sites, and determined the extent of lead contamination in soil at the small-arms firing range. It also submitted clean-closure plans to the state regulatory agency for two hazardous waste management units and corrective action plans (CAPs) for the hazardous waste tank facility. The installation completed an ICM for the old entomology shop. Eight early removal actions took place, and the installation completed a Relative Risk Site Evaluation for all sites.

In FY98, ICM was completed for soil removal at the small-arms firing range, and landfill caps were implemented at four sites. Supplemental RFI reports were completed for 12 sites, and the installation implemented a CAP for air sparging at the motor gasoline site. The CAP for four UST sites was finalized, and soil removal began at two of the sites. An RFI work plan was completed for two new sites. A basewide monitoring plan was implemented for all sites.

In FY99, the design and the work plan for the groundwater remediation system at an off-base site were submitted for approval. RD was completed for two fire training areas and the petroleum/oil/lubricants (POLs) site. The RFI work plan and fieldwork were completed for four areas.

In FY00, the installation completed the review of ICM construction reports for the old entomology shop, the new entomology shop, and the armament shop. The installation began a corrective measures study (CMS) for eight sites, ICM soil removal at FT11 (the weathering pit), natural attenuation (NA) at two fire training areas, and a CAP at the POL site.

FY01 Restoration Progress

The installation completed a pilot study and ICM at the vehicle maintenance area and revised the ICM at B575. Remediation was completed at two sites thought to contain unexploded ordnance (UXO), there was no UXO present. CMSs for 9 sites were completed, and CMSs for three sites were drafted. Statements of basis for 10 sites were submitted. Two fuel sites were closed, and remediation continued at four fuel sites. Groundwater monitoring and operation of existing systems continued. Installation of a soil cover on the 10-acre construction rubble site was completed.

The RD for FT11 and the POL site was delayed because further ICM is needed. No RD was required at FT6 and FT7.

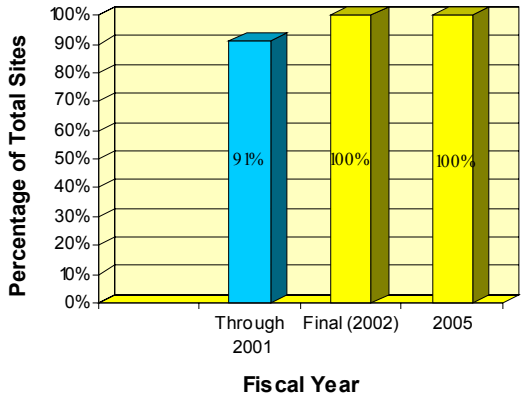
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Complete CMSs for five sites in FY02
- Complete statements of basis for five sites in FY02
- Provide decision documents for 14 sites in FY02
- Conduct corrective measure implementation (CMI) at two sites in FY02
- Modify ICM and convert to CMI at one site in FY02
- Continue remediation at four fuel sites in FY02
- Continue groundwater monitoring and operation of existing systems in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



National Presto Industries
Formerly Eau Claire Plant No. 1

Eau Claire, Wisconsin **NPL**

FFID:	WI59799F244900	**Funding to Date:**	$3.2 million
Size:	320 acres	**Estimated Cost to Completion (Completion Year):**	$0 (FY1990)
Mission:	Manufacture ordnance	**Final RIP/RC Date for ER Sites:**	FY1990
HRS Score:	43.7; placed on NPL in June 1986	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	VOCs, including TCE		
Media Affected:	Groundwater and soil		

Progress to Date

Between 1981 and 1985, EPA and the Wisconsin Department of Natural Resources (WDNR) conducted groundwater studies in the general area west of the National Presto Industries (NPI) site (formerly Eau Claire Ordnance Plant No. 1). Volatile organic compounds (VOCs) were detected in groundwater samples. EPA issued an Administrative Order on Consent requiring NPI to design and install an on-site groundwater treatment facility.

In FY91, EPA issued a unilateral order requiring NPI to construct a drinking water system in the town of Hallie. The drinking water system was completed in FY92. Also, in FY92, the U.S. Army Corps of Engineers (USACE), Omaha District, awarded a contract for potentially responsible party investigation activities, including research into historical activities at the property and evaluation of technical data relating to potential DoD liability. Results of this investigation indicated that DoD has limited, if any, liability.

In FY94, under a consent order signed by NPI and EPA, removal activities began at Lagoon No. 1. The remedial investigation (RI) report identified five source areas and four plumes of groundwater contamination. An on-site groundwater extraction and treatment facility became operational in FY94.

In FY95, waste forge compound liquids and solids were removed from Lagoon No. 1. The RI and feasibility study were completed, and a proposed plan (PP) was issued. WDNR issued a statement on the desired environmental restoration levels; WDNR did not concur in EPA's PP.

In FY96, the Army transferred funding to NPI at the direction of Congress. A Record of Decision was issued with state concurrence.

In FY97, an intermediate design for the Melby Road disposal site was submitted by USACE, along with an engineering evaluation and cost analysis and a remedial action plan for Lagoon No. 1. A revised remedial design work plan was completed. Work plans also were submitted for the soil vapor extraction (SVE) monitoring wells and ditch and dry well soil sampling.

In FY98, closure of the Melby Road disposal site was completed. Ditch 3 and Dry Wells 2 and 5 were remediated. In FY99, closure of Lagoon No. 1 was completed.

In FY00, the installation continued monitoring and operating the SVE and groundwater systems. The Army's final payment under the 1996 grant agreement was issued.

FY01 Restoration Progress

The monitoring and operating of SVE and groundwater systems continued. Review of the monitoring reports submitted to USACE by the installation is under way. USACE requested EPA's approval to cease operating the Plume 1/2 system in favor of natural attenuation (NA). EPA has not reached a decision on the request.

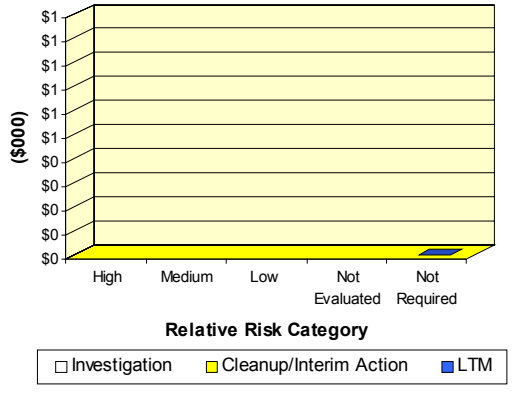
Military Munitions Response Program Progress

USACE has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

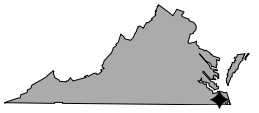
- Continue to monitor and operate the SVE and groundwater treatment systems in FY02
- Continue to review monitoring reports submitted to USACE by installation in FY02
- Work toward consensus on ceasing to operate the Plume 1/2 system in favor of NA in FY02

FY02 Funding by Phase and Relative Risk



Naval Amphibious Base Little Creek — *Virginia Beach, Virginia* — NPL

FFID:	VA317002248200	**Contaminants:**	Mixed municipal wastes, VOCs, SVOCs, and heavy metals
Size:	2,147 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Provide logistics facilities and support services to meet the amphibious warfare training requirements of the Armed Forces	**Funding to Date:**	$17.2 million
		Estimated Cost to Completion (Completion Year):	$30.7 million (FY2016)
		Final RIP/RC Date for ER Sites:	FY2011
HRS Score:	50; placed on NPL in May 1999	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement negotiations under way		



Progress to Date

Site types at this installation include landfills, a music equipment plating shop, a laundry waste disposal area, a pentachlorophenol (PCP) dip tank, sandblast yards, battery storage areas, and underground storage tanks (USTs). The installation was placed on the National Priorities List (NPL) mainly because of the potential for contaminants in soil and groundwater to migrate to surface water and endanger ecological receptors.

An initial assessment study completed in 1984 identified 17 potentially contaminated sites. Sites 1, 2, 6, 8, 14, and 17 were recommended for no further action. Site 3 was addressed under a separate program. Six sites recommended for further study were sampled for groundwater, surface water, and sediment contamination in 1986. In 1988, a RCRA facility assessment identified potential solid waste management units (SWMUs).

In 1991, an interim remedial investigation (RI) was conducted. A preliminary site inspection (SI) for Sites 4, 5, 15, 16, and 17 detected contaminants of concern in groundwater at Site 5.

From 1993 through 1994, an RI was conducted at Sites 7 and 9 through 13 and an SI was performed at Sites 5 and 16. In 1995, polychlorinated biphenyl–contaminated soil was removed from Site 16 and the site was closed. At Site 11, a source removal action was completed. Corrective actions were completed for 10 USTs, and two other UST sites underwent long-term operations.

In FY99, the base was placed on the NPL. All sites were reevaluated by EPA upon this listing. PCP-contaminated soil was removed from Site 13, and the site's engineering evaluation and cost analysis (EE/CA) was finalized. SIs for Site 8 and SWMU 3 were completed, and the SI for SWMU 2 began. Draft feasibility studies (FSs) for Sites 11, 12, and 13 began. Ecological investigations were started at multiple sites. A 3-year groundwater monitoring report was submitted for Sites 9 and 10.

In FY00, the installation completed a draft base background study and updated the site management plan (SMP). Ecological investigations continued at multiple sites, and long-term management continued at Sites 7, 9, and 10. A draft federal facility agreement (FFA) was prepared. The EE/CA was completed for SWMU 8, and the associated removal action work plan was finalized. The draft SI for SWMUs 7 and 8 was completed. A draft RI was completed for Sites 9 and 10, and an RI was completed for Site 12.

A Restoration Advisory Board was established in 1994. A community relations plan (CRP) was completed in 1995.

FY01 Restoration Progress

A draft work plan for the SWMU 3 RI was completed. A draft RI was completed for Sites 5, 11, and 13. The final base background report and a draft FFA were submitted for regulatory comment. The interim remedial action (IRA), a draft EE/CA, and a draft RI work plan were completed at SWMU 8. A final ecological risk assessment was completed for Sites 5 and 13. The cost of completing environmental restoration at this installation has increased significantly due to technical and regulatory criteria.

The FS for Site 12 was delayed due to the need for further RI. The final proposed remedial action plans for Sites 9 and 10 were completed; finalization of the RODs was delayed pending EPA signature.

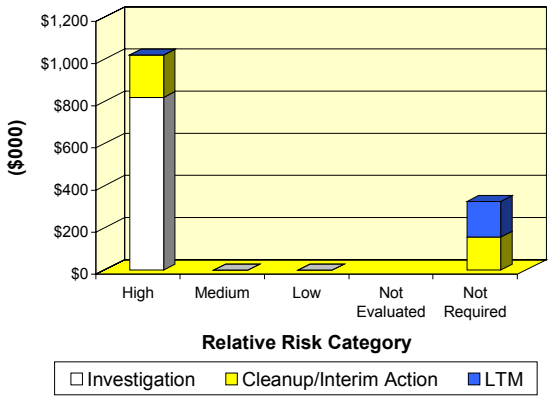
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete the CRP in FY02
- Complete Site 8 IRA and draft RI in FY02
- Complete Site 12 FS in FY02
- Finalize FFA in FY02
- Sign ROD for Sites 9 and 10 in FY02
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk



Naval Auxiliary Landing Field Crows Landing — *Sunnyvale, California* — BRAC 1991

FFID:	CA917002757500	**IAG Status:**	NA
Size:	1,527 acres	**Contaminants:**	Petroleum products, solvents, refuse, ordnance, and incinerator wastes
Mission:	Served as an auxiliary air field for operations from Moffett Field and other Navy facilities in the area; used for practice operations by the Navy, Air Force, Army, and Coast Guard during the 1970s and 1980s and as a research and development site by NASA	**Media Affected:**	Groundwater and soil
		Funding to Date:	$10.2 million
		Estimated Cost to Completion (Completion Year):	$16.7 million (FY2014)
		Final RIP/RC Date for BRAC-ER Sites:	FY2007
		Five-Year Review Status:	NA
HRS Score:	NA		

Progress to Date

The former Naval Auxiliary Landing Field (NALF) Crows Landing is located in Stanislaus County, California, approximately 80 miles southeast of San Francisco, in the northwestern part of the San Joaquin Valley between the towns of Patterson and Crows Landing. The facility was commissioned in May 1943 and served primarily as an auxiliary air field.

In July 1991, the BRAC Commission recommended closure of NALF Crows Landing, and the installation was closed on July 1, 1994, and transferred to NASA. In FY94, the installation formed a BRAC cleanup team (BCT) and completed a BRAC cleanup plan, which was updated in FY97. In October 1999, NASA was authorized by legislative act of the 106th Congress to transfer the facility to Stanislaus County. The former NALF Crows Landing is not on the National Priorities List.

In FY00, management of the installation's environmental restoration program was transferred from EFA-West to Southwest Division. Corrective actions at underground storage tank (UST) sites were implemented. Routine groundwater monitoring activities were also conducted, and additional chemicals were identified in the groundwater.

The installation completed a community relations plan (CRP) and established an information repository in FY89. The installation converted its technical review committee to a Restoration Advisory Board in FY95.

FY01 Restoration Progress

Feasibility studies (FSs) for Installation Restoration program (IRP) Sites 11 (disposal pits) and 17 (demolished hangar area and administration area plume) were revised, and site verification activities were conducted at IRP Site 11A (former and current sewer systems). Corrective actions continued at the UST sites. Two time-critical removal actions (TCRAs) were implemented for groundwater extraction at source areas in the administration area plume, and routine groundwater monitoring activities were conducted. The environmental business plan was updated, a CRP addendum was published, and BCT meetings were conducted bimonthly. Regulatory oversight agencies concurred on No Further Action status for 6 of the 8 IRP sites and 8 of the 17 UST sites.

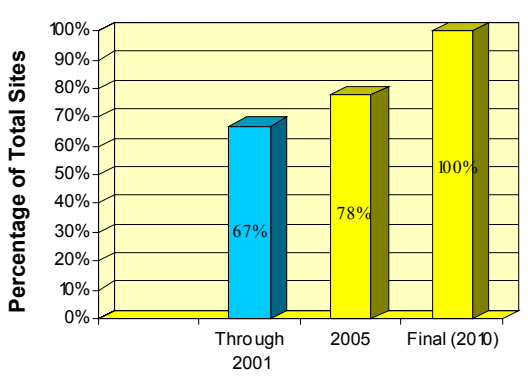
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Continue groundwater extraction activities for TCRAs at the administration area plume in FY02
- Continue to provide for community involvement and maintain the local information repository in Patterson in FY02
- Complete corrective actions at UST Cluster 1 and field sampling activities at various UST sites in FY02
- Complete closure reports for UST sites in FY02–FY03
- Complete revised FSs, proposed plans, and Records of Decision for Sites 11 and 17 during FY02–FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year

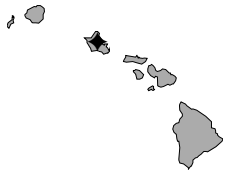


Naval Computer and Telecommunications Area Master Station, Pacific

Wahiawa and Lualualei, Hawaii

NPL

FFID:	HI917002438800	**Media Affected:**	Soil
Size:	2,400 acres	**Funding to Date:**	$9.8 million
Mission:	Operate and maintain communications facilities and equipment for naval shore installations and fleet units in the eastern Pacific	**Estimated Cost to Completion (Completion Year):**	$37.3 million (FY2016)
		Final RIP/RC Date for ER Sites:	FY2014
		Five-Year Review Status:	NA
HRS Score:	50.00; placed on NPL in May 1994		
IAG Status:	Draft federal facility agreement was cancelled		
Contaminants:	PCBs, metals, and petroleum hydrocarbons		



Progress to Date

This installation operates six facilities on the island of Oahu but conducts industrial operations primarily at the main station and receiver site in Wahiawa and the Naval Radio Transmitting Facility in Lualualei. The restoration program has focused on those two facilities, where maintenance and operation of electrical transformers and switches have been the primary sources of contamination. The installation was placed on the National Priorities List (NPL) because polychlorinated biphenyl (PCB)–contaminated soil was detected in work and residential areas. Contamination with metals and petroleum hydrocarbons also resulted from the station's operating and maintenance activities.

Investigations began at the installation in FY86. Twenty-four CERCLA sites and 5 underground storage tank (UST) sites were identified. Site inspections were conducted for Sites 1, 5, 11, and 14 through 19. Expanded site inspections (ESIs) were conducted for Sites 1, 5, and 11.

In FY92, the installation conducted a removal action at Site 14 for PCB-contaminated soil in the vicinity of eight transformers. A subsequent risk assessment indicated that no further action (NFA) was required. The ESI identified elevated levels of lead and mercury at the old Wahiawa landfill and the Building 6 disposal area.

In FY95, the installation completed planning documents for the remedial investigation and feasibility study (RI/FS) at Sites 1, 5, 6, 10, 12, 13, 17, 18, and 20. The Navy completed a draft federal facility agreement (FFA); however, both EPA and the Navy concluded that an FFA was not necessary because investigation and cleanup were progressing at the installation.

In FY96, the Navy conducted RI/FS activities at Sites 1 and 5 and determined that NFA was required at UST Site 6. In FY97, the installation began RI/FS activities at Sites 2 and 22. In FY98, an engineering evaluation and cost analysis (EE/CA), an action memorandum (AM), and planning documents were completed for removal actions at the transformer locations at Sites 17, 18, and 20. In FY99, the investigation of a potential UST tank site, UST Site 8, was completed, with no tank located.

In FY00, the installation completed removal actions at Sites 17, 18, and 20. Removal site evaluation (RSE) fieldwork and reporting were initiated for a portion of Site 18. An EE/CA and an AM were completed and a removal action began for Sites 17, 18, and 20 to treat or dispose of contaminated soil excavated in the previous removal action. Tank removal and over-excavation were completed at UST 5.

Because the installation consists of two primary facilities, two Restoration Advisory Boards were established. The final community relations plan was completed in FY95.

FY01 Restoration Progress

The removal action at Sites 17, 18, and 20 continued, consisting of treatment of PCB-contaminated soil by thermal desorption. A UST site (UST 9) was identified in FY01 during demolition of Building 63, NCTAMS Wahiawa. The cost of completing environmental restoration at this installation changed significantly due to estimating criteria and technical issues.

The RSE report for a portion of Site 18 was delayed for resolution of regulatory comments. The EE/CA and the AM for a portion of Site 18 were not initiated because it was determined that the existing treatment EE/CA could be used and that the associated AM could be amended to include the portion of Site 18. Completion of the RI/FS at Sites 1, 2, 5, and 22 was delayed due to additional assessment requirements.

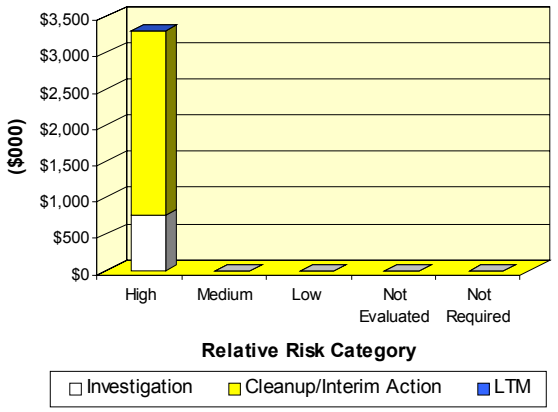
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete removal action at Sites 17, 18 and 20 in FY02
- Complete RSE report for a portion of Site 18 in FY02
- Complete amended AM for portion of Site 18 in FY02
- Complete ecological risk assessment for Sites 1, 2, 5, and 22 in FY02
- Develop RI planning documents for Sites 6 and 24 in FY02

FY02 Funding by Phase and Relative Risk



Naval Fuel Depot, Point Molate

Oceanside, California

BRAC 1995

FFID:	CA917002756300	**Media Affected:**	Groundwater and soil
Size:	424 acres	**Funding to Date:**	$19.4 million
Mission:	Supply and provide bulk storage of various grades of petroleum fuel product for fleet	**Estimated Cost to Completion (Completion Year):**	$10.9 million (FY2007)
		Final RIP/RC Date for BRAC-ER Sites:	FY2005
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	Petroleum products, VOCs, and SVOCs		

Progress to Date

In July 1995, the BRAC Commission recommended closure of Naval Fuel Depot, Point Molate. Operations at the installation included bulk storage and supply of fuel products, including JP-5, JP-7, and diesel, and Bunker C.

There are four parcels at Point Molate. Parcel F-1, the Winehaven and Shoreline parcel, contains Site 2, the Sandblast Grit Areas, and Site 4, the Shoreline/Drum Lot 1 Areas. In FY98 and FY99, over 10,000 linear feet of the shoreline piping system was removed at the Shoreline/Drum Lot 1 Areas to reduce potential sources of contamination. Results from the aquatic ecological risk assessment (ERA) indicate that the shoreline sediments have not been adversely impacted.

Parcel F-2 includes Site 3, the Treatment Ponds Area, which was the site of a single sump pond. The pond was closed in 1975, and some of the waste fuel and sludge material was removed. The pond was then backfilled, and three wastewater treatment ponds were constructed on the site. The primary contaminants of concern are fuels and sludges in the soil, free product in the groundwater, and dissolved-phase total petroleum hydrocarbons (TPHs). There was evidence that petroleum product was migrating to the nearby shoreline before construction of a containment wall in FY95.

Parcel G, the hillside parcel, contains Site 1, the Waste Disposal Area. Contaminants of concern for the Waste Disposal Area are TPHs and sludge from petroleum operations. This site contains the largest number of underground storage tanks (USTs) at the installation and is being fast-tracked, with a presumptive remedy for a landfill cap.

Parcel H contains four USTs, where the Navy has a leasehold interest on Chevron property. Chevron has indicated that the only viable option is complete tank removal.

A Phase I environmental baseline survey (EBS) was completed and a Phase II EBS began in 1999. A small firing range area and the Building 87 solid waste management unit require closure activities.

In FY00, the BRAC cleanup team (BCT) approved and signed a Record of Decision for No Further Action for the Sandblast Grit Areas. The installation removed an additional 36,000 feet of fuel pipeline from the Parcel F-1 Shoreline/Drum Lot 1 Areas. It also completed and received concurrence on an engineering evaluation and cost analysis (EE/CA) for Parcel G. Remedial investigation reports for the four sites were completed, and the installation performed a successful transition of the BCT to Southwest Division from Engineering Field Activity West. Plans and specifications for UST removal at Parcel H, including a UST closure alternative study and a structural evaluation of existing tanks, were completed in accordance with Chevron lease terms.

FY01 Restoration Progress

The installation completed the action memorandum (AM) and design documents for the Parcel G landfill cap, and construction began. Fieldwork for Site 3 was completed, and the EE/CA was initiated. The fieldwork for Site 4 was completed, and the ERA and human health risk assessment (HHRA) are under way. The installation completed fieldwork and pilot studies for the firing range and Building 87 sites. Mobile free-product removal systems were installed at two large USTs and one former valve box. The installation continued extraction-trench groundwater treatment under the existing National Pollutant Discharge Elimination System permit. A final Phase II EBS summary report is in preparation; the corrective action plan (CAP) will be drafted upon the report's finalization.

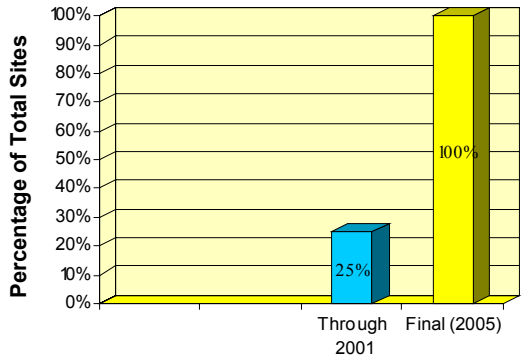
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete the EE/CA and AM for Site 3 and begin remedial action (RA) in FY02
- Complete the Site 1 RA in FY02
- Initiate long-term management at Site 1 in FY02
- Complete risk assessment for Site 4 in FY02
- Complete the ERA and HHRA for Site 4 in FY02
- Continue extraction-trench groundwater treatment under existing NPDES permit in FY02
- Complete Phase II EBS summary report and CAP for USTs and fuel pipelines in FY02
- Complete construction of landfill cap for Parcel G in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Naval Magazine Indian Island

Formerly Port Hadlock Naval Ordnance Center

Port Hadlock, Washington

NPL

FFID:	WA017002756800	**Funding to Date:**	$8.3 million
Size:	2,716 acres	**Estimated Cost to Completion (Completion Year):**	$17.4 million (FY2031)
Mission:	Receive, store, maintain, and issue ordnance	**Final RIP/RC Date for ER Sites:**	FY2001
HRS Score:	50.00; placed on NPL in May 1994	**Final RIP/RC Date for MMRP Sites:**	FY2012
IAG Status:	IAG signed in August 1996	**Five-Year Review Status:**	Completed
Contaminants:	TNT, RDX, heavy metals, PCBs, and VOCs		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Since FY84, investigations at this installation have identified 18 sites. Primary sources of contamination are landfills and ordnance disposal and transfer sites. Investigations have focused on cleaning up existing, and preventing future, contamination of shellfish beds near the installation. Investigations in FY88 and FY93 both found trace metals (including lead), organics, and petroleum hydrocarbons in shellfish near the north-end landfill.

In FY87, a tank was removed and field monitoring of explosive gas concentrations was completed at the buried Imhoff tanks. A remedial action (RA) for the site involved installation of piping and fans to vent methane gas. Two removal actions were completed in FY91. One involved removing abandoned underground storage tanks (USTs); the other included removal of one UST and excavation and disposal of associated petroleum-contaminated soil. Additional petroleum-contaminated soil was removed from the site in FY94.

In FY95, interim remedial actions (IRAs) were completed at three sites. At two sites, soil contaminated with ordnance was removed and disposed of off site. At the third site, sediment containing polyaromatic hydrocarbons was removed. A Record of Decision (ROD) for no further action (NFA) was signed for five sites. Erosion and groundwater discharge from Site 10 (a landfill) have contributed to contamination of surrounding beaches. A ROD was signed designating capping of the landfill and installation of a seawall to minimize erosion.

During FY96, the installation completed the remedial design for Sites 10, 11, 12, 18, and 21, and the RA at Site 18. The Navy and the National Council of Historic Places signed a memorandum of agreement to protect archaeological remains. A removal action was initiated at Site 34, and groundwater monitoring began at Site 21. An interagency agreement (IAG) was signed for eight sites.

During FY97, an RA was completed at Site 10 and an early action was performed to prevent erosion. At Site 34, an IRA and a site inspection were completed, and the site was proposed for NFA. In FY98, operations and maintenance and compliance monitoring for groundwater were completed. A site investigation was completed at Site 35, and the site was proposed as an NFA site. In FY99, the Navy completed the risk analysis of sediment and shellfish at Site 10.

In FY00, the installation completed site investigations at Sites 33 and 36. An engineering evaluation and cost analysis (EE/CA) and an action memorandum were prepared for a removal action at Site 36. A 5-year review was completed. A draft closeout report was prepared, and discussions continued with EPA concerning deleting the installation from the National Priorities List (NPL). Long-term operations and maintenance (LTOM) continued at Site 10. Institutional controls were placed on Sites 10 and 36 to regulate site access and usage. Seventeen resource protection wells were closed. Residue from the burning of incendiary bombs at Site 11 was discovered during well-closure activities.

The installation's technical review committee was converted to a Restoration Advisory Board (RAB) in FY95. A community relations plan was developed in FY92 and revised in FY96.

FY01 Restoration Progress

The installation completed a removal action for petroleum-and polycyclic aromatic hydrocarbon–contaminated soil at Site 36. The EE/CA and the removal action for lead-contaminated soil at Site 33 were completed. The State of Washington's Department of Ecology has determined that Sites 33 and 36 require NFA. LTOM at the north-end landfill (Site 10) continued with groundwater sampling and landfill cap and shoreline maintenance activities. Investigation and closure were completed at the ordnance burning and disposal site. The first required 5-year review was completed with no deficiencies identified. The cost of completing environmental restoration at this installation has increased due to technical issues.

Efforts to delete the installation from the NPL were postponed due to discovery of additional contamination. The ordnance investigation at Site EO101 was postponed until FY02 due to budgetary constraints.

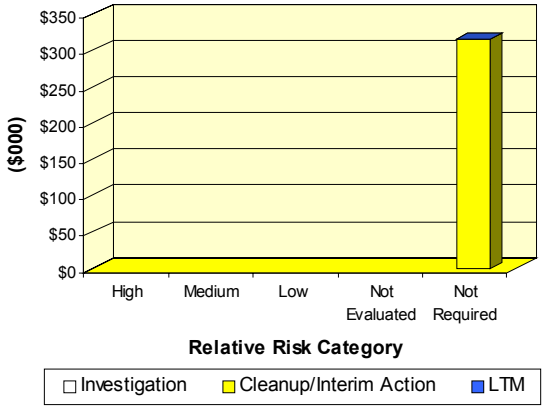
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Continue LTOM at the north-end landfill (Site 10) in FY02–FY03
- Complete site investigation at ordnance site EO101 in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year

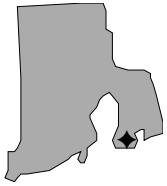


Naval Station Newport
Formerly Newport Naval Education and Training Center

Newport, Rhode Island

NPL

FFID:	RI117002424300	**Funding to Date:**	$72.4 million
Size:	1,400 acres	**Estimated Cost to Completion (Completion Year):**	$43.7 million (FY2016)
Mission:	Provide logistical support and serve as a training center	**Final RIP/RC Date for ER Sites:**	FY2012
HRS Score:	32.25; placed on NPL in November 1989	**Five-Year Review Status:**	Completed/Planned
IAG Status:	Federal facility agreement signed in March 1992		
Contaminants:	PCBs, POLs, VOCs, and SVOCs		
Media Affected:	Groundwater, surface water, sediment, and soil		



Progress to Date

Naval Station Newport (formerly known as the Newport Naval Education and Training Center) was used as a refueling depot from the early 1900s until after World War II, when it was restructured to support research and development and provide specialized training. Contaminants at the installation include petroleum/oil/lubricant (POL) sludge associated with tank farm sites, waste acids, solvents, and polychlorinated biphenyls (PCBs) in landfills used to dispose of general refuse and shop wastes.

A Phase I remedial investigation and feasibility study (RI/FS) was completed in FY91. The Phase II RI for the McAllister Point Landfill site was completed in FY93, and the Navy obtained a Record of Decision (ROD) to cap the landfill. The remedial design (RD) for the cap and the Phase II RI for the old fire fighting training area site were completed in FY94.

In FY92, an interim ROD was signed for extraction and treatment of groundwater at Tank Farm No. 5 to prevent the migration of contaminants. The treatment system began operating in FY94. The installation also completed RIs for two underground storage tanks and finished a treatability study for cement fixation and stabilization of lead-contaminated solids excavated from the Melville North Landfill.

In FY96, RIs were initiated for Sites 2, 9, and 13. During FY97, the installation completed an RI/FS for Site 2, installed a RCRA cap at Site 1, and removed contaminated soil from Site 19.

In FY98, an ecological risk assessment (ERA) was completed for Sites 1 and 19 and FSs began for the offshore areas. Study area screening evaluation (SASE) work plans were completed for Sites 8 and 17. The FS and the groundwater pump-and-treat system for Site 13 were completed, monitoring of groundwater ended, and the site was found to require no further action. A removal action was initiated at the Melville North Landfill.

In FY99, the FS and the proposed remedial action plan (PRAP) were completed, and a ROD was submitted, for the Site 1 offshore area. The Site 9 offshore ERA, an onshore removal action, and an offshore FS for Site 19 were completed. A 5-year review was completed for Site 01 McAllister Point Landfill and Site 13 Tank Farm No. 5. EPA concurred with the 5-year review.

In FY00, the installation completed the RD and initiated a Phase I remedial action (RA) for the Site 1 offshore area. Long-term management (LTM) continued for the Site 1 onshore RCRA cap. Fieldwork for the Site 17 SASE was completed, and a draft SASE report was submitted to regulators. The RA at Site 2 was completed, and a draft closure report was submitted to regulators.

The installation formed a technical review committee in FY88 and converted it to a Restoration Advisory Board in FY95. A community relations plan was completed in FY90, and the installation established an ecological advisory board.

FY01 Restoration Progress

The installation finalized reports for the Site 17 SASE and Site 2 closure. The RI was completed and the FS was started for Site 9. The Phase I RA for the Site 1 offshore area was completed. LTM continued for the Site 1 onshore RCRA cap. The 5-year review was completed as planned.

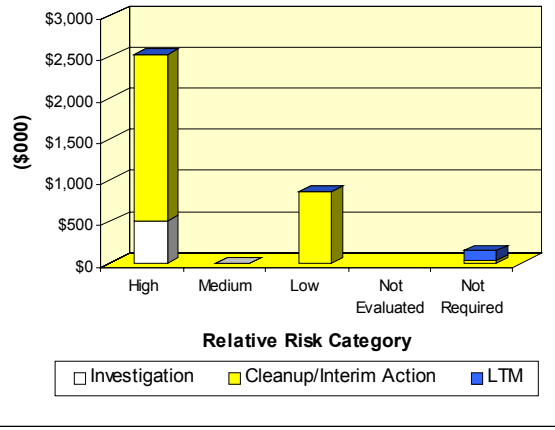
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete Phase II RA for Site 1 offshore area in FY02
- Complete FS for Site 9 in FY02
- Start PRAP for Site 9 in FY02
- Start operations and maintenance plan for offshore area of Site 1 in FY02
- Continue LTM for Site 1 onshore RCRA cap in FY02

FY02 Funding by Phase and Relative Risk



Naval Station Todd-Tacoma
Formerly Commencement Bay

Tacoma, Washington **NPL**

FFID:	WA09799F345500	**Funding to Date:**	$0.2 million
Size:	191 acres	**Estimated Cost to Completion (Completion Year):**	$0.04 million (FY2002)
Mission:	Served as shipbuilding facility and reserve shipyard	**Final RIP/RC Date for ER Sites:**	FY2002
HRS Score:	Unknown	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	VOCs; PNAs; PCBs; and heavy metals, including arsenic, lead, and mercury		
Media Affected:	Groundwater, sediment, and soil		

Progress to Date

The former Todd Tacoma shipyard is located on Commencement Bay between Hylebos and Blair Waterways in Tacoma, Washington. The 191-acre facility was acquired between 1942 and 1948 for use by the U.S. Navy.

Between 1917 and 1940, the then privately owned property was used intermittently for shipbuilding. Beginning in 1940, the western portion of the facility, approximately 74.2 acres, owned at that time by Seattle-Tacoma Shipbuilding Corporation (later called Todd Pacific Shipyards Inc., Tacoma Division), was rapidly developed to support the Navy war effort. Adjacent land was acquired by the Navy and the Maritime Commission to expand the plant. By October 1942, the Maritime Commission had transferred all of its contractual and facility interests to the Navy. Land acquisitions continued until the end of the war, and the facility expanded to 191 acres.

After the war, the installation was designated a Naval Industrial Reserve Shipyard, and shipbuilding ceased. In September 1948, the Todd-owned property was acquired by the Navy. In October 1958, the installation was declared excess. The Navy and Marine Reserve Training Center retained 8.33 acres, and the remaining property was conveyed to the Port of Tacoma on January 1, 1960. The port has leased portions of the facility for business and light industry.

In 1983, the Commencement Bay Nearshore/Tideflats Superfund site was placed on the National Priorities List (NPL). The former naval yard is adjacent to the mouth of the Hylebos Waterway Problem Area. Sediment sampling revealed high levels of polychlorinated biphenyls (PCBs) and several other contaminants. In 1994, the U.S. Army Corps of Engineers (USACE), Seattle District, received a potentially responsible party (PRP) letter from the Hylebos PRP Group. On February 6, 1995, EPA Region 10 sent a general notice letter to the District Engineer. Other major PRPs include ASARCO Incorporated; Elf Atochem of North America, Inc.; General Metals of Tacoma, Inc.; Kaiser Aluminum & Chemical Corporation; Occidental Chemical Corporation; and the Port of Tacoma.

Investigations of the Commencement Bay Nearshore/Tideflats Superfund site have been in progress for several years. In FY96, USACE, Seattle District, received approval to initiate PRP investigations using existing field studies and other sources of information. Authority has been granted to determine DoD liability and negotiate a settlement with other PRPs for both the FUDS property and the active Navy training center.

In FY00, the site ownership/operational history was completed, and preliminary discussions were initiated with other PRPs, regulators, and stakeholders to apportion liability for addressing contamination and natural resources injuries.

FY01 Restoration Progress

The need for additional field data to confirm or counter allegations of liability was reviewed. Discussions continued with other PRPs, regulators, and stakeholders. USACE, Seattle District, assisted the Office of Counsel and Department of Justice (DOJ) with a response to the EPA special notice letter, as well as with settlement negotiations.

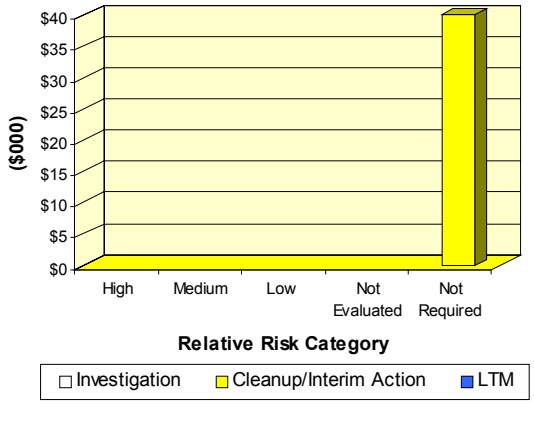
Military Munitions Response Program Progress

USACE has identified no previous military munitions response work at this installation.

Plan of Action

- Continue to assist the Office of Counsel and DOJ with settlement negotiations in FY02
- Analyze natural resources damages assessment claim in FY02

FY02 Funding by Phase and Relative Risk



Nebraska Ordnance Plant

Mead, Nebraska

NPL

FFID:	NE79799F041800	**Funding to Date:**	$69.2 million
Size:	17,214 acres	**Estimated Cost to Completion (Completion Year):**	$103.7 million (FY2060)
Mission:	Performed ordnance storage and manufacturing activities	**Final RIP/RC Date for ER Sites:**	FY2005
HRS Score:	31.94; placed on NPL in August 1990	**Final RIP/RC Date for MMRP Sites:**	FY2025
IAG Status:	IAG signed in September 1991	**Five-Year Review Status:**	NA
Contaminants:	Explosives, VOCs, and PCBs		
Media Affected:	Groundwater and soil		

Progress to Date

From 1942 to 1956, the Nebraska Ordnance Plant produced munitions at four bomb-loading lines, stored munitions, and produced ammonium nitrate. The property also contained burn areas, an Atlas missile facility, and a sewage treatment plant. Most of the property is now owned by the University of Nebraska. Other parts of the property are owned by the Nebraska National Guard and private entities. The U.S. Army Corps of Engineers (USACE) has identified soil contaminated with polychlorinated biphenyls (PCBs) and munitions, and on-site and off-site groundwater contaminated with explosives and volatile organic compounds (VOCs).

In FY94, USACE completed a remedial investigation and feasibility study (RI/FS) for soil contamination and prepared a draft final RI/FS report for groundwater. A time-critical removal action for PCBs was completed.

In FY95, a Record of Decision (ROD) for OU1 was approved. USACE completed the proposed plan (PP) and the FS report for groundwater contamination at Operable Unit (OU) 2 and Phase I RI fieldwork at OU3. EPA approved the final engineering evaluation and cost analysis (EE/CA) and the design for removal actions for two trichloroethene (TCE)-contaminated ground water plumes. USACE installed activated carbon canister treatment systems to treat contaminated drinking water in on-site wells and completed field investigations to identify explosives waste.

In FY96, the draft final ROD for contaminated groundwater at OU2 was completed. USACE completed the PCB removal action and the decision documents for the removal action at OU2. The Phase II RI field investigation for OU3 also was completed.

In FY97, construction for the remedial action (RA) at OU1 was completed. The draft final RI and draft final baseline risk assessment for OU3 were finished. Also in FY97, USACE converted the property's technical review committee to a Restoration Advisory Board (RAB).

In FY98, USACE completed operation of the OU1 incinerator, treating over 16,000 tons of explosives-contaminated soil. The final RA report was approved by EPA. USACE construction on the OU2 groundwater containment RA began. The OU3 RI was approved. Asbestos removal at the load line buildings was completed.

In FY99, the demolition of four load line buildings was completed. The OU2 contaminant removal action was completed and began operating. The remedial design (RD) for OU2 also was completed. Additional characterization fieldwork was completed for OU3. A memorandum of understanding with the Lower Platte National Resource District (LPNRD) concerning beneficial reuse of treated groundwater was completed.

In FY00, OU2 RA construction of containment wells and a treatment plant was initiated. A pilot study was conducted to investigate the effectiveness of groundwater circulation wells. Regulators approved the draft-final OU3 RI addendum report and revised risk assessment. The draft OU3 FS report was submitted.

FY01 Restoration Progress

The OU2 groundwater RA construction progressed. The groundwater monitoring program continued, completing four rounds of sampling. USACE continued operations and maintenance (O&M) of the OU2 containment IRA. The draft-final groundwater circulation pilot study report was completed, with the restoration parties deciding to implement groundwater circulation wells (GCW) for focused remediation in lieu of high-capacity extraction wells. A draft explanation of significant differences (ESD) was prepared, and a public availability session was held, to document the GCW decision. The draft-final OU2 Phase II (GCW) RD and the draft-final OU3 FS report were approved. USACE submitted the draft OU3 PP for review.

The RAB continues to meet quarterly; annual site tours are held.

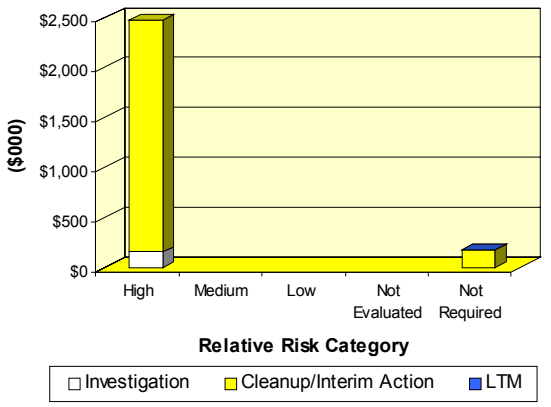
Military Munitions Response Program Progress

In FY96, USACE completed an ordnance and explosives (OE) EE/CA and an action memorandum for the property. An ordnance removal action at the Site 5 culvert area was completed in FY97 and USACE provided point-of-use water treatment to residences whose water was affected by the OE-contaminated groundwater plume. In FY01, the estimate for funding of a future military munitions response project was reviewed and updated.

Plan of Action

- Complete the OU2 containment construction and start O&M in FY02
- Finalize/approve the OU2 ESD in FY02
- Complete the OU2 Phase II RA in FY02
- Complete the final OU3 ROD and initiate the RA in FY02

FY02 Funding by Phase and Relative Risk

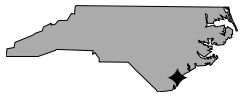


New Hanover County Airport

Wilmington, North Carolina

NPL

FFID:	NC49799F483500	**Funding to Date:**	$1.5 million
Size:	4 acres	**Estimated Cost to Completion (Completion Year):**	$0.6 million (FY2007)
Mission:	Served as World War II bomber command and Vietnam-era aerospace defense command	**Final RIP/RC Date for ER Sites:**	FY2007
		Five-Year Review Status:	NA
HRS Score:	39.39; placed on NPL in March 1989		
IAG Status:	None		
Contaminants:	VOCs and SVOCs		
Media Affected:	Groundwater		



Progress to Date

In FY87, a preliminary assessment and a site inspection identified groundwater contamination caused by past fire training activities at New Hanover County Airport. These activities involved burning of jet fuel, gasoline, fuel oil, and kerosene. The site included a burn pit, a mockup of an aircraft, and a 10,000-gallon aboveground storage tank that supplied fuel to the burn areas. Other fire training stations at the site include a fire smokehouse, a railroad tanker car, and several automobiles. These fire training activities contaminated groundwater with benzene.

EPA identified DoD, New Hanover County, Cape Fear Community College, and the City of Wilmington as potentially responsible parties (PRPs) for the property.

A removal action completed in FY91 involved removal of waste materials, contaminated water, contaminated surface and subsurface soil, and structures associated with the fire training activities. Confirmatory soil sampling resulted in a recommendation for no further action at the property.

In FY92, EPA completed a remedial investigation and feasibility study (FS) for groundwater contamination, and a Record of Decision (ROD) for cleanup was signed. In FY94, PRPs began remedial design (RD) work at the airport to collect additional data on groundwater quality. In FY95, two monitoring wells were installed to confirm that contamination had not migrated to the lower groundwater aquifer. A 60 percent RD document was sent to EPA with a recommendation that air sparging (AS) be used as a cost-effective treatment technology.

In FY97, the PRPs reevaluated metal contamination in the groundwater. This reevaluation showed that metals were no longer a contaminant of concern. This finding was instrumental in obtaining approval from EPA and the State of North Carolina for implementation of an AS pilot treatability study (TS).

In FY98, the PRPs conducted geoprobe studies to determine the direction of groundwater flow. The AS pilot test and an evaluation of the technology's efficacy were completed.

In FY99, the PRPs installed additional wells and piezometers to aid in RD. The AS pilot TS report was completed. After an FS amendment was completed listing AS as the cleanup treatment of choice, EPA began amending the ROD. In FY00, the RD was revised and finalized.

FY01 Restoration Progress

The AS ROD amendment was finalized with EPA's approval. The 60 percent RD document was finalized, and the 90 percent RD document for use of AS was submitted. At the state's request, additional monitoring wells were installed to determine the lateral continuity of the confining unit. The U.S. Army Corps of Engineers (USACE) and the Department of Justice will evaluate possible settlement of DoD liability when the RD is completed and RA costs are established.

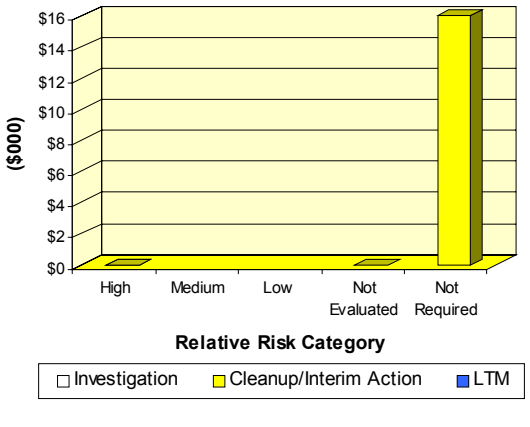
Military Munitions Response Program Progress

USACE has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Finalize 90 percent RD for use of AS in FY02
- Finalize RD in FY02
- In FY02, a public comment meeting is scheduled

FY02 Funding by Phase and Relative Risk



New London Naval Submarine Base

Groton, Connecticut

NPL

FFID:	CT117002202000	**Contaminants:**	Dredge spoils, incinerator ash, POLs, PCBs, spent acids, pesticides, solvents, construction debris, metals, and VOCs
Size:	547 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Maintain and repair submarines; conduct submarine training and submarine medical research; provide a home port for submarines	**Funding to Date:**	$54.4 million
		Estimated Cost to Completion (Completion Year):	$28.0 million (FY2019)
HRS Score:	36.53; placed on NPL in August 1990	**Final RIP/RC Date for ER Sites:**	FY2012
IAG Status:	Federal facility agreement signed in January 1995	**Five-Year Review Status:**	Completed

Progress to Date

Studies began at the New London Naval Submarine Base in FY82. Significant sites include the Area A landfill (Site 2), a number of smaller disposal areas, and fuel and chemical storage areas. Twenty-two CERCLA sites were identified along with underground storage tanks (USTs), which were grouped into two UST sites.

The installation was placed on the National Priorities List (NPL) because of polychlorinated biphenyl (PCB) contamination at Site 2. The landfill was used to dispose of scrap wood, metal, waste chemicals, waste acid, and drums containing solvents. In FY93, the Navy constructed a fence around the landfill as part of an interim remedial action (IRA).

Several removal actions have been implemented. In FY91, 19 gas cylinders were removed from Site 8. In FY94, the installation removed 2,000 cubic yards of soil contaminated with PCBs and lead from Site 6. At Site 15, lead-contaminated soil was removed. At Site 9, the installation removed PCB-contaminated oil, sludge, and water from a waste oil tank.

In FY95, a Record of Decision (ROD) was signed for Site 2 and the installation agreed to cap the landfill as an IRA. A draft remedial investigation and feasibility study (RI/FS) report was completed for Sites 1 through 11, 13 through 15, and 20.

In FY96, the installation began FSs for Sites 3 and 8. It also completed and began operating an air-sparging and soil vapor extraction system at UST Sites 1 and 2. During FY97, the corrective action design and the Phase II site inspection for Site 23 were completed. The Area A landfill was capped. Removal actions were completed at Site 4 and the over bank disposal area of Site 3.

In FY98, RODs were signed for Sites 3 and 6. After removal actions at Sites 4 and 15, No Further Action RODs were signed for the two sites. In FY99, the RI was completed at the lower base. A proposed remedial action plan (PRAP) was completed and a ROD was signed for Site 8.

In FY00, the installation completed the FS, PRAP, and ROD for Site 20. A draft final FS was completed for the lower base sites. Groundwater monitoring at Sites 2 and 6 continued. Remedial design (RD) and remedial action (RA) at Site 3 and RD at Site 8 were completed. RA was initiated for Site 8. Fieldwork was completed for the basewide groundwater operable unit (OU) RI.

The installation formed a technical review committee in FY89 and converted it to a Restoration Advisory Board in FY94.

FY01 Restoration Progress

The RAs at Sites 8 and 20 were completed. Groundwater monitoring continued at Sites 2 and 6. The RI for the basewide groundwater OU was completed. The 5-year review was completed as planned. The draft FS was completed for the lower base. The cost of completing environmental restoration at this installation changed significantly due to technical issues.

The PRAP for the lower base sites was delayed due to regulator comments.

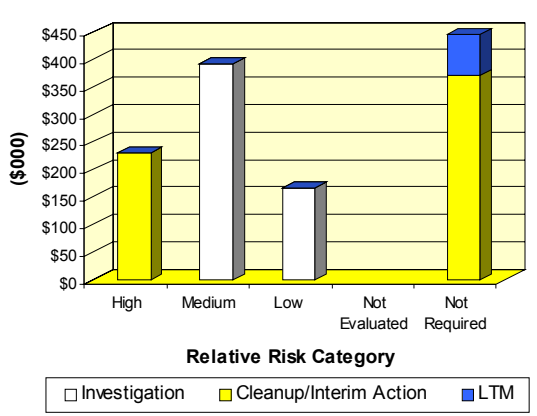
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete FS for basewide groundwater OU in FY02
- Complete FS for the lower base sites in FY02
- Continue groundwater monitoring at Sites 2, 6, and 8 in FY02 and FY03
- Begin RD for the lower base sites in FY03
- Complete PRAP and ROD for the lower base sites in FY03

FY02 Funding by Phase and Relative Risk



Newark Air Force Base

Heath, Ohio

BRAC 1993

FFID:	OH557002465000	**Funding to Date:**	$4.0 million
Size:	70 acres	**Estimated Cost to Completion (Completion Year):**	$2.5 million (FY2004)
Mission:	Repaired inertial navigation systems and managed Air Force metrology and calibration process	**Final RIP/RC Date for BRAC-ER Sites:**	FY2002
		Five-Year Review Status:	Planned
HRS Score:	NA		
IAG Status:	None		
Contaminants:	VOCs, SVOCs		
Media Affected:	Groundwater and soil		

Progress to Date

Since 1962, Newark Air Force Base has repaired and provided specialized engineering assistance for the inertial guidance and navigational systems used by most aircraft and missiles. In July 1993, the BRAC Commission recommended that the installation be closed and the workforce privatized in place. The base closed on September 30, 1996. Its workload has been contracted to private firms on site.

Past waste management activities related to solvents such as freon 113 and 1,1,1-trichloroethane have affected groundwater at the installation. Environmental investigations conducted at the installation since FY84 identified five sites that required additional study.

In FY90, the installation began a remedial investigation (RI) and feasibility study (FS) for the seven sites identified in the SI. In FY91, No Further Action decision documents were prepared for five sites. In FY94, the installation formed a BRAC cleanup team (BCT) and completed an environmental baseline survey.

In FY95, the installation formed a Restoration Advisory Board (RAB). A supplemental RI helped determine that no further action was needed for five of the seven sites studied. The RAB and the BCT suspended meetings in September 1996.

In FY98, the decontamination of Facilities 102 and 114 (hazardous waste/materials storage buildings) was completed. The extension of the city water line onto the base began. A soil vapor extraction system at Facility 87 was removed.

In FY99, the city water line extension went into service. An amended post-closure plan was approved by the Ohio Environmental Protection Agency allowing semiannual sampling of monitoring wells at Facility 87.

In FY00, Stage I of the LF002 RI was completed. The FS for the Facility 87 pump-and-treat system was completed. The BCT reviewed draft plans and the draft technical memorandum for Stage I of the LF002 RI. Former employees were interviewed to determine the location of possible fire training areas, and the activities performed there. This effort led to the closure of Site FT010, the former burn area.

FY01 Restoration Progress

Enhanced in situ bioremediation was initiated as the remedial action at the hazardous waste storage area (HWSA), Facility 87. Facility 87 later attained remedy in place (RIP) status.

The focused supplemental RI and FS for LF002 were not completed due to a need for additional field investigations to resolve data gaps in the soil and groundwater. The cost of completing environmental restoration has changed significantly at this installation because of technical and regulatory issues.

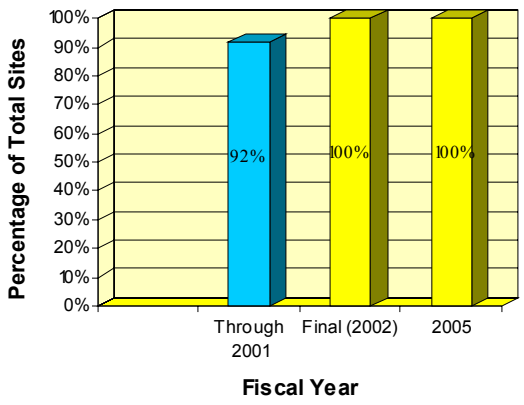
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Achieve final RIP for LF002 in FY02
- Verify the success of in situ bioremediation at Facility 87 in FY02
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Norfolk Naval Base
Sewells Point Naval Complex

Norfolk, Virginia

NPL

FFID:	VA317002741400	**Media Affected:**	Surface water and sediment
Size:	4,631 acres	**Funding to Date:**	$80.0 million
Mission:	Provide services and materials to support the aviation activities and operating forces of the Navy	**Estimated Cost to Completion (Completion Year):**	$35.2 million (FY2020)
		Final RIP/RC Date for ER Sites:	FY2010
HRS Score:	50.00; placed on NPL in April 1997	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement signed in February 1999		
Contaminants:	Petroleum products, PCBs, solvents, heavy metals, acids, paints, asbestos, and pesticides		

Progress to Date

Studies conducted at Norfolk Naval Base since FY83 have identified 22 sites and 173 solid waste management units (SWMUs). Contamination has resulted from maintenance of aircraft, equipment, and vehicles, and from operation of support facilities. Site types at the installation include landfills, ordnance storage areas, waste disposal areas, fire training areas, fuel spill areas, and underground storage tanks. The installation was placed on the National Priorities List (NPL) mainly because of the potential for migration of contaminated surface water into groundwater and soil.

During FY89, the installation completed a remedial investigation and feasibility study (RI/FS) for Site 4. In FY91, an expanded site inspection was completed for Site 6 and a remedial design (RD) was completed for Site 4. During FY94, the installation removed drums and debris from Area B of Site 1, completed an RI/FS, and signed a decision document (DD) for the site.

In FY96, a preliminary assessment and a site inspection were initiated for Site 21, and an RI/FS was initiated for three sites. A baseline ecological risk assessment was completed for Site 3, and construction of an air-sparging (AS) and soil vapor extraction (SVE) system began for the site. In FY97, the installation signed two DDs, completed an RD, and initiated a removal action for Sites 6 and 20. A remedial action (RA) was initiated for SWMU 1, and at Site 1 the RA was completed and the pump-and-treat system began operation. The pump-and-treat system for the fuel farms also was completed.

In FY98, two AS/SVE systems (Sites 3 and 20) began operation, and an RI/FS was completed and an RD initiated for Site 2. Long-term management (LTM) and operations and maintenance started at Sites 1, 3, and 20. An engineering evaluation and cost analysis was completed for Site 5, and a Record of Decision (ROD) was signed for a landfill cap at Site 6. An interim remedial action (IRA) began for Site 22, and IRAs were completed at Site 21 and SWMU 1. Screening began at 15 SWMUs. In FY99, the RI/FS at Site 22 was completed. An RA and a ROD were initiated at Site 2. Work plans were initiated for SWMUs 9, 10, 14, and 38. A federal facility agreement was signed.

In FY00, the installation completed an IRA for Site 5. It also completed an RA (landfill cap) at Site 6. Closeout reports were signed for 10 SWMUs.

The installation formed a technical review committee in FY89 and converted it to a Restoration Advisory Board in FY94. A community relations plan was completed in FY93.

FY01 Restoration Progress

The installation signed the ROD for Site 2. The closeout reports for Sites 5, 7, 8, 12, and 17 were signed. Closeout reports were also signed for SWMUs 8, 9, 10, 38, and 39. An FS was completed for Site 22 and the draft proposed remedial action plan (PRAP) and the draft ROD were prepared. Modeling to characterize the groundwater extraction well capture zones at Site 1 was completed as a part of the LTM program.

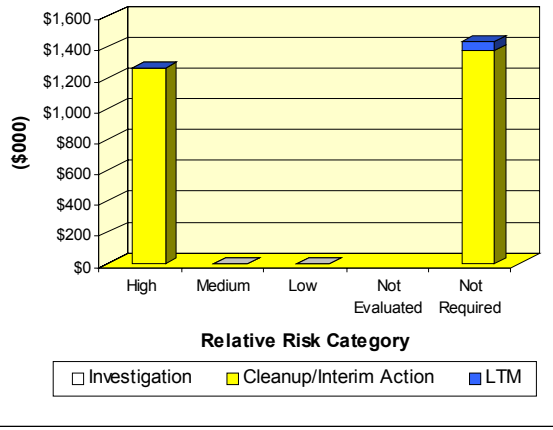
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Sign PRAP and ROD for Site 22 in FY02
- Initiate RI/FS at SWMU 14 in FY02
- Complete 5-year review as planned in FY02
- Finalize SI report and closeout reports for Site 10 in FY02
- Complete PRAP for SWMU 14 in FY03

FY02 Funding by Phase and Relative Risk



Norfolk Naval Shipyard

Portsmouth, Virginia

NPL

FFID:	VA317002481300	**HRS Score:**	50.0; placed on NPL in July 1999
Size:	795 acres	**IAG Status:**	None
Mission:	Provide logistical support for assigned ships and service craft; perform work in connection with conversion, overhaul, repair, alteration, dry-docking, and outfitting of naval vessels; perform manufacturing, research, development, and test work; provide services to other activities and units	**Contaminants:**	Heavy metals, PCBs, VOCs, SVOCs, POLs, and solvents
		Media Affected:	Groundwater, surface water, sediment, and soil
		Funding to Date:	$12.5 million
		Estimated Cost to Completion (Completion Year):	$21.2 million (FY2026)
		Final RIP/RC Date for ER Sites:	FY2011
		Five-Year Review Status:	NA

Progress to Date

Norfolk Naval Shipyard (NNSY) is located on the western bank of the southern branch of the Elizabeth River. The NNSY Installation Restoration Program includes investigation and remediation of sites located within the main shipyard and within three annexes that were formerly part of NNSY but are now under the control of other claimants.

In 1983, an initial assessment study identified 19 sites at NNSY. These sites resulted from past landfilling, disposal operations, and the operation of a plating shop. A RCRA facility investigation (RFI) performed in 1986 identified 31 solid waste management units (SWMUs). An RFI supplement issued in 1987 identified an additional 121 SWMUs and areas of concern (AOCs). An additional 45 AOCs were later identified. The installation was placed on the National Priorities List (NPL) in July 1999 because of the potential impact of surface water runoff on Paradise Creek, which is adjacent to the shipyard disposal areas.

In FY99, human health risk assessments (HHRAs) were drafted and ecological risk assessments (ERAs) were initiated for Operable Units (OUs) 1 and 2. Draft remedial investigation (RI) reports for OUs 1 and 2 and the draft feasibility study (FS) for OU1 were submitted for regulatory review. Fieldwork characterizing dense nonaqueous phase liquid contamination at the oil reclamation area (Site 5) was completed, and operation of a free-product recovery system for light nonaqueous phase liquid contamination began at the site. Regulatory review of the Site 17 RI was completed.

In FY00, NNSY issued a site screening assessment (SSA) investigation report to support development of a federal facility agreement (FFA); this identified 31 areas for continued or additional investigation. An engineering evaluation and cost analysis was completed for Site 1, and a removal action was initiated. An expanded site investigation to delineate any contamination of groundwater at St. Helena Annex was initiated.

An administrative record was established in FY92, and a community relations plan was completed in FY94. The installation formed a technical review committee in FY94 and converted it to a Restoration Advisory Board (RAB) in FY96. The RAB meets three to four times per year.

FY01 Restoration Progress

The installation completed the removal action at Site 1. The selected removal process was cost-effective and protective of human health and the environment. Significant cost savings were realized by use of an in situ stabilization treatment process to render the waste nonhazardous for disposal. After the removal of the blast grit and soil, the Navy created 1.9 acres of new wetlands at the site in lieu of backfilling the former landfill area.

The St. Helena Annex groundwater investigation was completed, and the investigation report was reviewed by the regulators. The fieldwork for the ERA for OUs 1 and 2 was completed, and the draft report submitted for regulatory review. NNSY completed the fieldwork for a site screening process investigation to determine further investigation and remedial action requirements at seven of the sites identified for action in the draft FFA.

Finalization of the FFA was delayed by policy and language issues. The Site 17 FS was delayed to incorporate data from the NNSY background study. The ERAs for OUs 1 and 2 were delayed by regulatory comments.

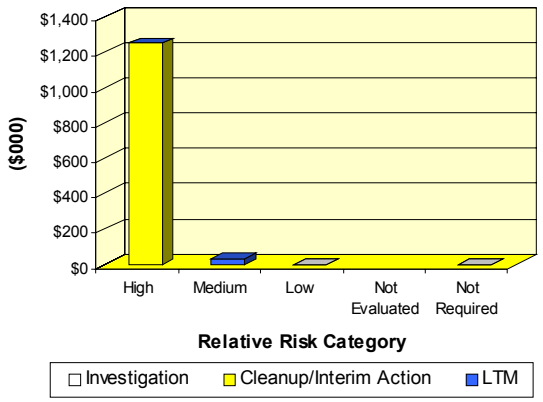
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete NNSY FFA in FY02
- Finalize the St. Helena Annex expanded site investigation in FY02
- Finalize FS and issue final proposed remedial action plan and Record of Decision for Site 17 in FY02
- Finalize RI (HHRA/ERAs) for OUs 1 and 2 in FY02
- Finalize FSs for OUs 1 and 2 in FY02

FY02 Funding by Phase and Relative Risk



Norton Air Force Base

San Bernardino, California

NPL/BRAC 1988

FFID:	CA957002434500	**Funding to Date:**	$103.4 million
Size:	2,179 acres	**Estimated Cost to Completion (Completion Year):**	$54.0 million (FY2012)
Mission:	Supported C-141 airlift operations	**Final RIP/RC Date for BRAC-ER Sites:**	FY2004
HRS Score:	39.65; placed on NPL in July 1987	**Five-Year Review Status:**	Planned
IAG Status:	IAG signed in 1989		
Contaminants:	Waste oils and fuel, spent solvents, paints, refrigerants, heavy metals, and VOCs		
Media Affected:	Groundwater and soil		

Progress to Date

In December 1988, the BRAC Commission recommended closure of Norton Air Force Base. The installation closed in March 1994. The most significant sources of contamination at the base were a trichloroethene (TCE)-contaminated groundwater plume and contaminated soil areas. Sites include underground storage tanks (USTs), landfills, fire training areas, spill areas, and waste disposal pits. Four RCRA sites required closure.

In FY82, remedial investigation and feasibility study (FS) activities began for 22 sites. In FY92, the Central Base Area (CBA) groundwater extraction and treatment system began operating to treat the highest concentration TCE plume area.

In FY94, a Record of Decision (ROD) was signed for the CBA operable unit (OU), identifying the remedial action (RA) for TCE in soil and groundwater. In FY95, the CBA groundwater extraction and treatment system was expanded and the base boundary groundwater extraction and treatment system began operation. A soil vapor extraction system was constructed to remove TCE from soil at the source areas of the groundwater plume. A Restoration Advisory Board and a BRAC cleanup tam (BCT) were formed. The BCT redefined OUs and initiated interim actions to shorten cleanup time. A no further action memorandum was completed for Site 20.

During FY96, No Further Remedial Action Planned documents were completed for Sites 3, 4, 7, 11, 15, and 18. Closure reports were completed for Sites 6 and 9. An action memorandum concluded that no further action was necessary at Site 22. The Air Force identified 73 areas of concern that required investigations, all of which were completed. Soil removal and treatment were completed at 23 UST sites. Closure of the Defense Reutilization and Marketing Office (DRMO) occurred. Fieldwork for the industrial waste treatment plant (IWTP) closure was completed, and a closure report was submitted.

In FY97, remediation of the TCE soil source areas was completed. The installation also completed the Air Combat Camera Services (ACCS) closure report. RA was completed for Sites 1, 8, 13, and 14 through excavation and disposal. The installation also completed RAs for Sites 16 and 21.

In FY98, the RA at Site 5 was completed. The RA landfill cap at Site 2 was designed, and construction began. The ecological risk assessment (ERA) also was completed.

In FY99, the RA was completed at Site 2 and remedial action operations for landfill gas collection and destruction began. The closure report for Site 5 was completed. The Basewide OU FS was completed, and the proposed plan (PP) was prepared. The BCT required establishment of more specific land use controls (LUC) for some sites in the Basewide OU FS.

In FY00, removal of radium paint residue inside Building 752 and exterior sewer line was completed. A closure plan was submitted for the industrial waste line (IWL). The CBA base boundary groundwater extraction and treatment system was placed on standby after reducing TCE below the Maximum Cleanup Level of 5 micrograms/Liter.

FY01 Restoration Progress

Site 10 dioxin contamination was characterized both on and off the installation, and an ERA was completed for two threatened and endangered species located at the site. The data were incorporated into the Basewide OU FS. The Basewide OU FS was resubmitted to address BCT LUC concerns. A focused effort to close the RCRA sites began. The installation optimized the long-term management (LTM) of groundwater, as well as operations and maintenance (O&M) at RA systems to realize cost efficiencies. Additional radium-contaminated soil was discovered outside of Building 752. Work continued on efforts to close ACCS, IWTP, and IWL RCRA sites. The annual public meeting was held. The cost of completing environmental restoration has changed significantly at this installation because of technical and regulatory issues.

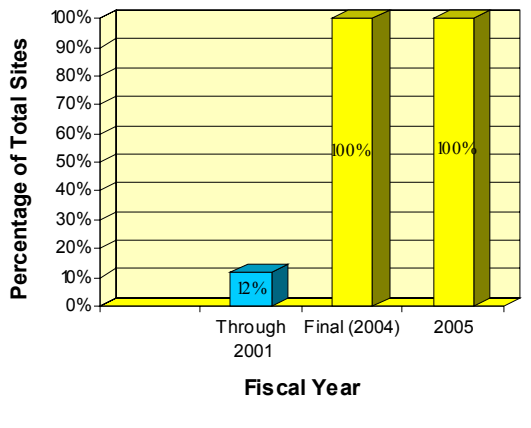
Military Munitions Response Program Progress

In FY93, the Air Force completed an unexploded ordnance removal action covering 7 acres of the installation. The removal action included grenades, small arms cartridges, and scrap metal.

Plan of Action

- Complete RCRA closure of ACCS, IWTP, and IWL in FY02
- Continue and optimize LTM of groundwater, O&M of the CBA OU groundwater RA systems, and O&M of the Site 2 landfill RA in FY02
- Plan and initiate RA of Building 752 radium-contaminated soil in FY02
- Continue efforts on Basewide OU FS, PP, and ROD in FY03
- Initiate RA planning for Site 10 dioxin contamination, including a biological opinion concerning threatened and endangered species, and a remedial design in FY03
- Conduct RA construction and site closure in FY03
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Oakland Army Base

Oakland, California

BRAC 1995

FFID:	CA921352066100	**Funding to Date:**	$16.9 million
Size:	425 acres	**Estimated Cost to Completion (Completion Year):**	$10.8 million (FY2003)
Mission:	Military Traffic Management Command, Western Area	**Final RIP/RC Date for BRAC-ER Sites:**	FY2003
HRS Score:	NA	**Final RIP/RC Date for ER Sites:**	FY1996
IAG Status:	None	**Five-Year Review Status:**	NA
Contaminants:	POLs, TCE, solvents, lead, and PCBs		
Media Affected:	Groundwater and soil		

Progress to Date

In 1995, the BRAC Commission recommended closure of Oakland Army Base. The Army closed the installation, and it ceased operations as scheduled on September 30, 1999.

Between 1989 and 1995, the installation began to characterize potentially contaminated areas through its Installation Restoration Program. These areas included underground storage tanks (USTs); Berths 6 and 6 ½, where storm drain bedding materials were contaminated with oil and fuel products; Building 991, where pesticides and oil were in soil and groundwater; the West Grand Avenue overpass roadsides (lead-contaminated soil); Building 807 (chlorinated solvents in soil and groundwater); and Building 648, where soil was contaminated with polychlorinated biphenyls (PCBs).

In FY95, implementation of CERCLA and CERFA requirements began under the BRAC Environmental Restoration Program. The installation surveyed living quarters and recreational areas for lead-based paint and found lead contamination above action levels in several areas.

In FY96, the installation formed a BRAC cleanup team (BCT) and a Restoration Advisory Board (RAB). It also conducted an asbestos survey of the housing units and the child development center. Seven of the 31 samples indicated the presence of asbestos in floor tiles, roofing material, and dry wall, but in a form that presented no hazard to residents and workers.

In FY97, the installation initiated remedial investigations (RIs) and feasibility studies (FSs) for Operable Units (OUs) 1, 2, 3, and 7. In FY98, the installation completed an initial BRAC cleanup plan and an environmental baseline survey for each of the base's 26 BRAC parcels. Parcels determined or suspected to have a release of hazardous materials were surveyed in the follow-on preliminary assessment and site inspection.

In FY99, the Army conducted a limited-scope independent technical review for OUs 2 and 7. The regulatory agencies approved RIs for OUs 2 and 7. Preparation of finding of suitability to transfer (FOST) documents began for No Further Action (NFA) parcels in OUs 1 and 3. Regulators approved plans for completion of UST removal. OU6 was vacated with no newly discovered issues.

In FY00, the local reuse authority asked the Army to pursue a proposed finding of suitability for early transfer (FOSET) for the property.

FY01 Restoration Progress

The installation completed UST removals and closure reports; final closure is awaiting regulatory approval. The installation successfully removed an abandoned pre-Army oil pipe at OU1 and began final RI of pre-Army oil residue. In addition, the installation has researched and established the likely source of pre-Army oily residue to support its Potentially Responsible Party position. The cost of completing environmental restoration at this installation increased significantly due to technical and regulatory issues.

A need for additional investigations delayed the FSs and decision documents for OUs 1, 2, 3, and 7. The RI for OU4 was delayed by a prolonged regulatory review. The regulators required land use controls for reuse and groundwater, which delayed the FOST for the NFA parcels in OU5. Regulatory issues delayed remedial activities at OU2 and OU7. Early transfer was delayed due to additional environmental requirements by regulators.

The RAB met regularly and revised final versions of documents. The BCT met monthly to discuss regulatory issues and comments in proceeding with the property cleanup and transfer.

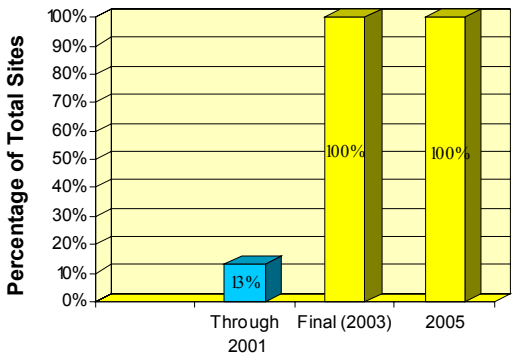
Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Achieve final closure of appropriate known UST sites in FY02
- Establish land use controls to support FOST at OUs 1, 2, 3, and 7 in FY02
- Institute groundwater treatment of benzene/MTBE plume in OU3 in FY02
- Obtain funding for cleanup of Department of Interior park parcel for FOST in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Old Navy Dump/Manchester Annex

Kitsap County, Washington

NPL

FFID:	WA09799F832600	**Contaminants:**	PCBs, heavy metals, petroleum hydrocarbons, dioxins and furans, and asbestos
Size:	350 acres		
Mission:	Provided harbor defense for Puget Sound; during World War I, tested torpedoes and stored fuel; served as a fire training school for the Navy and housed an antiaircraft artillery battery	**Media Affected:**	Surface water, sediment, and soil
		Funding to Date:	$10.8 million
		Estimated Cost to Completion (Completion Year):	$2.4 million (FY2031)
		Final RIP/RC Date for ER Sites:	FY2031
HRS Score:	50.00; placed on NPL in May 1994	**Five-Year Review Status:**	NA
IAG Status:	IAG signed in July 1997		

Progress to Date

The Navy owned the Old Navy Dump/Manchester Annex from 1919 to 1960. During that time, three areas, a net depot, a fire training area, and a landfill, were established at the property. Activities at the property included maintenance, painting, sandblasting, and storage of steel cable net. Domestic waste, wood, and metal waste from the site and the Puget Sound Naval Shipyard were disposed of in a landfill. Currently, the National Oceanic and Atmospheric Administration, the National Marine Fisheries Service (NMFS), an EPA laboratory, and a portion of Manchester State Park occupy the property.

Preliminary assessments (PAs) and site inspections (SIs) conducted at the property since FY87 identified past releases of hazardous substances from the three areas. Contaminants, including heavy metals, polychlorinated biphenyls (PCBs), petroleum hydrocarbons, dioxins and furans, and asbestos, have been detected in soil at the landfill, at the fire training area, and in surface water and sediment at the property.

In FY94, the U.S. Army Corps of Engineers (USACE) completed the PA/SI process, and the Manchester Annex Work Group was established to facilitate restoration efforts. The group includes representatives of EPA, the Washington State Department of Ecology, the U.S. Fish and Wildlife Service, tribal governments, and the local community.

During FY95, a potential unexploded ordnance area was identified. USACE, Huntsville Division, determined that the area is not accessible to the general public and thus should be considered for No Further Action.

In FY96, USACE completed the draft remedial investigation and feasibility study (RI/FS) report. Groundwater sampling for Phase I and II investigations was conducted. In FY97, an interagency agreement (IAG) was signed and the RI/FS was completed. USACE prepared a proposed plan, issued a Record of Decision, and initiated remedial design (RD) and remedial action (RA). The RI/FS process was accelerated by use of a landfill cap as a presumptive remedy.

In FY98, cleanup of the fire training area simulator structures was completed. Dioxin-contaminated debris and soil were excavated from within the structures and disposed of off site. The simulators were demolished and disposed of off site. Underground storage tanks adjacent to the simulators were cleaned and closed in place. The property was restored by backfilling with clean fill and grading to create a parking lot for NMFS employees. In FY99, the final RD for the overall cleanup remedy was completed.

In FY00, Phase I of RA construction was completed, followed by the commencement of Phase II RA construction. Old Navy Dump/Manchester Annex is engaged in a continuing partnering relationship with EPA and the Washington Department of Ecology, as well as with the current federal property owners.

FY01 Restoration Progress

The RA schedule and the budget were negatively affected by contracting issues during FY01. A revised schedule and budget are now in place. Completing Phase II of RA construction, initiating long-term management (LTM), and initiating long-term operations were also delayed by contracting issues. These issues have been resolved.

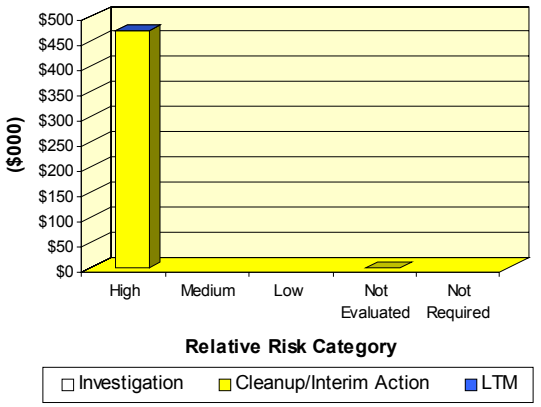
Military Munitions Response Program Progress

USACE has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete Phase II of RA construction in FY02
- Initiate LTM and operations and maintenance (O&M) in FY02
- Continue LTM and O&M through FY04

FY02 Funding by Phase and Relative Risk



Ordnance Works Disposal Areas
Formerly Morgantown Ordnance Works

Morgantown, West Virginia

NPL

FFID:	WV39799F346200	**Funding to Date:**	$1.6 million
Size:	825 acres	**Estimated Cost to Completion (Completion Year):**	$0.1 million (FY2006)
Mission:	Manufactured chemicals for ordnance	**Final RIP/RC Date for ER Sites:**	FY2006
HRS Score:	35.62; placed on NPL in June 1986	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	PCBs, PAHs, inorganic compounds, arsenic, and mercury		
Media Affected:	Groundwater and soil		

Progress to Date

On the basis of environmental studies, sites at the Ordnance Works Disposal Areas in Morgantown were grouped into two operable units (OUs). OU1 consists of an old landfill, a shallow disposal area from which topsoil has been removed, and two lagoons from which sludge has been excavated. OU2 consists of all other projects, particularly those located in processing areas.

The remedial investigation and feasibility study (RI/FS) for OU1 was completed in early FY88. The Record of Decision (ROD) for OU1, signed in FY89, stipulated that soil contaminated with polyaromatic hydrocarbon (PAH) compounds was to be excavated and treated in a bioremediation bed.

In FY90, EPA issued consent orders for both OUs. In the same year, the potentially responsible parties (PRPs) signed a participation agreement for OU2. In FY94, a pilot-test work plan was approved for the cleanup of soil contamination at OU1, and remedial work began. In FY95, the draft work plan for OU1 Phase II interim remedial actions was submitted to EPA for review.

In FY95, the draft RI report for OU2 was submitted to EPA for review. OU2 areas contained elevated levels of organic and inorganic contaminants. Removal actions were required for five areas of OU2, two at the main processing building and three at the coke ovens and the by-products area. A time-critical removal action was proposed for limited areas, eliminating the need for an FS.

In FY96, the U.S. Army Corps of Engineers (USACE) reached an agreement on allocating the cost of remediation at OU1. During FY97, the PRP group, which includes USACE, completed the removal actions at OU2 and received EPA concurrence on completion. To improve site management at OU1, the PRP group submitted a focused feasibility study (FFS) to EPA for the OU1 remedy. In August 1998, after state concurrence, EPA approved the remedy proposed for OU1 in the FFS.

A new ROD for OU1 was issued by EPA in FY99, superseding the ROD signed in 1989. In FY00, the remedial design was initiated as outlined in the ROD for OU1 (off-site thermal treatment and on-site landfill capping). Development of a consent decree began.

FY01 Restoration Progress

The consent decree is undergoing final review by the PRP group and the Department of Justice. The final RA amount is anticipated to be $7.8 million, of which USACE is expected to pay 30.93 percent from the Judgment Fund (approximately $2.7 million). EPA approved a work plan for the treatment and removal of the tar from OU1, and fieldwork began. The approval for the landfill cap and the wetland restoration is pending. Construction of the landfill cap is also on hold, pending resolution of legal issues and issuance of the consent decree.

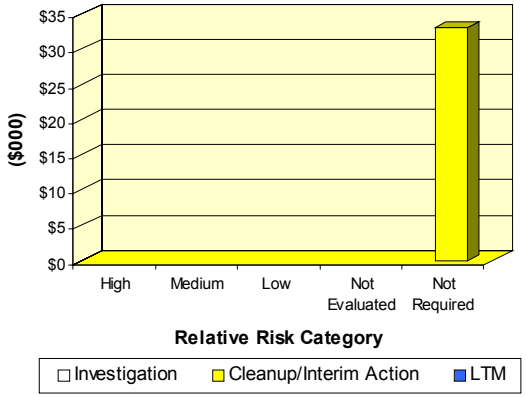
Military Munitions Response Program Progress

USACE has identified no previous military munitions response work at this installation. An inventory of DoDs closed, transferred, and transferring ranges will be developed in the future, which may or may not identify areas on the property requiring military munitions response.

Plan of Action

- Continue tar removal project in FY02
- Finalize consent decree in FY02
- Initiate construction of the landfill cap and wetlands replacement following approval by EPA in FY02

FY02 Funding by Phase and Relative Risk

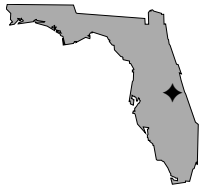


Orlando Naval Training Center

Orlando, Florida

BRAC 1993

FFID:	FL417002473600	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	2,045 acres	**Funding to Date:**	$23.6 million
Mission:	Serve as naval training center; formerly used as Army Air Force and Air Force bases	**Estimated Cost to Completion (Completion Year):**	$5.0 million (FY2008)
		Final RIP/RC Date for BRAC-ER Sites:	FY2004
HRS Score:	NA	**Five-Year Review Status:**	Under Way
IAG Status:	None		
Contaminants:	Asbestos, paint, POLs, photographic chemicals, solvents, and low-level radioactive wastes		



Progress to Date

The Orlando Naval Training Center has four areas: the main base, Area C, Herndon Annex, and McCoy Annex. Most of the operational and training facilities are located on the main base. Area C, west of the main base, contains warehouse and laundry operations. Herndon Annex contains warehouse and research facilities. McCoy Annex contains housing and community facilities. From 1941 to 1968, the installation served as an Army air base and an Air Force base. Since 1968, it has been a naval training center. In July 1993, the BRAC Commission recommended closure of the installation and relocation of its activities. The installation closed on April 30, 1999.

Investigations, beginning in FY85, identified 10 CERCLA sites and 4 underground storage tank (UST) program sites. In FY92, the installation replaced three tanks at a UST site. Corrective action plans (CAPs) for the three remaining UST sites were completed in FY93.

In FY94, the installation formed a Restoration Advisory Board (RAB) and a BRAC cleanup team (BCT). The installation identified 55 areas of concern (AOCs) and more than 300 tank systems requiring removal or assessment. In FY95, the installation began remedial investigation and feasibility study (RI/FS) activities at the main base landfill, completed a CAP for one UST site, and began an interim remedial action (IRA) for groundwater at another UST site. The installation removed 55 tanks and completed 45 UST assessment reports. Also in FY95, the installation completed its land reuse plan, a community relations plan, and an environmental baseline survey.

During FY96, a preliminary assessment and site inspection and a CAP for one UST were completed. In FY97, RI/FS activities began at the McCoy Annex landfill, the old pesticide shop, and the groundskeeper storage area. An IRA at the UST site McCoy gas station was completed. By the end of FY98, site screenings had been completed at all AOCs and site screening reports were completed for another 10. The BCT completed a Record of Decision (ROD) and removed and assessed 55 tanks. Soil was removed from Study Areas 27 and 52 and Operable Unit (OU) 3.

In FY99, IRAs were completed at 10 sites and 6 tank sites. Thirty-three tanks were removed, and removal reports were completed. The final RI/FS report was completed for OU3. The draft finding of suitability to lease (FOSL) for McCoy Annex was completed. Draft findings of suitability to transfer for the public benefit conveyance of Herndon Annex and part of McCoy Annex to the Airport Authority were completed. The draft RI/FS report was completed for the McCoy Annex landfill and Area C laundry.

In FY00, the installation completed an economic development conveyance of 1,425 acres to the City of Orlando. IRAs at five AOCs and six tank sites were completed. The FAA received 83.3 acres, and the final decision documents (DDs) for seven AOCs were finalized. An interim ROD for OU3 was issued. The final three tanks at the main base were closed.

FY01 Restoration Progress

The installation completed final DDs for two AOCs and four tank sites; work is ongoing to complete DDs for the remaining AOCs. Long-term management (LTM) was initiated at two AOCs, one site, and multiple UST sites. The proposed plan (PP) and ROD were completed for OU4, and began at OU2. A 5-year review began.

The installation began the transfer of 45.8 acres to the Department of Veterans Affairs (VA) and 120 acres to the City of Orlando. These transfers are awaiting approval from NAVFAC headquarters. Site 8 groundwater treatment was delayed by a revision of the scope of treatment.

The RAB meets regularly. The installation actively partners with EPA and the Florida Department of Environmental Protection.

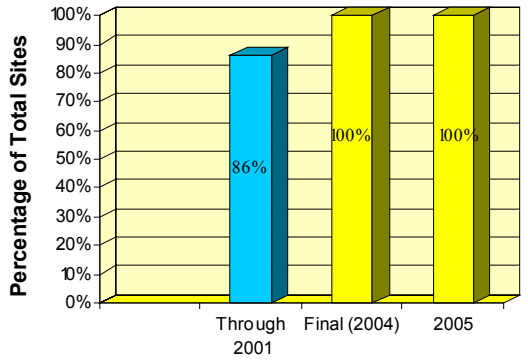
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete final DDs for five AOCs in FY02
- Complete PP and ROD for OU2 in FY02
- Complete transfer of 45.8 acres to the VA and 120 acres to the City of Orlando in FY02
- Continue treatability study at OU3 in FY02
- Continue and review LTM at five AOCs and OU1, OU2, OU3 in FY02–FY03
- Perform LTM for four UST sites and a treatability study at Building 200 in FY02–FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Pantex Plant
Formerly Pantex Ordnance Plant

Pantex Village, Texas

NPL

FFID:	TX69799F676300	**Funding to Date:**	$0.3 million
Size:	16,000 acres	**Estimated Cost to Completion (Completion Year):**	$0.2 million (FY2012)
Mission:	Produced and stored military weapons	**Final RIP/RC Date for ER Sites:**	FY2011
HRS Score:	51.22; placed on NPL in May 1994	**Final RIP/RC Date for MMRP Sites:**	FY2012
IAG Status:	Under negotiation	**Five-Year Review Status:**	NA
Contaminants:	VOCs, SVOCs, heavy metals, chlordane, UXO, and explosives		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

The former Pantex Ordnance Plant began operations in 1942 as an Army Ordnance Corps facility. The property is owned by DOE and Texas Tech University. Operations conducted on the active DOE site include fabrication, assembly, testing, and disassembly of nuclear ammunition and weapons. Sources of contamination have included burning of chemical waste in unlined pits, burial of waste in unlined landfills, and discharge of plant wastewaters into on-site surface water. The southern part of the property is used as an experimental agricultural research farm by Texas Tech.

Environmental studies of the southern 5,000 acres of the property, owned by Texas Tech University, began in FY88. A preliminary assessment and site inspection in FY90 identified nine areas of emphasis (AOEs) for investigation.

In FY94, a Phase I remedial investigation and feasibility study (RI/FS) began for two AOEs. RI/FS activities included sampling of surface and subsurface soil, sediment, surface water, and groundwater. The analysis indicated that explosives, mercury, lead, chromium, and chlordane were the primary contaminants of concern. The installation began an engineering evaluation and cost analysis (EE/CA) of four AOEs where non-time-critical removal actions might be necessary.

In FY95, the final Phase I RI report was completed for the hazardous, toxic, and radioactive waste (HTRW) project. A public meeting was held to present information about environmental restoration projects at the installation. DOE and Texas Tech University established a partnership with the Texas Natural Resource Conservation Commission (TNRCC) to continue quarterly groundwater sampling.

In FY96, representatives of Texas Tech University, DOE, the community, and TNRCC met to review the installation's status and discuss concerns. The cleanup remedy recommended in the report was not implemented due to TNRCC nonconcurrence.

In FY97, the DOE potentially responsible party (PRP) record search was completed and a final report was submitted.

In FY98, the HTRW investigation for Texas Tech property and the findings report were completed. The PRP record search for Texas Tech also was completed.

In FY99, the cleanup recommended in the EE/CA report for Texas Tech was completed. It was determined that some data from the original site investigation and RI might be suspect because of possible laboratory fraud at Intertek Testing Services (ITS) Laboratory of Richardson, Texas (which had conducted the work). Suspect data were forwarded to the Department of Justice for investigation, and additional sampling was planned to substantiate conclusions based on the suspect samples.

In FY00, groundwater sampling was conducted, which supported the results from the past suspect data. The U.S. Army Corps of Engineers (USACE) met with TNRCC and recommended further testing of groundwater and additional wells.

FY01 Restoration Progress

A review of previous work indicated that additional soil and groundwater investigations were required before development of a cleanup strategy. USACE conducted meetings with TNRCC and agreements were reached on requirements to be incorporated into a field investigation work plan. Preparation of the work plan is now under way and is scheduled for submittal to TNRCC. PRP discussions are ongoing. The additional investigations determined to be necessary delayed completion of the HTRW investigation report. The estimated cost of completing environmental restoration at this installation has changed significantly because of technical issues.

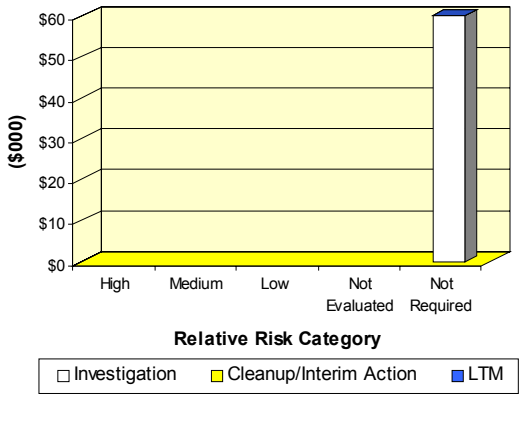
Military Munitions Response Program Progress

In FY90, it was suspected that some AOEs contained ordnance and explosives (OE). An interim remedial action was conducted at three AOEs to remove OE from soil to a depth of 3 feet. A PRP military munitions response project was approved in FY94, and a draft EE/CA was completed in FY95. An additional EE/CA is scheduled for approximately FY05.

Plan of Action

- Complete environmental investigation work plan in FY02
- Begin field investigation at DoD sites in FY02
- Continue PRP discussions with Texas Tech in FY02

FY02 Funding by Phase and Relative Risk



Parris Island Marine Corps Recruit Depot

Parris Island, South Carolina

NPL

FFID:	SC417302276300	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	8,043 acres	**Funding to Date:**	$9.4 million
Mission:	Receive, recruit, and combat-train enlisted personnel upon their enlistment in the Marine Corps	**Estimated Cost to Completion (Completion Year):**	$13.7 million (FY2010)
		Final RIP/RC Date for ER Sites:	FY2010
HRS Score:	50.00; placed on NPL in December 1994	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement under negotiation		
Contaminants:	Industrial wastes, pesticides, paint, POLs, solvents, ordnance compounds, metals, acids, and electrolytes		

Progress to Date

The Parris Island Marine Corps Recruit Depot was placed on the National Priorities List (NPL) in December 1994 due to contamination at two landfill sites. Investigations at that time identified 48 potential CERCLA and RCRA sites. Most of the sites are landfills or spill areas where groundwater and sediment are contaminated with solvents and petroleum/oil/lubricants.

In FY86, an initial assessment study identified 16 sites, 10 of which were designated Response Complete (RC). In FY87, a site inspection (SI) was initiated for all sites. EPA prepared a RCRA facility assessment for the installation in FY90, which identified 44 solid waste management units and 4 areas of concern. Of the originally identified 48 potential sites, the Navy, Marines, and EPA designated 25 as official sites. All tanks were removed, and cleanup was completed at two sites. Five sites required no further action. In FY93, the installation completed an expanded SI at the causeway landfill.

During FY95, remedial actions began, involving tank removals, soil removal, free-product recovery, and soil vapor extraction at one underground storage tank (UST) site. Four storage tanks were removed. An interim remedial action (IRA) was conducted at one landfill site. Twelve sites that had been designated RC were reopened, with three reclassified as RC. The Agency for Toxic Substances and Disease Registry performed an initial public health assessment for the installation.

During FY96, the installation began remedial investigation and feasibility study (RI/FS) activities at four sites and completed preliminary assessment and SI activities at three. It also began an IRA at a spill area. In FY97, a corrective action plan (CAP) for UST 2 was completed and the corrective action was implemented. The installation also completed the IRA and began long-term management for UST 1. In FY98, RI/FS activities began at six sites. A pump-and-treat system at Site 45 began removing contaminated groundwater. In FY99, a work plan was approved and sampling was completed for Site 21.

In FY00, an interim Record of Decision (ROD) was signed for Site 3 and a draft ROD for no action was submitted to regulators for Site 2. Negotiations on the federal facility agreement (FFA) were initiated after the Navy drafted a proposed FFA based on existing agreements at other Marine bases. Construction began on the causeway cap for Site 3. RIs were completed at Sites 1 and 2. The RI/FS was completed at Site 3. A draft RI report was submitted for Site 21. The contamination assessment at the gas station and Building 4022 was completed. The RI work plan for Site 45 was developed and approved.

The installation began to compile an administrative record in FY96 and completed a community relations plan in FY98. There has been no community interest in forming a Restoration Advisory Board.

FY01 Restoration Progress

Construction of the landfill cap at Site 3 was completed and the IRA/corrective action report was submitted. The RI for Site 1 was completed, and the FS is currently under review. The RI recommended no action for Site 2. A CAP for the gas station and a monitoring plan for Building 4022 were developed. RI fieldwork began at Site 45; alternative technologies are being considered.

The FFA was delayed due to continuing negotiations with the South Carolina Department of Health and Environmental Control, EPA, and the Navy.

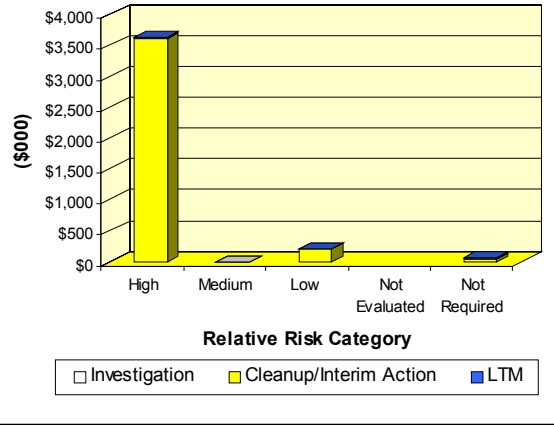
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete RI at Site 45 in FY02
- Sign ROD for Site 1 and ROD for Site 2 after FFA completion in FY02
- Implement CAP at the depot gas station in FY02
- Continue groundwater monitoring at Building 4022, Building 850, and the aviation gas area in FY02
- Construct cap at Site 1 in FY02–FY03
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk



Patuxent River Naval Air Station — *Lexington Park, Maryland* — NPL

FFID:	MD317002453600	**Funding to Date:**	$28.7 million
Size:	6,800 acres	**Estimated Cost to Completion (Completion Year):**	$70.2 million (FY2013)
Mission:	Test and evaluate naval aircraft systems	**Final RIP/RC Date for ER Sites:**	FY2011
HRS Score:	36.87; placed on NPL in May 1994	**Five-Year Review Status:**	Completed
IAG Status:	None		
Contaminants:	Heavy metals, pesticides, organics, POLs, solvents, and UXO		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Studies beginning in FY84 showed 46 Installation Restoration program (IRP) sites at Patuxent. Three sites were placed on the National Priorities List (NPL): a Fishing Point Landfill site (Site 1), the former sanitary landfill (Site 11), and the pest control shop (Site 17). Wastes managed at the sites included mixed solid wastes, petroleum/oil/lubricants, paints, thinners, solvents, pesticides, and photographic laboratory wastes. A 5-year review was completed for the installation.

Metals and pesticides, semivolatiles, and volatiles were released from landfills and spills, causing contamination of soil, groundwater, surface water, and sediment at IRP sites. Remedial investigation and feasibility study (RI/FS) activities included installation of shallow and deep monitoring wells. Hydrogeologic testing was conducted. Between FY86 and FY98, the installation completed removal of drums, polychlorinated biphenyl–contaminated soil, pesticide-contaminated soil, and ordnance.

In FY94, interim remedial actions (IRAs) included an ordnance sweep for remaining unexploded ordnance (UXO). Shoreline stabilization prevented erosion of the Fishing Point Landfill into the Chesapeake Bay. During FY96, the installation began a five-phase RI/FS for 16 sites. A Record of Decision (ROD) was signed, and the installation completed a corrective action plan (CAP) for Site 11. Dry well and sediment removal was completed at Site 24. Sixteen underground storage tanks (USTs) were grouped into six areas for further investigation. Interim actions (IAs) at two of the areas included groundwater treatment and recovery of free product. Corrective measures design at UST 1 and a removal action at UST 5 were implemented. The installation prepared a CAP for UST 6.

In FY97, one early action was performed and a landfill cap was installed. A corrective action at UST 4 and two IAs at UST 6 also were implemented. IRAs were completed at Sites 11 and 24. In FY98, the installation completed a removal action at Site 34 and initiated a remedial action (RA) for Site 17. A draft final site inspection (SI) document was submitted for regulatory review, and the remedial design (RD) for Site 17 was completed. Corrective actions were completed at UST 5.

In FY99, a proposed plan (PP) and a ROD were completed. An SI was completed for Sites 3, 31, 39, 41, and 47. In FY00, the installation completed an RA for Site 6. It also completed an RD, a PP, and a ROD for Sites 1 and 12. Long-term management (LTM) began at Site 11, and partnering efforts and updates of the installation's Web page continued.

The installation formed a technical review committee in FY90 and completed a community relations plan in FY91. A Restoration Advisory Board (RAB) was established in FY94. The Navy regularly updates an administrative record and two information repositories.

FY01 Restoration Progress

The installation's administrative record was converted to CD-ROM for Navy personnel. The RA at Sites 1 and 12 was completed, and OU1 is entering the LTM phase. The PP and ROD amendment for Site 17 was completed. The RA for Site 17 was completed, and OU1 at this site is entering the LTM phase. The 5-year review was completed.

The RIs for Sites 3, 31, 39, 41, and 47 were delayed due to personnel changes that delayed review and approval of RI reports. The RI/FS for Sites 4, 5, and 27 was delayed due to an ongoing construction project.

Quarterly RAB meetings were held and included site tours for Sites 1/12 and 17 during construction. A partnering team, consisting of EPA, the Maryland Department of Environment, and Navy personnel, meets monthly.

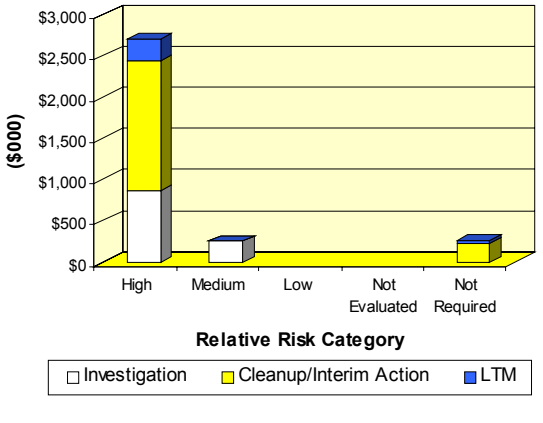
Military Munitions Response Program Progress

UXO removal actions performed at the installation prior to FY01 are included under the IRP. Any future removal actions required will be included under the Military Munitions Response program.

Plan of Action

- Complete IRAs and RODs (Action/No Further Action) for Sites 13, 36, 37, 38, 48, 49, 50, 52, and 53 in FY02
- Initiate two watershed ecological studies in FY02
- Conduct accelerated RI/FS, proposed remedial action plan/ROD, RD, and RA for Site 6A/46 to facilitate MILCON construction of aircraft hangar before FY03

FY02 Funding by Phase and Relative Risk

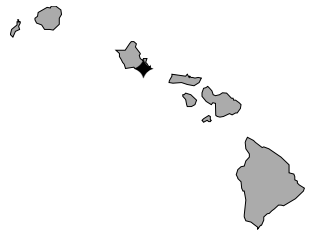


Pearl Harbor Naval Complex

Pearl Harbor, Hawaii

NPL

FFID:	HI917002434200, HI917002477900, HI917002434100, HI917002434000, HI917002433900, and HI917002433400	**Media Affected:**	Groundwater and soil
		Funding to Date:	$116.6 million
Size:	2,162 acres	**Estimated Cost to Completion (Completion Year):**	$110.5 million (FY2019)
Mission:	Provide primary fleet support in the Pearl Harbor area	**Final RIP/RC Date for ER Sites:**	FY2014
HRS Score:	70.82; placed on NPL in October 1992	**Five-Year Review Status:**	NA
IAG Status:	Federal facility agreement signed in March 1994		
Contaminants:	VOCs, SVOCs, heavy metals, PCBs, pesticides, petroleum hydrocarbons, and solvents		



Progress to Date

The Pearl Harbor Naval Complex consists of six installations: the Fleet and Industrial Supply Center, the Naval Station, the Naval Magazine, the Naval Shipyard and Intermediate Maintenance Facility, the Public Works Center (PWC), and the Inactive Ship Maintenance Facility. Fuel supply activities, landfills, and other support operations have contaminated the soil and groundwater with volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals.

The installation has conducted investigations and cleanups under CERCLA and RCRA at over 30 sites since FY83. Between FY91 and FY93, interim remedial actions (IRAs) included excavation of polychlorinated biphenyl (PCB)– and dieldrin-contaminated soil at the Pearl City Junction and excavation of PCB-contaminated soil at transformer locations. Five underground storage tanks and tetrachloroethene-contaminated soil were removed from the Aiea Laundry site (Site 31) in FY94.

During FY97, IRAs were completed at Sites 8 and 36. At Site 34, a solvent extraction technology was used to remove PCBs from concrete. PCB-contaminated sediment was removed from the catch basin in Site 13. The capping of the landfill marked completion of cleanup at Site 8.

In FY98, final engineering evaluation and cost analysis (EE/CA) and design documents for Site 4 were completed. A site inspection was finalized for Sites 40, 41, and 42. The removal action was completed at Site 42.

In FY99, the Ford Island site summary report (SSR) was completed. A remedial investigation (RI) and feasibility study (FS) began for Site 51. The removal action for diesel fuel at Site 31 was initiated. The Phase II RI report for Site 22 and a removal action at Site 39 were completed. Removal actions began for Site 41 and PCB-contaminated soil at Site 34 and Building 49 (West Loch). A treatability study was completed for Site 34, and a removal action for Site 4 was implemented.

In FY00, the installation completed the Waipio Peninsula, West Loch, Pearl City Peninsula, Inactive Ship Maintenance Facility, and Bishop Point SSRs. The EE/CA, action memorandum (AM), and design documents for removal actions were finalized for Sites 25 and 29. An EE/CA, an AM, and draft design documents also were finalized for Site 45. A removal action under the EPA Superfund Innovative Technology Evaluation program continued at Site 10. Remedial action operations (RA-O) continued for Sites 36, 37, and 46. A time-critical removal action was completed at Site 41.

A technical review committee, formed in FY90, was converted to a Restoration Advisory Board in FY95. The installation established three information repositories in FY90 and an administrative record in FY92. A community relations plan was completed in FY92 and updated in FY95.

FY01 Restoration Progress

The installation began a groundwater RI for Sites 33 and 39. Fieldwork was completed for an expanded site inspection (ESI) for Site 42. Groundwater monitoring continued at Site 20, and RA-O continued at Sites 31, 36, 37, and 46. Construction began on removal actions at Sites 25 and 45. Site 29 construction was completed and RA-O began.

The 5-year groundwater monitoring program at Site 8 and the RI/FS at Sites 19, 31, and 51 continued. An ESI was initiated in the Waipio Peninsula Geographic Study Areas (GSA) and the West Loch GSA for sites recommended for further investigation in the SSR. The draft final SSRs were completed for Pearl City Peninsula, Naval Sea System Command Inactive Ships On-Site Maintenance Office, West Loch, PWC Main Complex, Naval Housing, Makalapa, and Richardson GSAs.

A RAB tour to Site 31 was conducted and RAB members attended a training workshop in Denver. A partnering session was held with EPA Region 9 and the state Department of Health to strengthen communication.

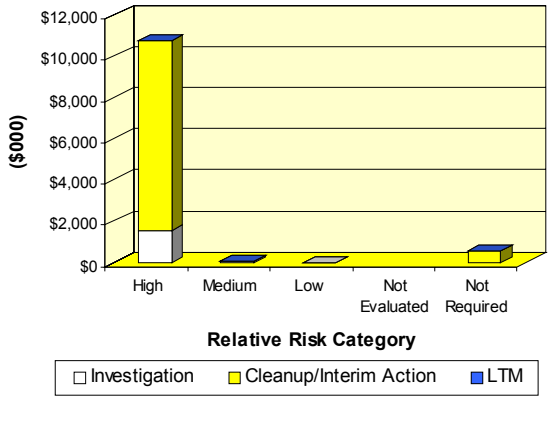
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete draft final SSRs for the Halawa–Main Gate and Shipyard GSAs in FY02
- Continue removal action for Building 49 and complete the remediation verification report (RVR) in FY02
- Complete time-critical removal action and finalize RVR and proposed plan for Site 41 in FY02
- Begin RI at Sites 44, 49, and 84 with completion of RI planning documents in FY02

FY02 Funding by Phase and Relative Risk

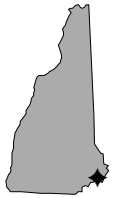


Pease Air Force Base

Portsmouth/Newington, New Hampshire

NPL/BRAC 1988

FFID:	NH157002484700	**Funding to Date:**	$146.8 million
Size:	4,257 acres	**Estimated Cost to Completion (Completion Year):**	$74.1 million (FY2046)
Mission:	Served as Strategic Air Command bomber and tanker base	**Final RIP/RC Date for BRAC-ER Sites:**	FY2000
HRS Score:	39.42; placed on NPL in February 1990	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement signed in 1991		
Contaminants:	VOCs, spent fuels, waste oils, POLs, pesticides, and paints		
Media Affected:	Groundwater and soil		



Progress to Date

The BRAC Commission recommended closure of Pease Air Force Base in 1988. In March 1991, the installation was closed. Studies identified the following site types: fire training areas, burn pits, industrial facilities, landfills, and underground storage tanks (USTs). Groundwater and soil are contaminated with petroleum products (JP-4 jet fuel) and industrial solvents, such as trichloroethene.

Before closure, the installation completed interim remedial actions at four sites, soil removal at three sites, and test pit operations at two sites. It also completed one bioventing and three soil vapor extraction (SVE) treatability studies, and removed 158 USTs and associated contaminated soil. A BRAC cleanup team (BCT) formed in FY93.

During FY95, six Records of Decision (RODs) were signed. Cleanup actions were completed at seven locations, and a remediation system was put into operation at Fire Training Area 2. A Restoration Advisory Board was formed. A citizens group has participated in meetings and helped develop cleanup options.

In FY96, LF-5 capping was completed, construction of the SVE and air-sparging (AS) system at Site 45 began, and wetland restoration at LF-6 was completed. Construction began on the bioventing system at Site 13, the SVE and AS system in Zone 2, and the groundwater recovery system in Zone 3. The installation began implementing the groundwater containment system at Site 32. Final remedial investigation and feasibility study (RI/FS) work was completed for the Brooks and Ditches Operable Unit (OU).

In FY97, the final ROD for the Brooks and Ditches OU was signed. The remaining remediation systems were brought on line, and operations and maintenance and long-term management (LTM) began at the remaining sites. A new area of contamination, Site 49, Communications Building 22, was discovered. The Air Force immediately began site characterization and RI.

In FY98, remedial action (RA) optimization was performed for several systems. A source soil removal action and additional characterization were completed at Site 49. Confirmatory soil sampling was conducted at Site 45. An Operating Properly and Successfully (OP&S) document was completed for LF-5. An engineering evaluation and cost analysis (EE/CA) project for Site 49 and a streamlined RI/FS were initiated.

In FY99, trend analysis, including system and monitoring plan optimization, was conducted. A permeable reactive wall source-area action was implemented at Site 73. The EE/CA fieldwork and report were completed for Site 49. LTM plans for Zones 2 and 3 and Site 8 were streamlined, reducing sampling frequency and/or sampling points by approximately one third.

In FY00, the installation completed the RA decision document and finished the last RA with construction of a permeable reactive wall at Site 49. OP&S documentation was completed for five sites. The findings of suitability to transfer (FOSTs) for the Old Stone Schoolhouse and golf course properties were completed, and the properties were transferred. A 5-year review was completed for all sites, and the report was approved by the regulators.

FY01 Restoration Progress

The installation drafted a land use control/institutional control management plan. FOSTs were drafted for all parcels not requiring OP&S determinations. Remedial system operation and monitoring continued successfully. The monitoring and evaluation of Site 49 proceeded as planned.

Documentation to support OP&S for Zone 3 and Site 73 was reviewed by the regulators, but concerns over new data precluded completion of the OP&S determination. A framework for a Zone 3 remedy modification to address these concerns was developed by the BCT.

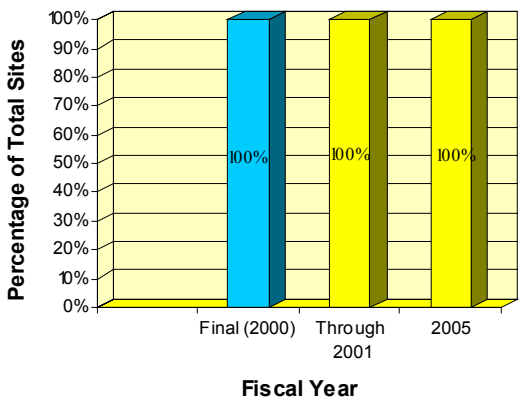
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Complete a ROD amendment for Zone 3 in FY02
- Initiate design of Zone 3 remedy change in FY02
- Continue RA system operation, monitoring, LTM, and trend analysis in FY02
- In FY02, transfer remaining parcels for which OP&S determination is not required
- Implement Zone 3 remedy change in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year

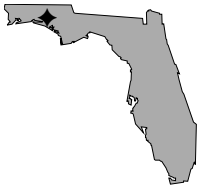


Pensacola Naval Air Station

Pensacola, Florida

NPL

FFID:	FL417002461000	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	5,874 acres	**Funding to Date:**	$53.1 million
Mission:	Serve as a flight training center	**Estimated Cost to Completion (Completion Year):**	$65.9 million (FY2041)
HRS Score:	42.40; placed on NPL in December 1989	**Final RIP/RC Date for ER Sites:**	FY2012
IAG Status:	Federal facility agreement signed in October 1990	**Five-Year Review Status:**	Planned
Contaminants:	Ammonia, asbestos, benzene, cyanide, heavy metals, paints, PCBs, pesticides, phenols, plating wastes, and chlorinated and nonchlorinated solvents		



Progress to Date

This installation, which now serves as a flight training center, was formerly a naval air rework facility and an aviation depot. Operations that have caused contamination at the station include machine shops, a foundry, coating and paint shops, paint stripping and plating shops, various maintenance and support facilities, landfills, and storage facilities. Investigations have identified 38 CERCLA sites, 1 solid waste management unit (SWMU), and 15 underground storage tank (UST) sites. Site types include landfills, disposal sites, polychlorinated biphenyl (PCB) transformer and spill areas, industrial wastewater treatment plant areas, and evaporation ponds. Corrective measures have been taken at two UST sites. Cleanup activities, including installation of a groundwater pump-and-treat system, have been conducted at the SWMU.

In FY94, the installation removed a waste tank. It also removed industrial sludge containing heavy metals from sludge-drying beds and stained soil from various sites. A fence was installed to restrict access to an area containing drums. In FY95, the installation began interim remedial actions (IRAs) at four sites and completed the remedial investigation (RI), feasibility study (FS), and the proposed plan (PP) for an additional site. A Record of Decision (ROD) was signed for no further action (NFA) at Site 39. RI reports were submitted for 10 sites. Five petroleum-contaminated sites were closed.

In FY96, a new CERCLA site was added to the program. The installation completed an RI/FS and IRAs for four sites. It submitted an RI report for seven sites, completed an RI for Site 1, and initiated RIs for nine other sites. In FY97, RI/FSs for Sites 4, 16, 28, and 36; an RI for nine sites; and the remedial design (RD) for Sites 32, 33, and 35 were completed. An RD and a remedial action (RA) began at five sites.

In FY98, RIs at Sites 15, 19, 21, and 23; RI/FSs for Sites 7 and 18; and IRAs for Sites 1, 9, 10, 17, 18, and 25 were completed. The FS, RA, PP, ROD, and RD for Site 1 and the FS and PP for Site 2 were completed. The RA for Site 32 was started. The RODs for Sites 17 and 42 were signed. The U.S. Geological Survey continued a natural attenuation evaluation, and Fenton's reagent/ hydrogen peroxide injection technology was implemented for source removal of contamination at SWMU 1.

In FY99, RODs for Sites 9, 17, 29, and 42 were completed (NFA). A memorandum of agreement on land use controls was signed. The site assessment report (SAR) for Site 22 was completed.

In FY00, the installation obtained concurrence on RODs for Sites 15 and 42 and initiated annual groundwater monitoring at Site 1. A characterization report for Site 43 and FSs for Sites 11, 12, 25, 26, 27, and 30 were submitted to the regulators for concurrence. SARs were completed for UST Sites 14 and 23.

The installation formed a technical review committee in FY90 and converted it to a Restoration Advisory Board in FY94.

FY01 Restoration Progress

The installation completed the RD for Site 15, and the RA began. The RCRA permit application was submitted for SWMU 1. The remedial action plans (RAPs) were completed for USTs 1107, 1120, and 1159. The SARs for UST Sites 15, 20, 21, and 25 were also completed. Additional investigative fieldwork began at Sites 8, 24, 38, 40, and 41. Document addendums were submitted for these sites. Groundwater monitoring continued at Site 1 and SWMU 1. An IRA began for Site 43. The first annual groundwater monitoring report was completed, and the administrative record was updated. The cost of completing environmental restoration at this installation increased significantly due to estimating issues.

The RD for Sites 8 and 24 was delayed due to the need for additional data. Completion of the SAR for UST 24 was delayed because of the sites extensive contamination.

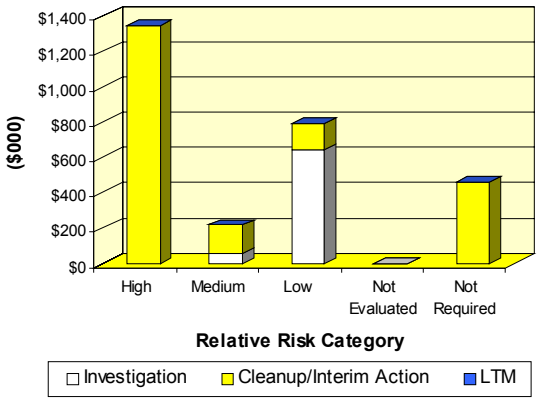
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete SARs for UST Sites 19 and 24 and complete RAPs for UST Sites 15, 20, 21, 24, and 25 in FY02
- Begin IRA at Site 43 in FY02
- Start 5-year review in FY02
- Start groundwater monitoring at Site 15 and continue monitoring at Site 1 in FY02
- Finalize RCRA permit application for SWMU 1 in FY02

FY02 Funding by Phase and Relative Risk



Philadelphia Naval Complex

Philadelphia, Pennsylvania

BRAC 1988

FFID:	PA317002775600, PA317002219800, and PA317002241800	**IAG Status:**	None
Size:	1,492 acres	**Contaminants:**	POLs, heavy metals, PCBs, solvents, and VOCs
Mission:	Provide logistical support for ships and service craft; overhaul, repair, and outfit ships and craft; conduct research and development; test and evaluate shipboard systems	**Media Affected:**	Groundwater and soil
		Funding to Date:	$20.2 million
		Estimated Cost to Completion (Completion Year):	$0.9 million (FY2002)
		Final RIP/RC Date for BRAC-ER Sites:	FY2000
		Five-Year Review Status:	Planned
HRS Score:	NA		

Progress to Date

Philadelphia Naval Complex comprises Philadelphia Naval Shipyard (NSY), Naval Station (NS), and Naval Hospital. In December 1988, the BRAC Commission recommended closure of the Philadelphia Naval Hospital. In July 1991, it recommended closure of the Philadelphia NS and the Philadelphia NSY.

Site types at the complex include landfills, oil spill areas, and disposal areas where petroleum/oil/lubricants and heavy metals were released into groundwater and soil. A preliminary assessment and site inspection completed in FY88 identified 15 sites.

In FY90, the installation completed remedial investigation and feasibility study (RI/FS) activities at four sites and began RI/FS activities for eight sites. It also began remedial design (RD) and remedial action (RA) activities for four sites. Removal actions were conducted at three of four newly identified underground storage tank (UST) sites. In FY92, a RCRA facility assessment identified 167 solid waste management units (SWMUs) and 15 areas of concern (AOCs). The Navy began a focused RCRA facility investigation (RFI) to address 15 SWMUs and AOCs. The first phase of remediation was completed in FY92, and a Record of Decision (ROD) was signed for four sites. In FY93, two interim remedial actions (IRAs) were completed at six sites.

The complex formed a BRAC cleanup team and prepared a BRAC cleanup plan (BCP) in FY94. Environmental baseline surveys were completed for the hospital in FY94 and for NSY and NS in FY95. Twenty-one areas required further evaluation. During FY95, the installation signed an amended ROD, completed remediation of four sites, completed an RI and an IRA for Site 4, and initiated removal actions at two UST sites at the hospital. During FY96, the installation completed RAs at four sites, closed out two sites, completed a design and remedy for an RA at one UST site, initiated removal actions at four sites, and submitted an environmental impact statement.

In FY97, the installation began riverbank stabilization at Site 5 and sand blasting grit removal at Site 2. It also completed RDs for one UST site and remedial activities at two other UST sites. Two RAs were initiated and two were completed. The installation closed two sites and completed the corrective measures implementation and the RFI for an SWMU. The BCP was revised.

In FY98, RODs were signed for Sites 1, 2, and 15, and a decision document was signed to implement institutional controls on naval station property slated for nonresidential use. In FY99, all RAs required for property transfer were completed, and findings of suitability to transfer for two additional parcels were signed. In FY00, long-term management (LTM) was initiated at Sites 4 and 5, and 1,218 acres was transferred.

The complex formed a technical review committee in FY89 and later established a Restoration Advisory Board (RAB). In FY95, an information repository was established and a community relations plan was written.

FY01 Restoration Progress

The installation continued LTM at Sites 4 and 5. The Naval Hospital was demolished by the City of Philadelphia. BCT actions ended with the major property transfer; final property transfer has been scheduled. The cost of completing environmental restoration at this installation has changed significantly because of estimating criteria issues.

A Technical Assistance for Public Participation grant was obtained to provide the RAB with input during the property transfer process. After the transfer was completed, the RAB shifted its focus to the Navy-retained property at the Naval Surface Warfare Center–Ships System Engineering Station.

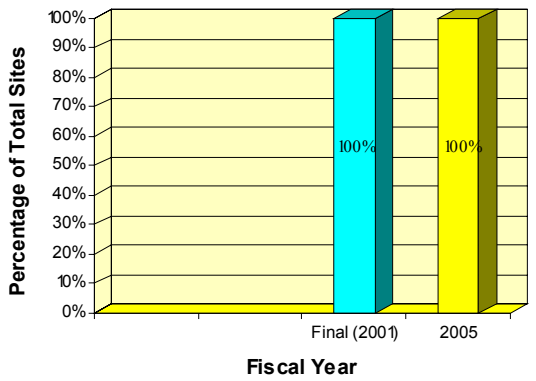
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete final property transfer of utilities and closed RCRA facility in FY02
- Continue LTM at Sites 4 and 5 in FY02–FY03
- Complete 5-year review in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Plattsburgh Air Force Base

Plattsburgh, New York

NPL/BRAC 1993

FFID:	NY257002477400	**Funding to Date:**	$43.3 million
Size:	3,447 acres	**Estimated Cost to Completion (Completion Year):**	$50.3 million (FY2083)
Mission:	Former bomber and tanker aircraft operations	**Final RIP/RC Date for BRAC-ER Sites:**	FY2003
HRS Score:	30.34; placed on NPL in November 1989	**Five-Year Review Status:**	Completed
IAG Status:	FFA signed in July 1991 (effective September 1991)		
Contaminants:	Organic solvents, pesticides, fuels, PCBs, and lead		
Media Affected:	Groundwater and soil		

Progress to Date

Environmental studies since FY87 have identified 41 sites at this base for investigation and cleanup. Site types include underground storage tanks (USTs), aboveground storage tanks, landfills, industrial facilities, spill sites, and training areas. Regulatory concurrence has been received for closeout of 19 sites. The installation was placed on the National Priorities List (NPL) after the former fire training area was determined to be a source of chlorinated solvents and benzene, toluene, ethyl benzene, and xylene contamination in groundwater.

The installation began a remedial investigation (RI) and a feasibility study in FY89. In FY91, it completed a removal action for soil contaminated with the pesticide DDT and for an abandoned UST. In FY92, a soil removal action was completed and a free-product removal system was constructed at the former fire training area.

In FY93, the installation removed a UST that had contained DDT, closed a pretreatment facility, and removed soil contaminated with lead. It also completed Records of Decision (RODs) for three sites and constructed two landfill caps. In FY94, the installation formed a Restoration Advisory Board (RAB).

In FY95, the installation removed soil contaminated with fuel from two sites and prepared final RODs for the pesticide storage tank and a landfill. The installation received regulatory concurrence for no further action at seven sites and completed surveys for endangered species and archaeology. An installationwide environmental impact statement (EIS) and a comprehensive land reuse plan were completed, and a community relations plan was drafted.

In FY96, the groundwater treatment facility for free-product recovery at the former fire training area was upgraded, and a source removal action using soil vapor extraction (SVE) and bioventing was initiated. Two additional removal actions using SVE began, and contaminated soil at three other sites was removed.

In FY97, the BRAC cleanup plan and environmental baseline survey were updated. In FY98, two landfill caps and three contaminated-soil removal actions were completed. RODs for implementing institutional controls were signed for two sites. A Phase II archaeological survey was completed.

In FY99, contaminated soil was removed from one site, and an RI was completed for two sites. The first 5-year review of Plattsburgh Air Force Base's remedial activities was completed. Public interest in cleanup activities at the installation increased in FY99; the RAB met eight times during the year and participated in a site tour.

In FY00, RODs were signed for three sites. An environmental assessment was performed as a supplement to the 1995 EIS to evaluate alternate land uses. A cold war resources survey and a programmatic agreement with the New York State Historic Preservation Office for preservation and transfer of historic property were completed.

FY01 Restoration Progress

RODs were signed for two sites. An evaluation of miscellaneous environmental factors was completed, and recommended actions for closeout were initiated. A draft cultural resources management plan, an interactive cultural resources Web site, and recordation of a historic cold war building were completed.

The planned finalization of a ROD for the former fire training area groundwater operable unit and the construction of the final remedy were delayed because of technical issues and regulatory concerns. The completion of closure investigation and remediation of petroleum handling and storage facilities was delayed while an investigation of a former aircraft refueling system pump house was initiated.

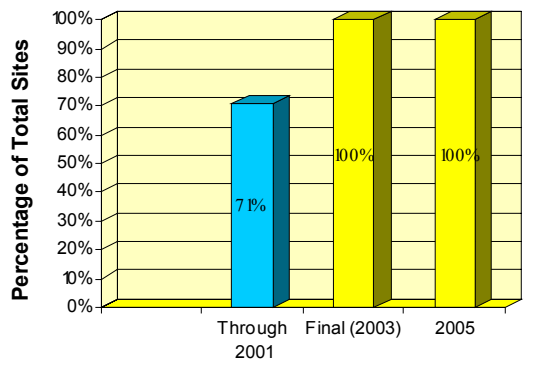
Military Munitions Response Program Progress

In FY97–FY98, the Air Force performed an unexploded ordnance removal action at a former explosives ordnance disposal (EOD) range (6.5 acres) and a practice grenade range (12.6 acres) to a depth that allows unrestricted reuse of the areas.

Plan of Action

- Finalize RODs at three sites, including the former fire training area, in FY02
- Initiate construction of the final remedy for the former fire training area in FY02
- Complete cultural resources management plan, interactive cultural resources Web site, and record of historic cold war buildings in FY02
- Finalize RODs at four sites in FY03
- Complete closure investigation and remediation of petroleum handling and storage facilities in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Portsmouth Naval Shipyard — *Kittery, Maine* — NPL

FFID:	NH117002201900	**Funding to Date:**	$24.5 million
Size:	278 acres	**Estimated Cost to Completion (Completion Year):**	$70.5 million (FY2017)
Mission:	Maintain, repair, and overhaul nuclear submarines	**Final RIP/RC Date for ER Sites:**	FY2011
HRS Score:	67.70; placed on NPL in May 1994	**Five-Year Review Status:**	NA
IAG Status:	Federal facility agreement signed in 1999		
Contaminants:	Heavy metals, PCBs, pesticides, and VOCs		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Portsmouth Naval Shipyard was placed on the National Priorities List (NPL) in May 1994 because of groundwater contamination at sites on the island and because past activities may have adversely impacted sensitive wetland communities around and downstream of the facility.

A preliminary assessment in FY83 and a site inspection in FY86 identified four potentially contaminated sites. A RCRA facility assessment in FY86 identified 28 solid waste management units (SWMUs). Site types at the installation include a landfill, a salvage and storage area, and waste oil tanks. In FY92, the installation completed a RCRA facility investigation (RFI).

In FY94, the installation completed an interim measure at the Defense Reutilization and Marketing Office (DRMO) scrap yard, installed a cap on part of the scrap yard, and completed a groundwater and soil gas survey at another SWMU. The installation completed RFI fieldwork, developed onshore media protection standards (MPSs), and completed draft offshore ecological and human health MPSs. Seven underground storage tanks were removed.

In FY95, the installation developed a work plan for monitoring the Piscataqua River and initiated an ecological risk assessment (ERA) of the Piscataqua River and Great Bay Estuary. A draft feasibility study (FS) report for 11 SWMU sites was submitted to regulatory agencies.

In FY96, a work plan for investigating groundwater and seeps was completed. During FY97, the installation completed a work plan for SWMUs 10 and 29. It also completed and signed a no further action (NFA) document for SWMUs 12, 13, 16, and 23.

In FY98, the installation completed a work plan for Sites 30, 31, and 32 and finished Phase II groundwater modeling for SWMUs 8 through 11 and 27. The installation also completed a removal action at SWMU 9 and initiated cleanup of the tank farm. The basewide groundwater sampling program also was completed.

In FY99, the installation signed a federal facility agreement with EPA. It completed the survey of Operable Unit (OU) 3 and the report for basewide groundwater sampling. Phase II onshore/offshore contaminant fate-and-transport modeling was completed.

In FY00, the installation completed the ERA. A site screening report for three sites was also completed. Supplemental remedial investigation reports for two sites and a risk assessment for OU3 (Sites 8, 9, and 11) were completed. A removal action at Site 6, the DRMO, was completed to stabilize the slope. A removal action for eight mercury burial vaults at Site 9 was also completed.

The installation's technical review committee, formed in FY87, was converted to a Restoration Advisory Board in FY95. The community relations plan, developed in FY93, was last updated in FY97.

FY01 Restoration Progress

The installation completed the FS, the proposed plan, and the Record of Decision for OU3. Remedial design (RD) began for OU3. NFA decision documents under CERCLA for Sites 26 and 27 were completed.

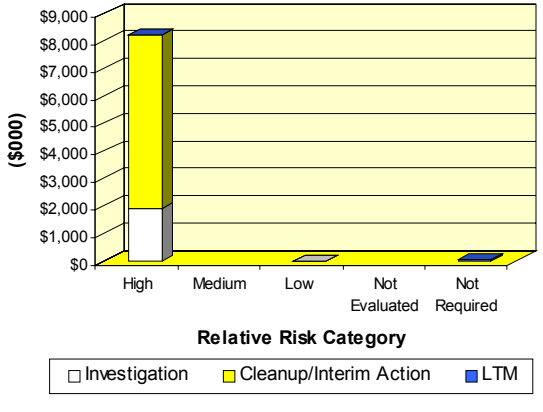
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete interim remediation goals for OU4 in FY02
- Complete the RD for OU3 in FY02
- Complete work plan for Site 10 additional investigation in FY02
- Start work plan for Site 31, Topeka Pier, in FY02
- Begin the remedial action for OU3 in FY03

FY02 Funding by Phase and Relative Risk

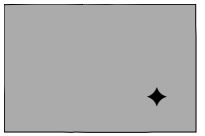


Pueblo Chemical Depot

Pueblo, Colorado

BRAC 1988

FFID:	CO821382072500	**Funding to Date:**	$104.8 million
Size:	23,121 acres	**Estimated Cost to Completion (Completion Year):**	$56.2 million (FY2014)
Mission:	Store chemical munitions	**Final RIP/RC Date for BRAC-ER Sites:**	FY2014
HRS Score:	NA	**Final RIP/RC Date for MMRP Sites:**	FY2014
IAG Status:	None	**Five-Year Review Status:**	NA
Contaminants:	Heavy metals, POLs, VOCs, SVOCs, pesticides, explosives, PCBs, and UXO		
Media Affected:	Groundwater and soil		



Progress to Date

In December 1988, the BRAC Commission recommended realignment of the Pueblo Depot Activity, primarily because of chemical demilitarization. In October 1996, the Army placed Pueblo Depot Activity under the Chemical and Biological Defense Command and changed its name to Pueblo Chemical Depot. Sites include a landfill, open burning and detonation grounds, an ordnance and explosives (OE) waste area, lagoons, former building sites, oil-water separators, a TNT washout facility and discharge system, and hazardous waste storage units. Heavy metals, volatile organic compounds (VOCs), and explosives are the primary contaminants affecting soil and groundwater.

Between FY89 and FY94, the Army conducted RCRA facility investigations (RFIs) for 45 solid waste management units (SWMUs). In FY94, a Restoration Advisory Board (RAB) and a BRAC cleanup team were formed. The installation completed a final CERFA report, and the community formed a local redevelopment authority (LRA), which prepared a land reuse plan.

In FY95, the installation constructed a groundwater extraction and treatment system to remediate and prevent off-site migration of contaminated groundwater. RFI and corrective measures work also began on seven additional SWMU sites. In FY96, the installation conducted cleanup and removal of TNT washout buildings. It also developed Team Pueblo to coordinate public involvement in restoration, reuse, closure, and cleanup.

In FY97, an environmental baseline survey (EBS) and a finding of suitability to lease (FOSL) were completed for 74 buildings. Decontamination of two buildings and demolition of 28 structures also occurred. RFI work began on three new SWMU sites.

In FY98, the installation completed soil removal at the TNT washout lagoons in SWMU 17. A temporary groundwater filter unit was installed at Ciruli Spring to remove explosives contamination from a drinking water source. An EBS and a FOSL were completed for 766 buildings. An additional SWMU was identified.

In FY99, the installation implemented full-scale bioremediation of the soil excavated from SWMU 17. SWMU 58 was created to address soil contaminated with trichloroethene near monitoring well CM1. The state identified a new SWMU in the 700 Building areas. The Army investigated off-site contamination in public drinking wells associated with the TNT washout facility, and provided drinking water to off-site well water users. It also cleaned up or demolished the 700 Area and 180 Series buildings. A no further action (NFA) agreement and a justification package for six SWMUs were submitted to the state for approval of the NFA designation. RAB members approved the RAB charter.

In FY00, additional SWMUs at the installation were designated as NFA candidates pending state approval. The Army approved a work plan to implement the CM1 corrective measure and a sheet pile barrier along with installation of extraction wells. The installation submitted an investigation report to the state, delineating a plume of explosives and nitrate located on and off depot, linked to the former TNT washout facility. The installation submitted the RFI work plan for Mercury Storage Building 543 to the state. The LRA updated the reuse development plan to reflect current and future reuse and cleanup requirements.

FY01 Restoration Progress

The Army completed design and construction of an explosives/nitrate groundwater treatment system. Bioremediation of explosives-contaminated soil at SWMU 17 began. A 90 percent design package for SWMU 14 was submitted for review; the focus has changed to an overall exit strategy, which will include source contributors SWMUs 28 and 36. The installation completed remediation of CM1 hot spot (SWMU 58). The state approved the installation's NFA methodology; six SWMU sites have been selected to proceed to NFA status.

An approval to proceed and funding for an early property transfer request are awaiting signature of a chemical weapon treatment technology Record of Decision, which is expected to occur in January 2002.

The installation developed a depotwide reuse and cleanup exit strategy, which it submitted to the command for approval.

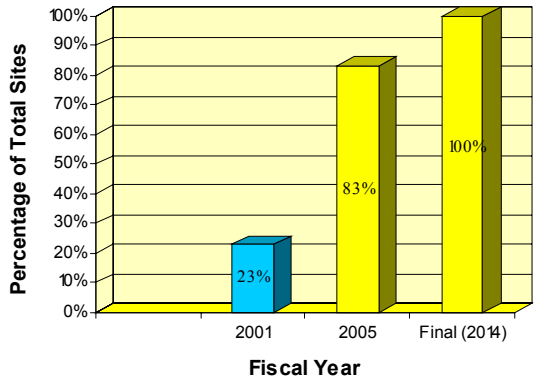
Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. Previously, response activities related to unexploded ordnance (UXO) occurred in support of reuse. Pueblo contains 29 potential UXO/OE sites. The depot has performed some clearance on most of the sites; the state has not approved closure of any of these. The Army has proposed 15 sites for NFA, pending additional quality assurance. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Meet state compliance order requirements for SWMU 17 groundwater contamination, develop technology to expedite cleanup in FY02
- Complete SWMU 17 soil bioremediation project and plan treatment technologies for explosives-saturated soil/groundwater at original SWMU 17 site in FY02
- Obtain approval, construct, and implement SWMU 14 SVE treatment system in FY02
- Start identification of early property transfer requirements in FY02
- Develop UXO/OE management plan in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Puget Sound Naval Shipyard

Bremerton and Kitsap Counties, Washington

NPL

FFID:	WA017002341800	**Contaminants:**	Heavy metals, VOCs, POLs, grit, paint, solvents, construction debris, acids, silver nitrate, and ordnance compounds and items
Size:	1,392 acres		
Mission:	Provide logistical support for assigned ships and service craft; perform authorized work in connection with construction, overhaul, and other tasks	**Media Affected:**	Groundwater, surface water, sediment, and soil
		Funding to Date:	$105.2 million
		Estimated Cost to Completion (Completion Year):	$71.7 million (FY2033)
HRS Score:	50.00; placed on NPL in May 1994	**Final RIP/RC Date for ER Sites:**	FY2007
IAG Status:	None	**Final RIP/RC Date for MMRP Sites:**	FY2010
		Five-Year Review Status:	Planned

Progress to Date

Most of the Bremerton Naval Complex (BNC), which includes the Puget Sound Naval Shipyard (PSNS), is built on contaminated fill material. Metals and petroleum/oil/lubricants are the primary contaminants. The main sources of contamination are past operations, such as cleaning and demilitarization of ordnance, and ship construction, maintenance, and demolition.

In FY83, an initial assessment study (IAS) identified six potentially contaminated sites at BNC. In FY90, a supplemental preliminary assessment identified five other potentially contaminated sites. An FY83 IAS for the Jackson Park Housing Complex (JPHC) identified eight sites. Two sites were recommended for further investigation, and six for no further action. A site inspection report was prepared in FY88.

In FY92, an underground storage tank (UST) validation report identified 26 abandoned tanks, and 9 were removed. In FY94, the installation excavated contaminated soil from a site at BNC. Three removal actions were conducted at JPHC, and the remaining 17 abandoned tanks were removed or closed.

In FY95, sampling and analysis of soil and groundwater were conducted at three sites in JPHC, and a remedial investigation (RI) was completed. Soil sampling and analysis were conducted at three other sites in the housing complex.

In FY96, a human health risk assessment was completed for the terrestrial sites at JPHC, and remedial action (RA) work plans and decision documents were initiated for an operable unit (OU) at BNC. A corrective action began for five USTs. RI and feasibility study (FS) activities were performed at six sites at PSNS and three sites at JPHC.

In FY98, a benzene investigation was completed. The FS addressing human health risks and the RI/FS addressing ecological marine risks were finalized. At BNC, remedial designs (RDs) for OUs NSC and A were completed. An engineering evaluation and cost analysis and an action memorandum were prepared for OU B. The installation began an unexploded ordnance (UXO) sweep and investigation began at Sites 101 and 103.

In FY99, the proposed plan (PP) was finalized, and a time-critical removal action to prevent erosion of contaminated soil into the bay was completed. OUs A and NSC were designated Construction Complete. The OU B removal action was completed. The installation also completed munitions sweeps at JPHC.

In FY00, the installation completed the Record of Decision (ROD) and RD for OU1. It also conducted the benzene investigation at Site 110. The PP, ROD, and RD for the marine RA at OU B were completed, and the RA to remove and contain contaminated marine sediment began. The RA at Jackson Park OU1 began. Removal of underwater ordnance began at OU3 in FY00 and continued in FY01

JPHC and BNC formed technical review committees in FY91 and FY92, respectively. Both were converted to Restoration Advisory Boards in FY94.

FY01 Restoration Progress

The installation continued the RA for OU1 and completed design and construction for the benzene seep at Site 110. The RI was completed and the FS continued for OU B terrestrial sites. Negotiations began on the interagency agreement (IAG) for JPHC. The cost of completing environmental restoration at the installation has increased significantly due to technical issues and the discovery of potential ordnance sites.

Actions at OU1 and OU3 were not completed as planned due to emergence of new munitions data. The IRA at OU B marine sites continued but was delayed by equipment failures. The petroleum management plan for OUs A, B, and NSC was delayed by the decision to pull OU C from the plan. It was decided that natural attenuation would not be a beneficial RA at OU C; alternatives are now being researched.

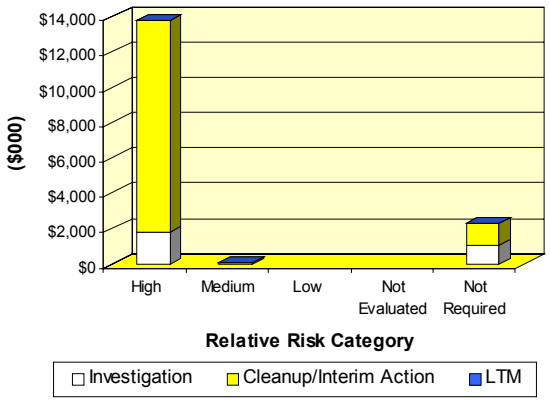
Military Munitions Response Program Progress

UXO removal actions performed at the installation prior to FY01 are included under the Installation Restoration program. Any future removal actions required will be included under the Military Munitions Response program.

Plan of Action

- Complete removal action at OU3 in FY02
- Complete RA for OU B marine sites in FY02
- Complete facilitywide petroleum management plan for OUs A, B, and NSC in FY02
- Complete 5-year review in FY02
- Begin RI work plans for OU3 in FY02
- Complete FS and begin OUB terrestrial site PP, ROD, and RD in FY02–FY03
- Begin RA for OU B terrestrial sites in FY02–FY03

FY02 Funding by Phase and Relative Risk



Quantico Marine Corps Combat Development Command

Quantico, Virginia

NPL

FFID:	VA317302472200	**Contaminants:**	PCBs, pesticides, VOCs, SVOCs, phenols, heavy metals, petroleum hydrocarbons, and arsenic
Size:	60,000 acres	**Media Affected:**	Surface water, groundwater, sediment, and soil
Mission:	Provide military training and support research, development, testing, and evaluation of military hardware	**Funding to Date:**	$40.9 million
HRS Score:	50.00; placed on the NPL in June 1994	**Estimated Cost to Completion (Completion Year):**	$63.3 million (FY2014)
IAG Status:	RCRA FFCA signed December 31, 1991; federal facility agreement signed February 4, 1999	**Final RIP/RC Date for ER Sites:**	FY2014
		Five-Year Review Status:	NA

Progress to Date

Quantico Marine Corps Combat Development Command operated a municipal landfill throughout the 1970s. After the landfill closed, the area was used as a scrap yard. Contamination at the old landfill area was the primary reason for the installation's placement on the National Priorities List (NPL). Other sites at the installation include surface disposal areas, underground storage tanks (USTs), and disposal pits that contain contaminated soil, surface water, and sediment.

Since FY81, 303 areas of concern (AOCs) have been identified by EPA at Quantico. The FY88 RCRA facility assessment listed 243 solid waste management units (SWMUs) and 10 AOCs. Between FY88 and FY99, 42 AOCs were added as a result of preliminary investigations. A federal facility agreement (FFA) signed in February 1999 identified 213 AOCs. Seventy-six AOCs were approved for closure or deferred action in the FFA. Since FY99, seven additional AOCs have been added by the Quantico Project Managers Team. A corrective measures study was completed for Site 4, the old landfill.

The Navy currently recognizes 102 Installation Restoration Program sites and RCRA SWMUs. The remaining AOCs required further investigation to determine extent of contamination. The Navy has completed preliminary assessments (PAs) for 97 of the 102 Navy sites and 85 of the 119 EPA AOCs.

The installation has completed several interim remedial actions (IRAs), including in situ soil treatment and long-term management for one SWMU; removal of polychlorinated biphenyl (PCB)–contaminated soil and scrap metal from two sites; removal and incineration of pesticide- and arsenic-contaminated soil from one site; installation of runoff controls at one site; removal of waste from an embayment and placement of a stone revetment along the shoreline; and removal of petroleum-contaminated drums, tanks, and bulk containers from a UST site.

During FY95, the installation completed a corrective measures design (CMD), began corrective measures implementation (CMI), and started capping a landfill for one SWMU. CMD, CMI, and final remedial action for removal of contaminated soil also were completed.

During FY96, the installation prepared remedial investigation and feasibility study (RI/FS) work plans for seven sites. In FY97, it signed a Record of Decision (ROD) for one site, began two early actions, and began RI/FSs for several sites. In FY98, the IRA for capping the landfill was completed. IRAs also were completed at two UST sites.

In FY99, the installation conducted an RI at Site 20 and an FS at Site 4. Proposed remedial action plans for Sites 1 and 17 were completed, as were site screenings at 15 AOCs. Two SWMUs and seven EPA AOCs were closed. In FY00, No Further Action (NFA) RODs were signed for Sites 1 and 5. Work continued on the arsenic burial area, and the RI for Site 20 began. The basewide background report was finalized. Site screening processes were completed at 10 sites.

A technical review committee was formed in FY89. In FY92, the installation established three information repositories, each containing a copy of the administrative record. In FY95, a community relations plan was completed.

FY01 Restoration Progress

The installation signed an NFA ROD for Site 17. After completion of PA/SI reviews, 33 SWMUs were closed. The SIs for 50 sites and the PAs for 45 sites were completed. The RI for Site 20 continued. The FS was completed for Site 4. The engineering evaluation and cost analysis (EE/CA) work plan for Site 97 was completed. The estimated cost of completing environmental restoration at this installation has decreased significantly due to partnering efforts, which have led to the closure of a number of sites.

The EE/CA for the asbestos burial area was delayed due to budget reallocation and delays in obtaining base utility clearances and regulator reviews. The Site 20 FS and RD were delayed due to additional data requirements.

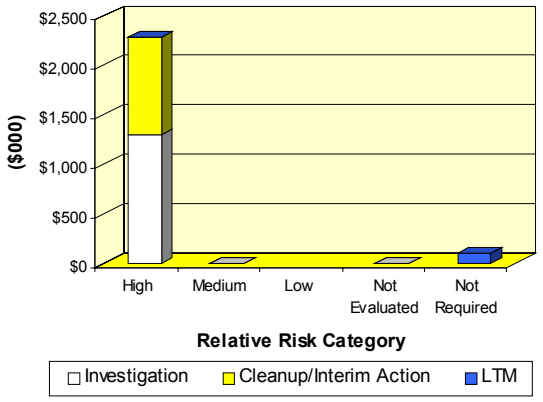
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete proposed plan and sign ROD for Site 4, the old landfill, in FY02
- Complete EE/CAs for Sites 97 and 2 and implement removal actions in FY02
- Complete RI and implement field sampling for Quantico watershed study sediment investigation in FY02
- Close out 30 to 40 EPA AOCs and 5 to 10 SWMUs based on PA and SI data in FY02
- Complete EE/CA and IRA for Site 20, the former rifle range in FY03

FY02 Funding by Phase and Relative Risk



Red River Army Depot

Texarkana, Texas

BRAC 1995

FFID:	TX621382073800	**Media Affected:**	Groundwater, surface water, and sediment
Size:	19,081 acres (includes 625 acres transferred to LRA in June 1999)	**Funding to Date:**	$22.9 million
		Estimated Cost to Completion (Completion Year):	$26.4 million (FY2025)
Mission:	Provide maintenance for light combat vehicles, support rubber production, store ammunition, and conduct training	**Final RIP/RC Date for BRAC-ER Sites:**	FY2008
		Final RIP/RC Date for ER Sites:	FY2006
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	TCE		

Progress to Date

In July 1995, the BRAC Commission recommended realignment of Red River Army Depot. In June 1999, the Army transferred 625 acres of the 765 acres of BRAC property to the local redevelopment authority (LRA). All maintenance missions except those related to the Bradley Fighting Vehicle series were recommended for relocation to other depots. The installation will also retain its intern training, civilian training, and rubber production missions. Areas of environmental concern at the depot include the oil-water separator lagoons, spill sites associated with previous industrial and pre-RCRA disposal activities, and spill sites associated with pesticide storage and mixing activities. Trichloroethene (TCE) is the main contaminant affecting groundwater at the installation.

Interim actions at the installation include removing the former Hays Treatment Plant Dunbar filter beds, demolishing buildings and Army-peculiar equipment, and removing contaminated soil. In FY95, the installation formed a BRAC cleanup team (BCT) and the community formed a LRA. The installation continued its partnership with the Texas Natural Resource Conservation Commission through the Defense and State Memorandum of Agreement program. The installation removed more than 2,000 cubic yards of contaminated sediment from the north and south stormwater drainage ditches in the Western Industrial Area (WIA).

In FY96, the installation commander formed a Restoration Advisory Board (RAB). The installation prepared a final draft environmental baseline survey (EBS) report. The BCT prepared version 1 of the BRAC cleanup plan (BCP).

In FY97, the Red River LRA (RRLRA) asked the Army to modify the excess footprint at the installation to make the footprint contiguous. The new footprint now totals 765 acres. This change required completion of a draft supplemental EBS. The installation completed closure of the final and intermediate lagoons at the industrial waste treatment plant.

In FY98, the installation began evaluating the treatability of the TCE-contaminated groundwater in the WIA. It also developed heavy-metals background levels for soil and prepared a master finding of suitability to lease for the excess footprint.

In FY99, the Army transferred 625 acres to the RRLRA and completed the draft final version of the cultural resources memorandum of agreement (MOA). The finding of suitability to transfer was completed for all Environmental Condition of Property Category 1 through 4 sites. The installation removed soil and sediment from the pesticide pit and water tower sites to obtain closure. In FY00, the installation worked with the Waterways Experiment Station to prepare a groundwater model for the WIA. All CERFA-uncontaminated acreage determinations and approvals were completed. The installation's RAB attended a training session about bioremediation and wetlands.

FY01 Restoration Progress

The Army completed the BCP version 2 and transferred acreage to the RRLRA. The cultural resources MOA is awaiting signature by the RRLRA. The Army calibrated but did not complete the WIA groundwater modeling study. The BCT is active in all reviews related to property transfer. The cost of completing environmental restoration at this installation increased significantly due to technical and regulatory issues.

The water tower was not transferred as planned due to additional regulatory comments. Extensive regulatory comments and unexpected results from groundwater monitoring delayed the WIA and pesticide pit risk assessments (now referred to as affected-property assessment reports (APAR)). The installation began work on closing two stormwater lagoons located on excess property. The north lagoon was cleaned out and refilled. The south lagoon sludge contains metal levels that required disposal as hazardous waste. The installation started closure of the south lagoon.

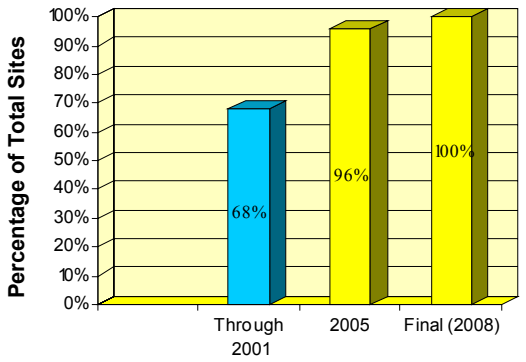
Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Transfer water tower and 45 acres to RRLRA in FY02
- Complete cultural resources MOA in FY02
- Complete groundwater modeling study on WIA in FY02
- Complete pesticide pit risk assessment in FY02
- Complete closure of the south lagoon in FY02
- Complete WIA risk assessment in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year

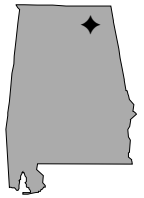


Redstone Arsenal

Huntsville, Alabama

NPL

FFID:	AL421382074200	**Funding to Date:**	$88.5 million
Size:	38,300 acres	**Estimated Cost to Completion (Completion Year):**	$151.8 million (FY2012)
Mission:	Army Aviation and Missile Command	**Final RIP/RC Date for ER Sites:**	FY2009
HRS Score:	33.40; placed on NPL in June 1994	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement under negotiation		
Contaminants:	Heavy metals, solvents, CWM, and pesticides		
Media Affected:	Groundwater, surface water, sediment, and soil		



Progress to Date

Past operations at the Redstone Arsenal (RSA) include production, receipt and shipment, storage, demilitarization, and disposal of chemical and high-explosive munitions. Commercial chemical pesticides also have been produced at the installation. RSA currently conducts military research and development, manages procurement, and supports the Army's aviation and missile weapons systems.

Studies beginning in FY77 have identified 298 sites at RSA. Of these sites, 216 are Army sites and 82 are sites at Marshall Space Flight Center (MSFC), which is the responsibility of NASA. Site types include past disposal sites, landfills, open burning and open detonation (OB/OD) areas, chemical munitions disposal sites, and solvent spill sites. Primary contaminants of concern are heavy metals, solvents, chemical weapons/munitions (CWM), and pesticides.

In FY94, interim remedial actions (IRAs) began at three dismantled lewisite manufacturing plants and at the closed portions of the OB/OD grounds. RSA formed a technical review committee and established information repositories at five locations. In FY95, the Army identified 11 sites as requiring no further action (NFA). The installation completed three IRA designs, including three groundwater extraction and treatment systems and a RCRA cap.

In FY96, site inspection (SI) fieldwork began at 38 sites, remedial investigation (RI) activities continued at 39 sites, and feasibility study (FS) activities began at 10 sites. The Army constructed a groundwater extraction system and an air stripper and began treating contaminated groundwater in the upper aquifer at the closed unlined sanitary landfill. RSA officials surveyed the public to determine community interest in forming a Restoration Advisory Board (RAB). Little interest was expressed.

In FY97, the installation completed the RCRA cap for the closed lewisite manufacturing plant. All fieldwork for a removal action involving an industrial septic tank system was completed. The Army completed NFA decision documents (DDs) for three sites. The installation organized sites into operable units (OUs) and developed an installationwide RI work plan. Construction was completed on a groundwater extraction and treatment system at the former RSA Rocket Engine Facility North Plant for treatment of chlorinated solvent contamination.

In FY98, the Army completed construction of the groundwater extraction and treatment plant at the OB/OD grounds. The installation submitted a DD and six interim Records of Decision (RODs) for regulator review. Construction of the soil vapor extraction (SVE) system for solvent-contaminated soil began at the OB/OD grounds.

In FY99, RSA completed nine RI/FSs and integrated the SVE system with the existing RSA-13 treatment plant. It closed out OU3 with an NFA ROD and closed out MSFC-60 with an NFA DD. It also initiated design of two remediation systems to control contaminant source migration to off-post receptors. RSA reduced contaminant sources at OU14 and OU10 by using SVE and air-stripping technologies, respectively.

In FY00, the installation began operating the remediation system at the former RSA Rocket Engine Facility North Plant, and completed 14 site investigations, 7 RIs, 5 remedial designs, 4 DDs, and 4 proposed plans. The installation also continued to participate in the Alabama Partnering Initiative.

FY01 Restoration Progress

The installation published the results of a karst study investigation. Construction of soil caps and fencing was completed. The dye-trace study work plan for OU5 was concluded; the study will be completed as planned. All SI reports are complete. Investigation activities are now focusing on completing all work at certain high-risk sites before addressing sites that do not pose as high a risk. The cost of completing environmental restoration at this installation increased significantly due to technical and regulatory issues.

The Army did not sign RODs as planned, due to regulatory issues. Completion of the RI reports was delayed until additional data are received from the karst study.

Community interest in establishing a RAB is solicited at each public meeting. RSA maintains a good working relationship with the community, but there has been no expression of interest in forming a RAB.

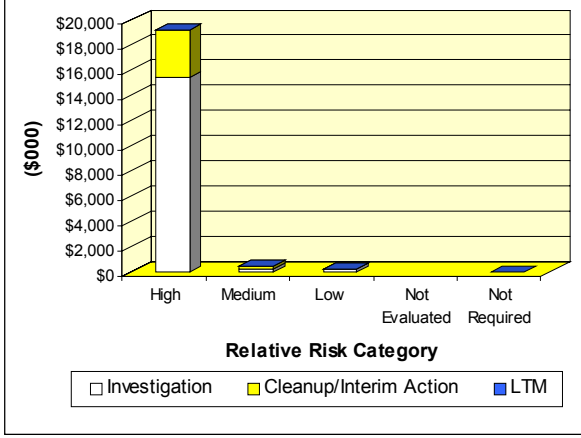
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete the RSA Installation Restoration Program (IRP) implementation plan in FY02
- Develop a Web-based database for tracking documents in FY02
- Separate RSA into land area OUs and groundwater OUs in FY02
- Complete Phase II karst study fieldwork, including the OU5 dye-trace work, in FY02
- Develop a site control program for IRP sites at RSA in FY02
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk



Reese Air Force Base

Lubbock, Texas

BRAC 1995

FFID:	TX657152409100	**Funding to Date:**	$76.7 million
Size:	2,987 acres	**Estimated Cost to Completion (Completion Year):**	$41.8 million (FY2029)
Mission:	Conducted pilot training	**Final RIP/RC Date for BRAC-ER Sites:**	FY1999
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement signed in 1987 and terminated in June 1999		
Contaminants:	VOCs, POLs, metals, pesticides,and herbicides		
Media Affected:	Groundwater and soil		

Progress to Date

In July 1995, the BRAC Commission recommended closure of Reese Air Force Base, which was used for pilot training and related activities. The installation closed in September 1997.

Preliminary assessments and site inspections conducted from FY84 through FY88 identified 13 sites, including landfills, surface impoundments, underground storage tanks (USTs), sludge spreading areas, industrial drain lines, and fire training areas.

In FY93, the installation began an interim remedial action (IRA) in which an alternate source of drinking water was provided to off-base residences and businesses whose well water was contaminated. Studies determined that the base was the source of trichloroethene (TCE) contamination in the sole-source aquifer for the region. An environmental working group was formed in FY93 to expedite restoration.

In FY95, the installation reached an agreement with the State of Texas concerning an IRA for controlling a plume of contaminated groundwater. Under the IRA, the base installed a ground water extraction and treatment system with an air stripper to treat groundwater contaminated with TCE and other volatile organic compounds (VOCs). A Restoration Advisory Board was formed. In FY96, the installation began a corrective measures study to address contaminated media identified during a RCRA facility investigation (RFI) and completed construction of a soil vapor extraction system. A BRAC cleanup team (BCT) was established.

In FY97, the installation began RFIs at 20 solid waste management units. Wells were installed at the boundary of the installation, and an environmental baseline survey and an environmental impact survey were completed. In FY98, the industrial drain line was cleaned and 14 USTs were removed. The design of the composite cap at the Southwest Landfill began.

In FY99, two pump-and-treat systems were constructed to remediate two TCE plumes that extend off base. A 24-acre RCRA landfill cap was completed, and all necessary real estate transactions were finished. All remaining USTs, aboveground storage tanks, and oil-water separators were removed. Lead-contaminated soil was removed from the small-arms firing range, and the site was closed. The closure certification report for the Picnic Lake and Golf Course Lake RCRA permit was approved. The installation reached the final remedy in place milestone in September 1999. All investigation and closure reports have been completed and approved by the regulatory agencies. The BCT achieved a cost avoidance of $9.6 million through partnering, innovative process management, and expedited remedial actions.

In FY00, work toward an Operating Properly and Successfully (OP&S) determination continued with the installation of four more wells on the property. Two findings of suitability to transfer (FOSTs) were completed for a total of 735 acres.

FY01 Restoration Progress

The installation transferred 1,800 acres of property to the Lubbock Reese Reuse Authority. The BCT developed the criteria for documenting that a corrective action system was operating properly and successfully. The BCT reviewed and approved the FOST for the transfer of the Airfields and Hurlwood Area. Data collection for OP&S determinations at three sites requiring long-term corrective action was completed, and reports are in preparation. Data collection was continued to support the OP&S determination for the fourth site that requires long-term corrective action. Groundwater treatment and monitoring also continued.

The installation demonstrated that using a less expensive analytical method (Method 8260) than the method EPA requested was equally effective.

The BCT will also review and approve a FOST for the transfer of 200 acres. Key issues to be resolved with this transfer will be the enforceability of institutional controls.

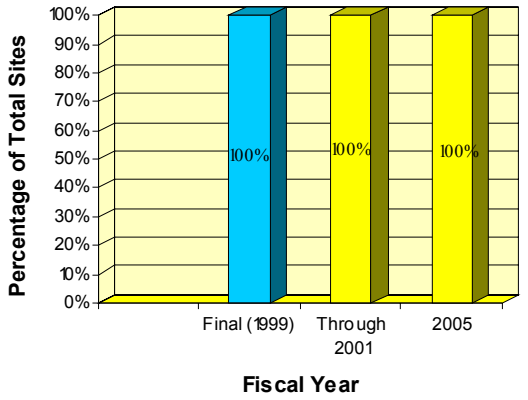
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Obtain EPA approval of OP&S determinations for three sites that require long-term corrective action in FY02
- Transfer by deed the Southwest Landfill, the POL yard, Landfill 4, Golf Course Lake, and Old FTA 2 with BCT review and approval in FY02
- Install four additional corrective action wells in the Tower Area plume in FY02
- Continue to operate the groundwater treatment system and conduct long-term groundwater monitoring in FY02
- Complete 5-year review, as planned, in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Richards-Gebaur Air Reserve Station — *Kansas City, Missouri* — BRAC 1991

FFID:	MO757002429200	**Funding to Date:**	$8.8 million
Size:	428 acres	**Estimated Cost to Completion (Completion Year):**	$6.0 million (FY2032)
Mission:	Housed the 442d Fighter Wing; supported A-10 aircraft	**Final RIP/RC Date for BRAC-ER Sites:**	FY2003
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	POLs, PAHs, PCBs, VOCs, and metals		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

In July 1991, the BRAC Commission recommended closure of Richards-Gebaur Air Reserve Station, the transfer of the 442nd Tactical Fighter Wing to Whiteman Air Force Base (AFB), and the transfer of the 36th Aeromedical Evacuation Squadron and the 77th and 78th Aerial Port Squadrons to Peterson AFB. The installation was closed on September 30, 1994.

In 1995, approximately 184 acres of property was leased to Kansas City Aviation District (KCAD) under a public benefit conveyance for use as a regional airport. In January 2000, the airport closed to make way for a large-scale intermodal (truck-rail) facility. The majority of the facility is on property transferred to KCAD in 1986 (as a Formerly Used Defense Site). KCAD is currently applying for an economic development conveyance for the property. The remaining property has been transferred to the Army Reserves (Belton Training Complex) and the Marine Corps (for currently occupied Marine facilities).

Environmental studies at the installation began in FY82. Prominent site types include a fire training area, vehicle maintenance areas, hazardous waste drum storage areas, fuel storage areas, and underground storage tanks (USTs). An environmental baseline survey (EBS) was completed in FY94. However, the Air Force and the State of Missouri could not achieve agreement on EBS property categorization and CERFA clean acreage.

In FY98, the installation's BRAC cleanup team agreed to institute the state's Cleanup Levels for Missouri guidance. The base operating location closed in 1998, and the Installation Restoration Program is now managed from the remote operating location at Reese AFB in Lubbock, Texas. In FY99, a basewide evaluation and consolidation study was completed.

In FY00, the installation's remedial investigation (RI) fieldwork was completed. An engineering evaluation and cost analysis (EE/CA) was implemented to address contaminated soil, and a feasibility study (FS) was initiated to address contaminated groundwater. Closure approval was received for eight UST sites, and closure reports for the industrial waste line and the fuel hydrant line are being finalized. Investigation fieldwork is complete for all remaining compliance sites referenced in the EBS. Remedial action (RA) to remove contaminated soil from sites identified in that investigation is ongoing. RI results for the 15 sites slated for closure indicated that 6 sites could be closed. No Further Action reports are being prepared.

The Air Force, along with the U.S. Army Corps of Engineers, holds quarterly Restoration Advisory Board (RAB) meetings to keep the public informed of ongoing environmental activities at the base. The RAB is very active due to increased public interest in the reuse of the property as a rail-freight hub. Four new members were elected and a training session was held to familiarize the new members with the RAB process.

FY01 Restoration Progress

The installation submitted an RI report and received regulator concurrence. An EE/CA and a basewide removal action to address contaminated soil were initiated. The EBS site investigation was initiated, and an RA will follow; a finding of suitability to transfer (FOST) was completed; all qualified property was deeded as environmental actions were completed.

The FS and the proposed plan (PP) to address contaminated groundwater were not completed as planned due to delays in the associated treatability study. The State of Missouri asked the Air Force to obtain a permit for underground injection, and Air Force policy is not to obtain permits for CERCLA actions. The installation is now consulting with legal counsel on this matter. The cost of completing environmental restoration has changed significantly at this installation because of technical and regulatory issues.

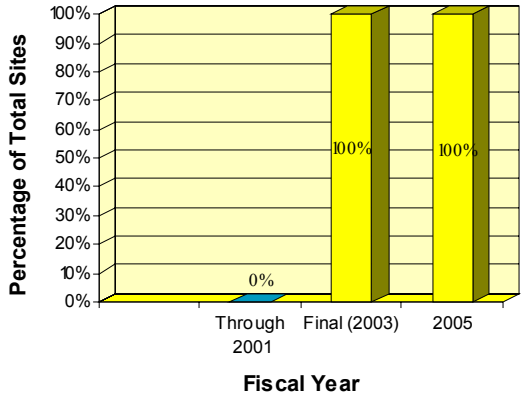
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Submit supplemental RI report for two new sites found as a result of the EBS investigation and gain regulator concurrence in FY02
- Complete EE/CA and basewide removal action to address contaminated soil in FY02
- Complete FS and PP to address contaminated groundwater in FY02
- Complete EBS site inspection report and RA to address all other sites in FY02
- Complete FOST and deed all qualified property as environmental actions are completed in FY02
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Rickenbacker Air National Guard Base — *Columbus, Ohio* — Proposed NPL/BRAC 1991

FFID:	OH557002454400	**Media Affected:**	Groundwater and soil
Size:	2,016 acres	**Funding to Date:**	$23.5 million
Mission:	Provide base of support for one fighter wing, one refueling wing, and one airlift group	**Estimated Cost to Completion (Completion Year):**	$6.5 million (FY2015)
		Final RIP/RC Date for BRAC-ER Sites:	FY2001
HRS Score:	50.00; proposed for NPL in January 1994	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	Pesticides, paint, spent fuel, waste oil, solvents, and heavy metals		

Progress to Date

In July 1991, the BRAC Commission recommended closure of Rickenbacker Air National Guard Base. In July 1993, realignment was recommended rather than base closure. The installation was realigned on September 30, 1994. Rickenbacker was recommended for listing on the National Priorities List (NPL) because of the potential effects of contamination on underlying groundwater, which supplies drinking water to 150,000 residents in nearby communities.

A Restoration Advisory Board formed and a basewide environmental baseline survey was completed in FY94. In FY95, a final environmental impact statement was published and a Record of Decision was signed.

From FY96 through FY97, a supplemental remedial investigation (RI) and an RI report were completed. Remedial actions (RAs) included removal of 59 underground storage tanks (USTs), 28 aboveground storage tanks, and asbestos; closure of abandoned fuel lines; and demolition of the heat and water plant lagoons. A treatability study and a risk assessment began at the former hazardous waste storage area. No further remedial action planned (NFRAP) documents were signed for 16 Installation Restoration program (IRP) sites and 3 areas of concern (AOCs). Seven other IRP sites were closed with regulatory concurrence.

In FY98, the installation published a final Phase II RI report, a draft final feasibility study (FS) for five IRP sites, and a draft Scientific Management Decision Point (SMDP) paper on the ecological risk associated with the basewide storm drainage system (Site 25). Twelve NFRAP documents were signed, covering nine IRP sites and three AOCs. RAs included removal of three USTs at Facility 544 and petroleum-contaminated soil at Sites 6 and 45. Final investigations of petroleum-contaminated soil were conducted along an abandoned fuel line and at two pump houses.

In FY99, the final FS was published, and the proposed plan, the draft RA decision document (DD), and the remedial design were completed for five IRP sites. The installation began removing petroleum-contaminated soil at the abandoned fuel line. Response Complete (RC) status was achieved for IRP Site 6.

In FY00, remedial action plans (RAPs) and RA construction were completed for five IRP sites, and monitored natural attenuation (MNA) began. Three IRP sites were closed. The Air National Guard (ANG) accepted responsibility for six IRP sites and one AOC. Sampling results from FY99 at Facility 544 were analyzed, leading to removal of petroleum-contaminated soil. The RAPs for the abandoned fuel line and the pump houses received regulatory approval. Petroleum-contaminated soil was removed from the pump houses, and groundwater treatment systems were installed at both locations. RC status was achieved for IRP Site 45.

FY01 Restoration Progress

The final SMDP paper was published and the DD was signed for IRP Sites 25 and 27. The Site 1 corrective measures study was completed, an amended closure/post-closure plan was submitted for regulatory review, regulatory approval of soil cleanup levels and groundwater treatment was obtained, and soil removal and groundwater treatment were completed. A draft report of the site investigation at the Site 12/Building 597 area, was published. Remedial action operations (RA-O) groundwater treatment at two petroleum-contaminated sites and RA-O MNA at five IRP sites were conducted. Additional soil investigation was conducted at IRP Sites 21 and 42, and additional soil was removed at Site 42.

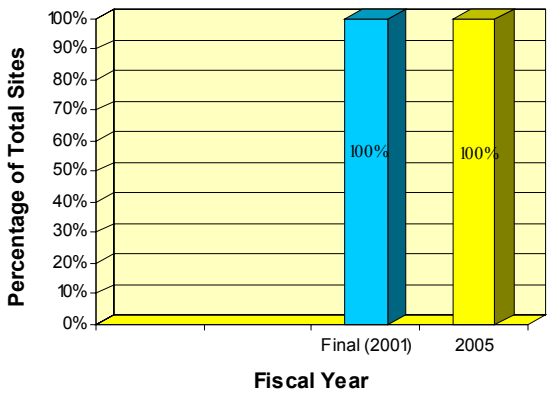
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Obtain regulatory approval of amended closure/post-closure plan for Site 1 in FY02
- Demonstrate Operating Properly and Successfully status at five IRP sites in FY02
- Transfer approximately 300 acres to the local reuse agency in FY02
- Publish a land use control/institutional control layering strategy plan for the base in FY02
- Publish final investigation report for IRP Site 12 in FY02
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Riverbank Army Ammunition Plant

Riverbank, California

NPL

FFID:	CA921382075900	**Funding to Date:**	$46.9 million
Size:	172 acres	**Estimated Cost to Completion (Completion Year):**	$15.4 million (FY2010)
Mission:	Manufacture grenades, projectiles, and steel cartridge casings	**Final RIP/RC Date for ER Sites:**	FY1998
		Five-Year Review Status:	Completed/Planned
HRS Score:	63.94; placed on NPL in February 1990		
IAG Status:	IAG signed in April 1990		
Contaminants:	Chromium, cyanide, and zinc		
Media Affected:	Groundwater and soil		

Progress to Date

In 1942, the Army constructed what is now the Riverbank Army Ammunition Plant as an aluminum reduction plant to supply military requirements. Since 1951, the installation has manufactured steel cartridge cases for the Army and the Navy. Other manufactured products include grenades and projectiles, which the Army ships to other ammunition plants for loading operations.

In FY85, a preliminary assessment and site inspection identified the following sites: an industrial wastewater treatment plant, an abandoned landfill, and four evaporation and percolation ponds located north of the plant near the Stanislaus River. Chromium was detected in drinking water wells at residences west of the installation. As an interim action, the installation began a quarterly groundwater monitoring program. The Army provided alternate water supplies from deeper groundwater wells to five residences with contaminated wells.

In FY90, a groundwater treatment system (GWTS) was constructed. In FY92, the Army built a water distribution system for 70 nearby residences. In FY93, the regulatory agencies approved the final remedial investigation and feasibility study report, and the Army presented the proposed plan to the public for review. The plan recommended (1) expansion of the GWTS to provide complete capture of the contaminated groundwater plume and (2) placement of a final cap over the abandoned landfill.

In FY94, the installation completed a removal action at the four evaporation and percolation ponds and received approval from EPA and the state regulatory agency for the first installationwide Record of Decision. The installation also formed a technical review committee. In FY95, the installation completed construction of the landfill cap.

In FY96, the Army constructed the off-site groundwater extraction system to minimize migration of the plume and to demonstrate capture of the plume. The installation began a maintenance program for the landfill cap.

In FY97, the installation completed expansion of the GWTS and began long-term monitoring. The Army submitted a petition to delete the installation from the National Priorities List (NPL); however, EPA determined that NPL deletion was premature since groundwater cleanup goals had not been met. EPA did approve the preliminary closeout report, and the remedial action (RA) completion report, and Riverbank became the first DoD installation on the NPL to reach the Construction Complete milestone.

In FY99, the Army added an ion exchange system to the GWTS to remove chromium and cyanide from the groundwater. This method eliminated chemical use at the interim GWTS.

In FY00, the installation closed out the RAs. Further optimization of the GWTS with innovative technologies eliminated 50 percent of the operating cost, or $600,000. The installation also developed and implemented a computer-based system to transfer all documents to compact disc.

FY01 Restoration Progress

The installation continued GWTS optimization efforts by obtaining permission to use the city's publicly owned treatment works (POTW) for discharge of treated water. The installation also further reduced the operating expenses for the system as planned. The installation explored the idea of awarding a contract for a fluidized bed treatment system for reduction and or elimination of nitrates. This would further reduce costs and dependence on the city's POTW.

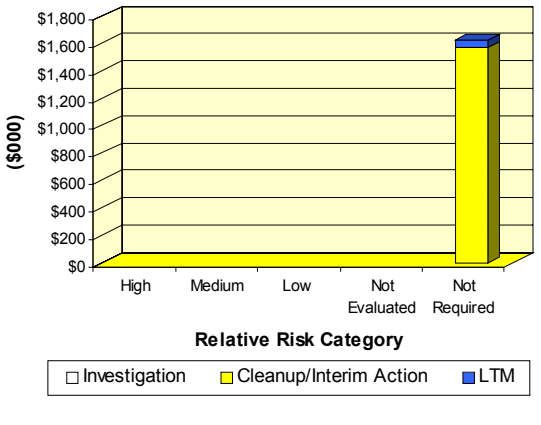
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete and procure a fluidized bed treatment system for treatment of nitrates in FY02
- In FY02, obtain approval from the State of California, for discharge of higher nitrate levels
- Reduce dependence on the City of Riverbank discharge agreement in FY02
- Continue to explore in situ treatment of the chromium-contaminated soil at the source to reduce the overall cleanup duration in FY02

FY02 Funding by Phase and Relative Risk



Robins Air Force Base

Houston County, Georgia

NPL

FFID:	GA457172433000	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	8,855 acres	**Funding to Date:**	$115.8 million
Mission:	Provide logistics support for aircraft	**Estimated Cost to Completion (Completion Year):**	$162.2 million (FY2034)
HRS Score:	51.66; placed on NPL in July 1987	**Final RIP/RC Date for ER Sites:**	FY2005
IAG Status:	IAG signed in July 1989	**Five-Year Review Status:**	NA
Contaminants:	VOCs, paint strippers and thinners, paints, solvents, phosphoric and chromic acids, oils, cyanide, and carbon remover		

Progress to Date

In FY82, preliminary assessments and site inspections (SIs) were completed for 33 sites at this installation. The most significant site is Landfill No. 4 (LF004) and the adjacent sludge lagoon (WP-014). The site is divided into three operable units (OUs): source control (OU1), wetlands (OU2), and groundwater (OU3). Primary contaminants at the site include trichloroethene and tetrachloroethane in soil and groundwater. Since FY82, nine additional sites have been added to the Installation Restoration Program (IRP), for a total of 42 sites.

Remedial investigation and feasibility study activities began in FY86 and FY88. Interim Records of Decision (RODs) were completed for OU1 in FY91, for OU2 in FY94, and for OU3 in FY95. In FY96, the installation completed the design of the Phase II leachate collection system, sludge lagoon solidification, and the remedial design (RD) for the groundwater treatment facility at the National Priorities List (NPL) site. In FY98, the installation completed construction of the groundwater treatment facility for OU3 and the base industrial area. The installation also completed the OU1 cover.

In FY99, the installation completed the RD and began construction on the final remedial action (RA) for LF003 and OT017. The OU2 sediment containment project was completed. The installation also requested Georgia Environmental Protection Division approval for closure of three sites.

In FY00, the installation completed the SI for SS40. It also completed RCRA facility investigations (RFIs) for LF001, LF002, OT020, OT022, OT023, OT038, OT041, and SS039; a corrective action plan (CAP) for SS039; and remedial action construction for LF003 and OT017. The installation continued final remedial action operations at SS010 and OT029. RFIs for DC034, SS035, and SS036 also continued, as did CAPs for LF001, LF002, OT023, OT037, OT038, OT041, SS035, SS036, SS040, and SS042. The installation closed FT005, FT007, FT008, and ST033. The interim measure at LF004 and OT020 and basewide groundwater sampling continued. The proposed plan for OU1 and OU3 was completed.

To date, 34 of the 42 IRP sites have RAs in place, and 19 of those have been closed, requiring no additional cleanup funds. The remaining eight sites are scheduled to have RAs in place by FY05.

Robins is currently performing operations and maintenance at 12 IRP sites. Technologies employed include a groundwater treatment system, a soil vapor extraction system, bioventing, methane flare, free-product recovery, and institutional controls.

Robins has a very active Restoration Advisory Board (RAB) made up of 16 community participants, regulators, and base members. The RAB meets quarterly to discuss ongoing restoration activities.

FY01 Restoration Progress

The CAP's for LF001, LF002, and SS035 were completed, as was the FS for OU2. The RA was installed for OT038 and SS039, and final approval was obtained for site closure for SS009. The cost of completing environmental restoration has changed significantly at this installation because of regulatory issues.

The CAP for OT020 was not completed, because of regulatory delay. The CAP for DC034 was delayed due to technical issues, which changed the scope of the investigation. The RODs for OU1 and OU3 were delayed due to regulatory issues.

Military Munitions Response Program Progress

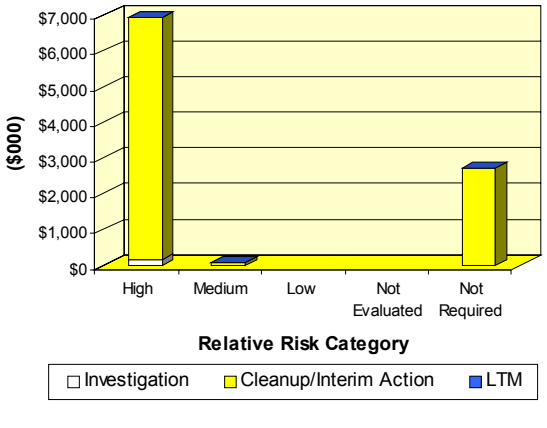
In FY01, a comprehensive range inventory was initiated. This inventory was designed to be an annual, iterative effort. To supply data for the inventory, a detailed questionnaire was completed that collected data on the types of munitions used, the range's environmental status, and the type and level of external stakeholder interest.

Munitions response and range cleanup actions have been delayed, pending funding availability and guidance refinement. As funding becomes available and guidance is refined, ranges will be cleaned up based on risk to human health and the environment.

Plan of Action

- Complete CAP for OT020 in FY02
- Complete closure for OT022 and SS035 in FY02
- Install RAs for OT037, OT041, and SS036 in FY02
- Complete study phase for LF004, OT020, OT023, OT037, OT041, SS036, and SS040 in FY02
- Complete closure of OT038 in FY03

FY02 Funding by Phase and Relative Risk



Rocky Mountain Arsenal

Adams County, Colorado

NPL

FFID:	CO821382076900	**Funding to Date:**	$1,112.2 million
Size:	17,228 acres	**Estimated Cost to Completion (Completion Year):**	$713.4 million (FY2033)
Mission:	Manufactured and stored chemical munitions	**Final RIP/RC Date for ER Sites:**	FY2010
HRS Score:	58.15; placed on NPL in July 1987	**Five-Year Review Status:**	Completed/Planned
IAG Status:	Federal facility agreement under negotiation		
Contaminants:	Pesticides, chemical agents, VOCs, chlorinated organics, PCBs, UXO, heavy metals, and solvents		
Media Affected:	Groundwater and soil		

Progress to Date

Rocky Mountain Arsenal operated as a chemical munitions production facility from 1942 until 1982. It has been the focus of an aggressive soil and groundwater contamination cleanup program since the 1980s. Contaminated sites included liquid waste in unlined and lined lagoons and basins, open burning and detonation areas, and landfills that received both liquid and solid wastes.

In FY84, the Army completed a preliminary assessment and site inspection that identified 179 potentially contaminated sites. Subsequently, the installation was divided into two operable units (OUs): the On-Post OU and the Off-Post OU. The Army completed remedial investigation and feasibility study activities at both OUs by FY96. Identification of additional sites raised the total number to 209.

The Army has completed 14 emergency responses at 17 sites at the arsenal. Four groundwater extraction and treatment systems have been installed on site, and one off site. In FY90, 10.5 million gallons of chemical wastewater and 580,000 cubic yards of contaminated soil were removed from the Basin F area. Hundreds of drums of waste and tons of asbestos and related materials were disposed of off post. The installation closed 450 abandoned wells and the sewer systems in the South Plants, and closed and removed the former hydrazine blending facility.

The Army converted its technical review committee to a Restoration Advisory Board (RAB) in FY94. In FY96, the Army and regulators signed Records of Decision (RODs) for both OUs. An oversight partnership formed in FY96 and developed a remedial design (RD) implementation schedule for the On-Post OU in FY97. The Army completed RDs for chemical and sanitary sewer plugging and for trench remediation. The design for the consolidation area within Basin A was also completed.

In FY98, the Army completed remedial actions (RAs) for chemical and sanitary sewer plugging, off-post soil tillage, the off-post water supply system, and modification of the north boundary containment system for treatment of N-nitrosodiumthyamine. RD was completed for four of the Phase I (outlying area) RAs.

In FY99, the Basin A consolidation area, Phase I of the hazardous waste landfill (HWL) construction, and the landfill wastewater treatment system reached Construction Complete status and became operational. An RA was completed for the off-post well closure. RD for seven RAs was completed, and four RDs for Phase II RAs began.

In FY00, the Army completed the RA for the post-ROD removal actions for structures. RAs were completed for four Phase I projects and the confined flow system well closure project. RD was also completed for the four remaining Phase I projects and one of the Phase II projects. Treatability studies were completed for two Phase II projects.

FY01 Restoration Progress

The installation completed the RD for three Phase II projects and one Phase III project. The Army awarded RA contracts for two Phase II projects and two Phase III projects. The RAs for two Phase I projects were completed. The installation issued construction completion reports for the final early start project (Shell/Complex (Army) Disposal Trenches Slurry Walls) RA. The contractor completed construction of Cell 2 of the on-site HWL and operations began. The Army completed the CERCLA 5-year site review as planned. The Army completed destruction of 10 M-139 nerve agent–filled bomblets (non-stockpile) as part of a Phase I project. It also completed the field-testing portion for the RCRA cap equivalency project under the installationwide programs. Operation of groundwater treatment systems and water acquisition tasks continued. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues.

Development of additional sampling plans and an explanation of significant differences delayed the RD for the Phase III Section 35 soil remediation project. The RA for the Phase II South Plants balance of areas soil remediation project was delayed by a need for additional monitoring.

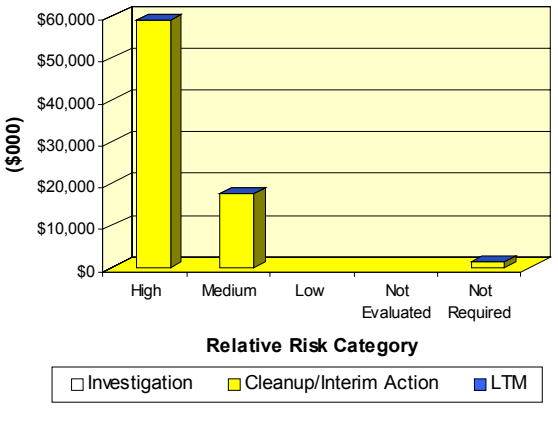
Military Munitions Response Program Progress

Previously, clearance of unexploded ordnance has occurred in support of the restoration program. See Progress to Date and FY01 Restoration Progress sections for more information. An inventory of closed, transferred and transferring ranges will be developed in the future.

Plan of Action

- Complete RD for the last disposal facility landfill, and two Phase III projects in FY02
- Complete RA for one Phase I project, three Phase II projects, and one Phase IV project in FY02
- Award RA contracts for one Phase II, two Phase III, and one Phase IV projects in FY02
- Continue implementing installationwide programs and operating groundwater treatment systems in FY02–FY03
- Complete deletion of approximately 940 acres of the arsenal from the National Priorities List in FY02
- Complete 5-year review as planned

FY02 Funding by Phase and Relative Risk



Sacramento Army Depot

Sacramento, California

NPL/BRAC 1991

FFID:	CA921382078000	**Media Affected:**	Groundwater and soil
Size:	485 acres	**Funding to Date:**	$60.0 million
Mission:	Repaired and maintained communications and electronic equipment	**Estimated Cost to Completion (Completion Year):**	$8.8 million (FY2012)
HRS Score:	44.46; placed on NPL in July 1987	**Final RIP/RC Date for BRAC-ER Sites:**	FY1997
IAG Status:	IAG signed in 1988	**Five-Year Review Status:**	Completed/Planned
Contaminants:	Waste oil and grease; solvents; metal plating wastes; and wastewater containing caustics, cyanide, and metals		

Progress to Date

In July 1987, the BRAC Commission recommended closure of the Sacramento Army Depot. The Army closed the installation in March 1995.

Environmental studies at the installation identified 16 sites that required further action. The sites were divided into four operable units (OUs). The installation conducted remedial investigation and feasibility study (RI/FS) activities for the four OUs between FY89 and FY92, and an installationwide RI/FS began in FY92. The Army and regulatory agencies signed Records of Decision (RODs) for all four OUs. The Army completed the remedial actions (RAs) for all sites, except the groundwater cleanup, which requires long-term operations.

In FY93, the installation completed the RA at the Tank No. 2 OU, using a soil vapor extraction (SVE) system to clean up soil contaminated with organic solvents. In FY94, air sparging was used to treat soil and groundwater at Parking Lot 3 and the Freon 113 areas. Operation of an SVE system achieved Phase I cleanup goals at the south post burn pits, the source of off-site ground water contamination. The installation completed a BRAC cleanup plan and a CERFA report. The installation commander formed a Restoration Advisory Board in FY94.

In FY95, an installationwide ROD and the environmental impact statement for disposal and reuse were completed and signed. The Army conducted asbestos, lead-based paint, and radiation surveys of all the buildings.

In FY96, Sacramento Army Depot removed the source of groundwater contamination and completed an RA at the oxidation lagoons and the south post burn pits. The Nuclear Regulatory Commission (NRC) approved closeout of the NRC license. In addition, EPA concurred in the Army determination that the treatment system at Parking Lot 3 is in place and functioning as designed. In FY98, the installation developed findings of suitability to transfer (FOSTs) and BRAC disposal support packages (BDSPs) for two of the last three transferring parcels. In FY99, the FOSTs and BDSPs were approved. The installation has received an Operating Properly and Successfully designation from regulators for the south post groundwater treatment plant. The U.S. Army Environmental Center and its groundwater extraction and treatment effectiveness review team conducted an independent technical review.

In FY00, the installation submitted the FOST, BDSP, and covenant package for the final parcel to the regulators. The Army discontinued treatment of discharged groundwater at both the groundwater treatment plant and Parking Lot 3 due to diminished levels of trichloroethene contamination. The transfer of the first of the final three parcels was completed. The City of Sacramento received 16.9 acres in the transfer.

FY01 Restoration Progress

The Army completed the 5-year review as planned. The installation initiated the closeout and monitoring plan for parking Lot 3 and the installationwide closeout and monitoring plan. The closure plan for the horizontal wells and subsequent destruction of the wells were completed. The installation received regulatory concurrence on the FOST for the final parcel. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues.

The Army completed the first round of the groundwater optimization study; however, regulator concerns must be addressed. Legal and administrative issues delayed the transfer of the second of the three parcels.

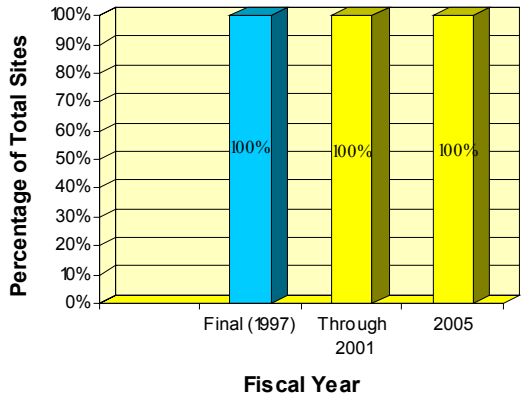
Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Receive approval for 5-year review in FY02
- Complete Parking Lot 3 closeout and monitoring plan and submit for regulatory approval in FY02
- Complete destruction of horizontal wells in FY02
- Develop installationwide closeout and monitoring plan after resolution of plume capture issues and related groundwater modeling in FY02
- Complete transfers of remaining two parcels (Parcel 2B and 3) to City of Sacramento local redevelopment authority in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



San Bernardino Engineering Depot

San Bernardino, California

NPL

FFID:	CA99799F558700	**Funding to Date:**	$6.3 million
Size:	1,663 acres	**Estimated Cost to Completion (Completion Year):**	$1.2 million (FY2005)
Mission:	Served as World War II Engineer storage depot, Quarter master repair facility, and prisoner of war camp	**Final RIP/RC Date for ER Sites:**	FY2005
		Final RIP/RC Date for MMRP Sites:	FY1995
HRS Score:	Unknown	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	TCE, PCE, and freon 11 and 12		
Media Affected:	Groundwater		

Progress to Date

The property comprising San Bernardino Engineering Depot was leased by the U.S. Army beginning on December 15, 1941. The depot was used for military storage, as a tent repair facility, and as a prisoner of war camp. The site served as part of the Communications Zone of the Desert Training Center, a large multistate area where troop maneuvers were held. Operations included routine vehicle maintenance, supply, storage, tent repair, motor pool operations, a sewage disposal system, and a station hospital. The camp was closed in mid-1947, and all leases were terminated by the end of 1948. Uses of the property after the Army's departure included a steel rolling mill, mineral processing, machine shops, steel fabrication, poultry farms, agricultural commodities storage, gasoline service stations, and various private manufacturing and warehousing operations.

There are five parcels of depot property within the Newmark Groundwater Contamination site. This site was added to the National Priorities List (NPL) in 1989 after discovery of groundwater contamination. The Newmark and Muscoy Operable Units (OUs) are located on the east and west sides of the site, respectively.

The discovery of tetrachloroethene (PCE) and trichloroethene (TCE) in the groundwater resulted in the closure of a number of water supply wells. The state brought some of the wells back into operation by installing air-stripping towers on eight wells and carbon filtration systems on the other four.

An EPA investigation was initiated in FY90 to identify the source of the Newmark plume contaminants and to identify ways of controlling continued downgradient migration while removing contaminants. Remedial investigation and feasibility study activities were conducted in FY91, FY92, and FY95, and two Records of Decision were completed in FY93 and FY94. In FY92, an investigation of the Muscoy OU began.

To determine the nature and extent of contamination, the U.S. Army Corps of Engineers has researched military archives; conducted interviews; performed seismic and magnetometer surveys of the subsurface, soil gas sampling, and soil borings; and constructed six monitoring wells.

In FY98, consultation with the U.S. Fish and Wildlife Service was completed concerning potential impacts on several endangered species. In FY99, installation of 11 soil gas borings (0 to 150 feet), installation of 3 groundwater monitoring wells, and testing of groundwater were completed in the area of the former sewage treatment facility. A site investigation report was submitted. In FY00, investigation of the upper portion of Parcel 1 of the former engineering depot was completed.

FY01 Restoration Progress

Site investigation reports for the upper portions of Parcel 1 were completed and are being reviewed. The review was completed, and comments received. A fourth work plan is under review, and comments are being resolved. No new data were acquired that indicated the presence of contaminant plumes.

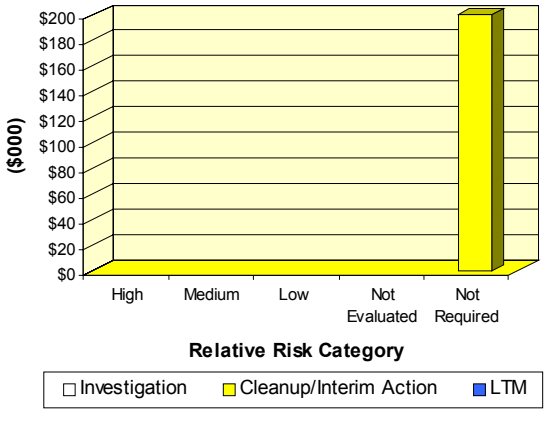
Military Munitions Response Program Progress

In FY95, an archive search report was completed and a declaration of No Defense Action Indicated was issued.

Plan of Action

- Complete review cycle and obtain comments on the site investigation reports for upper portions of Parcel 1 in FY02
- Complete review cycle for, and receive comments on, fourth work plan in FY02
- Implement the fourth work plan in FY02
- In FY02, evaluate all data that indicate presence of contaminant plumes for possibility of surface releases in FY02

FY02 Funding by Phase and Relative Risk



San Diego Naval Training Center

San Diego, California

BRAC 1993

FFID:	CA917002320200	**Funding to Date:**	$33.0 million
Size:	541 acres	**Estimated Cost to Completion (Completion Year):**	$3.9 million (FY2009)
Mission:	Provided recruit training for enlisted personnel and specialized training for officers and enlisted personnel	**Final RIP/RC Date for BRAC-ER Sites:**	FY2002
		Final RIP/RC Date for ER Sites:	FY2009
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	Paint, pesticides, solvents, and POL		
Media Affected:	Soil, sediment, and groundwater		

Progress to Date

In July 1993, the BRAC Commission recommended closure of this installation and relocation of personnel, equipment, and mission support to other naval training centers. Certain installation facilities and activities will be retained to support other Navy operations in the San Diego area. The installation closed in April 1997.

In FY86, an initial assessment study identified 12 sites that might present environmental problems: 5 sites are being addressed under CERCLA; 7, under the underground storage tank (UST) program. Sites include a landfill and petroleum-contaminated areas. In FY91, a site inspection (SI) was completed at one UST site and an SI and a Phase I remedial investigation (RI) were completed at another. In FY92, free product was removed from a UST site.

In FY94, the installation completed an interim removal action at a landfill. An environmental baseline survey (EBS), identified 85 points of interest (POIs), later increased to 93. Many POIs were designated for no further action. A BRAC cleanup team was also established. A revised EBS was completed in FY95, and a preliminary assessment (PA) was completed for three sites. Remedial designs were completed for two sites. An expanded SI (ESI) was completed for one UST site. Petroleum-contaminated soil was removed from three UST sites. Human health and ecological baseline risk assessments were completed for one site.

In FY96, the installation completed an ESI and initiated an engineering evaluation and cost analysis (EE/CA) for one site. SIs were completed for two sites. An EBS identified two additional sites under the CERCLA program, and a PA/SI was completed. The installation completed an investigation at four UST sites, a corrective action plan (CAP) for two UST sites, and excavation of contaminated soil at another UST site. Cleanup began at the two sites covered by the CAP. During FY97, the installation began an RI for one site. Cleanup of Sites 7 and 10 was completed.

In FY98, the installation completed site assessments for the remaining 18 POIs. Long-term operations at Site 11 were completed. The interim remedial action at Site 1 was completed, and a basewide groundwater study began.

In FY99, the installation signed the Record of Decision (ROD) for an environmental impact statement, transferred Site 3 to the San Diego Marine Corps Recruit Depot, and closed Site 8. The installation also completed a closure report for Site 10 and completed an EE/CA, an action memorandum, and a remedial action for Site 14 and an ESI for Site 15. In addition, the installation's BRAC cleanup plan was updated.

In FY00, investigation and removal efforts were initiated for USTs discovered at Building 361. Asbestos removal efforts were completed. The EE/CA and the finding of suitability for early transfer for the Site 1 landfill were completed. A business plan was completed. Negotiations continued between the Navy and the regulatory agency team toward the No Action designation recommended in the Site 12 (boat channel) draft RI report.

A community relations plan was developed in FY92 and updated in FY95. A Restoration Advisory Board and an information repository containing the most current documents of the administrative record were established in FY94.

FY01 Restoration Progress

The installation executed the early transfer of the Site 1 landfill to the Port of San Diego. The formal No Further Response Action designations for Site 15 and the USTs at Building 361 were obtained. Findings of suitability to transfer documents and final transfers were completed for all parcels except the two parcels associated with Site 12 boat channel. The Navy continued to negotiate with the Regional Water Quality Control Board regarding the RI recommendation of no action for Site 12. The cost of completing environmental restoration at this installation has changed significantly due to estimating criteria issues.

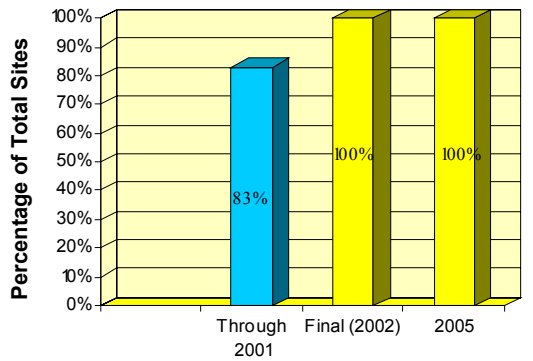
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- If necessary, develop a feasibility study for Site 12 in FY02
- If necessary, develop a proposed plan, FOST, and ROD for Site 12 in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



San Fernando (Area 1)
Formerly Air Force Plant No. 14

Burbank, California

NPL

FFID:	CA99799F530400	**Funding to Date:**	$1.6 million
Size:	520 acres	**Estimated Cost to Completion (Completion Year):**	$0.01 million (FY2004)
Mission:	Designed, manufactured, and repaired military aircraft	**Final RIP/RC Date for ER Sites:**	FY2004
HRS Score:	42.24; placed on NPL in June 1986	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	Chlorinated solvents, chromium, and petroleum hydrocarbons		
Media Affected:	Groundwater and soil		

Progress to Date

The former Air Force Plant No. 14 is located in the Burbank Operable Unit (OU) of the San Fernando Valley Superfund site. Since 1941, there has been a geographic, functional, and organizational relationship among Air Force Plant No. 14; two Plancors, 236 and 1193; and Lockheed Martin Corporation's plants and air terminal. The facilities were used for the design, manufacture, and repair of military and civilian aircraft. Air Force Plant No. 14, a government-owned, contractor-operated facility, was established in 1947. In 1974, all property owned by the Air Force was conveyed to Lockheed Martin Corporation. Since DoD's disposal of this property, Lockheed has used the facilities for the design and production of missiles, satellites, and military and commercial aircraft.

In late 1980, groundwater contamination was discovered in water supply wells in Burbank, California. The wells contained the chlorinated solvents trichloroethene and tetrachloroethene (PCE). The results of a groundwater monitoring program conducted from 1981 through 1987 indicated that approximately 50 percent of the water supply wells in the eastern portion of the San Fernando Valley groundwater basin were contaminated.

In 1984, Lockheed began conducting extensive site investigations to find the sources of the groundwater contamination and to determine the extent of the contaminated groundwater's migration off site. A number of sources of contamination were found, including a waste disposal area, underground storage tanks, a chip recovery area, sumps, clarifiers, degreasers, and pipes. PCE was found in the groundwater. In June 1986, the Burbank OU was placed on the National Priorities List (NPL).

In FY88, Lockheed received a cleanup and abatement order for soil and groundwater remediation at Plant B-1, Building 175. Soil and groundwater were remediated by an integrated soil vapor extraction (SVE) and groundwater treatment system.

In FY89, EPA signed the Record of Decision (ROD) for remediation of groundwater at the Burbank OU. The groundwater pump-and-treat system associated with this ROD is located southwest of Plant B-1.

In FY96, Lockheed Martin began operating the groundwater pump-and-treat system at Plant B-1. Lockheed also constructed an SVE system, which is now operating at the property.

In FY97, Lockheed Martin filed a CERCLA cost recovery lawsuit against the United States seeking more than $500 million. In FY99, the Department of Justice (DOJ) settled the lawsuit concerning CERCLA cost recovery.

FY01 Restoration Progress

No remedial action occurred this year, as a result of the settlement of the lawsuit between DOJ and Lockheed Martin.

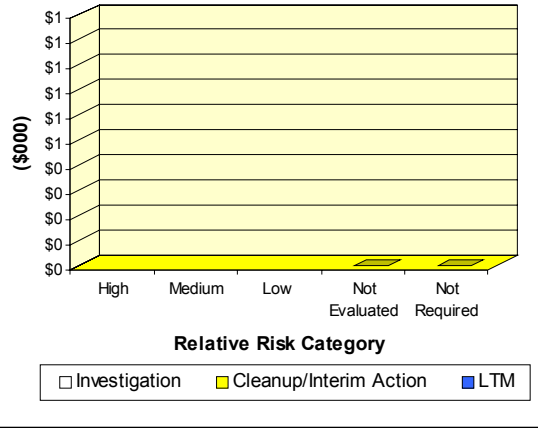
Military Munitions Response Program Progress

USACE has identified no previous military munitions response work at this installation.

Plan of Action

This will be the last narrative for San Fernando (Area 1), since no further action is required by DoD. Lockheed Martin has now assumed responsibility for remediation of the property in a signed agreement with DoD.

FY02 Funding by Phase and Relative Risk



Sangamo Electric Dump/Crab Orchard National Wildlife Refuge

Formerly Illinois Ordnance Plant

Carterville, Illinois **NPL**

FFID:	IL59799F221600	**Funding to Date:**	$0.9 million
Size:	43,000 acres	**Estimated Cost to Completion (Completion Year):**	$32.3 million (FY2044)
Mission:	Manufacture and load ordnance for shipping	**Final RIP/RC Date for ER Sites:**	FY2017
HRS Score:	43.70; placed on NPL in July 1987	**Final RIP/RC Date for MMRP Sites:**	FY2044
IAG Status:	IAG signed in September 1991	**Five-Year Review Status:**	NA
Contaminants:	Organic solvents, inorganic compounds, PAHs, PCBs, munitions, and heavy metals		
Media Affected:	Groundwater and soil		

Progress to Date

The former Illinois Ordnance Plant, which operated from 1942 to 1945, is located on the eastern portion of the U.S. Fish and Wildlife Service's (USFWS's) Crab Orchard National Wildlife Refuge. The ordnance plant served as a manufacturing and loading site for high-explosive shells, bombs, and other weapons components.

Initially, thirty-three areas were identified that required further investigation. These areas were grouped into four operable units (OUs): the polychlorinated biphenyl (PCB) OU, the Metals OU, the Miscellaneous Area OU, and the Explosives and Munitions Manufacturing Area OU. EPA was established as the lead agency for the PCB OU through a consent decree issued to Sangamo Electric, Inc. The USFWS is responsible for the Metals OU and the Miscellaneous Area OU. The Department of the Army, represented by the U.S. Army Corps of Engineers (USACE), is responsible for the Explosives and Munitions Manufacturing Area OU.

In FY88, a preliminary assessment (PA) was conducted at the areas associated with the ordnance plant. A site inspection (SI) focusing on 14 areas also was completed. Results of the PA and the SI did not indicate widespread contamination. Two surface munitions bunkers were demolished in FY92. Other unsafe buildings were demolished in FY93.

In FY93, a remedial investigation (RI) and a feasibility study (FS) were completed for the PCB OU and the Metals OU. A Record of Decision (ROD) designating the environmental restoration remedy for the Metals OU was signed, and most remedial design and remedial action (RA) activities for that OU were completed in FY95. The ROD for the PCB OU was completed.

An RI was completed to study the presence and magnitude of contamination at the Explosives and Munitions Manufacturing Area OU. Fieldwork at the OU included installation of monitoring wells, collection of soil borings and sediment samples, and excavation of magnetic anomalies. In FY95, the FS for this OU was completed, and the RI began at the Miscellaneous Area OU.

In FY97, the ROD for the Explosives and Munitions Manufacturing Area OU was signed and cleanup of the PCB OU was completed. Formal partnering between USACE, EPA, Illinois EPA, and USFWS began.

During FY98, risk evaluations were completed for all sites. The RA for hazardous, toxic, and radioactive waste and ordnance and explosives waste (OEW) at the Explosives and Munitions Manufacturing Area OU began.

FY01 Restoration Progress

All restoration work completed pertained to the Military Munitions Response program. The estimated cost of completing environmental restoration at this installation has changed significantly because of technical issues.

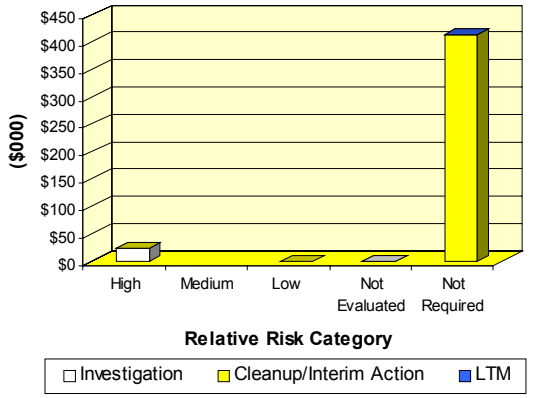
Military Munitions Response Program Progress

In FY96, USACE began fieldwork for the OEW engineering evaluation and cost analysis. The parties involved determined that USFWS must provide preliminary investigations for uncharacterized sites. During FY98, the RA for OEW at the Explosives and Munitions Manufacturing Area OU began. In FY01, the RA for the Explosives and Munitions Manufacturing Area OU was completed as planned; all ordnance has been removed. The RA will be completed when trees are planted for erosion control, which is scheduled for the coming year.

Plan of Action

- Plant trees for erosion control to complete RA in FY02

FY02 Funding by Phase and Relative Risk



Savanna Army Depot
Savana Depot Activity

Savanna, Illinois

NPL/BRAC 1995

FFID:	IL521382080300	**Funding to Date:**	$87.4 million
Size:	13,062 acres	**Estimated Cost to Completion (Completion Year):**	$110.1 million (FY2023)
Mission:	Receive, store, and demilitarize ammunition; manufacture ammunition-specific equipment	**Final RIP/RC Date for BRAC-ER Sites:**	FY2015
		Final RIP/RC Date for MMRP Sites:	FY2011
HRS Score:	42.20; placed on NPL in March 1989	**Five-Year Review Status:**	NA
IAG Status:	IAG signed in 1989		
Contaminants:	Explosives, metals, solvents, POLs, and VOCs		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

In July 1995, the BRAC Commission recommended closure of the Savanna Depot Activity and relocation of the U.S. Army Defense Ammunition Center and School to McAlester Army Ammunition Plant in Oklahoma. The installation began operation in 1917 as the Savanna Proving Grounds. During the 1920s, the mission changed to include storage, receipt, issuance, demilitarization, and renovation of ammunition.

Contaminants were released at landfills; the open burning and open detonation ground; the fire training area; and ammunition load, assemble, and pack facilities. Remedial investigation and feasibility study (RI/FS) activities, beginning in FY89, delineated the extent of explosives-contaminated groundwater, soil, and sediment at all sites.

In FY90, a remedial action began at the TNT washout lagoons to remove contaminated sediment. In FY92, the Army and regulators signed a Record of Decision approving incineration of TNT-contaminated soil and sediment from the site.

In FY93, the Army began using high-temperature thermal treatment for cleanup of volatile organic compound (VOC)–contaminated soil at the fire training area. In FY94, the installation completed incineration of TNT-contaminated sediment.

In FY95, the installation completed a trial burn for the high-temperature thermal treatment system at the fire training area.

In FY96, the Army formed a BRAC cleanup team (BCT) and a Restoration Advisory Board (RAB). The installation drafted the RI/FS report for sites with anticipated cleanups. It also completed RCRA closure and cleanup activities at the ammunition deactivation furnace. The BCT completed a draft environmental baseline survey (EBS) report and submitted it for regulatory review.

In FY97, the installation completed cleanup of the fire training area and completed a BRAC cleanup plan. In FY98, it developed the design for the cleanup of the reserve motor pool and completed the remediation of the polychlorinated biphenyl vault.

In FY99, the Army completed the open burning grounds (OBG) soil pile removal and submitted the OBG ecological risk assessment (ERA) sampling plan to the regulators for review. The Army updated the CERFA report and the EBS. The depot submitted a work plan to the regulators for review. The installation completed fieldwork at the OBG in FY00.

FY01 Restoration Progress

The installation obtained funding and began design work for the removal action on the old battery storage and small-arms/artillery tunnel areas. The removal action itself was delayed due to higher priority requirements. Work is ongoing on the overall depot RI/FS project. Funding was obtained and design work began on removals for Site 76 and Site 24. The Army completed all laboratory work for the OBG ERA project and initiated development of the RI Report. The Army delayed the removal action for the pesticide burial area because it is conducting additional field work to obtain more favorable cleanup criteria than were proposed by the Illinois EPA. Policy issues on lead-based paint delayed the transfer of the first four parcels of land. The BCT is working to resolve issues regarding additional fieldwork requested by regulators.

The RAB met to discuss projects, policies, and the accomplishments of the Strategic Management, Analysis, Requirements, and Technology (SMART) team. The team worked sucessfully to resolve environmental issues to include assissting BCT in finalizing remediation plans for a large pesticide burial area.

Military Munitions Response Program Progress

Response activities related to unexploded ordnance (UXO) have occurred in support of reuse. In FY99, the installation began a UXO engineering evaluation and cost analysis (EE/CA) to identify areas that require UXO remedies before the property is transferred. It also completed the UXO EE/CA project on the upland portions of the installation in FY00.

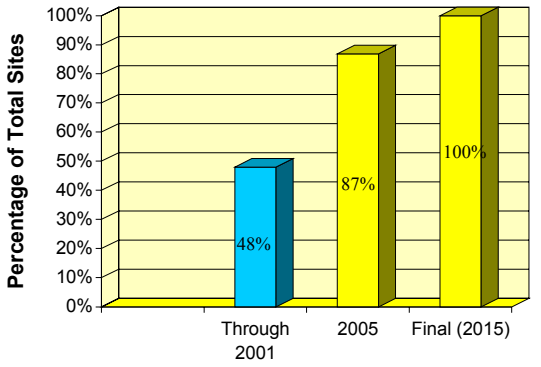
In FY00, at the request of Congressman Manzullo, a SMART team was formed at Savanna to address ordnance and explosives hazards at the installation. The team comprises senior- level officials from the Army, EPA, IEPA, and USF&WS. The SMART team worked successfully to resolve UXO issues including redefining the 1917-1918 range fire fans as being nearly 50 percent smaller in acreage than previously documented in the ASR. This will open the way for public access to the installation's backwaters and speed transfer of property to the USFWS.

An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete removal actions for the pesticide burial area, the CF pour facility leaching field, the APE shop rear dock, the nitric acid storage area, and the artillary tunnel test site (mounds) small-arms/artillery tunnel area in FY02
- Initiate the site inspection of eight suspected chemical warfare material disposal and storage sites in FY02
- Complete Phase II UXO ordnance and explosives SI for Zone L and, initiate other Phase I investigations in other high-priority areas in FY03
- Complete 5-year review as planned

BRAC Sites Achieving RIP or RC Per Fiscal Year



Seneca Army Depot

Romulus, New York

NPL/BRAC 1995

FFID:	NY221382083000	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	10,594 acres	**Funding to Date:**	$77.0 million
Mission:	Received, stored, distributed, maintained, and demilitarized conventional ammunition, explosives, and special weapons	**Estimated Cost to Completion (Completion Year):**	$57.4 million (FY2005)
		Final RIP/RC Date for BRAC-ER Sites:	FY2005
HRS Score:	37.30; placed on NPL in August 1990	**Final RIP/RC Date for MMRP Sites:**	FY2005
IAG Status:	Federal facility agreement signed in January 1993	**Five-Year Review Status:**	NA
Contaminants:	Chlorinated solvents, radioactive isotopes, heavy metals, and petroleum hydrocarbons		

Progress to Date

In July 1995, the BRAC Commission recommended closing Seneca Army Depot, except for an enclave that will store hazardous materials and ores. The installation closed in September 2000.

During its operation, the installation stored munitions and supplies and distributed them to the Army. Such operations included demilitarization and disposal of munitions and explosives. Since FY78, studies have identified the following sites or site types: an open burning (OB) ground, an ash landfill, other landfills, low-level radioactive waste burial grounds, underground storage tanks (USTs), spill areas, fire training areas, and munitions disposal areas.

In FY94, the installation completed a solid waste management classification study, identifying 72 solid waste management units. Thirty-six units required either no further action (NFA) or completion reports, 8 required removal actions, and 28 required remedial investigations and feasibility studies (RI/FSs). The 28 sites requiring RI/FSs were divided into 13 groups. Interim actions included removal of several USTs and associated contaminated soil. In FY95, the installation completed a removal action at the ash landfill. Approximately 35,000 cubic yards of soil was removed and treated.

In FY96, the installation completed RI/FSs for the first two groups of sites and drafted a proposed plan. RI/FS work plans began for the remaining groups. The installation converted its technical review committee to a Restoration Advisory Board (RAB) and established a BRAC cleanup team (BCT). It also submitted a draft CERFA report to the regulatory agencies for concurrence. The community formed a local reuse authority and began developing a land reuse plan.

In FY97, the installation completed an environmental baseline survey. In FY98, it completed an environmental impact statement for BRAC closure. The installation changed an RI to an engineering evaluation and cost analysis (EE/CA) for a removal action and began two additional removal actions. The installation initiated a treatability study (TS) for reactive wall treatment of the trichloroethene plume and began remedial designs for the ash landfill and the OB ground.

In FY99, the Army completed the Record of Decision (ROD) for the OB ground. The installation prepared a NFA decision document.

In FY00, the installation closed as scheduled. The Army transferred the prison site and the north depot properties. A TS for an iron filing reactive wall demonstrated that the method was successful as an in situ treatment.

FY01 Restoration Progress

The BCT meets every other month to discuss issues, reuse priorities, and overall progress. The RAB continued to meet regularly. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues.

Proposed plans at the ash landfill, fire training areas, munitions washout area, and deactivation furnaces were delayed due to negotiation of cleanup levels. Utility issues delayed execution of leases prepared for the airfield parcel and the Phase II industrial area. Radiation surveys were delayed due to work plan issues with NRC.

Military Munitions Response Program Progress

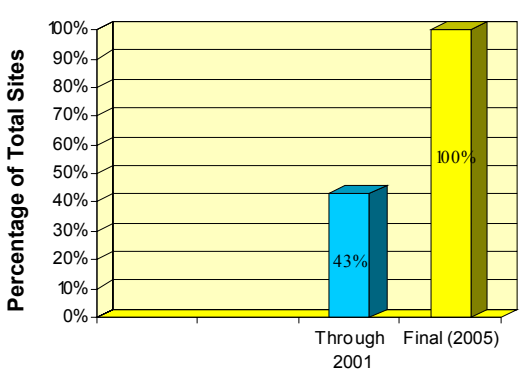
The Military Munitions Response program is new this fiscal year. Previously, clearance of unexploded ordnance (UXO) has occurred in support of reuse. In FY99, the installation began an UXO EE/CA to identify areas that require remedies before the property is transferred. It also completed the UXO EE/CA project on the upland portions of the installation in FY00.

An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete RODs for ash landfill, fire training areas, and deactivation furnaces in FY02.
- Complete interim remedial actions (IRAs) at radioactive waste burial site, sludge piles, and paint disposal areas in FY02
- Complete NFA RODs in FY03
- Investigate small-arms range at the airfield and perform IRAs in preparation for transfer in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Sierra Army Depot

Herlong, California

BRAC 1995

FFID:	CA921382084300	**Contaminants:**	Petroleum products, solvents, and explosives
Size:	36,322 acres	**Media Affected:**	Groundwater and soil
Mission:	Receive, store, and maintain conventional ammunition to support demilitarization of conventional ammunition and receive, store, maintain, and issue operational project stocks and general supplies	**Funding to Date:**	$42.4 million
		Estimated Cost to Completion (Completion Year):	$9.9 million (FY2006)
		Final RIP/RC Date for BRAC-ER Sites:	FY2000
		Final RIP/RC Date for ER Sites:	FY2004
HRS Score:	NA	**Final RIP/RC Date for MMRP Sites:**	FY2003
IAG Status:	Two-party federal facility agreement signed in May 1991	**Five-Year Review Status:**	Under Way/Planned

Progress to Date

In 1995, the BRAC Commission recommended realignment of Sierra Army Depot. Approximately 4,537 acres was identified as excess. Contamination at the depot originated from burn trenches, explosives leaching beds, landfills, burial sites, spill sites, sewage lines, underground storage tanks, sumps, and fire training areas. Primary contaminants in soil and groundwater include trichloroethene (TCE), petroleum products, and explosives. Investigations identified 23 sites; 12 sites required no further action (NFA).

Restoration activities in FY95 included a bioventing project at the active fire training area and signing of a Record of Decision (ROD) for nine sites, for seven of which monitored natural attenuation (MNA) was recommended as the remedy. The Army completed a design using composting to treat soil contaminated with explosives. In FY96, the Army developed a design for preventing off-post migration of a TCE-contaminated ground water plume. It also developed an early warning groundwater transducer program to monitor petroleum and TCE plumes near the potable water supply network. By the end of FY96, RODs had addressed 17 of Sierras 23 sites. Also in FY96, the installation formed a BRAC cleanup team. The latest version of the BRAC cleanup plan was published in FY97.

In FY97, the Army completed an environmental baseline survey and finished a report of availability and an environmental condition of property (ECP) report for the BRAC cantonment parcel. The installation updated its community relations plan and used the plan to establish a Restoration Advisory Board.

In FY98, the BRAC range was remediated and closed. The installation also completed a removal action for the BRAC construction debris area. Preliminary screening at a contaminated-soil area indicated that the site required NFA. The installation also completed reviews of three ECPs. The Army signed RODs for the Defense Reutilization and Marketing Office site. The selected remedy includes active bioventing of soil with a hot-spot removal, and natural attenuation for groundwater. The installation completed soil removals to close two other sites.

In FY99, the installation completed one property transfer to the Federal Bureau of Prisons. It also completed the final two remedial investigation reports, and remediated the TNT soil area, Building 1003 soil, and the large sewage treatment pond beds. Biocomposting was completed. The installation began cleanup of a diesel-contaminated soil site.

In FY00, the Army initiated installation and operation of the groundwater remediation system.

FY01 Restoration Progress

The installation initiated the 5-year review of MNA at the TNT area. It also completed all BRAC cleanup. In addition, BRAC property, excluding the ordnance impacted area, is on schedule for transfer. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

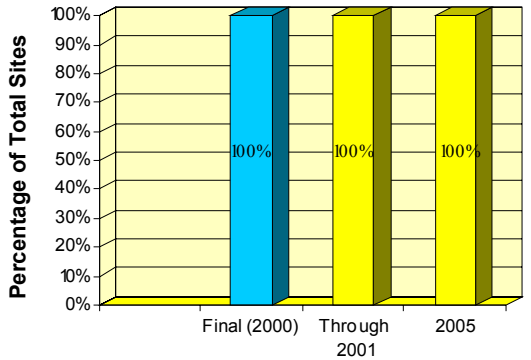
Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. Previously, response activities related to unexploded ordnance (UXO) have occurred in support of reuse. The Army completed a draft engineering evaluation and cost analysis (EE/CA) project design for the BRAC UXO areas. All depleted uranium munitions were removed in FY99. In FY00 federal, state, Susanville Indian Rancheria, and Lassen County Local Reuse Association representatives formed a stakeholders team to confirm reuse plans, allowing ordnance and explosives cleanup requirements to be developed. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete ordnance project EE/CA in FY02
- Complete ordnance remediation pending funding decision in FY02
- Complete 5-year review of MNA at the TNT area

BRAC Sites Achieving RIP or RC Per Fiscal Year



South Weymouth Naval Air Station

Weymouth, Massachusetts

NPL/BRAC 1995

FFID:	MA117002202200	**Contaminants:**	Petroleum hydrocarbons, solvents, acids, paints, metals, photographic chemicals, industrial wastes, and UXO
Size:	2,164 acres		
Mission:	Provided administrative coordination and logistical support for Reserve units; provided logistical support for the Marine Air Reserve Training Detachment South Weymouth	**Media Affected:**	Groundwater, surface water, sediment, and soil
		Funding to Date:	$26.9 million
		Estimated Cost to Completion (Completion Year):	$24.2 million (FY2035)
HRS Score:	50.00; placed on NPL in May 1994	**Final RIP/RC Date for BRAC-ER Sites:**	FY2005
IAG Status:	Federal facility agreement signed in April 2000	**Five-Year Review Status:**	NA

Progress to Date

In July 1995, the BRAC Commission recommended closure of the South Weymouth Naval Air Station (NAS). Operations were transferred to Brunswick NAS, and aircraft, personnel, and equipment were relocated. The installation was closed on September 30, 1997.

Initially, eight CERCLA sites and one RCRA underground storage tank (UST) site were identified at the installation. One CERCLA site, Site 6, is being investigated as a UST site. Prominent site types include a landfill, a tank storage area, a tank farm where jet fuel is stored, a rubble disposal area, and a fire training area.

The installation completed a preliminary assessment for five sites in FY88. From FY91 to FY93, the waste oil tank was removed from UST 1; a site inspection was completed for eight sites; and compressed chlorine gas cylinders, pesticide containers, and contaminated soil and liquids were removed from an old sewage treatment plant (Site 7). In addition, an initial investigation was completed for the UST site.

In FY94, NAS South Weymouth was placed on the National Priorities List (NPL). In FY95, additional contamination was identified at UST 1, and UST 2 was identified. A removal action for contaminated soil was completed for the site. In FY96, the Navy implemented a remedial investigation (RI) work plan for seven Installation Restoration Program (IRP) sites. The installation formed a BRAC cleanup team. A corrective action plan was completed for UST 1.

In FY97, the design for UST 1 and the corrective action for UST 2 were completed. In addition, Phase I of an environmental baseline survey (EBS) was finished. A geographic information system was implemented at the NAS.

In FY98, the draft RI Phase I report was finalized. The Agency for Toxic Substances and Disease Registry completed a draft public health assessment report for the installation. Surface debris resulting from practice bombing was cleared from the island. In FY99, the EBS Phase II work plan and the surface debris removal action for four IRP sites were completed.

In FY00, the installation completed the federal facility agreement and a site management plan. Remedial action for UST 1 was conducted. Two draft RI Phase II reports were completed. All IRP sites were reviewed as candidates for presumptive remedies and innovative and improved technologies. Interim remedial actions for two IRP sites were initiated.

The installation established a technical review committee in FY92 and converted it to a Restoration Advisory Board (RAB) in FY94. It established an administrative record and four information repositories in FY92 and completed its community relations plan (CRP). The CRP was updated in FY98. A BRAC cleanup plan was released. A Technical Assistance for Public Participation (TAPP) grant was awarded to the RAB in FY99.

FY01 Restoration Progress

The installation completed RI Phase II risk assessments and reports for Sites 2, 3, and 4. Feasibility studies (FSs) began for Sites 1 and 2, while Sites 3 and 4 were determined not to require FSs. A proposed plan (PP) and a Record of Decision (ROD) were initiated for Site 3. Two former UST sites were determined to include CERCLA waste in both the soil and the groundwater. Work is under way to prepare property for transfer. The cost of completing environmental restoration for this installation has increased significantly due to technical issues.

RI risk assessments and reports for Sites 1, 5, 7, and 8 were delayed by ongoing regulatory issues. The RAB did not submit a TAPP application as planned. The FSs for Sites 5, 7, and 8 were delayed because the RIs are still under way. The pilot study for Site 9 required an additional injection, delaying the completion of the pilot study and the initiation of the RI. The PP and the ROD for Sites 1, 2, and 4 were delayed due to additional data collection during the RI Phase II report writing period.

The RAB has continued to meet monthly, and site tours were conducted throughout the year. The partnering team, consisting of Navy and regulators, continued to meet monthly.

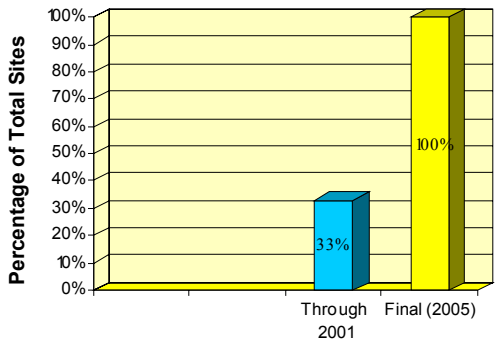
Military Munitions Response Program Progress

In FY01, an aerial magnetometry survey for military munitions was performed as part of the site closure strategy. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete RI Phase II risk assessments and reports for four sites and begin FSs for three sites in FY02
- Initiate the PP and the ROD for Site 4 in FY02
- Complete basewide watershed report and basewide ecological report in FY02
- Complete Site 9 (Building 81) pilot study on chemical oxidation process and proceed with an RI in FY02
- Complete PPs and RODs for six sites during FY02–FY03
- Complete RI for Site 9 and Site 10 (former UST site, now CERCLA site) in FY02–FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



St. Juliens Creek Annex

Chesapeake, Virginia

NPL

FFID:	VA317002758100	**Contaminants:**	Pesticides, heavy metals, explosives, SVOCs, and solvents
Size:	490 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Provide radar testing range and various administrative and warehousing facilities for the nearby Norfolk Naval Shipyard and other local Navy activities	**Funding to Date:**	$2.9 million
		Estimated Cost to Completion (Completion Year):	$24.1 million (FY2028)
		Final RIP/RC Date for ER Sites:	FY2010
HRS Score:	50.0; placed on NPL in August 2000	**Five-Year Review Status:**	NA
IAG Status:	None		

Progress to Date

Historically, this facility has been used since 1849 for storing, loading, assembling, issuing, and receiving naval gun ammunition. Initial investigations completed at the installation include an initial assessment study to identify and evaluate sites that pose a potential threat to human health and the environment. Contamination resulted from past handling of, and operations involving, hazardous materials. The assessment study revealed low concentrations of ordnance materials throughout the facility; however, the identified sites were determined to pose no threat to human health and the environment, and no confirmation study was needed.

In FY89, EPA Region 3 conducted a preliminary assessment (PA) addressing seven sites at the facility. No significant signs of contamination were found at the sites. The PA report indicated that various locations throughout the facility were contaminated with low-level residues of pesticide and herbicide materials.

A Phase II RCRA facility assessment in FY89 included a preliminary review of all available relevant documents and a visual site inspection of the annex, including 34 solid waste management units (SWMUs) and 12 areas of concern (AOCs). Eleven of the SWMUs and AOCs were recommended for a RCRA facility investigation, and nine other sites were identified for sampling. In addition, the Navy identified soil staining at another area, bringing the total number of sites requiring investigation to 21.

In FY96, a relative-risk ranking system data-collection report was issued incorporating results of sampling at 21 annex sites where no sampling data had previously been available. In FY99, 12 potential AOCs were identified for investigation during a joint EPA, Virginia Department of Environmental Quality, and Navy review of historical aerial photography of the facility. An administrative record was established.

In FY00, the installation developed work plans and conducted remedial investigation (RI) fieldwork for Sites 2 through 6. A background study began for soil. A site management plan and master project plans were completed. Also, a community relations plan (CRP) was drafted and a Restoration Advisory Board (RAB) was formed. The RAB participated in ecological and human health risk assessment training and site tours. Partnering training was initiated, and a facilitator was assigned to the regulatory partnership team, which consists of the Navy, EPA, the state, and contractor representatives.

FY01 Restoration Progress

The installation completed the CRP and the facility background concentration investigations. A final SI was completed for Site 17. A draft site screening assessment (SSA) was completed for 21 AOCs. The cost of completing environmental restoration at this installation has increased significantly due to estimating and technical criteria.

The final RI and feasibility study (FS) reports were delayed by additional fieldwork.

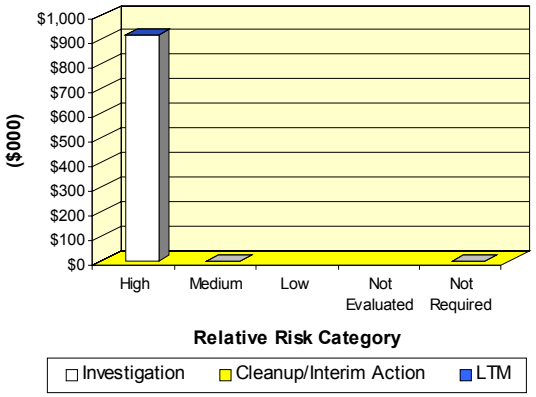
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Finalize designs for Sites 3 and 6 in FY02
- Initiate RA for Sites 3 and 6 in FY02
- Close out SSA sites in FY02
- Complete ecological risk assessment work plan for Sites 3, 4, 5, and 6 in FY02
- Complete SI work plan for Sites 8, 19, and 21 in FY02

FY02 Funding by Phase and Relative Risk

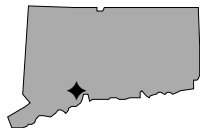


Stratford Army Engine Plant

Stratford, Connecticut

BRAC 1995

FFID:	CT121382292400	**Media Affected:**	Groundwater, soil, surface water, and sediment
Size:	124 acres	**Funding to Date:**	$17.1 million
Mission:	Manufacture engines for heavy armor vehicles and rotary wing aircraft	**Estimated Cost to Completion (Completion Year):**	$0.5 million (FY2004)
		Final RIP/RC Date for BRAC-ER Sites:	FY2003
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	PCBs, asbestos, fuel-related VOCs, solvents, metals, and PAHs		



Progress to Date

In July 1995, the BRAC Commission recommended closure of the Stratford Army Engine Plant. The installation closed in September 1998.

Since FY91, environmental studies at the installation have identified the following sites: transformers that contain polychlorinated biphenyls (PCBs), underground storage tanks (USTs), sludge lagoons, a fire training and explosives equipment testing area, hazardous materials and hazardous waste storage areas, and buildings constructed with asbestos-containing materials. Preliminary studies indicated that contaminants might include PCBs, fuel-related volatile organic compounds (VOCs), solvents, metals, polyaromatic hydrocarbons (PAHs), and asbestos.

Interim actions at the installation have included removal of 27 USTs, capping of two sludge lagoons, and capping of one large parking lot area to immobilize contaminated soil. The installation closed two USTs in place. In FY95, the installation began a remedial investigation (RI) to identify and characterize contamination and affected media throughout the installation.

In FY96, the Army appointed a BRAC environmental coordinator and formed a BRAC cleanup team. The commander formed a Restoration Advisory Board (RAB). The community formed a local redevelopment authority to address socioeconomic issues related to closure of the installation and to develop a land reuse plan. Phase II of the RI was completed. The installation began an asbestos survey of all buildings and started the NEPA process, including an archive search. A draft final environmental baseline survey (EBS) and a draft BRAC cleanup plan were completed and updated in FY97 and FY99.

In FY97, the installation received concurrence from the appropriate regulatory agencies on the EBS and CERFA reports. RI Phase III began. The installation implemented systems for monitoring schedules and budgets.

In FY98, the installation implemented a community relations plan, which includes establishment of a staffed on-site public information repository. The installation also began a time-critical removal action (TCRA) to address high concentrations of hexavalent chromium in soil in the old chrome-plating area. It began a major installationwide RI and feasibility study (FS) for a 76-acre upland portion of the property. The RI/FS includes performance of all risk assessments needed to expedite transfer of the property.

In FY99, the installation completed the investigation phase of two engineering evaluations and cost analyses (EE/CAs), one for Soils Operable Unit (OU) 01 (Causeway) and one for Groundwater OU02. The installation also completed a TCRA for the chrome-plating room.

In FY00, the installation completed the EE/CAs for OU01 Causeway and OU02 Groundwater. The Army submitted the decision document (DD) for OU01 Causeway for public comment. The installationwide RI was completed.

FY01 Restoration Progress

The installation revised the remediation strategy, electing to perform an installationwide RI/FS. The RI/FS will encompass the integration of DDs into the Record of Decision (ROD), completion of the proposed plan (PP) and ROD, resolution of the remedies for Causeway OU01 and Groundwater OU02, and initiation of all other proposed remedies. The revised scope delayed the completion of planned investigations. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

The RAB reviewed the draft RI report.

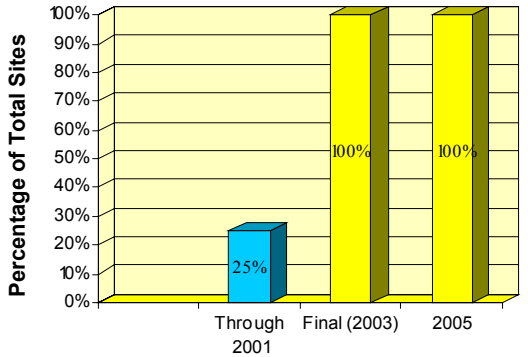
Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete the RI/FS in FY03
- Complete the PP and the draft ROD in FY03
- Complete the ROD in FY04

BRAC Sites Achieving RIP or RC Per Fiscal Year



Strother Army Airfield

Crowley County, Kansas

NPL

FFID:	KS79799F031800	**Funding to Date:**	$0.08 million
Size:	1,386 acres	**Estimated Cost to Completion (Completion Year):**	$0 (FY2000)
Mission:	World War II basic flying training station and tactical training station	**Final RIP/RC Date for ER Sites:**	FY2000
		Final RIP/RC Date for MMRP Sites:	FY1995
HRS Score:	Unknown; placed on NPL in May 1986	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	VOCs		
Media Affected:	Groundwater		

Progress to Date

The Strother Army Airfield near Winfield, Kansas, was declared as excess to the government in 1945. The property was transferred to the Strother Field Airport Commission in 1946, and the commission subsequently converted the property to a municipal airport and an industrial park.

On June 10, 1986, the Strother Field Industrial Park was placed on the National Priorities List (NPL). Samples collected and analyzed by the state indicated the presence of volatile organic compounds (VOCs), including trichloroethene, in groundwater. Two inactive solid waste landfills, which were used for disposal of various industrial wastes, exist at the property.

Until 1983, the Strother Field Airport Commission operated a water supply system, consisting of eight wells, on the property. The contaminated groundwater is no longer used for drinking but is still used for industrial processes. Drinking water was provided by trucks until the commission installed two wells upgradient of the contaminant plume. In 1985, General Electric, a potentially responsible party (PRP), installed groundwater extraction wells and air-stripping towers to remove VOCs from the groundwater, under an administrative order by the Kansas Department of Health and Environment.

The state oversaw an investigation by a PRP that identified the types of contaminants remaining in the groundwater and in other areas. The state then recommended a remedy for final cleanup of the property, which includes pumping and treating the groundwater and using soil vapor extraction to clean the soil. Design of the remedy began in late 1994.

In 1997, EPA notified the Kansas City District of the U.S. Army Corps of Engineers (USACE) about DoD's potential liability at the Strother Field Industrial Park Superfund site. DoD has conducted a preliminary evaluation of its liability and began to work with the Department of Justice (DOJ) and EPA to determine whether DoD should remain a PRP.

In FY98, USACE completed a limited historical investigation of DoD activities at the property and a study of the availability and use of solvents at World War II Army airfields. USACE and EPA conducted independent assessments of DoD liability and submitted their evaluations to DOJ.

In FY99, USACE negotiated a zero liability allocation with EPA. It also presented DoD's final position on its liability to DOJ management. USACE provided technical and historical support to DOJ, as requested.

In FY00, USACE received and evaluated DOJ's proposal concerning DoD liability and the settlement package offered to the private PRPs. It also continued to provide technical and historical support to DOJ, as requested.

FY01 Restoration Progress

Final settlement of DoD liability at the Strother Army Airfield was obtained in a consent decree entered on April 24, 2001. Final payment from the Judgment Fund was made on behalf of the Army on June 18, 2001.

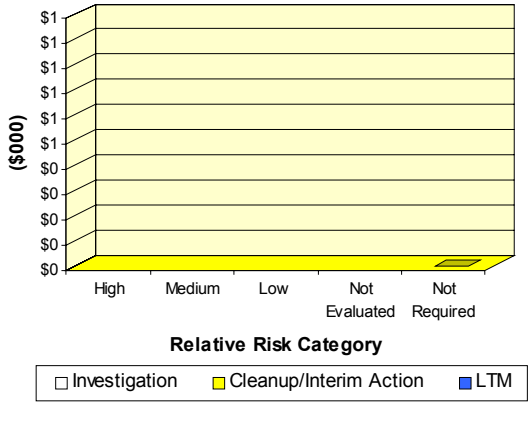
Military Munitions Response Program Progress

In FY94, USACE completed an ordnance and explosives (OE) site investigation. No OE was found; therefore, the installation received a no further action designation.

Plan of Action

This is the last narrative for Strother Army Airfield. DoD has no remaining liability at this property.

FY02 Funding by Phase and Relative Risk

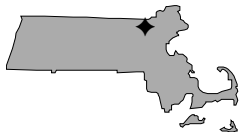


Sudbury Training Annex

Middlesex County, Massachusetts

NPL/BRAC 1995

FFID:	MA121402300900	**Funding to Date:**	$13.4 million
Size:	2,284 acres	**Estimated Cost to Completion (Completion Year):**	$0.8 million (FY2000)
Mission:	Train troops and test ordnance, materiel, and equipment	**Final RIP/RC Date for BRAC-ER Sites:**	FY2000
HRS Score:	35.57; placed on NPL in February 1990	**Five-Year Review Status:**	Completed/Planned
IAG Status:	IAG signed in May 1991		
Contaminants:	VOCs, PCBs, pesticides, and heavy metals		
Media Affected:	Groundwater and soil		



Progress to Date

In July 1995, the BRAC Commission recommended closure of the Sudbury Training Annex, a subpost of Fort Devens in eastern Massachusetts. Studies since FY80 identified several sites, including an old landfill, disposal and dump areas, a fire training pit, ordnance test areas, a leaching field, underground storage tanks (USTs), a drum storage area, a burning ground area, and a chemical research and development area. In FY86, remedial investigation and feasibility study (RI/FS) activities confirmed groundwater contamination at two sites. The primary contaminants are volatile organic compounds (VOCs) and pesticides in groundwater and soil.

Interim actions have included removal of drums, petroleum-contaminated soil, and a UST. In the mid-1980s, the installation excavated fuel-contaminated soil from a burning ground area and polychlorinated biphenyl (PCB)–contaminated soil from a transformer storage area. After the installation's National Priorities List (NPL) designation in 1990, the Army formed a technical review committee (TRC).

Between FY94 and FY96, the installation removed 2,300 tons of contaminated soil, 15 tons of debris, 107 abandoned drums, and 13 abandoned oil USTs. In FY95, the installation identified two additional sites, bringing the site total to 74. Actions included signing decision documents (DDs) for no further action (NFA) at 19 sites; completing the final RI/FS and proposed plan for 5 sites; completing site inspections (SIs) for 15 sites; initiating SIs for 10 sites; and performing engineering evaluations and cost analyses for 4 sites. The installation also removed 1,200 tons of arsenic-contaminated soil. The Army completed the remedial design, and began remedial action, at nine sites, resulting in removal of 11,800 cubic yards of soil contaminated with total petroleum hydrocarbons, polyaromatic hydrocarbons, and metals. The Army and regulators signed Records of Decision (RODs) for NFA for five additional sites. In FY97, the Army completed all outstanding SIs. The installation completed an archive search for unexploded ordnance (UXO) and installed a landfill cap. Site cleanups were completed, and a ROD for NFA was signed, for Sites A4, A7, and A9.

In FY98, the Army completed a 3-year installationwide arsenic study. A cultural and natural resources survey, a UXO survey, and an environmental baseline survey were completed; one building required UXO clearance.

In FY99, the installation completed asbestos abatement and two removals. Regulators drafted a final closeout report for NPL deletion. The installation also identified two sites for limited removal action. It sent final draft Environmental Condition of Property statements and memorandums of agreement to the U.S. Army Forces Command for review. Sudbury received regulatory concurrence on a finding of no human health or environmental risk. However, immediately following this designation, the state discovered high arsenic levels in the soil (1,200 parts per million) at Study Area P27, which was then declared an imminent hazard.

In FY00, the installation completed its UXO and Study Area P27 cleanup. It completed the installationwide arsenic investigation and obtained regulatory signatures for a conclusion of no action under CERCLA. The installation negotiated NFA DDs for all remaining site assessments (16 in all). All required remedies are now in place. The property transfer of the main parcel to the U.S. Fish and Wildlife Service was completed. The final closeout report and all BRAC and CERCLA activities were completed. EPA directed that the TRC and public repositories not close.

FY01 Restoration Progress

The 5-year review of groundwater contamination at Areas A7 and P58 was completed. The annual sampling and analysis report and semiannual sampling and analysis report were completed. Work is ongoing to delist the installation from the NPL and to complete the remaining property transfers.

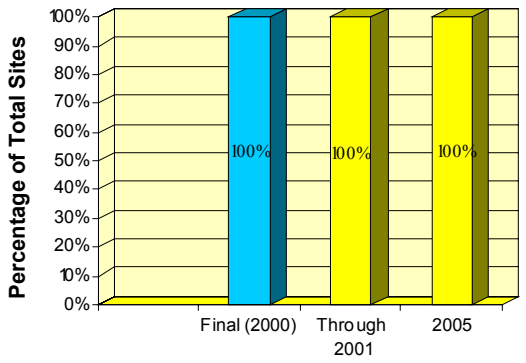
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Conduct community meeting on the 5-year review report in FY02
- Complete all requirements for NPL site deletion in FY02
- Complete transfer of remaining parcels in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Sunflower Army Ammunition Plant — *De Soto, Kansas* — Proposed NPL

FFID:	KS721382087800	**Funding to Date:**	$22.0 million
Size:	9,065 acres	**Estimated Cost to Completion (Completion Year):**	$40.1 million (FY2014)
Mission:	Manufactured smokeless powder and propellants	**Final RIP/RC Date for ER Sites:**	FY2009
HRS Score:	50.00; proposed for NPL in February 1995	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	Nitrates, sulfates, lead, chromium, and propellants		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

The Sunflower Army Ammunition Plant (AAP) began operations in 1942. Its primary mission was to manufacture smokeless powder and propellants. Additional installation operations included the manufacture and regeneration of nitric and sulfuric acids and munitions proving. The installation no longer has a mission, and all real property has been designated as excess. Sources of contamination at the installation include production line areas, magazine storage areas, 67 RCRA solid waste management units (SWMUs), and 22 areas of concern (AOCs). EPA updated the SWMUs and AOCs as a result of an August 1998 environmental baseline survey, which identified additional AOCs. EPA proposed placing the installation on the National Priorities List (NPL) in 1995 after evaluating five munitions manufacturing surface impoundments as potential sources of hazardous waste.

Prominent site types at the installation include landfills, open burning and open detonation (OB/OD) areas, propellant production areas, dump sites, a battery handling area, settling ponds, wastewater lagoons, and drainage ditches. A groundwater contamination survey in FY87 and a site inspection in FY88 revealed contaminated groundwater at the installation. An analysis also indicated heavy metal contamination of surface water and sediment. Interim actions (IA) have included removal of underground storage tanks and associated contaminated soil, and cleanup of an asbestos dump.

The Army submitted a community relations plan and an ecological risk assessment (ERA) for the entire installation, which EPA and the Kansas Department of Health and Environment (KDHE) approved. The assessment concluded that no further action was necessary for most of the areas studied. A 1996 visit and summary conducted by the Agency for Toxic Substances and Disease Registry identified no specific environmental or public health concerns related to the installation.

In FY98, the Army completed the capping of the remaining wastewater lagoon. Groundwater and soil sampling and analysis were completed for nearly all SWMUs.

In FY99, the Army completed a draft corrective measures study for SWMUs 10/11 and 22/32 and initiated a remedial action (RA) for SWMU 50 (North). It also completed remediation of SWMU 23, with approval by EPA and KDHE. The installation prepared a final work plan for additional investigation activities at SWMUs 33, 34, and 35. EPA and KDHE approved the final RCRA facility investigation reports for SWMUs 1, 2, 3, 6, 12, 13, 27, 36, 47, and 48. The U.S. Army Center for Health Promotion and Preventive Medicine completed field evaluations for SWMUs 53 and 54.

In FY00, the installation completed interim remedial actions (IRAs) for SWMU 50 (North) and achieved closure of the OB/OD site (SWMU 23). Long-term management (LTM) began for SWMUs 13 and 27. The installation completed supplemental sampling at SWMU 41.

The installation has a technical review committee and formed a Restoration Advisory Board (RAB) in FY98.

FY01 Restoration Progress

Removal actions for SWMUs 10, 11, and 50 were successful; the contaminated soil was stabilized and disposed of off site. The Army conducted confirmatory sampling for SWMU 2 and SWMU 42 soil, which indicated contamination levels requiring remediation by removal. Standard landfill maintenance activities were conducted for SWMU 42.

The Army completed a grazing study at the installation, but reopened the assessment pursuant to new U.S. Army Corps of Engineers guidance. IAs for SWMU 18, soil removal actions for SWMU 32, and stream monitoring for SWMU 14 were delayed due to funding issues. The EPA and KDHE are currently conducting an ERA data audit that may impact the installation ERA approval previously obtained in 1996.

RAB meetings, which were held every 2 months, informed the community about actions taken in the Installation Restoration Program, future planned actions, and other activities at Sunflower AAP that might be of concern to the public.

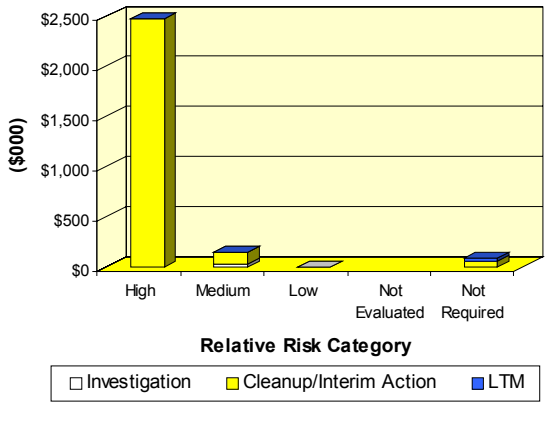
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Conduct soil removal for SWMU 22 in FY02
- Complete RAs for SWMUs 21 and 22 in FY02
- Conduct installationwide stream study in FY02
- Complete removal actions for SWMUs 32, 33, 34, and 35 in FY02
- Complete IRA for SWMU 18 in FY02
- Complete grazing study and stream monitoring for SWMU 14 in FY02

FY02 Funding by Phase and Relative Risk



Tinker Air Force Base
Soldier Creek and Building 3001

Oklahoma City, Oklahoma

NPL

FFID:	OK657172439100	**Funding to Date:**	$173.5 million
Size:	5,041 acres	**Estimated Cost to Completion (Completion Year):**	$109.5 million (FY2023)
Mission:	Repair aircraft, weapons, and engines	**Final RIP/RC Date for ER Sites:**	FY2007
HRS Score:	42.24; placed on NPL in July 1987	**Five-Year Review Status:**	Planned
IAG Status:	IAG signed in September 1988		
Contaminants:	Organic solvents, heavy metals, and petroleum		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Environmental studies at Tinker Air Force Base revealed a 220-acre contaminant plume in the upper aquifer at Soldier Creek and Building 3001. Additional sites include landfills, underground storage tanks (USTs), waste pits, fire training areas, spill sites, and low-level radioactive waste sites.

The installation has implemented numerous interim actions, including removal of contaminated soil and USTs and installation of landfill caps, free-product recovery systems, bioventing systems, a biostripping system, and a solidification and stabilization system. A Record of Decision (ROD) was signed for Building 3001 in FY90, and a groundwater extraction and treatment system is operating at the site. A ROD for Soldier Creek was signed in FY93. The installation formed its Restoration Advisory Board in FY94.

In FY95, the installation expanded the fuel recovery system at the North Tank Operable Unit (OU) and removed all USTs from four sites. It also began a Phase II RCRA facility investigation (RFI) for 18 sites and completed the majority of the remedial investigation (RI) for the Industrial Wastewater Treatment Plant (IWTP)/Soldier Creek Off-Base Groundwater (SCOBGW) OU. A bioslurping system and a bioventing system were installed to treat fuel-contaminated soil. In addition, remedial actions (RAs) involving treatment of fuel and solvent contamination were implemented at two sites.

In FY96, the installation completed the Phase II RFI report. Seven interim corrective actions were initiated, and one was completed. A draft final RI and feasibility study (FS) for the IWTP/SCOBGW OU was also completed.

In FY97, the installation removed low-level radioactive waste and completed the cleanup of Radioactive Waste Disposal Site 1030W. It also completed construction of a bioventing system for the fuel purge facility and construction of a treatment system for the Area A service station.

In FY98, the installation recovered 100 gallons of trichloroethene from groundwater pumped from the Building 3001 area. A groundwater treatment plant was constructed for the southwest quadrant of the base.

In FY99, the draft final SCOBGW risk assessment was submitted to regulators. A groundwater treatment system was constructed for the Gator Groundwater Management Unit. Closure letters were received for the 3700 Fuel Yard and the purge facility. The 5-year review of National Priorities List (NPL) treatment systems was submitted for review. The Oklahoma Department of Environmental Quality designated No Further Action for the remaining radioactive waste disposal sites. Seven solid waste management units and one area of concern were closed.

In FY00, the FS for the SCOBGW OU was accepted by regulators. All landfills at Tinker now have a RCRA cap in place. The installation began an interim remedial action (IRA) at IWTP, which should enable the site to reach Remedy in Place (RIP) status. Air Force documentation formally closing the four radioactive waste disposal sites and Fire Training Area 1 was completed.

FY01 Restoration Progress

The decision documents (DDs) necessary to achieve RIP and Response Complete (RC) status for five of the six landfills were completed. The remaining landfill is awaiting approval of the DD. The treatment system at 290 Fuel Farm was completed, with the relative risk reduced from medium to not required (NR), and RIP status was achieved. The purge facility turnaround soil site was closed. Fire Training Area 2 also was closed.

The supernatant pond will not be closed out until the associated groundwater contaminant unit is closed out. The SCOBGW OU proposed plan (PP) was delayed due to emergence of additional regulatory comments. IRA construction at Industrial Waste Pit 1 was delayed because of runway resurfacing.

Military Munitions Response Program Progress

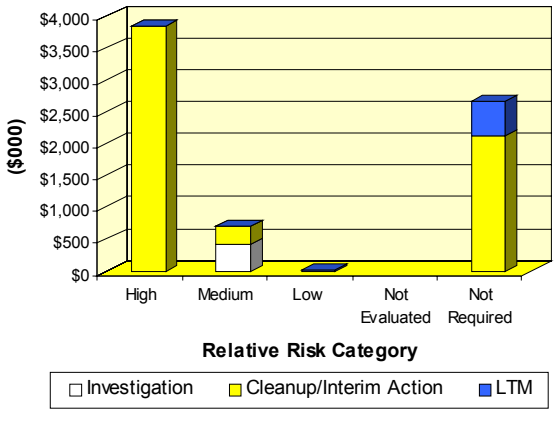
In FY01, a comprehensive range inventory was initiated. This inventory was designed to be an annual, iterative effort. To supply data for the inventory, a detailed questionnaire was completed that collected data on the types of munitions used, the range's environmental status, and the type and level of external stakeholder interest.

Munitions response and range cleanup actions have been delayed, pending funding availability and guidance refinement. As funding becomes available and guidance is refined, ranges will be cleaned up based on risk to human health and the environment.

Plan of Action

- Complete DD to achieve RIP/RC for Landfill 4 in FY02
- Complete SCOBGW OU PP, ROD, and remedial design in FY02 and remedial action construction in FY03
- Complete IRA construction at Industrial Waste Pit 1 in FY02 and achieve RIP/RC in FY03
- Complete closure for Industrial Waste Pit 2 in FY03
- Complete 5-year ROD review in FY03

FY02 Funding by Phase and Relative Risk



Tobyhanna Army Depot

Tobyhanna, Pennsylvania

NPL

FFID:	PA321382089200	**Funding to Date:**	$14.3 million
Size:	1,293 acres	**Estimated Cost to Completion (Completion Year):**	$2.1 million (FY2000)
Mission:	Provide logistics for communications and electronics equipment	**Final RIP/RC Date for ER Sites:**	FY2000
		Five-Year Review Status:	Under Way/Planned
HRS Score:	37.93; placed on NPL in August 1990		
IAG Status:	IAG signed in September 1990		
Contaminants:	Heavy metals, VOCs, PCBs, POLs, UXO		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Environmental studies at Tobyhanna Army Depot (TYAD) began in FY80. Identified sites include landfills, a disposal pit, underground storage tanks, burn areas, drum staging areas, a surface disposal area, a waste treatment plant, a spill site area, an unexploded ordnance (UXO) area, and a fire fighting training area. The most prominent sites are the burn areas and a drum staging area, which constitute Operable Unit (OU) 1. Contamination at these sites includes volatile organic compounds (VOCs), solvents, and heavy metals in groundwater; solvents, metals, polychlorinated biphenyls (PCBs), and petroleum/oil/lubricants (POLs) in surface water and sediment; and solvents, metals, PCBs, POL, and UXO in soil.

Remedial investigation (RI) and feasibility study activities began in FY90. In FY91, the installation constructed a water line extension to residences affected by contamination in OU1. In FY92, the installation completed RI fieldwork at OU1 and a treatability study of a soil volatilization technology. In FY95, the installation conducted an interim remedial action at OU1 Area B to remove contaminated soil. The installation also formed a Restoration Advisory Board (RAB).

In FY96, the installation, EPA, and the Pennsylvania Department of Environmental Protection (PADEP) drafted the proposed plan for OU1. A cleanup action was completed at Oakes Swamp, Area of Concern (AOC) 8. In FY97, the installation completed a Record of Decision (ROD) for OU1 groundwater, specifying natural attenuation with long-term management (LTM). The Army completed an RI for installation of groundwater monitoring wells at the inactive sanitary landfill.

In FY98, the installation completed a closeout document for 35 no further action (NFA) sites and removed a burn pan at AOC 58, the fire fighting training area. A remedial-design document for LTM at OU1 was completed. The installation also completed a new community relations plan.

In FY99, the installation completed a closeout document for 18 additional NFA sites. Health risk assessments were completed for two sites. The installation completed a quality assurance project plan for groundwater sampling and analysis at AOC 1.

In FY00, the installation removed the sewage drying beds at AOC 32. It also completed closeout documents for five sites and the ecological risk assessment. Two proposed remedial action plans were completed. The Army and regulators signed RODs for those sites, and the depot attained Construction Complete status. TYAD became the first federal facility in EPA Region 3 to achieve this status. EPA now plans to petition to partially remove TYAD from the National Priorities List (NPL).

FY01 Restoration Progress

The 5-year review of OU1 and OU5 is in progress. Groundwater monitoring will continue at OU1 and OU5 until FY21. OU1 and OU5 require LTM and are under contract for sampling and analysis twice a year for the next 3 years. Because of successful partnering with EPA and PADEP and the use of innovative technologies, TYAD has reduced its cleanup costs for sites significantly. TYAD has also become the first federal facility in EPA Region 3 to become partially delisted from the NPL. Sixty-two of the original 65 AOCs will be removed after the EPA petitions for a large portion of the TYAD to be taken off the NPL. The cost of completing environmental restoration at this installation increased significantly due to technical and regulatory issues.

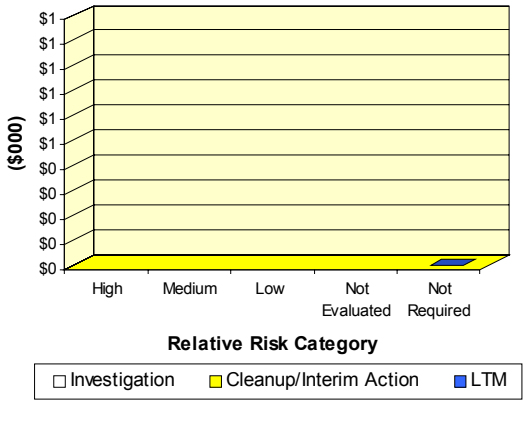
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete 5-year review of OU1 and OU5 in FY02
- Continue groundwater monitoring at OU1 and OU5 until FY21

FY02 Funding by Phase and Relative Risk

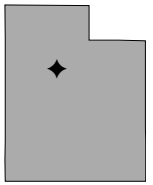


Tooele Army Depot

Tooele, Utah

NPL/BRAC 1993

FFID:	UT821382089400	**Funding to Date:**	$89.8 million
Size:	24,732 acres	**Estimated Cost to Completion (Completion Year):**	$40.3 million (FY2032)
Mission:	Store and demilitarize munitions	**Final RIP/RC Date for BRAC-ER Sites:**	FY2005
HRS Score:	53.95; placed on NPL in August 1990	**Final RIP/RC Date for ER Sites:**	FY2005
IAG Status:	Federal facility agreement signed in September 1991	**Five-Year Review Status:**	Completed/Planned
Contaminants:	Solvents, metals, explosives, petroleum hydrocarbons, and PCBs		
Media Affected:	Groundwater and soil		



Progress to Date

In July 1993, BRAC Commission recommended realignment of the Tooele Army Depot (TEAD) maintenance mission. The commission recommended that the depot retain its conventional ammunition storage and demilitarization missions. The Army transferred the 1,663-acre BRAC parcel in FY99 and will retain 23,069 acres for the conventional ammunition mission.

Studies have been under way at TEAD since FY79. Sites include open burning and open detonation areas, an ammunition demilitarization facility, landfills, firing ranges, industrial sites, underground storage tanks (USTs), surface impoundments, lagoons, and drain fields. Organic solvents are the main contaminants affecting groundwater. TEAD's environmental programs are regulated under a CERCLA federal facility agreement (FFA) and a RCRA corrective action permit.

In FY93, TEAD installed a pump-and-treat system to remove trichloroethene (TCE) from a groundwater plume. In FY94, the Army and regulators approved a Record of Decision (ROD) for six sites, four of which were No Further Action sites. The installation formed a BRAC cleanup team and a Restoration Advisory Board (RAB) in FY94. In FY95, the community drafted a land reuse plan. In FY96, TEAD completed a disposal and reuse environmental impact statement for the 1,700 acres available for transfer, and transferred 41 acres to the Tooele City Redevelopment Agency.

In FY97, TEAD delineated the on-post extent of another contaminated groundwater plume and began to investigate the source of contamination. The installation began corrective measures studies (CMSs) and feasibility studies (FSs) for all sites requiring further actions. It also completed an interim removal action at the TNT washout facility.

In FY98, TEAD submitted a Finding of Suitability for Early Transfer for regulatory approval for the remaining BRAC properties. TEAD completed remedial work for two BRAC sites and optimized the groundwater treatment system installed in FY93. It decided to compost explosives-contaminated soil and completed two interim removal actions, one at the chemical range, the other at the Building 1301 washout pond.

In FY99, TEAD transferred the remainder of the 1,663 acres available for transfer to the Tooele City Redevelopment Agency under early transfer authority. It installed bioventing systems to remediate contaminated soil and conducted risk assessments.

In FY00, TEAD completed a Phase I RCRA facility investigation (RFI) of groundwater contaminant source areas in the BRAC parcel. TEAD began a Phase I BRAC RFI to define the extent of off-site groundwater contamination to the northeast of the property. It completed a decision document for Group B RCRA corrective action sites. An interim action plan for the removal of the primary source of groundwater contamination was completed. The U.S. Army Corps of Engineers started preparing a site management plan for land use controls. All FSs and CMSs either were approved by regulators or are under review, with the exception of those for OU9. A 5-year review was completed at the installation in FY00.

FY01 Restoration Progress

The Army initiated a pilot study to evaluate the effectiveness of soil vapor extraction for remediation of vadose zone contamination. The installation completed Phase I off-post fieldwork for delineation of groundwater contamination. In addition, the 5-year review and corrective action for Group B sites were completed. The Army has transferred all BRAC excess property. The cost of completing environmental restoration at this installation increased due to technical issues.

The Phase II groundwater and vadose zone investigation was delayed, pending completion of a groundwater management strategy. The installation prepared the draft strategic plan and submitted it for regulatory review and approval. An Army independent technical review recommended additional site investigation, which delayed the RD for RCRA corrective action Group A sites and Group C.

The RAB had the opportunity to review all work plans and reports that were prepared, and participated in quarterly project reviews.

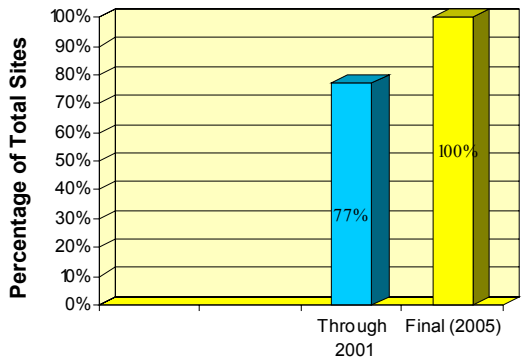
Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. The Army has identified no previous military munitions response work at this installation. However, issues on the survey and clearance of UXO at the Chemical Range, AED Test Range and OB/OD Area must be resolved prior to final remedy implementation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete confirmation sampling and closeout of the final UST site in FY02
- Initiate Phase II investigation of groundwater and vadose zone contamination in FY02
- Sign ROD for OU 4 and OU 8 in FY02
- Initiate remedial action for OU4, OU8, Group A, and Group C sites in FY02
- Complete CERCLA FS for OU9 and RCRA CMS for known release sites in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Travis Air Force Base

Solano County, California

NPL

FFID:	CA957182457500	**Contaminants:**	VOCs, heavy metals, and PAHs
Size:	6,383 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Provide air refueling and strategic airlift services for troops, cargo, and equipment	**Funding to Date:**	$81.7 million
		Estimated Cost to Completion (Completion Year):	$172.5 million (FY2100)
HRS Score:	29.49; placed on NPL in November 1989	**Final RIP/RC Date for ER Sites:**	FY2011
IAG Status:	Federal facility agreement signed in September 1990 and amended in May 1993, October 1995, July 1996, November 1997, and July 1998	**Five-Year Review Status:**	Planned/Under Way

Progress to Date

Travis Air Force Base has supported Air Force operations since 1943. Historical activities at the base have resulted in releases of fuels, solvents, and petroleum/oils/lubricants, which have migrated into groundwater. Since FY85, studies have identified numerous sites, including old landfills, a closed sewage treatment plant, four fire training areas, disposal pits, spill areas, the storm sewage drainage system, a pesticide disposal site, and a low-level radioactive waste burial site. In FY93, the Air Force divided the installation into four operable units (OUs).

Interim actions (IAs) at the installation have included removal of 27 underground storage tanks. Granular activated carbon treatment systems were installed to treat groundwater contaminated with trichloroethene (TCE) at a storm sewer outfall in Union Creek and a source area for the installation's largest TCE groundwater plume. Treatability studies were conducted on use of horizontal wells, two-phase extraction systems, bioventing, bioslurping, phytostabilization, and enhanced biodegradation.

In FY96, the installation combined the North, East, and West Industrial OUs into a single OU (NEWIOU) for the feasibility study (FS), proposed plan (PP), and Record of Decision (ROD). The FS for the NEWIOU and the PP for the groundwater part of the NEWIOU were completed. In FY97, the RI for the West/Annexes/Basewide OU (WABOU) was completed and the IA for the installation's largest TCE-contaminated groundwater plume was expanded.

In FY98, an interim ROD was signed for groundwater in the NEWIOU. The NEWIOU PP for surface water, sediment, and soil was completed and public comments received. The base completed the FS and PPs for groundwater and soil sites at WABOU. Interim remedial actions (IRAs) began at two of three sites from which contaminated groundwater had migrated off site, and at two additional sites. Interim remedial design began on 14 other groundwater sites. A two-phase extraction well was installed in an area expected to contain free-phase TCE. In FY99, the WABOU groundwater interim ROD was signed.

In FY00, IRAs were completed at nine groundwater sites. The IRA for one off-base groundwater plume (SS030) was also completed.

In FY95, the installation formed a Restoration Advisory Board (RAB). The RAB continues to review restoration documents and provide advice on project prioritization in light of budget cuts.

FY01 Restoration Progress

The installation completed construction on one part of Landfill 2. It also installed two additional dual-phase extraction wells and a thermal oxidizer as part of an expansion of the IRA for the groundwater plume at Site SS016. Construction of the IRAs at LF008 and DP039 was finished, and a removal action was completed at Cypress Lakes Golf Course. The cost of completing environmental restoration has changed significantly at this installation because of estimating criteria.

The IRA at one off-base groundwater plume was delayed because of negotiations with the property owner.

The RAB reviewed 21 documents and conducted two base tours for members of the public.

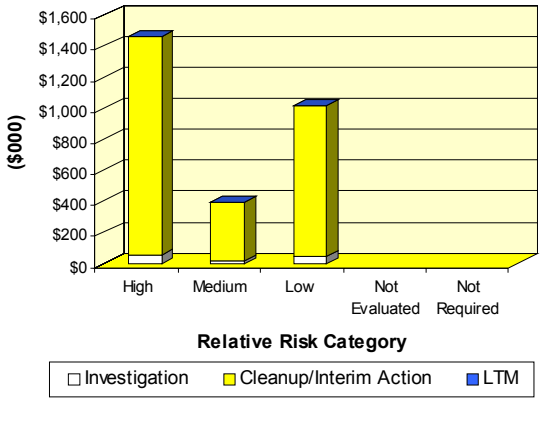
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete IRA construction at one off-base groundwater plume in FY02
- Complete WABOU soil ROD in FY02
- Begin remedial action at seven soil sites in FY02
- Complete 5-year review of interim groundwater actions in FY02
- Complete IRA construction at one off-base groundwater plume in FY03

FY02 Funding by Phase and Relative Risk



Treasure Island Naval Station

Treasure Island, California

BRAC 1993

FFID:	CA917002333000	**Contaminants:**	Petroleum hydrocarbons, VOCs, SVOCs, chlorinated solvents, metals, pesticides, and PCBs
Size:	1,080 acres	**Media Affected:**	Groundwater and soil
Mission:	Provide services and materials to support units of operating forces and shore activities	**Funding to Date:**	$73.3 million
HRS Score:	NA	**Estimated Cost to Completion (Completion Year):**	$39.6 million (FY2008)
IAG Status:	Federal facility site remediation agreement signed in September 1992	**Final RIP/RC Date for BRAC-ER Sites:**	FY2007
		Five-Year Review Status:	NA

Progress to Date

In July 1993, the BRAC Commission recommended closure of this installation with relocation of the Naval Reserve Center and the Naval Technical Training Center. Operational closure was completed in September 1997.

Thirty-one sites, including a former fire training area, a landfill, a former dry cleaning facility, an old bunker area, fuel farms, and a service station, were identified. Contamination is largely the result of migration of petroleum products from fueling operation areas.

Remedial investigation (RI) and feasibility study (FS) activities were initiated for 22 sites in FY93. In FY94, three additional sites were included in the Installation Restoration Program (IRP). A BRAC cleanup team was established, and the installation completed a BRAC cleanup plan. In FY95, the installation began removing floating product from one site and contaminated soil from another. Forty-one underground storage tanks (USTs) were removed and 14 were closed in place. Two additional USTs were identified and scheduled for removal. An environmental baseline survey was completed for all sites.

During FY96, the local reuse authority completed a reuse plan. The federal facility site remediation agreement was amended to include three new sites and to group Sites 13 and 27 into an offshore operable unit (OU). In FY97, nine IRP sites were transferred to the petroleum corrective action plan (CAP) program.

In FY98, the installation removed or closed in place all known underground fuel lines. An ecological validation study work plan was developed for Sites 11, 28, and 29.

In FY99, the installation completed an interim removal action for lead-contaminated soil at Site 12 Buildings 1207/1209. The installation completed the OU draft final RI reports for Site 12 and for offshore sediment.

In FY00, the installation completed lead removal at Building 1133 and removed a UST at Building 1. The installation also conducted pilot investigation sampling of debris, soil gas sampling, and additional sampling at the Site 12 debris areas. Polychlorinated biphenyl (PCB)– and polyaromatic hydrocarbon–contaminated soil was removed from Halyburton/Bigelow/Flounder Court housing. Groundwater monitoring was performed, and a tidal study was completed. The installation investigated the former fuel line right-of-way for petroleum in soil. Sites 5, 7, and 17 were proposed for no further action. Site 7 was later continued in the RI.

The installation completed a community relations plan (CRP) and established two information repositories and an administrative record in FY92. The technical review committee was converted to a Restoration Advisory Board (RAB) in FY94. The RAB received Technical Assistance for Public Participation grant in FY99 for review of the RI.

FY01 Restoration Progress

The draft CAPs for and initial cleanup of all petroleum sites are under way. During removal of the two remaining USTs, additional USTs and two additional sections of fuel line were found. Further investigation is ongoing. Pilot studies are under way at four sites on the use of in situ remedial technologies instead of traditional technologies. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

Asbestos and lead-based paint remediation was delayed by funding issues. The onshore ROD was delayed due to revisions of the site strategy and the decision to conduct removal actions at onshore sites before issuance of the ROD. Removal actions at the Site 12 housing area were not completed, due to delays in remedy selection and documentation.

Extensive partnering continues with local regulators and the surrounding community. The RAB meets regularly.

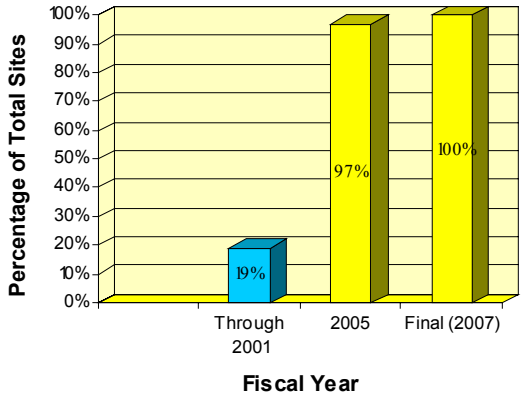
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete update of the CRP in FY02
- Complete removal actions in the Site 12 housing area in FY02–FY03
- Establish remedies in place for all petroleum sites in FY02–FY03
- Complete documentation for transfer of all property not impacted by CERCLA or only by petroleum sites in FY02–FY03
- Complete RI/FS of all onshore CERCLA sites in FY02–FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Trenton Naval Air Warfare Center Aircraft Division

Trenton, New Jersey

BRAC 1993

FFID:	NJ217002269500	**Funding to Date:**	$21.1 million
Size:	529 acres	**Estimated Cost to Completion (Completion Year):**	$18.0 million (FY2032)
Mission:	Test engine systems and components	**Final RIP/RC Date for BRAC-ER Sites:**	FY2000
HRS Score:	NA	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	TCE, freon, fuels, mercury, and solvents		
Media Affected:	Groundwater and soil		

Progress to Date

In July 1993, the BRAC Commission recommended closure of this installation. Operations were transferred to the Arnold Engineering Development Center and the Patuxent River Naval Air Station in December 1998, which was the date of operational closure.

Contamination at the installation resulted from various fuels used to operate engines during tests and from trichloroethene (TCE), ethylene glycol, and freon used to cool the air entering the engines. Residues of fuels and solvents were detected in ground water and soil. Site types include underground storage tanks (USTs), disposal areas, and spill sites.

Studies at the installation identified nine CERCLA sites and two UST sites. Removal of a tank and associated contaminated soil was completed for UST 2 in FY92 and for UST 1 in FY93. The two UST sites were then recommended for no further action (NFA).

In FY94, a BRAC cleanup team (BCT) was formed. The installation was divided into four parcels of property, and an environmental baseline survey (EBS) was completed for all parcels. During FY95, the installation began an interim remedial action for treatment of TCE-contaminated groundwater at Site 1. In FY96, contaminated sludge was removed from Site 3 and the installation completed a land reuse plan.

The installation's BRAC cleanup plan was last updated in FY97. Also in FY97, the installation completed construction of the modified treatment plant for groundwater contamination, installation of monitoring wells at Site 1, the remedial investigation and feasibility study for Site 2 and Sites 4 through 9, and design and implementation of an iron-filings treatment system for Site 1 groundwater contamination. A decision document (DD) for NFA was prepared for Site 3. The BCT conducted the Site 1 groundwater investigation, Site 8 barometric well closure, and preparation of an NFA document for Sites 2, 5, 6, 7, and 9.

In FY98, the installation completed an environmental assessment. DDs were completed for Sites 1 through 9. The installation also completed a draft DD for Site 1 groundwater, and a focused feasibility study. It completed soil removal at Site 1, a cap for Site 4, and remedial actions at 23 areas of concern (AOCs). Six additional USTs were removed, and the groundwater treatment plant was expanded.

In FY99, off-site residential well sampling was performed. The EBS Phase II report was finalized, and remediation was completed at the remaining EBS AOCs. Cleanup of mercury-contaminated sediment continued.

In FY00, the installation conducted an off-site ecological investigation and a storm sewer infiltration study. Off-site well installation was also completed. The classification exception area report was completed, as was the Operating Properly and Successfully document for groundwater. The closeout report for mercury was also drafted. Long-term management of mercury was initiated. A finding of suitability to transfer (FOST) for Parcel B was completed.

A technical review committee was formed in FY91 and converted to a Restoration Advisory Board (RAB) in FY93.

FY01 Restoration Progress

The installation completed FOSTs for Parcels A and D. Off-site groundwater investigations continued. The report on mercury monitoring was completed. Operations and maintenance (O&M) of the Site 1 treatment plant are under way. The RAB was formally disbanded. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria.

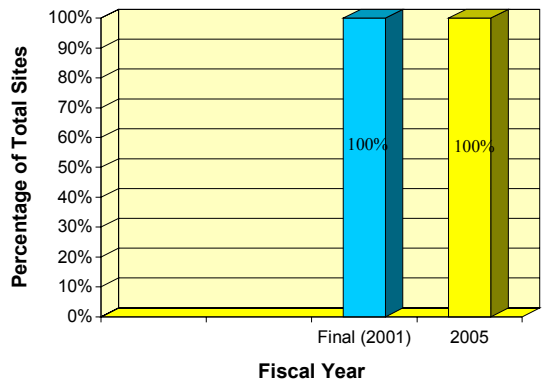
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

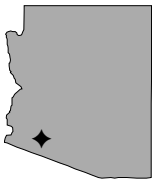
- Continue O&M in FY02
- Complete 5-year review in FY02
- Transfer Parcel B in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Tucson International Airport — *Tucson, Arizona* — NPL

FFID:	AZ957282593400 and AZ957172462900	**Media Affected:**	Groundwater and soil
Size:	84 acres	**Funding to Date:**	$10.1 million
Mission:	Provide Air National Guard training	**Estimated Cost to Completion (Completion Year):**	$11.6 million (FY2021)
HRS Score:	57.86; placed on NPL in September 1983	**Final RIP/RC Date for ER Sites:**	FY1997
IAG Status:	Federal facility agreement signed in October 1994	**Five-Year Review Status:**	Planned/Under Way
Contaminants:	TCE, tetrachloroethene, chromium, petroleum hydrocarbons, and POLs		



Progress to Date

Environmental studies at Tucson International Airport have identified eight sites, including fire training areas, solvent dumping areas, storm drainage discharge areas, the old wash rack area, petroleum/oil/lubricant areas, and spill areas. Waste disposal and spill sites have had the greatest effect on the environment. The principal contaminant is trichloroethene (TCE) in groundwater. Tetrachloroethene and chromium also have affected groundwater, but to a lesser extent. In addition, total petroleum hydrocarbons have been detected in soil at the installation. In FY94, the installation finished remedial investigation activities for all identified sites.

The installation has established successful partnerships with citizens and regulators. The Unified Community Advisory Board (UCAB) provides a forum in which citizens and organizations can discuss current environmental issues. The UCAB consists of community members; regulators; and responsible parties, such as Air Force Plant 44, Burr-Brown Corporation, the Airport Authority/City of Tucson, West Cap Industries (defunct), and the Air National Guard. Representatives of regulatory agencies, the State of Arizona, Pima County, the City of Tucson, and leaders of community groups regularly attend meetings of the board.

In FY97, the installation complied with the federal facility agreement and reevaluated all sites through the Relative Risk Site Evaluation process. A Record of Decision was completed for the cleanup of contaminated soil. The installation also finished construction of a permanent groundwater extraction, treatment, and recharge system to clean up contaminated groundwater. The groundwater extraction and treatment system for all sites began operating in FY97. In FY98, the soil vapor extraction and treatment system at Site SS05 accomplished its mission by reducing contaminant concentrations in soil vapor to levels that have negligible impact on groundwater.

In FY00, Restoration Advisory Board activities with the UCAB and partnering efforts with EPA Region 9 and the Arizona Department of Environmental Quality continued. One well was added on the western side of the base to improve plume capture.

FY01 Restoration Progress

The installation continued a partnership with EPA Region 9 and the Arizona Department of Environmental Quality. Operation of the groundwater extraction and treatment system continued. Participation in the UCAB continued.

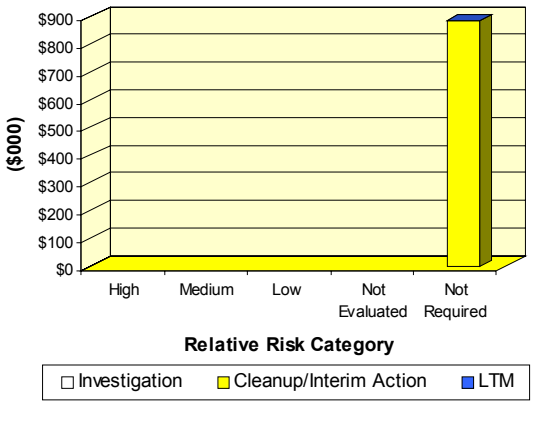
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Continue partnership with EPA Region 9 and the Arizona Department of Environmental Quality in FY02
- Continue operating the groundwater extraction and treatment system in FY02
- Continue participation in the UCAB in FY02
- Complete 5-year review in FY02

FY02 Funding by Phase and Relative Risk



Tustin Marine Corps Air Station

Tustin, California

BRAC 1991

FFID:	CA917302478300	**Contaminants:**	VOCs, dichloroethane, dichloroethene, TCE, TCP, BTEX, naphthalene, petroleum hydrocarbons, pentachlorophenol, and MTBE
Size:	1,603 acres	**Media Affected:**	Groundwater and soil
Mission:	Support operations of the Third Marine Aircraft Wing; provide operations training facility support; operate helicopter outlying fields and maintain area landing sites; operate air traffic control facility; provide weather support	**Funding to Date:**	$47.0 million
		Estimated Cost to Completion (Completion Year):	$27.8 million (FY2038)
		Final RIP/RC Date for BRAC-ER Sites:	FY2007
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	Federal facility site agreement signed in August 1999		

Progress to Date

In July 1991, the BRAC Commission recommended closure of Tustin Marine Corps Air Station with retention of the family housing and related personnel facilities to support El Toro Marine Corps Air Station.

Studies since FY85 have identified 16 CERCLA sites, 288 areas of concern (AOCs), 129 underground storage tank (UST) sites, and 25 aboveground storage tank sites.

Two phases of a three-phase RCRA facility assessment (RFA) have been completed. Interim remedial actions completed at the installation include removal of USTs and construction of a drainage system. In FY92, 39 tanks were removed at the fuel farm; 30 more tanks were removed in FY93. A BRAC cleanup team (BCT) was formed in FY94.

In FY95, the installation began engineering evaluations and cost analyses (EE/CAs) for three sites. Contaminated soil was removed from the fuel farm. The installation began a parcel-specific environmental baseline survey (EBS). In FY96, remedial investigation (RI) and feasibility study (FS) fieldwork was completed at Operable Unit (OU) 1, OU2, and OU3; a draft RFA was issued for 15 sites; and the final Phase III RFA was issued. Remediation was completed at the fuel farm, and a draft land reuse plan was submitted for approval.

During FY97, removal actions for AOC MWA-3 and Sites 2, 9, and 13W were finished; expanded site inspections were completed for five sites; the final RI/FS was issued for OU3; and a landfill containment presumptive remedy was implemented. In FY98, the BCT accepted the final RI for OUs 1 and 2, and the latest version of the BRAC cleanup plan was issued. The Tustin spur of the JP-5 jet fuel supply line was closed in place.

In FY99, a new operable unit, OU4, was formed, comprising 11 groundwater sites that were formerly part of OU2. All USTs were removed, and cleanup of 15 RCRA sites was completed. The three RCRA Part B permitted storage facilities were closed out. Another 42 AOCs received no further action (NFA) concurrence from the BCT, and a draft CERFA basewide EBS was issued. The FS for OU2 was completed.

In FY00, the installation completed the proposed plan (PP), and the NFA Record of Decision (ROD) was signed, for OU2. An amended action memorandum (AM) and a draft closure report for Site 9A/9B were issued. The methyl tertiary butyl ether (MTBE) plume at UST Site 222 was delineated. OU1 was split into OU1A (Site 13 South) and OU1B (Sites 3 and 12). Of the original 288 AOCs, 266 have received NFA designations, 3 have achieved remedy-in-place status, 7 are being reviewed by regulators for NFA designations, and the remaining 12 require additional evaluation or fieldwork.

A Restoration Advisory Board (RAB) was formed in FY94. RAB meetings are held bimonthly. The Navy regularly updates two administrative records and two information repositories.

FY01 Restoration Progress

The AM for OU1A (a trichloropropane [TCP] plume) was finalized and the fieldwork began. This fieldwork is linked to the cleanup of the MTBE plume (UST Site 222). A two-phase corrective action plan, encompassing both areas was finalized. Based on data indicating that the plume was stable, the BCT deemed the pilot test at Site 6 unnecessary.

The OU4 focused FS (FFS) and the OU1B FS were delayed for completion of a cumulative risk assessment. The final ROD for OU3 was delayed by extensive negotiations with regulators.

The RAB continued to meet regularly, participating in document review. The BCT completed its annual site management plan.

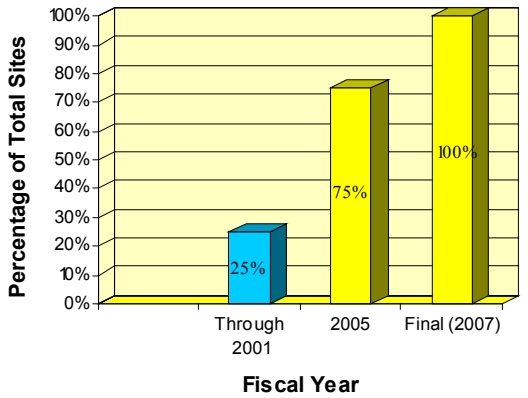
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Initiate coordinated removal action at UST Site 222 and OU1A in FY02
- Finalize the OU3 ROD in FY02
- Issue and finalize the OU4 FFS and PP in FY02 and the OU4 ROD in FY03
- For OUIA, issue a final FS addressing a permanent remedy in FY02 and a PP in FY03
- For ST-16A/B, issue an EE/CA in FY02 and issue and finalize an AM in FY03
- Complete the OU3 O&M plan in FY02 and implement the OU3 long-term management program in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Twin Cities Army Ammunition Plant — *Arden Hills, Minnesota* — NPL

FFID:	MN521382090800	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	2,370 acres	**Funding to Date:**	$140.8 million
Mission:	Modified caretaker; provide support to DoD tenants; manufactured small-arms ammunition and projectile casings	**Estimated Cost to Completion (Completion Year):**	$56.4 million (FY2041)
		Final RIP/RC Date for ER Sites:	FY2009
		Five-Year Review Status:	Completed/Planned
HRS Score:	59.60; placed on NPL in September 1983		
IAG Status:	Federal facility agreement signed in August 1987		
Contaminants:	VOCs, PCBs, and heavy metals		

Progress to Date

At this installation, past waste disposal practices released hazardous contaminants into soil, groundwater, and sediment. These contaminants migrated into the Minneapolis–St. Paul groundwater supply. Twenty-five sites, including former landfills, burning and burial grounds, ammunition testing and disposal sites, industrial operations buildings, and sewer system discharge areas, are grouped into three operable units (OUs).

Ammunition-related metals, volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs) are the primary soil contaminants at the installation. The Army installed soil vapor extraction (SVE) systems to remove VOCs from soil.VOCs are the primary groundwater contaminants. From FY86 to FY93, the Army installed groundwater extraction and treatment systems. The installation constructed a boundary groundwater containment system to contain and treat VOC-contaminated groundwater at the installation's southwest boundary. The Army provided a groundwater treatment system for the city of New Brighton and a municipal water supply hookup at Lowry Grove Trailer Park.

In FY94, the OU3 plume groundwater recovery system and the OU1 and OU3 municipal drinking water interconnection became operational. In FY95, the installation completed a UXO sweep in support of the CERCLA site cleanups. In FY96, the Army closed the water tower area site and implemented a well advisory for OUs 1, 2, and 3. The installation established a technical review committee in 1985 and a Restoration Advisory Board (RAB) in FY96.

In FY97, the Army implemented the alternate water supply plan, abandoning five residential wells. For OU1, two performance-monitoring wells were installed. The Army began remedial design (RD) for eight shallow and two deep soil sites and completed removal of contaminated soil from Site F.

In FY98, the Army and regulators signed an installationwide Record of Decision. The Army completed RD for six sites, initiated RD for five sites, and started remedial action construction (RA-C) at Site A. The RA-C for OU1 was completed, and two more containment wells and six more performance-monitoring wells were installed. The Army completed engineering evaluations and cost analyses (EE/CAs) for the outdoor firing range, the grenade range, and VOC-contaminated soil at Site A. It initiated a removal action at the outdoor firing range and abandoned a residential well. The Tier I ecological risk assessment (ERA) was completed.

In FY99, the Army completed RD for five sites and performed RA-C for six sites at OU2 (A, E, H, 129-5, grenade range, and outdoor firing range). The Site F closure report received regulatory approval. Dump characterization concluded at two sites. The RAB secured a Technical Assistance for Public Participation contract to provide technical review of restoration documents and summarization of reports in nontechnical terms.

In FY00, the Army completed the 5-year review of OUs 1, 2, and 3. RD concluded for two sites. The Army reduced pumping rates at the OU3 containment boundary and sought regulator approval for shutting down the OU3 system. RA-C was completed at Sites A, 129-5, grenade range, and OU1. RA-C started at Sites C and 129-3. RA closeout began for SVE systems at Sites D and G. Removal site investigations began at two sites. The Tier II ERA surface water and sediment investigations and the amphibian report were completed.

FY01 Restoration Progress

Operations and maintenance of all RAs at OU1 and OU3 are in progress, and the extraction well for OU3 was shut down. The Army completed the closeout report for Site B and RA-C fieldwork at Sites E and H. Fieldwork was nearly completed at Sites 129-3 and 129-15. The Army completed construction and system startup for the SVE air-sparging system at Site A and began remedial action operations. Construction for a groundwater containment system at the Site C phytoremediation demonstration area was completed and operations began. The Army dismantled the SVE system at Site D. A Tier II ERA is under way.

Remedial investigation and EE/CAs for two primer tracer areas in OU2 are underway; but were delayed by regulatory and funding issues. Closeout report approvals were delayed by the regulators because of land use control issues.

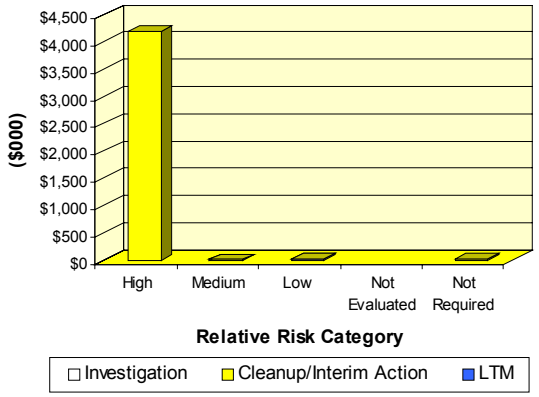
Military Munitions Response Program Progress

Previously, clearance of unexploded ordnance has occurred in support of the restoration program. See Progress to Date and FY01 Restoration Progress for more information. An inventory of closed, transferred and transferring ranges will be developed in the future.

Plan of Action

- Complete the OU2 shallow soil site RA-C fieldwork in FY02
- Obtain regulatory approval of land use controls in FY02
- Complete RA-C reconfiguration of the TGRS OU2 in FY02
- Complete RD metals investigation of Site D in FY02
- Obtain regulatory approval for modifying the ROD for OU1 in FY03
- Continue staged completion of the OU3 requirements in FY03
- Complete 5-year review in FY04

FY02 Funding by Phase and Relative Risk

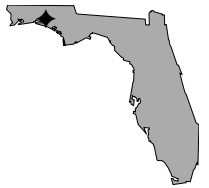


Tyndall Air Force Base

Panama City, Florida

NPL

FFID:	FL457152412400	**Funding to Date:**	$8.1 million
Size:	28,824 acres	**Estimated Cost to Completion (Completion Year):**	$84.4 million (FY2013)
Mission:	Provide advanced F-15 fighter training	**Final RIP/RC Date for ER Sites:**	FY2007
HRS Score:	50.00; placed on NPL in March 1997	**Five-Year Review Status:**	NA
IAG Status:	IAG under negotiation		
Contaminants:	POLs, chlorinated solvents, pesticides, metals, PCBs, and general refuse		
Media Affected:	Groundwater and soil		



Progress to Date

Tyndall Field was activated in 1941 as the Flexible Gunnery School of the U.S. Army Air Corps. The installation became Tyndall Air Force Base in 1947. The current mission is F-15 training under the 325th Fighter Wing.

Environmental studies, beginning in FY81, have found 37 Environmental Restoration Account sites. An FY95 RCRA facility assessment identified 58 solid waste management units and 18 areas of concern; many fell under the Installation Restoration Program. RCRA clean-closure was completed in 1996. The primary site responsible for the base's inclusion on the National Priorities List (NPL), OT029 Shoal Point Bayou, has DDT contamination in the bayou sediments.

In FY97, the installation signed decision documents and received No Further Action concurrence from the Florida Department of Environmental Protection (FDEP) and EPA for 11 sites. It achieved site consolidation at two sites. Interim remedial actions and removal actions were studied or conducted at six sites to reduce risks to human health and the environment. Free-product removal and excavation of contaminants helped eliminate source areas.

In FY99, initial remedial investigation (RI) fieldwork for LF006, LF007, FT017, and OT029 was completed. A baseline risk assessment (BRA) was initiated for all sites. Regulatory concurrence was received for contamination assessment reports for Sites SS015, SS019, and FT023, and work on associated remedial action plans began. A preliminary draft public health assessment was completed. Relative risk classifications were reevaluated, and risk levels were reduced for four sites. A basewide background study was conducted.

In FY00, the draft RI/BRA for Site FT017 and the pesticide reference study were completed. New draft community relations plans were completed.

The installation partnership with FDEP, EPA, and restoration contractors has evolved into a project team serving as the installation's technical review committee (TRC). In FY94, FY97, and FY00, there were efforts to establish a Restoration Advisory Board (RAB), but public response indicated a high level of trust and no need for a RAB. Community representatives will be added to the TRC in FY02 to increase public involvement.

FY01 Restoration Progress

The installation developed a petroleum contamination agreement with FDEP to establish cleanup procedures for petroleum sites. RIs were completed for Sites LF006, LF007, and FT017. Draft RIs were completed for Sites SS026 and OT029. A feasibility study (FS) was completed for FT017, and draft FSs were completed for LF006 and LF007. The FS completion for FT017 triggered actions to develop the federal facility agreement (FFA) with EPA and FDEP.

The TRC now includes several community members. Tyndall is involved in a Florida partnering initiative with EPA, the state, and natural resource trustees, with meetings held every 6 to 8 weeks.

Military Munitions Response Program Progress

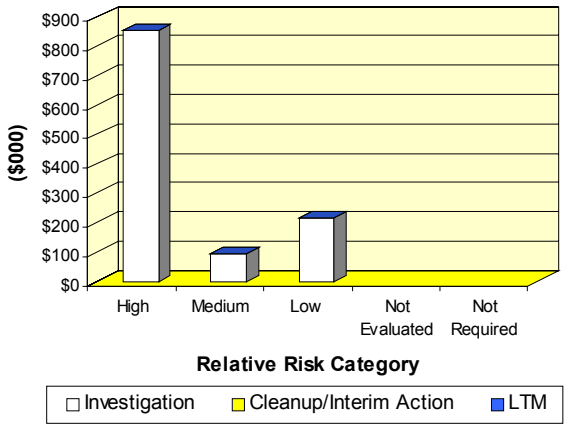
In FY01, a comprehensive range inventory was initiated. This inventory was designed to be an annual, iterative effort. To supply data for the inventory, a detailed questionnaire was completed that collected data on the types of munitions used, the range's environmental status, and the type and level of external stakeholder interest.

Munitions response and range cleanup actions have been delayed, pending funding availability and guidance refinement. As funding becomes available and guidance is refined, ranges will be cleaned up based on risk to human health and the environment.

Plan of Action

- Submit the FFA for EPA and FDEP approval in FY02
- Finalize RI/BRA for SS026 and complete RI/BRA for OT029 in FY02
- Finalize FS for LF006 and LF007 and complete FS for SS026 in FY02
- Submit Records of Decision for LF006, LF007, FT017, and SS026 in FY02
- Gain No Further Remedial Action regulatory concurrence on Sites OT004, LF009, LF010, LF012, and OT024 in FY02

FY02 Funding by Phase and Relative Risk



U.S. Army Soldiers System Center — *Natick, Massachusetts* — NPL

FFID:	MA121382063100	**Funding to Date:**	$27.7 million
Size:	78 acres	**Estimated Cost to Completion (Completion Year):**	$26.9 million (FY2029)
Mission:	Research and develop food, clothing, equipment, and materials for military operations	**Final RIP/RC Date for ER Sites:**	FY2005
		Five-Year Review Status:	Planned
HRS Score:	50.00; placed on NPL in May 1994		
IAG Status:	None		
Contaminants:	Pesticides, herbicides, pentachlorophenol, solvents, VOCs		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Since 1954, this installation has supported industrial, laboratory, and storage activities for research and development in food science and in aeromechanical, clothing, material, and equipment engineering. Operations used various volatile organic compounds (VOCs), including tetrachloroethene, trichloroethene (TCE), carbon disulfide, benzene, and chloroform. Site types include contaminated buildings, spill sites, storage areas, disposal pits, dry wells, and underground storage tanks.

In FY89, soil gas surveys detected VOCs under Building T-25 and the former proposed gymnasium areas. Groundwater, soil, and surface water samples collected during later studies also contained VOCs.

The installation completed an expanded site inspection in FY92 that confirmed TCE contamination in groundwater. A remedial investigation and feasibility study (RI/FS) began in FY93. The installation has performed several interim actions, including removal of waste and contaminated soil and pavement from the drum storage area. The installation also removed a 1,000-gallon waste oil storage tank and associated contaminated soil, as well as polychlorinated biphenyl–contaminated soil from an exploded transformer.

After placement on the National Priorities List (NPL), the installation made efforts to partner with state and federal regulators and to communicate with the community. The installation established a Restoration Advisory Board (RAB) in FY95.

In FY96, the installation conducted a Phase II RI of the Building T-25 area. The Army completed the first iteration of the groundwater model, detailing movement of water and contaminants within the complex alluvial aquifer. The Phase I RI for the Building T-25 area was completed. The installation began receiving drinking water from public wells and discontinued sampling of the installation's drinking water wells. All active sites received an initial Relative Risk Site Evaluation ranking. The RAB reviewed work plans and reports and participated in relative risk rankings of NPL sites. In FY97, field screening with geoprobe and ground-penetrating radar was used to expedite site characterization.

In FY98, the installation removed pesticide-contaminated soil. It also started an approved Building T-25 treatability study (TS) to contain contamination within post boundaries and began investigating the boiler plant site.

In FY99, the installation issued draft RIs for the gymnasium site and the water well supply site. The installation also held a public hearing on the Building T-25 groundwater proposed plan. The final focused FS/TS of the Building T-25 area was also completed.

In FY00, the installation prepared a draft Record of Decision (ROD) for Building T-25 groundwater. Tier II ecological remedial investigation activities were concluded for the installation outfalls, which indicated the need for a Tier III ecological investigation. RI activities began at Building 22.

FY01 Restoration Progress

The Army awarded the contract to begin interim removal action at the gymnasium site, and fieldwork is scheduled. Tier II ecostudy off the installation outfalls indicated the need for a Tier III ecostudy, and the contract was awarded. Once the Tier III work is complete, an FS will begin. The Army and EPA signed the Building T-25 ROD, which contains a unique partnering cooperative agreement involving the Town of Natick, the Massachusetts Department of Environmental Protection (MDEP), EPA, and the Army. Remedial actions resulted from the ROD. The interim remedial action (IRA) at the boiler plant site was completed. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

The cooperative agreement between EPA, MDEP, the Town of Natick, and the Army has greatly increased public participation and produced cost savings for the Army. Meetings were held twice a month with the regulators to review progress and reports.

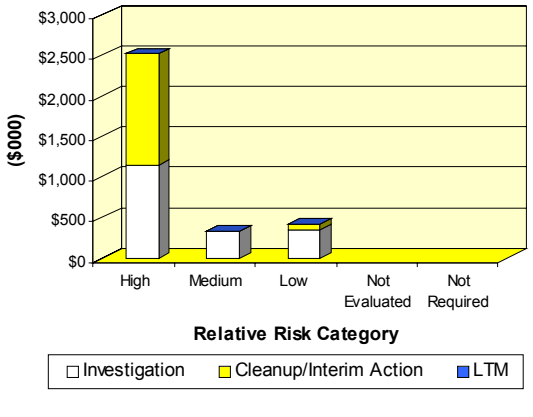
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete interim removal action at former proposed gymnasium site in FY02
- Complete Tier III ecostudy on outfalls in FY02
- Close out SI/IRA Boiler plant site in FY02
- Continue fieldwork associated with the RI/FS for Building 22/36 in FY02
- Begin RI/FS for Building 13/14 in FY02
- Complete the first 5-year review in FY05

FY02 Funding by Phase and Relative Risk

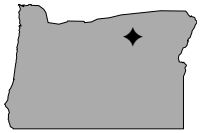


Umatilla Chemical Depot

Hermiston, Oregon

NPL/BRAC 1988

FFID:	OR021382091700	**Funding to Date:**	$51.9 million
Size:	19,729 acres	**Estimated Cost to Completion (Completion Year):**	$5.6 million (FY2023)
Mission:	Storage of chemical munitions	**Final RIP/RC Date for BRAC-ER Sites:**	FY2002
HRS Score:	31.31; placed on NPL in July 1987	**Five-Year Review Status:**	Completed/Planned
IAG Status:	Federal facility agreement signed in October 1989		
Contaminants:	Explosives, UXO, heavy metals, pesticides, and nitrates		
Media Affected:	Groundwater and soil		



Progress to Date

In 1941, the Army established Umatilla Ordnance Depot as a facility for storing conventional munitions. Between 1945 and 1955, the installations functions expanded to include demolition, renovation, and maintenance of ammunition. In 1962, the Army began to store chemical munitions at the depot. In December 1988, the BRAC Commission recommended realignment of the installation. In FY98, the installation officially changed its name from Umatilla Ordnance Depot to Umatilla Chemical Depot. Studies from FY87 to FY90 identified 80 sites at the depot, including explosives-washout lagoons, an open burning and open detonation area, pesticide disposal pits, a deactivation furnace, and landfills. In FY92, the sites were grouped into nine operable units (OUs). The Army signed a Record of Decision (ROD) selecting bioremediation by windrow composting as the treatment for the explosives-contaminated soil at the Washout Lagoon Soil OU. A ROD was also signed for the Deactivation Furnace OU.

In FY93, the Army and regulators signed two RODs for no further action at two landfills. In FY94, the installation completed Phase I of the bioremediation program for explosives-contaminated soil in the washout lagoon and stabilized lead-contaminated soil from the deactivation furnace. It also transferred its conventional weapons mission to another installation. The commander formed a BRAC cleanup team (BCT) and converted the installations technical review committee to a Restoration Advisory Board.

In FY95, the installation completed RODs for the Groundwater (GW) OU, the Bomb Washout Plant OU, the Miscellaneous Sites OU, and the Ammunition Demolition Activity Area (ADA) OU. The Army completed the remedial design (RD) for groundwater treatment and soil stabilization at the Miscellaneous Sites OU, the ADA OU, and the Bomb Washout Plant OU. The RD for the GW OU addressed a 350-acre plume contaminated with explosives.

In FY96, the Army completed a lead-based paint assessment and bioremediation of 10,000 cubic yards of explosives-contaminated soil. In FY97, the Army began operating a groundwater treatment facility and completed remediation of contaminated soil for the ADA OU, the Miscellaneous Sites OU, and the Bomb Washout Plant OU.

In FY98, the installation completed landfill closure and capping and geophysical mapping. It also removed all remaining underground storage tanks and converted them to aboveground propane tanks.

In FY99, the installation completed an environmental baseline survey and a finding of suitability to lease for the lease of 100/200 Series warehouses. It also completed the remedial action (RA) report for the Bomb Washout Plant OU. BRAC cleanup plan version 5 and the statement of work for additional soil sampling at the ADA OU sites were completed. The Army completed a depotwide 5-year review, with a recommendation to continue the groundwater pump-and-treat systems operation.

In FY00, the installation completed ADA OU supplemental soil sampling.

FY01 Restoration Progress

The BCT conducted informal dispute resolution regarding the 60 percent design document for the supplemental soil cleanup in the ADA OU (Site 19). The Army completed the 100 percent design and prepared an explanation of significant differences (ESD) for the ADA ROD. Geophysical mapping of the Quality Assurance Function Range (Site 39) was completed. The cost of completing environmental restoration at this installation increased significantly due to estimating criteria issues.

Informal dispute resolution delayed fieldwork for additional soil remediation at Site 19 until spring 2002. The groundwater RA report was delayed until completion of the pump-and-treat optimization study. Informal dispute resolution with EPA Region 10 delayed the Function Range intrusive investigation and clearance.

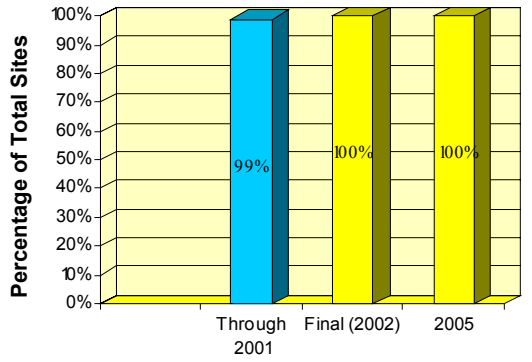
Military Munitions Response Program Progress

The Military Munitions Response program is new this fiscal year. Previously, response activities related to unexploded ordnance (UXO) have occurred in support of reuse. In FY98 the installation completed an engineering sampling analysis report for UXO in the ADA OU. In FY00, the installation concluded dispute resolution with EPA Region 10 regarding the ADA OU UXO issues. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete groundwater RA report in FY02
- Complete Function Range intrusive investigation and clearance in FY02
- Complete RA report for ADA OU in FY02
- Complete additional soil remediation at ADA OU (Site 19)
- Complete 5-year review
- Complete UXO cleanup negotiations with EPA in FY04

BRAC Sites Achieving RIP or RC Per Fiscal Year



Vint Hill Farms Station

Vint Hill Farms, Virginia

BRAC 1993

FFID:	VA321382093100	**Contaminants:**	Metals, cyanide, VOCs, petroleum hydrocarbons, PCBs, photographic wastes, and asbestos
Size:	696 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Provide logistical support for assigned signals intelligence and electronics warfare weapon systems and equipment; provide communication jamming and intelligence fusion material capability	**Funding to Date:**	$9.3 million
		Estimated Cost to Completion (Completion Year):	$3.0 million (FY2003)
		Final RIP/RC Date for BRAC-ER Sites:	FY2003
HRS Score:	NA	**Final RIP/RC Date for ER Sites:**	FY1999
IAG Status:	None	**Five-Year Review Status:**	NA

Progress to Date

In 1993, the BRAC Commission recommended closure of Vint Hill Farms Station. The commission required the relocation of the maintenance and repair functions of the Army Communications-Electronic Command (CECOM), Intelligence Material Management Center (IMMC) to Tobyhanna Army Depot, Pennsylvania. The commission also directed the transfer of the remaining components of IMMC and other CECOM elements to Fort Monmouth, New Jersey. The other non-CECOM activities were relocated primarily to Fort Belvoir, Virginia. The installation officially closed on October 1, 1997. To date, 691 acres have been transferred.

During the 1940s and 1950s, Vint Hill Farms Station served as a training center for Signal Corps personnel and as a refitting station for signal units. In FY90, a preliminary assessment (PA) identified 26 sites, including underground storage tanks (USTs), landfills, lagoons, storage areas, pit areas, fire training areas, disposal areas, spill sites, areas with asbestos-containing materials, lead-based paint areas, and transformers containing polychlorinated biphenyls (PCBs). The installation conducted removal actions for USTs, contaminated soil, and PCB-containing transformers. In FY90, soil and groundwater sampling revealed petroleum and solvent contamination.

In FY94, an enhanced PA identified 16 additional sites, 12 of which required no further action (NFA). The installation formed a BRAC cleanup team and completed the final CERFA report and an environmental baseline survey.

In FY95, the Army completed a land reuse plan and submitted it to the regulatory agencies for approval. The installation initiated a remedial investigation and feasibility study (RI/FS) for the Phase I reuse area identified by the local redevelopment authority and began an environmental impact statement (EIS). The installation also formed a Restoration Advisory Board.

In FY96, the Army completed a final site inspection report identifying 24 sites for further investigation. In FY97, the Army recommended four areas requiring environmental evaluation (AREEs) for remediation and the remaining AREEs for NFA. Regulators approved the recommended interim remedial actions (IRAs) for the four AREEs slated for remediation, and the Army prepared proposed plans for these actions.

In FY98, the Army submitted the final Phase I RI report and the draft Phase II RI report to the regulatory agencies for review. It also recommended and completed IRAs for three AREEs and began an FS for AREE 1, the former landfill. The Army issued the final EIS and Record of Decision.

In FY99, the installation completed five decision documents for Phase I RI sites, the first finding of suitability to transfer (FOST) for the associated 686 acres (of a total 696 acres), and the transfer by deed. It also completed the Phase II RI/FS report, which recommended three AREEs for remediation.

In FY00, the installation completed the Phase II FS and remedial design (RD) for active sites. AREE 1 (Dump #1) RD and remedial action activities were also completed.

FY01 Restoration Progress

The installation successfully completed the work plan for groundwater investigation at AREE 34. In addition, Phase II activities for three restoration sites were completed. The installation also completed Phase II decision documents, the Phase II FOST, and the Phase II property transfer. The cost of completing environmental restoration at this installation increased significantly due to technical issues.

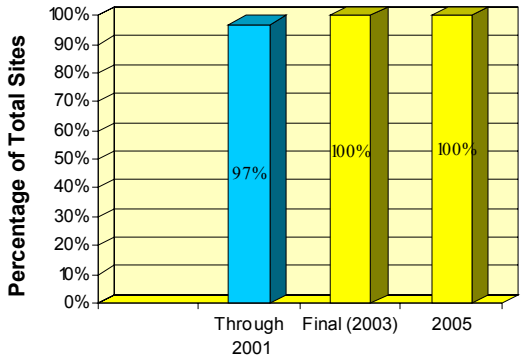
Military Munitions Response Program Progress

The Army has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete the decision document for AREE 34 in FY02
- Complete the FOST for former autocraft shop, former AFFES station, and IMMIC station in FY03
- Transfer former autocraft shop, former AFFES station, and IMMIC station in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Warminster Naval Air Warfare Center Aircraft Division

Warminster Township, Pennsylvania

NPL/BRAC 1991

FFID:	PA317002454500	**Contaminants:**	VOCs, heavy metals, firing range wastes, fuels, industrial wastewater and sewage sludges, nonindustrial solid wastes, paints, and PCBs
Size:	817 acres		
Mission:	Perform research, development, testing, and evaluation for naval aircraft systems and antisubmarine warfare systems; perform associated software development	**Media Affected:**	Groundwater and soil
		Funding to Date:	$21.1 million
		Estimated Cost to Completion (Completion Year):	$24.2 million (FY2030)
HRS Score:	57.93; placed on NPL in October 1989	**Final RIP/RC Date for BRAC-ER Sites:**	FY2001
IAG Status:	Federal facility agreement signed in September 1990	**Five-Year Review Status:**	Completed

Progress to Date

In July 1991 and July 1995, the BRAC Commission recommended that Warminster Naval Air Warfare Center Aircraft Division be realigned and closed. The installation closed in March 1997.

In FY79, metals and volatile organic compounds (VOCs), primarily trichloroethene (TCE) and tetrachloroethane, were detected in local groundwater wells. Studies have identified nine sites, eight of which were recommended for further investigation. Site types include waste burn pits, sludge disposal pits, landfills, waste pits, and a fire training area.

In FY93 and 1994, the installation signed a Record of Decision (ROD) for Operable Unit (OU) 1. The installation also began remedial design and completed groundwater remedial investigation and feasibility study (RI/FS) activities for eight sites. A BRAC Cleanup Team was established. In FY95, the installation completed a remedial action (RA) for residential wells contaminated with TCE and completed a BRAC cleanup plan (BCP) and a Phase I environmental baseline survey (EBS).

The Navy installed temporary treatment systems at each affected well and worked with EPA and the local water authority to provide public water service to affected residential areas. In FY96, groundwater RI/FS activities at Site 9 were completed. The installation also completed an RA at OU3 and started long-term management (LTM).

In FY98, the installation issued a final RI report for Area D sources. Fieldwork was completed and draft reports issued for EBS Phase II work, including risk assessments. The installation initiated a removal action at Area A (Site 1). Supplemental investigations for Site 5 and suspected trenches were initiated. The BCP was updated. The draft Phase II RI/FS for media other than groundwater was completed.

In FY99, the Navy and EPA signed an explanation of significant differences for the groundwater in Area C. A removal action was completed, and the Navy and EPA signed a no further action (NFA) ROD for soil, surface water, and sediment at Site 8. In addition, the Navy completed a source removal at Sites 1, 2, and 3. An EBS for transfer (EBST) and draft findings of suitability to transfer (FOSTs) for the public benefit conveyance (PBC) and the economic development conveyance (EDC) parcels for Phase I were prepared.

In FY00, a final NFA ROD was signed for soil, surface water, and sediment at Site 4 (OU6). Final no-action RODs were also signed for Areas B and D and Site 5. RODs were signed for Area A and Sites 6 and 7. The Operating Properly and Successfully documentation for Areas A, C, and D groundwater was completed, and concurrence was received. EBSTs and FOSTs for the remaining PBC and EDC parcels were completed.

The installation's technical review committee, formed in FY88, was converted to a Restoration Advisory Board in FY94. The installation also completed a community relations plan and established an administrative record in FY94.

FY01 Restoration Progress

The installation consolidated perimeter and off-base monitoring with LTM of the extraction well network. This is collectively known as the performance monitoring of the remedial action operations. On-base and off-base wells that were no longer needed were abandoned. The installation monitored and maintained groundwater treatment systems, a soil cap, and erosion and excavation controls. A 5-year review was conducted. A pump-and-treat optimization study was completed.

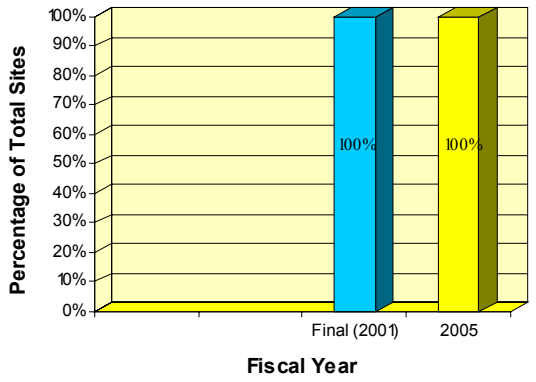
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Maintain groundwater treatment systems; soil cap; and erosion, excavation, and institutional controls in FY02
- Complete CERCLA 5-year review in FY02
- Conduct perimeter and off-base monitoring according to the long-term performance monitoring plan in FY02
- Conduct sampling of groundwater treatment system in FY02
- Continue to optimize treatment system through evaluation of data in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Washington Navy Yard

Washington, DC

NPL

FFID:	DC317002431000	**Contaminants:**	PCBs, pesticides, solvents, and metals
Size:	63 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Provide resources, including administrative space, housing, training facilities, logistical support, and supplies, for Washington Navy Yard tenants and other assigned units	**Funding to Date:**	$18.0 million
		Estimated Cost to Completion (Completion Year):	$11.9 million (FY2022)
		Final RIP/RC Date for ER Sites:	FY2013
		Five-Year Review Status:	NA
HRS Score:	48.57; placed on NPL in July 1998		
IAG Status:	Federal facility agreement signed in June 1999		

Progress to Date

Investigations at the Washington Navy Yard (WNY) have identified 18 sites, and 3 leaking underground storage tank (UST) sites. Contaminants released from past storage and disposal operations at the installation may have migrated into shallow and deep aquifers and the Anacostia River. A RCRA consent order, signed in July 1997, has been added into WNY's federal facility agreement (FFA), which was signed in June 1999. A site management plan (SMP) for WNY is under review by the regulatory agencies.

WNY's SMP outlines all projects and schedules governed by the FFA. Work plans were developed and reviewed for a RCRA facility investigation of basewide groundwater and Site 16, a former dive shop area.

In FY99, the installation completed a time-critical removal action for Site 16, which contained mercury-contaminated soil. A final closure report for the site was completed and submitted to the EPA. The engineering evaluation and cost analysis for Site 10 was finalized. The fieldwork for an investigation of sites 4, 6, and 14 and a groundwater operable unit began. A CERCLA SMP was submitted to EPA, Washington, DC (EPA/DC). A corrective action plan for two UST sites at WNY, Buildings 111 and 71, was submitted for approval.

In FY00, the installation completed a human health risk assessment (HHRA) for soil at Site 16. A removal site evaluation report was submitted for Sites 7, 11, and 13. A technical memorandum summarizing the river sediment sampling results was completed and submitted to EPA/DC. A remedial investigation (RI) was initiated for soil at Site 5. Follow-up sampling for sites 4, 6, and 14 and a groundwater operable unit was conducted. A screening-level ecological risk assessment (ERA) for sites 4, 6, and 14 and sample data for the groundwater operable unit investigation were submitted. An internal Navy draft RI report was submitted for Site 16. Repairs and replacements to the base storm sewer system continued. Master project plans were submitted to EPA/DC.

The WNY Restoration Advisory Board (RAB) meets bimonthly and has participated in relative risk ranking activities for the facility. A community relations plan (CRP) was developed. The RCRA CRP was incorporated into the FFA to meet community relations requirements.

FY01 Restoration Progress

The installation completed a data gap investigation for the RI report regarding the groundwater operable unit and Sites 4, 6, and 14. The draft HHRA and ERA were also submitted for review and comment. The RI report for Site 16 was submitted for review. The evaluation of 10 areas of concern (AOCs) was completed, and a report detailing the remaining requirements was approved. The sites that required further investigation were combined with the current site screening areas (SSAs), and an SSA work plan was submitted for comment. The Phase II RI, which includes the 11 remaining sites, began. The final master project plans were submitted and approved. Storm sewer rehabilitation was completed.

The submission of the RI report on the groundwater operable unit and Sites 4, 6, and 14 was delayed by regulator inquiry. The closure report for storm sewer rehabilitation was not submitted due to a delay in obtaining information about other construction occurring on base.

The RAB continued to meet regularly.

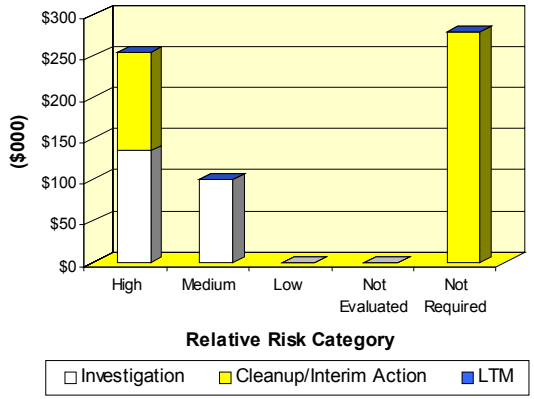
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Submit final Site 16 RI and draft FS in FY02
- Submit RI for Sites 4, 6, and 14 to regulators in FY02
- Submit RI work plan and conduct fieldwork for 11 sites in FY02
- Submit SSA report to determine whether any sites will require an RI in FY02
- Submit final Site 16 FS and draft proposed remedial action plan and ROD in FY03
- Submit draft FS for Sites 4, 6, and 14 in FY03
- Submit RI for remaining 11 sites in FY03
- Start RI for any new sites from the SSA report in FY03

FY02 Funding by Phase and Relative Risk



West Virginia Ordnance Works

Point Pleasant, West Virginia

NPL

FFID:	WV39799F346100	**Funding to Date:**	$57.2 million
Size:	2,704 acres	**Estimated Cost to Completion (Completion Year):**	$23.8 million (FY2030)
Mission:	Manufactured TNT	**Final RIP/RC Date for ER Sites:**	FY2017
HRS Score:	35.72; placed on NPL in September 1983	**Final RIP/RC Date for MMRP Sites:**	FY1994
IAG Status:	First IAG signed in September 1987; second IAG signed in July 1989	**Five-Year Review Status:**	Completed
Contaminants:	TNT, DNT, and organic compounds		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

From 1941 to 1946, West Virginia Ordnance Works manufactured TNT from toluene, nitric acid, and sulfuric acid. By-products of the manufacturing process included TNT, DNT, and organic compounds, which were released into groundwater, soil, surface water, and sediment. Principal sites include TNT manufacturing areas, wastewater sewer lines, and wastewater ponds known as the "red and yellow water ponds."

Preliminary assessments and site inspections (SIs) in FY81 and FY82 identified two operable units (OUs). The property is now divided into 13 OUs. OU13 is the Pantasote area; EPA has the lead on this OU. From FY88 to FY93, contaminated soil was capped in the TNT manufacturing area. Caps for the ponds and the reservoir (OUs 2 and 3) were completed, and the installation began remedial investigation and feasibility study (RI/FS) activities at OUs 8, 9, and 11. The U.S. Army Corps of Engineers (USACE) began operation's and maintenance and long-term management (LTM) for OUs 1, 2, and 3.

In FY94, the site management plan for the former installation was completed. Expanded SIs (ESIs) began. USACE removed 546 tons of hazardous material from the TNT manufacturing area and backfilled open pits and manholes.

In FY95, USACE completed asbestos removal actions in the acids area and in two powerhouses and performed building demolition. USACE began quarterly LTM of the adjacent Point Pleasant and Camp Conley municipal water supply wells. Potentially Responsible Party efforts were initiated for OU7. During FY96, USACE submitted a risk assessment and an RI report to EPA Region 3 and started an FS for OUs 8, 9, and 11.

In FY97, USACE completed construction of the groundwater extraction and treatment system and submitted a remedial action (RA) report for OU4. The final alternatives analysis report for OU5 and the final baseline risk assessment for OUs 10, 11, and 12 were submitted to EPA. In addition, USACE presented a draft FS for OU10, a draft risk evaluation for ESI 3, and a proposed plan (PP) for OU11. A draft no-action Record of Decision (ROD) was developed for OU11.

During FY98, USACE completed a sitewide groundwater model and converted the technical review committee to a Restoration Advisory Board. Draft PPs were completed for OU10.

In FY99, the OU1 burning ground investigation and the PP for OU12 were completed. An FS for OU4 alternatives analysis was completed. A removal action was initiated at ESI 8. A UST confirmation study was completed.

In FY00, USACE submitted the PP for the OU5 and OU2 ROD amendment. Final decision documents (DDs) were completed for ESIs 3, 5, 7, and 8. The OU4 corrective action remedial design was completed. UST removal at ESI 6 was completed, and site closure was approved. USACE completed construction of 30 acres of aquatic and wetland habitat for mitigation and began filling ponds. EPA approved the 5-year review report. The final OU11 ROD was approved.

FY01 Restoration Progress

Based on additional samples of surface soil, PPs for OU10 and OU12 were developed. The PP for OU12 was completed. A contract was awarded for revising the human health risk assessment for ESI 1, OU8, and OU9. Groundwater issues for ESI 9 were resolved and a DD was signed. Pilot study discharge points for OU4 were approved and pump-and-treat facilities were operated for the entire year. The DD for ESI 10 was completed, and the inventory project report for two new projects was revised. LTM was completed. Ponds 7 and 11 were filled for wetland mitigation. The estimated cost of completing environmental restoration at this installation has changed significantly because of technical issues.

Additional surface and groundwater sampling at ESI 6 was delayed due to limited funding. The DD for ESI 4 was delayed due to the discovery of TNT in groundwater. The ROD amendment for OU5 was delayed pending completion of an IRA.

Formal partnering was implemented with USACE, EPA, and West Virginia Department of Environmental Protection, including Tier II review.

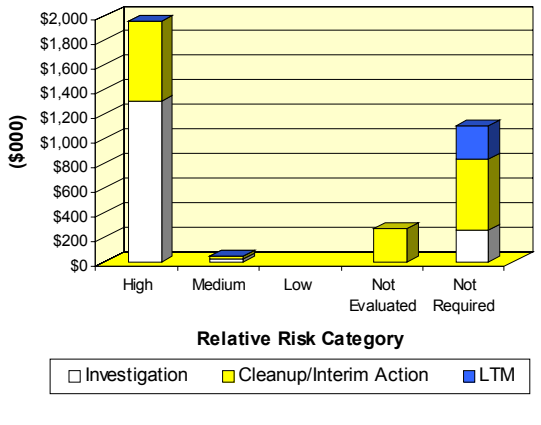
Military Munitions Response Program Progress

In FY97, an archive search report was completed, and a declaration of No Defense Action Indicated was issued.

Plan of Action

- Complete removal actions at OU5 and OU1 burning grounds in FY02
- Complete ROD for OU12 in FY02
- Continue LTM per plan in FY02 and FY03
- Transfer OU11 property to State of West Virginia in FY02
- Complete supplemental sampling at ESI 6 in FY02 and sign DD in FY03

FY02 Funding by Phase and Relative Risk



Whidbey Island Naval Station
Ault Field and Seaplane Base

Oak Harbor, Washington

NPL

FFID:	WA017002336100	**IAG Status:**	Federal facility agreement signed in September 1990
Size:	7,000 acres	**Contaminants:**	Chlorinated solvents, PCBs, and PAHs
Mission:	Training and operations center for two squadrons; Center for U.S. Marine Corps and Navy Reserve training in the Pacific Northwest	**Media Affected:**	Groundwater, surface water, sediment, and soil
		Funding to Date:	$85.2 million
		Estimated Cost to Completion (Completion Year):	$49.0 million (FY2031)
HRS Score:	39.64 (Seaplane Base); placed on NPL in February 1990; delisted in 1995 48.48 (Ault Field); placed on NPL in February 1990	**Final RIP/RC Date for ER Sites:**	FY2004
		Five-Year Review Status:	Planned

Progress to Date

Whidbey Island Naval Air Station occupies four areas on Whidbey Island, Washington: Ault Field, Seaplane Base, Coupville Outlying Field, and Lake Hancock Target Range. The Seaplane Base and Ault Field were placed on the National Priorities List (NPL) in February 1990. Past disposal practices from aircraft maintenance, vehicle maintenance, public works shop activities, and fire fighting training activities have contributed to contamination.

Investigations initially identified 52 sites at the installation, which were grouped into five operable units (OUs). Between 1993 and 1996, five Records of Decision (RODs) were developed. No sites were identified at Coupville. Oversight of Lake Hancock was delegated to the State of Washington and a site hazard assessment was initiated. Thirty-six underground storage tank (UST) sites were not covered by the RODs.

In FY90, the Navy signed a federal facility agreement for Ault Field and Seaplane Base. Two additional sites were later recommended for a remedial investigation and feasibility study (RI/FS) because of soil and groundwater contamination. Removal actions were recommended for seven sites.

UST removal actions and interim remedial actions were conducted at the installation from FY91 to FY95. In FY94, the installation conducted corrective actions at 16 UST sites. In FY95, the installation completed RI/FS activities at OU3. A ROD for OU3 was signed and a remedial design (RD) was completed for OU5. Remedial actions (RAs) were completed at two other OUs, and additional USTs were removed. A landfill cap, a pump-and-treat system, and a groundwater injection system were constructed to control the groundwater contamination from OU1, Area 6, which was threatening the water supply of private landowners. Five soil and groundwater treatment systems were installed at sites in OUs 2, 4, and 5. The Seaplane Base (OU4) was deleted from the NPL and from the state's Hazardous Sites List.

During FY96, the installation completed an RA for contaminated sediment at the OU3 runway ditches. A ROD was signed for OU5, and one UST was closed. In FY97, the installation completed the RD and the RA for three sites at OU5. The landfill cap also was completed. RODs for three sites were signed, and RDs for two sites were completed.

In FY98, operations and maintenance and long-term management (LTM) were conducted at OUs 1, 2, 4, and 5. The joint 5-year review for OUs 1, 2, 3, and 5 was completed. In FY99, a project to upgrade pump-and-treat system controls, and a natural attenuation (NA) study were initiated at OU1, Area 6.

In FY00, soil removal at OU2 was completed, and a closure report was prepared. EPA proposed delisting all sites in OUs 2, 3, and 5 and transferring lead-agency responsibility to the state. A closure report for Lake Hancock was submitted to the state. Confirmation sampling at Site 31, OU5, was completed, and a closure report was submitted to EPA.

In FY94, the installation converted its technical review committee to the Navy's first Restoration Advisory Board. The community relations plan was last updated in FY96.

FY01 Restoration Progress

Interim removal actions were conducted at newly identified sources of contamination (Site 55, oil and acid pits) on OU1. Treatment operations and groundwater monitoring continued at OU1 and OU5. The installation continued supporting EPA in its proposed delisting of Ault Field OUs 2, 3, and 5 from the NPL.

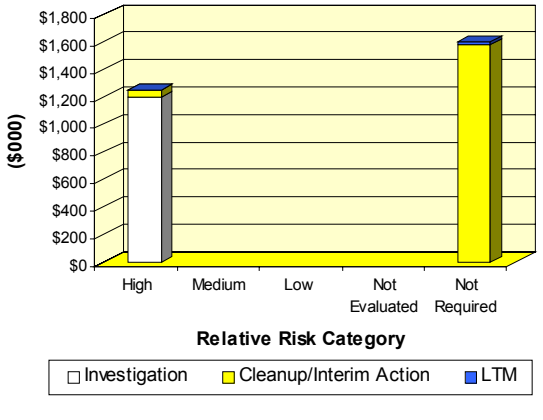
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Complete 5-year review in FY02
- Continue treatment operations at OU1 and OU5 in FY02–FY03
- Support EPA in delisting Ault Fields OUs 2, 3, and 5 in FY02–FY03
- Complete RI/FS at Site 55 (new site in Area 6) in FY02–FY03
- Develop an explanation of significant differences for all OUs in FY02–FY03

FY02 Funding by Phase and Relative Risk



White Oak Naval Surface Warfare Center — *Silver Spring, Maryland* — BRAC 1995

FFID:	MD317002344400	**Media Affected:**	Groundwater, surface water, sediment, and soil
Size:	710 acres	**Funding to Date:**	$28.8 million
Mission:	Research, develop, test, and evaluate ordnance technology	**Estimated Cost to Completion (Completion Year):**	$5.6 million (FY2011)
		Final RIP/RC Date for BRAC-ER Sites:	FY2004
HRS Score:	NA	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	Explosive compounds, waste oil, PCBs, heavy metals, VOCs, and SVOCs		

Progress to Date

In July 1995, the BRAC Commission recommended closure of White Oak Naval Surface Warfare Center. The facility closed in July 1997.

Past activities at the installation included landfill disposal of oils, polychlorinated biphenyls (PCBs), solvents, paint residue, and other chemicals (including mercury); disposal of chemical research wastewater in dry wells; burning of explosive ordnance; and composting of sludge. Records also indicate that a radium spill occurred. Contaminants of concern are volatile organic compounds (VOCs), PCBs, cadmium, chromium, lead, mercury, nickel, and ordnance compounds.

Studies identified 14 sites, 7 of which required no further action (NFA) after the preliminary assessment. Site inspections (SIs) were completed in FY87. A fence was installed around the apple orchard landfill site due to PCB-contaminated surface soil. In FY89, a RCRA facility assessment identified 97 solid waste management units (SWMUs) and 19 areas of concern (AOCs). Thirty-eight SWMUs required further investigation.

The installation completed the remedial investigation and feasibility study (RI/FS) phase for seven sites in FY93 and began remedial design (RD) for six sites in FY94. In FY96, the installation formed a BRAC cleanup team (BCT); completed RDs for Sites 8, 9, and 11; and completed an environmental baseline survey. In FY97, the installation finished interim remedial actions (IRAs) for Sites 8, 9, and 11; completed several underground storage tank removals; and initiated RI/FS for Sites 7 and 9.

In FY98, IRAs were initiated at Sites 1, 4, 28, and 46. A new removal action was initiated at Site 46, and the installation completed an SI at the site. A basewide background study and site screenings of AOC 100 and 10 sites in AOC 1 were accomplished. The installation began a basewide explosives survey and basewide storm and sanitary sewer investigations.

In FY99, a draft RCRA facility investigation of Sites 2, 3, 4, 7, 8, 9, and 11 and a draft site screening report for AOC 2 for initial screening were completed. An inflow and infiltration study for SWMUs 46 and 48 and a removal action at Site 46 were initiated. Draft engineering evaluations and cost analyses for Sites 1, 4, 28, and 33 and a removal action at Sites 4 and 33 were completed. Removal actions were completed at Sites 4 and 33. The Site 28 scrap yard was surface cleaned, and an RI report was initiated.

In FY00, RDs for Site 1 and 2 consolidation and capping were initiated. The Site 3 removal action was carried out. A draft Operable Unit (OU) 1 RI report was approved. An exterior explosives survey was completed. An interim removal action at the centrifuge was expanded. Final delineation of bedrock aquifer contamination at Site 11 was initiated. Delineation of PCB contamination was initiated at Site 28 and for stream sediment behind Building 90. A draft corrective measures study (CMS) for Site 11 was approved; the final CMS is in preparation. A draft proposed plan (PP) for Site 11 was also written. Partnering efforts continued.

The installation's technical review committee, formed in FY89, was converted to a Restoration Advisory Board (RAB) in FY96. The installation established an administrative record, an information repository, and a community relations plan in FY94.

FY01 Restoration Progress

The proposed remedial action plan and RODs were completed for Sites 1 and 2, and remedial action (RA) is under way. Further investigations were carried out at Sites 3, 9, 11, 26, 27, and 28 and OU1. The basewide ecological risk assessment was completed. A draft PP was prepared for Site 8. A removal action at Site 3 was completed. The cost of completing environmental restoration at this installation increased significantly due to technical issues and costs associated with demilitarization and disposal of inert ordnance–related objects collected during RAs.

Sites 10 and 14 require removal of contaminated soil based on Navy Radiological Affairs Support Office determination. Basewide explosives remediation was delayed to accommodate regulatory review of reports. Finalization of the OU1 RI report and completion of the FS were delayed due to regulatory concerns. The RA for Site 28 and the stream behind Building 90 was prolonged because the sites required more remediation than initially anticipated. RODs for Sites 4, 11, and 33 soil were delayed by lengthy regulatory reviews and potential concerns. Partnering efforts continued. Five RAB meetings and two community meetings were held.

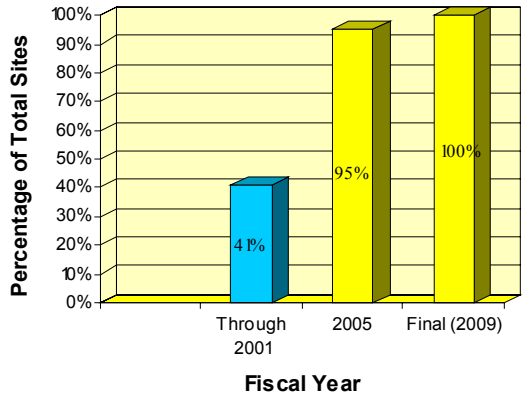
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Finalize site screening report for AOC 2 sites and document NFA determination for 20 of the 29 AOC 2 sites in FY02
- Complete NFA RODs for Site 11 soils and Site 8 in FY02
- Complete ROD for Site 7 in FY02
- Complete removal actions for Sites 10, 14, and 28 and the ditch behind Building 90 in FY02
- Hold BCT meetings every 6 to 8 weeks and quarterly RAB meetings in FY02–FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year

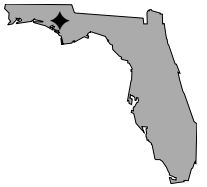


Whiting Field Naval Air Station

Milton, Florida

NPL

FFID:	FL417002324400	**Funding to Date:**	$28.4 million
Size:	3,842 acres	**Estimated Cost to Completion (Completion Year):**	$21.5 million (FY2031)
Mission:	Train student naval aviators	**Final RIP/RC Date for ER Sites:**	FY2007
HRS Score:	50.00; placed on NPL in May 1994	**Five-Year Review Status:**	Planned
IAG Status:	Federal facility agreement under negotiation		
Contaminants:	Pesticides, PCBs, VOCs, heavy metals, and chlorinated hydrocarbons		
Media Affected:	Groundwater, surface water, sediment, and soil		



Progress to Date

Studies at this installation, beginning in FY85, identified sites at Naval Air Station (NAS) Whiting Field and the Outlying Landing Field (OLF) Barin. Site types include disposal areas and pits, storage areas, spill areas, landfills, a disposal and burning area, a maintenance area, underground storage tanks (USTs) and fuel pits, fire training areas, and drainage ditches. There are 39 CERCLA sites.

In FY87, Site 5 was determined to require no further action (NFA). In FY89, remedial investigation and feasibility study (RI/FS) activities began for most sites. In FY92, soil contaminated with mercury, lead, and methylene chloride was detected at the OLF Barin. In FY94, the installation completed a baseline risk assessment for the OLF Barin and a baseline risk assessment work plan for the NAS. In FY95 and FY96, the installation completed RI/FS activities and closed four sites at the OLF Barin.

Chlorinated hydrocarbon contamination was detected, and 19 tanks were identified at six UST sites. Between FY92 and FY95, removal actions were completed for all USTs and associated soil, two UST sites were closed, and a corrective action plan (CAP) was completed for one UST site.

In FY97, cleanup of five sites was completed and the sites closed at OLF Barin. Two of the sites required NFA, two required interim removal actions, and one required a remedial action. At the NAS, groundwater was isolated as a separate site, enabling the installation to finish field investigations at 13 sites. Clear Creek and off-base migration received preliminary investigation. A large UST site was investigated. The NAS completed a CAP and began a remedial design for one UST site.

In FY98, RI reports were written for nine sites at NAS, FS reports were written for two sites, and a proposed plan (PP) and a draft Record of Decision (ROD) were written for one site. Field investigations were finished at six sites. The installation completed an RI/FS for Site 122, previously Site 22, at the OLF Barin.

In FY99, RI reports were completed for 11 sites, draft RI reports were written for 6 sites, interim remedial actions (IRAs) were completed at 4 sites, and FS reports and PPs were completed for 3 sites. RODs were signed for Sites 1 and 2, and a memorandum of agreement for land use controls (LUCs) was signed. NFA letters were completed for Sites 36 and 37. An instruction on LUCs was signed for the OLF Barin. Petroleum-contaminated soil cleanup was conducted along an abandoned fuel pipeline.

In FY00, the draft federal facility agreement (FFA) for the installation was reviewed and commented on by all parties. Long-term management (LTM) continued for Site 2894. Field investigation was completed at the seven remaining sites. IRAs were initiated at three sites. Design of a solar remediation system pilot study for Site 4, North AVGAS (aviation gas) tank sludge disposal area, was completed.

The NAS formed a technical review committee (TRC) in FY89. The installation's community relations plan (CRP) was updated in FY95. NAS formed a TRC for the OLF Barin in FY92; the OLF Barin's CRP was completed in FY93. In FY95, both TRCs were converted to Restoration Advisory Boards.

FY01 Restoration Progress

A solar remediation system (pilot study) for Site 4 NAS, North AVGAS tank sludge disposal area, was installed. Initial design/construction of the remediation system at UST 000002, previously Site 1438, is under way. Monitoring started at one and continued at two sites, an IRA was initiated at one site, and the Navy signed RODs for six sites. Continuing implementation of land use controls (LUCs) and use of existing paving or concrete to serve as caps have resulted in most sites requiring no further remediation. This resulted in a significant reduction in the overall cost of restoration

The FFA signing is on hold pending resolution of HQ EPA and DoD issues related to post ROD authority and language.

The RAB voted to have a quarterly newsletter and to meet annually rather than quarterly, thereby saving money and gaining better information distribution.

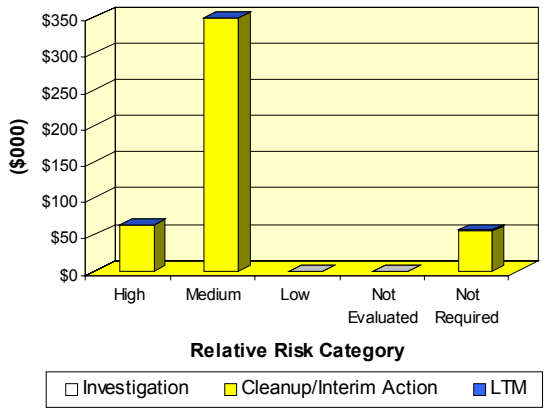
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Initiate three IRAs at Installation Restoration Program (IRP) sites in FY02
- Continue monitoring for IRP Sites 1, 2, 3, 4, 6, 30, 32, and 33 and UST 000005 in FY02–03
- Start 5-year review for IRP Sites 1 and 2 in FY03
- Conduct remediation system remedial action operations at UST 000002 in FY03

FY02 Funding by Phase and Relative Risk

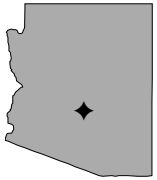


Williams Air Force Base

Mesa, Arizona

NPL/BRAC 1991

FFID:	AZ957002858200	**Funding to Date:**	$44.9 million
Size:	4,042 acres	**Estimated Cost to Completion (Completion Year):**	$28.9 million (FY2051)
Mission:	Supported pilot training and ground equipment maintenance	**Final RIP/RC Date for BRAC-ER Sites:**	FY2003
HRS Score:	37.93; placed on NPL in November 1989	**Five-Year Review Status:**	Completed
IAG Status:	Federal facility agreement signed in 1990		
Contaminants:	VOCs, POLs, heavy metals, and pesticides		
Media Affected:	Groundwater and soil		



Progress to Date

In July 1991, the BRAC Commission recommended closure of this installation. The installation closed September 30, 1993.

Before base closure, environmental studies identified 15 sites. These sites were consolidated into three operable units (OUs). In FY93, an environmental assessment of 30 additional areas resulted in creation of two more OUs, including 17 new Installation Restoration Program (IRP) sites. OU1 contains 10 sites, OU2 is the liquid fuels storage area, OU3 consists of Fire Protection Training Area No. 2 (FT-02) and a collapsed stormwater line, OU4 contains 9 sites, and OU5 contains 9 sites. A sixth OU, the old pesticide/paint shop, was created by consensus statement.

Interim remedial actions (IRAs) included removal of buried containers, contaminated soil, and 12 underground storage tanks (USTs). In FY93, a Record of Decision (ROD) was signed for OU2 and the installation began remedial design (RD) and remedial action (RA) activities. Soil at OU2 is being treated by soil vapor extraction (SVE). An environmental baseline survey was also completed.

In FY94, a ROD was signed for OU1, and all known USTs and oil-water separators were removed. A free-product extraction system was installed at IRP Site ST-12 (OU2). The installation formed a BRAC cleanup team and a Restoration Advisory Board, and the community relation's plan was revised.In FY95, the installation removed a UST from the airfield site and removed stained-soil areas, drums, and asbestos-containing material from the concrete hardfill site. Risk assessments were prepared for two sites, and decision documents recommending no further action were prepared for five sites at OU5. The installation also completed a feasibility study (FS), a proposed plan (PP), and a draft ROD for OU3. At OU1, a landfill cap was installed.

In FY96, a ROD was signed for OU3. Treatability studies (TSs) of free-product removal, natural attenuation, bioventing, and SVE were initiated at OU2. The installation completed remedial investigations (RIs) at OU4 and OU5. Oil-contaminated soil at the civil engineering yard was removed.

In FY97, an OU3 TS addressing vadose zone contamination and an engineering evaluation and cost analysis were completed. RD activities began. The ROD for OU5 was signed. The latest version of the BRAC cleanup plan was completed.

In FY98, a focused FS (FFS) for the liquid fuels storage area (ST-12) was initiated. An FS and a PP were completed for OU4, resulting in lead removal, disposal, and capping at the South Desert Village housing area. Investigations at SS-17 (old pesticide/paint shop) showed no contamination in groundwater and no unacceptable risks to human health. A risk assessment at FT-02 showed that no further action at the site was required. The Air Force and EPA agreed that no further testing for pesticides was required at the Williams golf course.

In FY99, RIs to address the tetrachloroethene and trichloroethene contamination at LF-04 were initiated. Groundwater contamination in SS-17 was detected and the FS was modified to address this detection.

In FY00, the signature process for the OU4 ROD was completed. The regulatory process for the OU3 ROD amendment and discussions on the OU2 FFS and ROD amendment are under way.

FY01 Restoration Progress

The follow-on RI for LF-04 was submitted. The 5-year review was completed. Regulator comments on the OU3 ROD amendment were addressed, and the ROD amendment will follow the OU6 ROD. An action memorandum was signed and the IRA was completed for OU6.

The ROD signature for OU6 was delayed, pending resolution of issues regarding institutional controls. The OU2 FFS and the ROD amendment were delayed due to regulator comments. Partial deletion from the National Priorities List (NPL) was delayed due to higher priorities.

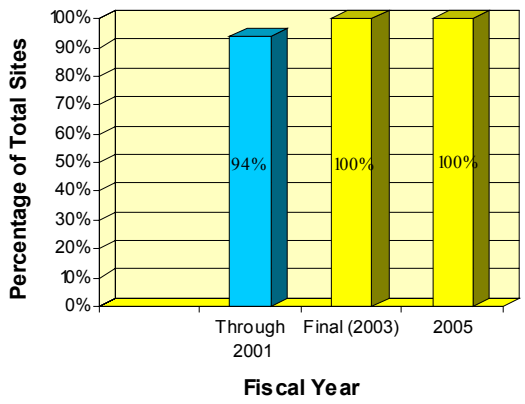
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory for unexploded ordnance has been completed; no ordnance was found.

Plan of Action

- Complete OU3 ROD amendment in FY02
- Complete OU6 ROD in FY02
- Complete OU2 FFS in FY02 and ROD in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Williamsburg FISC–Cheatham Annex — *Yorktown, Virginia* — NPL

FFID:	VA3170024605	**Funding to Date:**	$2.7 million
Size:	1,578 acres	**Estimated Cost to Completion (Completion Year):**	$21.1 million (FY2013)
Mission:	Supply Atlantic Fleet ships and provide recreational opportunities to military and civilian personnel	**Final RIP/RC Date for ER Sites:**	FY2013
		Five-Year Review Status:	NA
HRS Score:	48.72; proposed for NPL in February 2000		
IAG Status:	NA		
Contaminants:	SVOCs, PAHs, metals, PCBs		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Williamsburg Fleet Industrial Supply Center (FISC) was proposed for placement on the National Priorities List (NPL) in February 2000 because eight Installation Restoration Program (IRP) sites are hydrologically connected to the Chesapeake Bay. Contaminants at the installation include semivolatile organic compounds (SVOCs), polyaromatic hydrocarbons (PAHs), metals, and polychlorinated biphenyls (PCBs). These primarily affect ground water, surface water, and sediment.

An initial assessment study (IAS) of Williamsburg FISC was performed in FY84. Since the IAS, 12 sites and 5 areas of concern (AOCs) have been identified. To date, Sites 1, 4, 7, 9, 10, and 11, and AOCs 1 and 2 have been investigated.

Confirmation studies of Sites 1, 9, 10, and 11 were performed in FY87. Final site inspections (SIs) and final site screening process reports for these sites were completed in FY92 and FY97, respectively. Control of Williamsburg FISC was transferred to Naval Weapon Station (WPNSTA) Yorktown in October 1998. Since its realignment, Williamsburg FISC has also been referred to as the Cheatham Annex Site at WPNSTA Yorktown. In FY99, a comprehensive site management plan was developed and a draft final no further response action planned decision document was prepared for Site 9.

In FY00, field investigations of Site 4, Site 7, AOC 1, and AOC 2 were completed and ecological investigations were initiated at Site 1. A time-critical removal action for Site 1 was conducted in January 2000 to address erosion of the landfill perimeter.

The WPNSTA Yorktown Restoration Advisory Board addressed IRP issues for Williamsburg FISC.

FY01 Restoration Progress

The remedial investigation and feasibility study (RI/FS) for Site 1 was conducted. A limited removal action for AOC 2 was performed; this site will be reassessed to further define limits of contamination. The cost of completing environmental restoration at this installation has increased significantly due to additional sampling information and the re-estimation of costs based on different assumptions and escalation factors.

The ecological risk assessment (ERA) for all sites was delayed due to reprioritization. The ERA will now focus on Sites 1, 4, and 9. The investigation of Penniman Shell Loading Plant has been delayed while the project is divided into more manageable sites to better focus investigations.

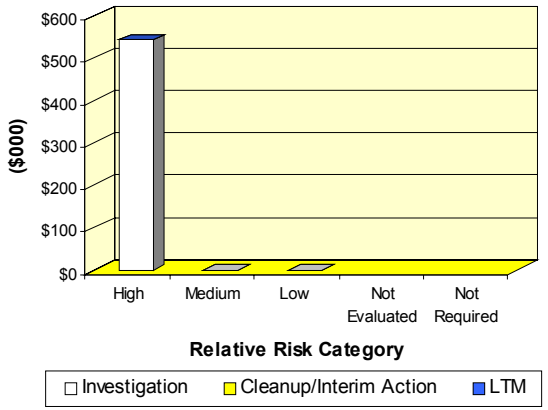
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Conduct interim removal action at Site 1 and finalize RI/FS in FY02
- Conduct RI/FS at Site 11 in FY02
- Continue ecological assessment for three sites in FY02–FY03
- Sign Record of Decision for Site 1 and begin final remedial action in FY03
- Start long-term management of Site 1 in FY03

BRAC Sites Achieving RIP or RC Per Fiscal Year



Willow Grove Air Reserve Station

Willow Grove, Pennsylvania

NPL

FFID:	PA357122534900	**Funding to Date:**	$3.4 million
Size:	210 acres	**Estimated Cost to Completion (Completion Year):**	$1.3 million (FY2005)
Mission:	Train personnel for air transport and evacuation activities	**Final RIP/RC Date for ER Sites:**	FY2010
HRS Score:	50.00; placed on NPL in October 1995	**Five-Year Review Status:**	NA
IAG Status:	None		
Contaminants:	VOCs, chlorinated solvents, and jet fuel		
Media Affected:	Groundwater, sediment, and soil		

Progress to Date

The primary mission of the 913th Airlift Wing at the Willow Grove Air Reserve Station (ARS) is to train personnel for various air transport and air evacuation activities, to operate base facilities and air terminals, and to provide support to assigned units. In support of its primary mission of training aircraft personnel and operating base facilities, the installation has stored, used, and disposed of various types of hazardous materials during its history.

Industrial activities at the installation include aircraft maintenance, base civil engineering, and fuel storage. Aircraft maintenance operations involve the full range of repair and maintenance activities for aircraft and aerospace ground equipment. Base civil engineering operations involve generation of waste solvents; oils; miscellaneous chemicals; and paints from various shops, including a paint shop, plumbing shop, photography lab, carpentry shop, and several flammable-material storage facilities. Fuel storage operations currently include the bulk storage of jet propulsion fuel (JP-8). In FY94, the base discontinued use of Jet Propulsion Fuel 4 (JP-4).

In FY84, a Phase I records search was completed and seven Installation Restoration Program sites were identified. In FY88, a remedial investigation report was completed for three sites. No further remedial action planned (NFRAP) decision documents (DDs) for Sites SS-02 and OT-03 were submitted to EPA and the Pennsylvania Department of Environmental Protection (PADEP) for review. In FY89, a feasibility study was completed for ST-01.

In FY90, a remedial action (RA) Record of Decision (ROD) for Site ST-01 was completed by the Air Force. Site inspections (SIs) for Sites SD-04, SS-05, OT-06, and OT-07 were completed.

During FY92 and FY93, extended SI studies at Site SD-04 were completed, a NFRAP DD for Site SD-04 was submitted to EPA and PADEP, and three remedial design memorandums were completed for Site ST-01. A soil vapor extraction system was installed at Site ST-01 and operated until October 1994. In FY95, Willow Grove ARS was added to the National Priorities List.

In FY97, the light nonaqueous phase liquid characterization preliminary design report for ST-01 was issued. The EPA Region 3 contractor reviewed NFRAP documentation for six sites at the installation.

In FY98, EPA requested further investigation to characterize soil at Sites SS-05, SS-02, OT-06, and OT-07 and sediment at Site OT-03. The final work plan for the SD-04 source identification study was approved by the Air Force Reserve. The source identification study for SD-04 was submitted to EPA and PADEP for review. The installation implemented an aerobic bioremediation pilot study at Site ST-01.

In FY00, the installation conducted a screening-level evaluation of natural attenuation (NA) and a review of remedial alternatives for Site ST-01. Additional site investigation at Sites SS-02, OT-03, SD-04, SS-05, OT-06, and OT-07 was required based on comments from EPA.

FY01 Restoration Progress

The installation completed the evaluation of NA and the review of remedial alternatives for Site ST-01. The data indicated that NA was not effective at containing contamination. A supplemental site investigation, requested by EPA, was completed at Sites SS-02, OT-03, SD-04, SS-05, OT-06, and OT-07. No further action is recommended at these sites. Removal action soil sampling at Site OT-03 indicated that the remaining contaminant concentrations are not of concern. The cost of completing environmental restoration has changed significantly at this installation because of technical issues.

Closure memorandums for Sites SS-02, OT-03, SD-04, SS-05, OT-06, and OT-07 were delayed for EPA and state concurrence.

The Restoration Advisory Board (RAB) met quarterly.

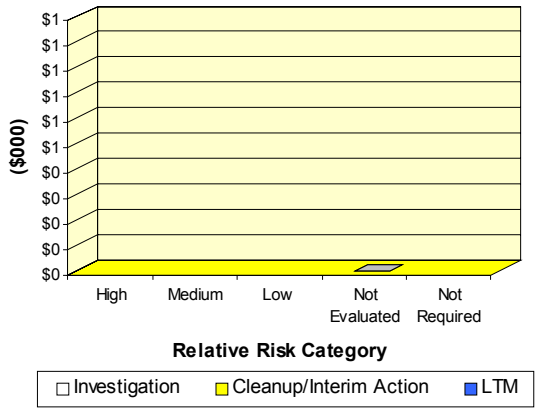
Military Munitions Response Program Progress

The Air Force has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Evaluate, design, and pilot test a remedial system that will use in situ chemical oxidation to treat the on-base source area, and enhanced in situ bioremediation to treat the off-base source-area of Site ST-01 in FY02
- Hold quarterly RAB meetings in FY02
- Perform baseline sampling to update the conceptual site model and continue the nonuse aquifer determination in FY02
- Complete RA construction Phase I at Site ST-01 in FY03
- Complete RODs for Sites SS-02, OT-03, SD-04, SS-05, OT-06, and OT-07 in FY03

FY02 Funding by Phase and Relative Risk



Willow Grove Naval Air Station Joint Reserve Base

Willow Grove, Pennsylvania

NPL

FFID:	PA317002231200	**Funding to Date:**	$5.8 million
Size:	1,090 acres	**Estimated Cost to Completion (Completion Year):**	$10.5 million (FY2024)
Mission:	Serve as Reserve naval air station for aviation training activities	**Final RIP/RC Date for ER Sites:**	FY2011
		Five-Year Review Status:	NA
HRS Score:	50.00; placed on NPL in September 1995		
IAG Status:	Federal facility agreement under negotiation		
Contaminants:	Heavy metals, PCBs, POLs, and solvents		
Media Affected:	Groundwater, surface water, sediment, and soil		

Progress to Date

Studies at this installation identified 11 CERCLA sites and 2 RCRA sites. Site types include landfills, underground storage tanks (USTs), and a fire training area. Decision documents (DDs) recommending no further action (NFA) have been submitted for five sites.

In FY86, preliminary assessments were completed for nine sites. Five of these sites were recommended for further investigation because of potential contamination of surface water and groundwater. In FY90, all nine sites were included in a site inspection (SI), along with a new site (Navy fuel farm [Site 10]). An expanded SI was recommended for Site 7 because of trace levels of methylene chloride. DDs recommending NFA for Sites 4, 6, 7, 8, and 9 were submitted to EPA Region 3. In FY92, two 210,000-gallon USTs were removed from Site 10.

In FY93, a remedial investigation (RI) for Sites 1, 2, 3, and 5 recommended a Phase II RI and feasibility study (FS). In FY95, a Phase II RI work plan was issued for these four sites, and 6,000 cubic yards of soil was removed from Site 10.

During FY97, a draft site management plan was completed. In FY98, a draft Phase II RI report was submitted to regulators for review.

In FY99, the Navy decided to break up the installation restoration sites and submit four separate Phase II RI documents. An interim remedial action (IRA) for polychlorinated biphenyl (PCB)–contaminated soil at Site 1 was completed. Approximately 1,100 tons of soil was removed.

In FY00, the installation continued operation of the light nonaqueous phase liquids (LNAPL) recovery system at Site 10. A basewide water-level study was also completed. Navy completed pump replacement on two production wells that are in the vicinity of Site 1 and supply potable and emergency water to the Willow Grove facility. This project also allowed the Navy to obtain valuable analytical data for Site 1 groundwater, as requested by EPA. Additional fieldwork was completed at Site 5.

The installation formed a technical review committee in FY90. In FY91, it established an administrative record and an information repository. In FY95, the installation established a Restoration Advisory Board (RAB), which meets regularly. A community relations plan was developed in FY97.

FY01 Restoration Progress

The installation continued operation of the LNAPL recovery system at Site 10. The cost of completing environmental restoration at this installation has changed significantly due to estimating criteria and technical issues.

The FS for groundwater remediation at Site 5 was delayed until completion of the RI report. The NFA Record of Decision (ROD) was not submitted for Site 1 soil because it was decided that RODs would not be issued until the federal facility agreement was in place. Construction at Site 5 of the groundwater remedy (as an IRA) was delayed due to competing funding priorities. The submission of the focused version of Phase II RI for Site 2, recommending NFA, was delayed by site reprioritization.

Two RAB meetings were held.

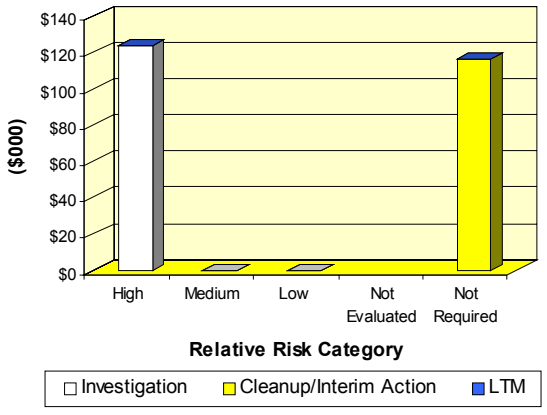
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Finalize FS report for Site 5 in FY02
- Finalize proposed remedial action plan and ROD for the groundwater remedy for Site 5 in FY02
- Prepare NFA ROD for Site 1 in FY03
- Complete CERCLA documentation for Site 2 in FY03
- Prepare NFA ROD for Site 2 in FY03

FY02 Funding by Phase and Relative Risk



Wright-Patterson Air Force Base — *Dayton, Ohio* — NPL

FFID:	OH557172431200	**Funding to Date:**	$181.3 million
Size:	8,511 acres	**Estimated Cost to Completion (Completion Year):**	$40.0 million (FY2028)
Mission:	Serve as host to many organizations, including headquarters to Air Force Materiel Command	**Final RIP/RC Date for ER Sites:**	FY2003
		Five-Year Review Status:	Completed/ Planned
HRS Score:	57.85; placed on NPL in October 1989		
IAG Status:	IAG signed in March 1991		
Contaminants:	Waste oil and fuels, acids, plating wastes, and solvents		
Media Affected:	Groundwater and soil		

Progress to Date

Past activities at Wright-Patterson Air Force Base (WPAFB) created spill sites and unlined waste disposal areas, including landfills, fire training areas, underground storage tanks, earth fill disposal areas, and coal storage areas. Investigations identified 68 sites. Soil and groundwater have been contaminated with volatile organic compounds; semivolatile organic compounds; and benzene, toluene, ethyl benzene, and xylene compounds. Fire training exercises conducted in unlined pits contaminated soil and groundwater with fuel and its combustion by-products. In FY97, two new sites, Contaminated Groundwater Area A/C and Contaminated Groundwater Area B, were added to address commingled groundwater plumes and to expedite source area site closure.

In FY89, the installation began remedial investigation (RI) and feasibility study activities for 39 sites. In FY92, it completed a removal action along the installation boundary to intercept and treat contaminated groundwater flowing toward well fields in the city of Dayton.

In FY94, a Record of Decision (ROD) for Landfills 8 and 10 was approved and the remedial design (RD) for capping the landfills was completed. An engineering evaluation and cost analysis and a removal action plan for all landfills were approved by the regulatory agencies.

In FY95, the installation began constructing a remedial action at Landfills 8 and 10 and constructed a cap for Landfill 5. A Restoration Advisory Board was formed. In FY96, a ROD was completed for 21 sites that required no further action. RD was initiated for Landfills 1 through 4, 6, and 7.

In FY97, RIs were completed at the remaining 16 sites in Operable Units 8, 9, and 11. A bioslurper was installed and began operating at Fuel Spill Site 5. A natural attenuation ROD for Fuel Spill Sites 2, 3, and 10 was completed. A landfill cover was completed at Landfill 11.

In FY98, a final ROD was completed for 40 Installation Restoration Program sites. Landfill caps were installed at Landfills 1, 2, 6, 7, and 9, and a french drain was installed at Spill Site 11. In FY99, a ROD was signed for groundwater. A treatability study (TS) was initiated to determine the effectiveness of in situ chemical oxidation in treating the vinyl chloride plume. A removal action was completed at Heating Plant 5, and Phase I of monitoring-well abandonment began. A draft delisting petition was prepared for the soil portion of the base. A new source of tricholorethene (TCE) contamination was discovered at a facility slated for demolition. The Agency for Toxic Substances and Disease Registry conducted a public heath assessment, which concluded that WPAFB poses "no apparent public health hazard" and that all mitigating actions are in place to prevent human exposure to contaminants.

In FY00, site inspection (SI) at Building 20059 was completed, and one known source of TCE was removed from the site. A preliminary assessment (PA) was completed at Building 20079, and the report and the SI work plan were submitted to the regulatory agencies. A TS for in situ oxidation for the TCE plume was completed. A 5-year review was completed.

FY01 Restoration Progress

The installation continued system operations and maintenance (O&M) and long-term management (LTM) activities. Phase II well abandonment resulted in 80 wells being abandoned. Restoration oversight of the demolition of Building 20059 was accomplished, removing approximately 300 tons of TCE-contaminated soil. The SI at Building 20079 is under way. Preliminary data were sent to the regulators, and the building was demolished.

Permit requirements delayed the use of the bioslurper to remove contaminated free product at the petroleum/oil/lubricant (POL) storage area. Phase III well abandonment was delayed due to a realignment of priorities.

A partnership was formed between the installation and stakeholders to accomplish the successful site investigation, cleanup, and demolition of Building 20059.

Military Munitions Response Program Progress

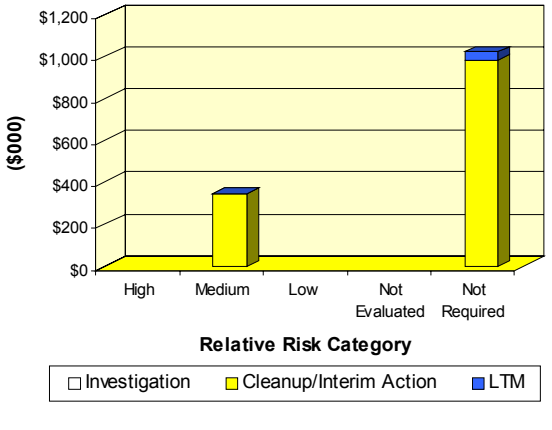
In FY01, a comprehensive range inventory was initiated. This inventory was designed to be an annual, iterative effort. To supply data for the inventory, a detailed questionnaire was completed that collected data on the types of munitions used, the range's environmental status, and the type and level of external stakeholder interest.

Munitions response and range cleanup actions have been delayed, pending funding availability and guidance refinement. As funding becomes available and guidance is refined, ranges will be cleaned up based on risk to human health and the environment.

Plan of Action

- Continue system O&M and LTM activities in FY02
- Conduct PA/SI at Building 20055 in FY02
- Conduct Phase III of well abandonment in FY02
- Conduct supplemental floating-product recovery using a bioslurper at the POL storage area in FY02
- Complete SI at Building 20079 in FY02

FY02 Funding by Phase and Relative Risk



Wurtsmith Air Force Base

Oscoda, Michigan

Proposed NPL/BRAC 1991

FFID:	MI557002427800	**Funding to Date:**	$44.1 million
Size:	4,626 acres	**Estimated Cost to Completion (Completion Year):**	$21.7 million (FY2031)
Mission:	Conducted tactical fighter and bomber training	**Final RIP/RC Date for BRAC-ER Sites:**	FY2003
HRS Score:	50.00; proposed for NPL in January 1994	**Five-Year Review Status:**	Planned
IAG Status:	None		
Contaminants:	Jet fuel and waste oil, spent solvents, VOCs		
Media Affected:	Groundwater and soil		

Progress to Date

In July 1991, the BRAC Commission recommended closure of Wurtsmith Air Force Base, transfer of KC-135 aircraft to the Air Reserve component, retirement of the assigned B-52G aircraft, and inactivation of the 379th Bombardment Wing. The installation closed on June 30, 1993.

Sites at the installation include a waste solvent underground storage tank (UST), bulk storage areas for petroleum/oil/lubricants (POL), aboveground storage tanks (ASTs), fire training areas, landfills, and an aircraft crash site. Volatile organic compounds (VOCs) at the installation include trichloroethene, dichloroethene, vinyl chloride, benzene, toluene, ethyl benzene, and xylenes, all of which primarily affect groundwater.

The installation provided drinking water to potentially affected communities in the area. Air strippers were installed to treat groundwater contaminated with VOCs. Remedial actions (RAs) included implementation of three groundwater extraction and treatment systems. The installation's BRAC cleanup team developed a BRAC cleanup plan.

In FY95, supplemental environmental baseline surveys were completed. Draft feasibility studies (FSs) were completed for seven sites, and the installation obtained regulatory concurrence on nine sites designated for no further action. In addition, the installation conducted Relative Risk Site Evaluations at all sites. An RA for removal of eight USTs and most of the piping for the hydrant refueling system also was completed. Interim actions (IAs) included removal of the hydrant refueling system and closure of five oil-water separators. The installation also installed groundwater monitoring wells.

During FY96, the installation removed 38 USTs and 10 ASTs and dismantled three large bulk fuel tanks. Two of the three sewage treatment plant lagoons were closed and the sludge removed. The installation also submitted No Further Remedial Action Planned decision documents (DDs) for seven sites. Bioventing was implemented at the former POL storage yard to degrade semivolatiles in the soil.

In FY97, through the Restoration Advisory Board, the installation gained stakeholder concurrence on its remedial action plan (RAP) for LF30/31. Field investigations at Landfills 62 and 63 indicated that no further action is required. In FY98, investigations were completed for 7 sites and 31 areas of concern (AOCs). Intrinsic remediation monitoring systems were completed for ST-41, SS-42, and SS-51. Air-sparging and soil vapor extraction wells were installed at SS-06 and SS-08. Regulatory concurrence was obtained on a draft report for two landfills.

In FY99, the remedial design (RD) for OT-24 was completed. An IA was executed to remove groundwater-discolored sand from the beachfront of the off-base YMCA camp. New free-product recovery pumps at the benzene plant removed several thousand gallons of fuel (JP-4) from the water table.

In FY00, the FS and the DD for LF30/31 were completed. Construction of an RA system for OT-24 was initiated, and construction of two additional purge wells at the benzene pump-and-treat system at SS-06 was completed. The installation obtained regulator and Air Force concurrence on DDs for 8 Installation Restoration Program sites and 12 AOCs. A draft of the consolidated RAP document was reviewed.

FY01 Restoration Progress

The installation completed construction of the OT-24 RA system. Construction of RA systems at FT-02, LF30, and LF31 also was completed. The contract for the RD for SS-57 was awarded, and the design was partially completed. The optimization study for the RA systems was completed. The RA system at SS-08 was shut down because the RA goals were met.

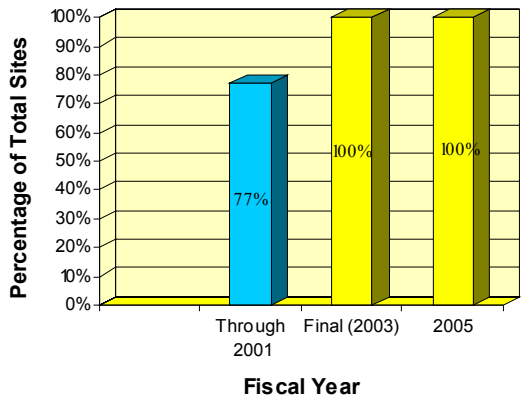
Military Munitions Response Program Progress

In FY93, the Air Force completed an unexploded ordnance (UXO) removal action over 20 acres of the installation. The removal action included several different types of UXO.

Plan of Action

- Complete and submit basewide RAP to the Michigan Department of Environmental Quality (MDEQ) in FY02
- Complete supplemental RI at Sites LF-27, LF-23, WP-04, and POI-20 in FY02
- Complete and submit addendum to basewide RAP for Sites LF-27, WP-04, LF-23, and POI-20 to MDEQ in FY02
- Shut down bioventing system at SS-06 in FY02
- Complete RD and attain Response Complete status for RA system at SS-57 in FY02

BRAC Sites Achieving RIP or RC Per Fiscal Year



Yorktown Naval Weapons Station — *Yorktown, Virginia* — NPL

FFID:	VA317002417000	**Contaminants:**	Acids, asbestos, explosives, cadmium, lead, mercury, nickel, paint thinners, solvents, PCBs, varnishes, and waste oil
Size:	10,624 acres	**Media Affected:**	Groundwater, surface water, sediment, and soil
Mission:	Provide ordnance technical support and related services; provide maintenance, modifications, production, loading, off-loading, and storage for the Atlantic Fleet	**Funding to Date:**	$33.7 million
		Estimated Cost to Completion (Completion Year):	$20.8 million (FY2011)
HRS Score:	50.00; placed on NPL in October 1992	**Final RIP/RC Date for ER Sites:**	FY2011
IAG Status:	Federal facility agreement signed in September 1994	**Five-Year Review Status:**	Planned

Progress to Date

Since FY84, studies at Yorktown Naval Weapons Station have identified 50 sites. No further action (NFA) has been recommended for 13 sites. The installation was placed on the National Priorities List (NPL) primarily because of six sites that are hydrologically connected to the Chesapeake Bay. Contaminants include explosive nitramine compounds and primarily affect groundwater, surface water, and sediment.

Between FY84 and FY93, the installation completed an initial assessment study for 19 sites, a confirmation study for 15 sites, and a site inspection (SI) for 1 site. During FY93, the installation completed an initial site characterization for all four underground storage tank (UST) sites. A corrective action plan was completed. During FY94, a remedial investigation (RI) and a feasibility study (FS) were completed for one site and removal actions were completed for three sites. The installation completed an SI for one solid waste management unit (SWMU). A comprehensive site management plan also was completed. The installation initiated a treatability study (TS) for treatment of explosives-contaminated soil.

In FY95, corrective actions were completed for USTs 1 and 2. The installation completed an SI for three SWMUs, completed an RI, and signed a Record of Decision (ROD) for NFA for two sites and one SWMU. During FY96, the installation completed an SI for eight SWMUs. An RI/FS was completed and remedial design was initiated for another site. Three fire training pits and associated contaminated soil, a UST and piping, and underwater ordnance items were removed from two SWMUs.

In FY97, RI/FSs were completed for four sites. The installation completed TSs for one site and began remedial action (RA) for one site. SIs were completed at four SWMUs/site screening areas (SSAs). Early actions took place at two SSAs.

In FY98, an anaerobic bioslurry biocell technology was used to treat 1,200 cubic yards of explosives-contaminated soil. An RA was completed at one site, and long-term management was initiated. RAs were initiated for three sites. An additional biotreatment technology was used to remediate soil contaminated with explosives and listed hazardous waste.

In FY99, RODs were signed for four sites. RAs were initiated at three sites and two SSAs and completed at two sites and one SSA. RI/FS activities were initiated at four sites and completed at two sites. All field investigations of the SSAs were completed. Removal actions were completed at two SSAs.

In FY00, the installation signed RODs for two sites. RA was initiated at two sites and completed at three sites and one SSA. Interim remedial action (IRA) Phase I was completed, and Phase II began, at one site. An RI/FS was completed at two sites.

A technical review committee, formed in FY91, was converted to a Restoration Advisory Board in FY95. A community relations plan was also completed in FY95. The installation received several environmental security awards for environmental cleanup, including SNO Base and Team Winner, SECNAV Base and Team Winner, and DoD Team Winner and Base Honorable Mention.

FY01 Restoration Progress

The installation continued IRA efforts for Site 6, as planned. Groundwater monitoring was conducted at six sites. The RI/FS for three sites is in progress. The estimated cost of completing environmental restoration at this installation has changed significantly because of technical issues.

The RODs and RAs for Sites 4, 18, 21, and 22 were delayed by a dispute concerning land use control assurance plans. The Yorktown Partnering Team delayed RI/FSs for 10 sites and 1 SSA due to reprioritization. The finalization of site screening reports was rescheduled due to lengthy regulatory review.

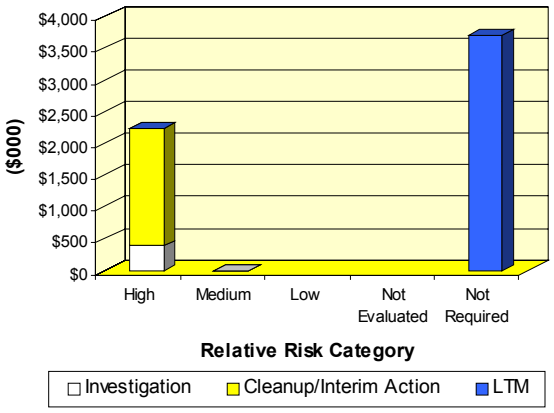
Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

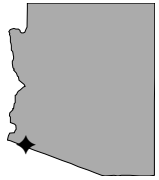
- Sign RODs for six sites and one SSA in FY02
- Finalize RI/FS for four sites in FY02
- Conduct Phase III of IRA at one site in FY02
- Begin groundwater operable unit RI in FY02
- Complete 5-year review in FY02
- Conduct groundwater monitoring at seven sites in FY02–FY03

FY02 Funding by Phase and Relative Risk



Yuma Marine Corps Air Station — *Yuma, Arizona* — NPL

FFID:	AZ917302449300	**Media Affected:**	Groundwater and soil
Size:	3,000 acres	**Funding to Date:**	$47.3 million
Mission:	Support tactical aircrew combat training for Pacific and Atlantic Fleet Marine Corps Forces	**Estimated Cost to Completion (Completion Year):**	$5.0 million (FY2007)
		Final RIP/RC Date for ER Sites:	FY2002
HRS Score:	2.24; placed on NPL in February 1990	**Five-Year Review Status:**	NA
IAG Status:	Federal facility agreement signed in January 1992		
Contaminants:	JP-5, petroleum hydrocarbons, SVOCs, trihalomethanes, and VOCs		



Progress to Date

Investigations conducted between FY85 and FY92 identified 20 CERCLA sites and 5 underground storage tank (UST) sites at Yuma Marine Corps Air Station. Site types include landfills, sewage lagoons, liquid waste disposal areas, and ordnance and low-level radioactive material disposal sites.

Under the station's federal facility agreement (FFA), sites were divided into three operable units (OUs): OU1, installationwide groundwater contamination; OU2, surface and subsurface soil contamination; and OU3, potential future sites.

In FY80, the installation removed sealed pipes containing low-level radioactive dials, gauges, and tubes from one site. It completed site inspections at 2 sites in FY88 and at 10 sites in FY91. In FY93, the installation removed 92 waste drums from a drum storage site. Initial site characterizations were completed at two UST sites in FY93 and one UST site in FY94. The installation also constructed three air-sparging and soil vapor extraction (AS/SVE) systems. The community relations plan was updated in FY94.

In FY95, the installation completed a corrective action plan (CAP) at one UST site. The draft remedial investigation (RI) report for OU1 and the RI report for OU2 were submitted for regulatory approval. The installation converted its technical review committee to a Restoration Advisory Board.

In FY96, field investigations at OU3 and RIs for OUs 1 and 2 were completed. A draft proposed plan (PP) for OU2 was submitted. Fifty UST site assessments were performed at UST Units 2, 3, and 4. Approximately 40 USTs became candidates for clean closure.

In FY97, six USTs were closed and draft CAPs for four others were completed. A removal action and a closeout report were completed for UST B1040. Feasibility studies were completed for OU1 and OU2, and a draft PP was completed for OU1.

In FY98, approximately 8 million gallons of groundwater was treated. Two full-scale UST systems using AS/SVE and free-product removal were implemented. The Arizona Department of Environmental Quality approved monitored natural attenuation (MNA) as the remedy for the motor transportation pool. Eight USTs were removed. The OU2 Record of Decision (ROD) was signed.

In FY99, the remedial action (RA) for OU2 was completed. Three Voluntary Environmental Mitigation Use Restrictions were submitted. The installation developed a long-term management (LTM) plan. CAPs for the gas station and the fuel farm were submitted.

In FY00, the installation finalized the ROD and implemented the RA for OU1. Active UST remediation was completed. The installation also submitted the work plan for implementation of the RA for the FFA assessment program. A closure letter was received from the Department of Toxic Substances Control for Site 4 in the Chocolate Mountains Aerial Gunnery Range, concurring with Navy's No Further Action determination. A closure letter was also received for all USTs in the fuel farm. The installation abandoned 35 existing monitoring wells and finalized the LTM plan.

FY01 Restoration Progress

The installation completed AS/SVE for the plumes in Areas 2, 3, and 6 of OU1. The RA for site closures under the FFA assessment program was completed. The OU1 ROD for Areas 1, 2, 3, and 6 was signed. The ROD includes two active groundwater remedial systems at Plume Area 1, which are currently operational at the hot spot and the facility boundary. LTM and institutional controls are in place for the remaining three plume areas. All 18 OU2 soil sites proceeded through the RI phase and ROD. Sites 4, 7, and 9 underwent remedial design and RA and received closure concurrence. The cost of completing environmental restoration at the installation decreased significantly because less technical work was deemed necessary than had been estimated in prior assessments and because a new contract resulted in substantial cost savings.

Military Munitions Response Program Progress

The Navy has identified no previous military munitions response work at this installation. An inventory of closed, transferred, and transferring ranges will be developed in the future.

Plan of Action

- Finalize the land use control implementation plan in FY02
- Complete a final document LTM for OU1 in FY02
- Operate and monitor the groundwater remedial systems at OU1 in FY02
- Continue monitoring Areas 2, 3, and 6 under MNA and institutional controls in FY02
- Continue LTM for OU1 in FY02–FY03

FY02 Funding by Phase and Relative Risk